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β -cell specific *E2f1* deficiency impairs glucose homeostasis, β -cell identity and insulin secretion

Frédéric Oger^{1, 11}, Cyril Bourouh^{1, 11}, Marika Elsa Friano^{2, 11}, Emilie Courty^{3, 11}, Laure Rolland³, Xavier Gromada¹, Maeva Moreno¹, Charlène Carney¹, Nabil Rabhi⁴, Emmanuelle Durand¹, Souhila Amanzougarene¹, Lionel Berberian¹, Mehdi Derhourhi¹, Etienne Blanc¹, Sarah Anissa Hannou¹, Pierre-Damien Denechaud^{5, 11}, Zohra Benfodda⁶, Patrick Meffre⁶, Lluis Fajas⁵, Julie Kerr-Conte⁷, François Pattou⁷, Philippe Froguel^{1, 8}, Benoit Pourcet⁹, Amélie Bonnefond^{1, 8}, Patrick Collombat² and Jean-Sébastien Annicotte^{3, 10,*}

¹ Univ. Lille, Inserm, CHU Lille, Institut Pasteur de Lille, CNRS, U1283 - UMR 8199 - EGID, F-59000 Lille, France

² Université Côte d'Azur, CNRS, INSERM, IBV, F-06000 Nice, France

³ Univ. Lille, Inserm, CHU Lille, Institut Pasteur de Lille, U1167 – RID-AGE-Facteurs de risque et déterminants moléculaires des maladies liées au vieillissement, F-59000 Lille, France

⁴ Department of Biochemistry, Boston University School of Medicine, MA02118 Boston, USA

⁵ Center for Integrative Genomics, Université de Lausanne, CH-1015 Lausanne, Switzerland

⁶ Univ. Nîmes, UPR CHROME, F-30021 Nîmes cedex 1, France

⁷ Univ. Lille, Inserm, CHU Lille, U1190 - EGID, F-59000 Lille, France

⁸ Department of Metabolism, Imperial College London, Hammersmith Hospital, London W12 0NN, UK

26 ⁹ Univ. Lille, Inserm, CHU Lille, Institut Pasteur de Lille, U1011 - EGID, F-59000 Lille,
27 France

28 ¹⁰ Lead contact

29 ¹¹ Contributed equally to this work

30 ¶ Present address: Inserm, UMR1297, Institute of Metabolic and Cardiovascular Diseases,
31 F-31000 Toulouse, France

32 * Correspondence : jean-sebastien.annicotte@inserm.fr (J.-S. A.)

33 INSERM UMR1167-RID-AGE (INSERM / Université de Lille / CHU de Lille / Institut
34 Pasteur de Lille) - Faculté de Médecine - Pôle recherche

35 1 place de Verdun - 59045 Lille Cedex - France

36 Phone: +33 (0)3 20 97 42 54

37

38 Running title: E2F1 and beta-cell identity

39 **Abstract**

40 The loss of pancreatic β -cell identity emerges as an important feature of type 2 diabetes
41 development, but the molecular mechanisms are still elusive. Here, we explore the cell-
42 autonomous role of the cell cycle regulator and transcription factor E2F1 in the maintenance
43 of β -cell identity, insulin secretion and glucose homeostasis. We show that the β -cell-specific
44 loss of *E2f1* function in mice triggers glucose intolerance associated with defective insulin
45 secretion, an altered endocrine cell mass, a downregulation of many β -cell genes and a
46 concomitant increase of non- β -cell markers. Mechanistically, the epigenomic profiling of
47 promoters of these non- β -cell upregulated genes identified an enrichment of bivalent
48 H3K4me3/H3K27me3 or H3K27me3 marks. Conversely, promoters of downregulated
49 genes were enriched in active chromatin H3K4me3 and H3K27ac histone marks. We find
50 that specific E2f1 transcriptional, cistromic and epigenomic signatures are associated with
51 these β -cell dysfunctions, with E2F1 directly regulating several β -cell genes at the chromatin
52 level. Finally, the pharmacological inhibition of E2F transcriptional activity in human islets
53 also impairs insulin secretion and the expression of β -cell identity genes. Our data suggest
54 that E2F1 is critical for maintaining β -cell identity and function through a sustained control
55 of β -cell and non β -cell transcriptional programs.

56
57 **Article Highlights**

- 58 • β -cell specific *E2f1* deficiency in mice impairs glucose tolerance.
- 59 • Loss of *E2f1* function alters α -to- β -cell ratio but do not trigger β -cell conversion into
60 α cells.
- 61 • Pharmacological inhibition of E2F activity inhibits glucose-stimulated insulin secretion
62 and alters β - and α -cell gene expression in human islets.
- 63 • E2F1 maintains β -cell function and identity through the control of transcriptomic and
64 epigenetic programs.

65

66 Introduction

67

68 Type 2 Diabetes (T2D) is a progressive metabolic disorder characterized by chronic
69 hyperglycemia due to inadequate pancreatic β -cell response to peripheral insulin resistance.
70 Usually, β -cells respond to obesity and aging-associated loss of insulin sensitivity by
71 increasing insulin secretion to compensate for rising glycemia. However, when insulin
72 secretion and action are imbalanced, the emerging chronic hyperglycemic state
73 progressively leads to massive β -cell dysfunction and decreased mass (1). Importantly,
74 single cell transcriptomic analysis of human pancreatic islet cells from T2D and healthy
75 individuals revealed the complex identity of endocrine cells associated with the
76 pathophysiology (2-4). In addition, recent studies demonstrated a loss of transcriptional
77 maturity (5) and cell-type-specific regulatory profiles underlying T2D pathogenesis (6).
78 Moreover, histology studies of human diabetic pancreata found a significant increase in bi-
79 hormonal Insulin+ (Ins+)/Glucagon+ (Glu+) cells suggesting an altered β -cell identity (7; 8).
80 Accordingly, recent studies using β -cell lineage tracing murine models have demonstrated
81 that islet cells can trans-differentiate directly toward another islet cell fate and/or de-
82 differentiate toward a progenitor-like cell (9). In this context, both genetic and epigenetic
83 mechanisms are important to maintain adult β -cell fate and function in mouse and human
84 (10-13). Yet, the molecular actors controlling β -cell mass, identity maintenance and cellular
85 plasticity still need to be identified.

86 Gene transcription and chromatin states are tightly regulated to ensure the
87 appropriate transcriptome for a specific cell type. Many transcription factors have been
88 identified as key regulators of β -cell identity and function, including Pdx1 (14), Pax6 (15),
89 Nkx6.1 (16) and Nkx2.2 (17). Interestingly, pleiotropic transcription factors are also involved
90 in the control of β -cell functions and glucose homeostasis, suggesting their important roles
91 in activating or repressing gene transcription. Amongst those, members of E2F transcription

92 factor (E2F1 to E2F8) family play critical roles in cell survival and proliferation, by regulating
93 the expression of genes involved in cell-cycle progression (18). The transcriptional activity
94 of E2F1, the founder member of the family, is regulated by several protein complexes
95 including the retinoblastoma tumor suppressor family (pRB, p107, p130), cyclin-dependent
96 kinases (such as CDK4) and their regulatory partner cyclins (Ccn), as well as the family of
97 the cdk inhibitors (CDKi, such as p16^{Ink4A} encoded by the *Cdkn2a* locus). Interestingly, the
98 role of the cell cycle machinery goes beyond the unique regulation of cell proliferation.
99 Indeed, modulating the expression levels of these cell cycle regulators revealed an
100 important role for these proteins in glucose homeostasis (19) and diabetes development
101 through the control of β -cell mass and function (20; 21). We and others have recently
102 identified a molecular crosstalk between E2f1/pRb and Glucagon-like peptide-1 (Glp-1)
103 pathways (22; 23). Although *E2F1* gene expression is decreased in human T2D islets (24),
104 the causal effect of *E2F1* deficiency on impaired β -cell mass, function and T2D development
105 is not elucidated. In particular, the cellular and molecular mechanisms underlying the
106 contribution of E2F1 as a transcription factor to β -cell identity and/or plasticity in mice and
107 humans remain unknown. We recently demonstrated that the germline deletion of *E2f1* in
108 the obese and diabetic *db/db* mouse model, despite lowering liver steatosis, does not protect
109 against diabetes or obesity (25). Interestingly, we observed decreased plasma insulin levels,
110 increased plasma glucose and glucose intolerance in *db/db::E2f1^{-/-}* mice compared to
111 *db/db::E2f1^{+/+}* controls (25). These metabolic alterations in a diabetic background raises the
112 possibility that *E2f1* may contribute to islet morphology, cell identity and function in a cell-
113 autonomous manner. To test this hypothesis, we generated mice lacking *E2f1* in β -cells and
114 identified that *E2f1* is mandatory to maintain β -cell identity gene expression in both mouse
115 models and human islets. By combining cellular and mouse models to pharmacological
116 approaches, we identify *E2f1* as a critical transcription factor necessary to maintain proper
117 β -cell gene expression and function, while repressing non β -cell transcriptional programs.

118 **Research design and methods**

119

120 A detailed description of the following procedures can be found in the Supplemental Material
121 section.

122 **Animal Experiments.** *In vivo* experiments were performed in compliance with the French
123 ethical guidelines for studies on experimental animals (animal house agreement no. A 59-
124 35015, Authorization for Animal Experimentation no.59-350294, project approval by our
125 local ethical committee no. CEEA 482012, APAFIS#2915-201511300923025v4). All
126 experiments were performed with male mice. *E2f1*^{-/-} (Jax Lab, stock number #002785),
127 *CMV-CDK4*^{R24C} (26), *Cdkn2a*^{-/-} (27), *db/db::E2f1*^{-/-} (25), *E2f1* floxed (*E2f1*^{flox/flox}, Taconic
128 Biosciences, NY, USA) and RIP-Cre^{+/+} mice were previously described (25; 28). MIP-CreERT
129 mice were obtained from Jax Lab (stock number #024709, (29)). For lineage tracing
130 experiments, Rosa26R-td-tomato (Jax Lab, stock number #007914) and Rosa26R-ECFP
131 (Gt(ROSA)26Sortm2(ECFP)Cos, (30)) mice were used. Intraperitoneal glucose and insulin
132 tolerance tests (ipGTT and ITT, respectively) were performed on 6, 8 and 12-week-old male
133 (*E2f1*^{fl/fl} and *E2f1*^{β^{-/-}}) or 5-month-old (*E2f1*^{fl/fl} and *E2f1*^{MIP-CreERT β^{-/-}}) littermates as previously
134 described (31) on 16-hr-fasted animals for ipGTT and 5-hr-fasted animals for ITT. Glycemia
135 was measured using the Accu-Check Performa (Roche Diagnostics). Circulating insulin
136 levels were measured using the mouse Insulin ELISA kit (Mercodia).

137

138 **Immunofluorescence, Immunohistochemistry and Morphometry.** Immunofluorescence
139 and immunohistochemistry were performed exactly as described previously (31). Briefly,
140 pancreatic tissues were fixed in 10% formalin, embedded in paraffin and sectioned at 5 μm.
141 For immunofluorescence microscopy analyses, after antigen retrieval using citrate buffer, 5-
142 μm formalin-fixed paraffin-embedded (FFPE) pancreatic sections were incubated with

143 primary antibodies as indicated. Immunofluorescence staining was revealed by using a
144 fluorescein-isothiocyanate-conjugated anti-rabbit (for cleaved caspase-3, Alexa-conjugated
145 anti-mouse (for glucagon), anti-rabbit (for Glut-2) or anti-guinea pig (for insulin) secondary
146 antibodies were used to identify specifically primary antibodies. Nuclei were stained with
147 Dapi (Sigma-Aldrich, D9542). For morphometric analysis, three to ten animals from each
148 genotype were analyzed, and images were processed and quantified using ImageJ software
149 by an observer blinded to experimental groups. Morphometric analysis including islet
150 density, β -cell fraction and mass was performed as previously described (32). β -cell size
151 was measured using immunofluorescent staining of pancreatic sections using an anti-Glut-
152 2 antibody (Merck, #07-1402-1) on 5 mice from each genotype and acquisition was done on
153 a Spinning disk confocal microscope (Zeiss). 20 islets per mice were analyzed, and 5 mice
154 from each genotype were used to analyze β -cell size. Quantification was then performed
155 using a custom-made script with ImageJ software (available upon request). β -cell
156 proliferation was measured using BrdU staining on FFPE pancreatic sections. Apoptosis
157 was quantified using an immunofluorescent staining using an anti-cleaved caspase 3.

158

159 **Cell Culture, Pancreatic Islet Studies and Pharmacological Treatments.** For mouse islet
160 studies, pancreata were digested by type V collagenase (Sigma-Aldrich, C9263; 1.5 mg/ml)
161 for 10 min at 37°C as described previously (31). Briefly, after digestion and separation in a
162 density gradient medium, islets were purified by handpicking under a microscope and
163 cultured during 16 hours before subsequent analysis. For expression studies, mouse
164 isolated islets were snap-frozen in liquid nitrogen before RNA extraction. Human pancreatic
165 tissues were harvested from brain-dead, non-diabetic adult human donors (see
166 Supplementary Table S1 for donor information). Isolation and islets culture were performed
167 as described (33). Human islets were treated for 48 hours with DMSO 0.1% or HLM006474
168 (34; 35) at 10 μ M. Data are expressed as a ratio of total insulin content. For mRNA and

169 protein quantification, human islets were isolated as described above and snap-frozen for
170 further processing. Min6 cells (AddexBio) were cultured in DMEM (Gibco) with 15% fetal
171 bovine serum, 100 mg/mL penicillin-streptomycin, and 55 mM beta-mercaptoethanol. Min6
172 cells were treated with HLM006474 (10 μ M) or DMSO 0.1% (35) for 48 hours before GSIS
173 assay or RNA extraction.

174

175 **RNA extraction, qPCR and RNA-Sequencing.** Total RNA was extracted from cells and
176 tissues using TRIzol reagent (Life Technologies) as described previously (22). mRNA
177 expression was measured after reverse transcription by quantitative real-time PCR (qRT-
178 PCR) with FastStart SYBR Green master mix (Roche) using a LightCycler Nano or LC480
179 instruments (Roche). qRT-PCR results were normalized to endogenous cyclophilin
180 reference mRNA levels. The results are expressed as the relative mRNA level of a specific
181 gene expression using the formula $2^{-\Delta Ct}$. The complete list of primers is presented in
182 Supplementary Table S2. For RNA sequencing, total RNA was extracted from Min6 cells or
183 pancreatic islets using the RNeasy Plus Microkit (Qiagen) following manufacturer's
184 instructions. Using a $P < 0.05$ adjusted for multiple comparisons as threshold for differential
185 gene expression analyses, we then performed pathway analysis using Ingenuity Pathway
186 Analysis (Ingenuity Systems, Qiagen), Metascape (36) and Gene Set Enrichment Analysis
187 (GSEA; <http://software.broadinstitute.org/gsea/>).

188

189 **Chromatin immunoprecipitation and ChIP-Sequencing.** ChIP experiments were
190 performed on formaldehyde-fixed Min6 cells. Briefly, 20×10^6 Min6 cells or 100×10^6 Min6
191 cells (for E2f1 ChIP-seq) were treated with formaldehyde at a final concentration of 1% to
192 crosslink DNA and protein complexes during 10 min. The reaction was stopped by the
193 addition of glycine (0.125 M) during 5 min. Cells were lysed and DNA-protein complexes
194 were sheared using the Bioruptor Pico (Diagenode, ref B01060010) for 8 minutes. The

195 sheared chromatin was immunoprecipitated with either the non-specific antibody IgG (Santa
196 Cruz, sc2025), H3K4me3 (Active motif, #61379), H3K27me3 (Active motif, #61017),
197 H3K27ac (Active motif, #39685) or anti-flag (Clone M2, Sigma-Aldrich). Further
198 bioinformatic analyses of the public data sets and those of this study were performed using
199 the open web-based platform Galaxy Europe (<https://usegalaxy.eu>). A list of ChIP-seq and
200 RNA-seq data sets used in this study can be found in Supplementary Table S3. A detailed
201 description of RNA-seq and ChIP-seq procedures can be found in the Supplemental
202 Material.

203

204 **Statistical Analysis.** Data are presented as mean \pm s.e.m. Data are derived from multiple
205 experiments unless stated otherwise. Statistical analysis was performed using a two-tailed
206 unpaired *t*-test or one-way or two-way ANOVA with Tukey's post hoc test comparing all
207 groups to each other, using GraphPad Prism 9.0 software. Differences were considered
208 statistically significant at $p < 0.05$ (* $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$).

209

210 **Data and Resource Availability.** The datasets and resource generated during and/or
211 analyzed during the current study are available from the corresponding author upon
212 reasonable request.

213 **Results**

214

215 **β -cell specific *E2f1* deficiency impairs glucose tolerance due to defective *in vivo***
216 **glucose-stimulated insulin secretion.**

217

218 To determine whether *E2f1* regulates insulin-producing β -cell fate and function in a cell-
219 autonomous manner, we generated β -cell specific *E2f1*-deficient mice by crossing *E2f1*
220 floxed (*E2f1^{fl/fl}*) with RIP-Cre (Rip-Cre⁺) mice (28). Quantitative RT-PCR showed a 91 %
221 tissue-specific reduction in *E2f1* expression in pancreatic islets isolated from *E2f1 ^{β -/-}* mice
222 (Supplementary figure S1A). 12-week-old *E2f1 ^{β -/-}* mice displayed normal body weight
223 (Supplementary figure S1B) and fasting glycemia when fed a chow diet (Supplementary
224 figure S1C) when compared to age-matched control *E2f1* floxed (*E2f1^{fl/fl}*) and Rip-Cre (Rip-
225 Cre⁺) male littermates. No significant difference was observed between *E2f1 ^{β -/-}* mice and
226 *E2f1^{fl/fl}* control littermates for body weight, fasting glycemia, glucose tolerance or insulinemia
227 in 6-week-old (Supplementary figures S2A to S2E) and 8-week-old animals (Supplementary
228 figures S2F to S2J). However, when challenged with a bolus of glucose, 12-week-old *E2f1 ^{β -/-}*
229 ^{-/-} mice exhibited glucose intolerance (Figures 1A-B), primarily due to decreased insulin
230 secretion in response to *in vivo* glucose injection (Figure 1C) rather than defective insulin
231 sensitivity (Supplementary figure S2K).

232 We next sought to evaluate the metabolic consequences of modulating *E2f1* expression in
233 adult β cells. To this end, we generated β -cell specific *E2f1* deficient mice (*E2f1^{MIP-CreERT β -/-}*
234) by crossing *E2f1^{fl/fl}* with the tamoxifen-inducible model MIP-Cre-ERT (MIP-CreERT⁺) mice
235 (29). We first confirmed efficient recombination upon tamoxifen treatment in pancreatic islets
236 isolated from *E2f1^{fl/fl}* and *E2f1^{MIP-CreERT β -/-}* (Supplementary figure S2L). Like *E2f1 ^{β -/-}* mice,
237 the genetic deletion of *E2f1* in adult β cells revealed glucose intolerance 1 month after
238 tamoxifen administration (Supplementary figures S2M and S2N), a phenotype that was

239 aggravated 3 months post-tamoxifen gavage (Figures 1D-E). Interestingly, insulinemia
240 during ipGTT was also impaired in *E2f1^{MIP-CreERT} β^{-/-}* mice 20 minutes after glucose injection
241 (Figure 1F). Altogether, these data suggest that the β-cell specific *E2f1* deficiency, either
242 triggered early during development or in fully mature adult β cells, impairs glucose tolerance
243 and insulin secretion in response to glucose.

244

245 **Increased alpha-to-beta-cell ratio in the pancreas of *E2f1*-deficient mice.**

246

247 As *E2f1^{β^{-/-}}* mice displayed impaired insulin secretion in response to glucose, we investigated
248 the contribution of *E2f1* to islet morphology. We observed that islet density (Figure 2A), islet
249 size (Figure 2B), β-cell fraction (Figure 2C), β-cell mass (Figure 2D) and β-cell size (Figure
250 2E and Supplementary figure S3A) were comparable between 3-month-old *E2f1^{β^{-/-}}* and
251 *E2f1^{fl/fl}* pancreata. We then analyzed proliferation and apoptosis in *E2f1^{β^{-/-}}* and *E2f1^{fl/fl}*
252 pancreas. Apoptotic cells were not detected in the pancreas from control and β-cell specific
253 *E2f1*-deficient mice, as shown by cleaved caspase 3 immunofluorescent staining
254 (Supplementary figures S3B-C). BrdU staining of *E2f1^{β^{-/-}}* and *E2f1^{fl/fl}* pancreatic sections
255 revealed that the number of proliferative cells was decreased in *E2f1^{β^{-/-}}* islets (Figure 2F and
256 Supplementary figures S3D). Remarkably, an immunofluorescence analysis of sections
257 from control and *E2f1^{β^{-/-}}* pancreas demonstrated a significant increase of glucagon-positive
258 cells (Figures 2G-H), whereas the number of somatostatin-positive cells was not modified
259 in *E2f1^{β^{-/-}}* islets (Figures 2I-J). These results suggest that the loss of *E2f1* expression could
260 induce an α-cell hyperplasia associated with lower endocrine cell proliferation.

261 To confirm the role of *E2f1* in maintaining physiological α-to-β-cell ratio, we performed
262 immunofluorescence staining of insulin and glucagon in the pancreas of wild-type and global
263 *E2f1* knock-out mice (*E2f1^{-/-}*). The detailed analysis of *E2f1^{-/-}* pancreas revealed a
264 decreased proportion of ins⁺ β-cell and a concomitant expansion of the glu⁺ α-cell

265 percentage per islet in chow-fed 16-week-old animals, as demonstrated by the quantification
266 of insulin and glucagon positive cells in *E2f1*^{+/+} and *E2f1*^{-/-} pancreas (Supplementary
267 figures S4A, S4B and S4C). To test whether *bona fide* regulators of E2F1 activity could
268 rescue the altered α -to- β -cell ratio observed in *E2f1*^{-/-} mice, we used 2 different genetically-
269 engineered mouse models (Supplementary figures S4D). We first used the R24C mouse
270 model of CDK4 hyperactivation (CMV-CDK4^{R24C}) that constitutively expresses a CDK4
271 mutant protein that restores β -cell mass and function during diabetes development (37; 38).
272 As previously observed (38), α -to- β -cell ratio was decreased in *CMV-Cdk4*^{R24C} pancreas
273 (Supplementary figures S4C and S4E). We then generated compound mutant mouse
274 models with both *E2f1* deficiency and overactive CDK4 (*E2f1*^{-/-}::*CMV-Cdk4*^{R24C}).
275 Interestingly, the decreased α -to- β -cell ratio ~~β -cell number~~ observed in *CMV-Cdk4*^{R24C}
276 pancreas was blunted in *E2f1*^{-/-}::*CMV-Cdk4*^{R24C} mice, with a concomitant increase of
277 glucagon immunofluorescent staining (Supplementary figures S4C and S4F). To sustain
278 such findings, we then replicated these observations in an alternative model using *Cdkn2a*-
279 deficient mice (*Cdkn2a*^{-/-}; (27)), an upstream regulator of the E2F1-CDK4-pRb signaling
280 pathway involved in β -cell function (39-41). Although Glu⁺ and Ins⁺ immunofluorescent
281 positive cell staining was similar between *Cdkn2a*^{+/+} and *Cdkn2a*^{-/-} pancreas
282 (Supplementary figures S4C and S4G), *E2f1*^{-/-}::*Cdkn2a*^{-/-} compound mutant mice
283 displayed an altered α -to- β -cell ratio with a decrease of Ins⁺ and an increase Glu⁺ cell
284 numbers (Supplementary figures S4C and S4H). In addition, our recent observation of
285 decreased plasma insulin levels, increased plasma glucose and glucose intolerance in
286 *db/db*::*E2f1*^{-/-} mice compared to *db/db*::*E2f1*^{+/+} controls (25) prompted us to evaluate islet
287 morphology in these diabetic mouse models. Accordingly, in the *db/db* background, *E2f1*
288 deficient mice displayed a further increase of the α -cell number per islet, while exhibiting a
289 lower β -cell count compared to *db/db*::*E2f1*^{+/+} controls (Supplementary figures S5A-B).
290 Altogether, these results suggest a specific role of E2f1 in maintaining pancreatic β -cell

291 numbers under normal conditions but also in a diabetic environment associated to glucose
292 intolerance, insulin resistance and obesity. We may then hypothesize that *E2f1* expression
293 in β cell may be necessary to maintain insulin secretion and glucose homeostasis
294 associated to normal α -to- β -cell ratio.

295

296 ***E2f1*-deficiency in β cells does not induce their conversion into α cells.**

297

298 To evaluate the fate of *E2f1*-deficient β cells and the potential origin of the increased number
299 of α -cells in *E2f1* ^{β -/-} mice, we performed lineage-tracing experiments. To track the destiny of
300 β -cells, the expression of the tomato tracer was monitored in Rip-Cre^{+/+}::tdTomato and *E2f1* ^{β -/-}
301 ^{+/+}::tdTomato. As expected, tomato positive (Tom+) cells were colocalized with ins⁺ cells in
302 controls and *E2f1* ^{β -/-}::tdTomato pancreata (Figure 3A). Interestingly, we could not detect any
303 colocalization of Tom+ and glu+ cells in controls, nor in β -cell specific *E2f1* deficient
304 pancreata (Figure 3B). β -cell lineage tracing results were further confirmed in *E2f1* ^{β -/-} mice
305 by using the ECFP reporter mouse strain model (30) (Figure 3C-D). These data suggest
306 that, although the number of α cells is increased upon *E2f1* deficiency, loss of *E2f1*
307 expression in β cells does not trigger their conversion into α cells.

308

309 **Loss of β -cell identity markers in *E2f1* deficient pancreatic islets.**

310

311 E2F1 is a transcription factor that controls gene expression in several cellular systems. In
312 order to get a global view of the transcriptional mechanisms associated with the loss of *E2f1*
313 expression in the β -cell, we performed RNA sequencing (RNA-seq) in control (*E2f1*^{fl/fl}) and
314 *E2f1* ^{β -/-} isolated islets. As expected, the floxed region of the *E2f1* gene spanning exon 2 and
315 3 was not covered in *E2f1* ^{β -/-} isolated islets compared to *E2f1*^{fl/fl} isolated islets, indicating
316 specific and efficient gene deletion through the *Cre* recombinase activity in *E2f1* ^{β -/-} isolated

317 islets (Supplementary figure S6A). Transcriptome analysis revealed that 692 annotated
318 genes were differentially expressed across the two groups (adjusted P Value (AdjP) <0.05).
319 Interestingly, a majority of genes were upregulated in *E2f1*^{β-/-} isolated islets (493 genes,
320 Figure 4A and Supplementary Table S4), with only 199 down-regulated genes associated
321 with the loss of *E2f1* expression in β-cells (Figure 4A and Supplementary Table S4). This
322 first observation suggests that *E2f1* expression is not only necessary to activate, but also to
323 repress gene transcription within β-cells. Analyses of the RNA-seq data of downregulated
324 genes with Ingenuity Pathway Analysis (IPA) software revealed an enrichment of gene
325 networks involved in insulin secretion pathway or Maturity Onset Diabetes of the Young
326 (MODY) signaling (Figure 4B). Conversely, upregulated genes in *E2f1*^{β-/-} isolated islets were
327 mostly associated with inflammatory response, including the hepatic fibrosis signaling
328 pathway, iNOS signaling or toll-like receptor signaling (Figure 4C). RNA-seq data were then
329 analyzed using the “upstream regulator analysis” function of IPA to identify potential
330 contributors that could be associated to the transcriptional reprogramming observed in
331 *E2f1*^{β-/-} isolated islets. Among the most significant upstream regulators of the upregulated
332 genes, Tumor Necrosis Factor, interferon gamma, Myd88 were identified (Supplementary
333 Table S5). Conversely, analysis of the downregulated genes suggested that Xbp1, Hnf1a,
334 Neurod1 and Pdx1, transcription factors previously shown to control β-cell identity or
335 function, were found to be potential upstream regulators that were predicted to be inhibited
336 (Supplementary Table S5). To better understand the relationship between the observed
337 metabolic phenotype (*i.e.* glucose intolerance and defective insulin secretion), increased
338 glu+ cells and *E2f1* deficiency, we filtered gene sets to focus on β- and α-cell-specific genes
339 being conserved between zebrafish, mouse and human (42). Notably, a total of 15 genes
340 from 109 conserved genes (82 and 27 for α-cell and β-cell genes, respectively) were
341 differentially expressed. Interestingly, most of the conserved β-cell markers were found to
342 be decreased in *E2f1*^{β-/-} isolated islets (Figure 4D and Supplementary figure S6B), whereas

343 most of the conserved α -cell genes were upregulated upon *E2f1* deficiency (Figure 4D and
344 Supplementary figure S6C). Gene Set Enrichment Analysis (GSEA) further confirmed an
345 enriched signature of increased expression of α -cell markers (Figure 4E) and conversely, a
346 decreased expression of β -cell markers in *E2f1* ^{β -/-} isolated islets (Figure 4F). We further
347 confirmed these changes in the expression of selected α - and β -cell markers at the
348 transcriptional level by qPCR in an independent experiment: accordingly, we observed a
349 strong decrease in transcript levels of *Pdx1*, *Ins2*, *Pcsk9*, *Foxo1* and *Glp1r* in *E2f1* ^{β -/-} islets
350 (Supplementary figure S6D). Conversely, α -cell specific Aristaless-related homeobox (*Arx*)
351 mRNA levels were increased in *E2f1* ^{β -/-} islets (Supplementary figure S6E). Altogether these
352 results suggest that the β -cell specific deletion of *E2f1* induces a transcriptional
353 reprogramming characterized by a loss of β -cell identity genes associated to an increased
354 expression of non β -cell markers.

355

356 **The treatment with the E2F inhibitor HLM006474 inhibits glucose-stimulated insulin**
357 **secretion and alters β - and α -cell gene expression in Min6 cells and human islets.**

358

359 To assess the effect of E2F1 activity on β -cell identity markers in Min6 cells and human
360 islets, we made use of the E2F pan-inhibitor HLM006474 previously shown to inhibit the
361 binding of E2Fs to their DNA target genes and E2F1 transcriptional activity (35). Consistent
362 with our previous findings in HEK293 cells (35), a 48h treatment of Min6 cells with this
363 inhibitor triggered a decrease in *E2f1* transcriptional activity, as measured by transient
364 transfection experiments using an E2F reporter gene (Figure 5A). In addition, the treatment
365 of Min6 cells with this inhibitor induced a marked decrease in glucose-stimulated insulin
366 secretion (Figure 5B) and in the expression of several β -cell markers, including *Ins1*, *Pdx1*,
367 and *Pax4* and *Nkx2.2* (Figure 5C). The treatment of human islets with the E2F inhibitor for
368 48 hours also decreased GSIS (Figure 5D) and β -cell marker expression levels with a

369 concomitant increase in the expression of α -cell genes (Figure 5E). Therefore, the
370 pharmacological inhibition of E2F activity impairs β -cell function and gene expression in both
371 mouse cell line and human islets, suggesting that E2F1 activity is also required in human
372 islets to maintain proper insulin secretion and β -cell identity genes, as observed in mice.

373

374 **Maintenance of β -cell identity is dependent on E2F1 transcriptional activity.**

375

376 Our transcriptome analysis revealed a 2.5-fold more up- than downregulation of global gene
377 expression in *E2f1* ^{β -/-} isolated islets. Comparative analysis of log₁₀ transcripts per million
378 levels (Log₁₀(TPM+1)) of up- and downregulated genes values demonstrated that the
379 expression of upregulated genes in *E2f1* ^{β -/-} islets was significantly increased upon *E2f1*
380 deficiency compared to wild-type controls whereas the expression of downregulated genes
381 was not significantly modulated (Figure 6A). Considering that *E2f1* could play a dual role in
382 the regulation of gene expression in pancreatic β -cells, we postulated that this mechanism
383 could be related to a distinct epigenomic profile within promoter of genes that are up- and
384 down-regulated in *E2f1* ^{β -/-} islets. Using a recently published chromatin-state segmentation
385 model (12), we probed the active/repressive level of these promoters by monitoring several
386 epigenome marks such as active and poised promoters (tri-methylation of lysine 4 in histone
387 H3 [H3K4me3]) and enhancers (acetylation of lysine 27 in histone H3 [H3K27ac]).
388 Intersecting publicly available data of chromatin immunoprecipitation followed by next-
389 generation sequencing (ChIP-seq) from healthy C57Bl6/J mouse pancreatic islets (GSE
390 110648 (12)) and our RNA-seq data, we grouped up- and down regulated genes according
391 to their chromatin state (Figure 6B and Supplementary Table S4). We observed that 61% of
392 the upregulated genes in *E2f1* ^{β -/-} pancreatic islets were associated to a silent chromatin state
393 in healthy C57Bl6/J mouse pancreatic islets characterized by bivalent H3K4me3/H3K27me3
394 and Polycomb-repressed (H3K27me3) marks. Conversely, 82% of the down-regulated

395 genes showed an enrichment in active chromatin state characterized by RNA-Pol2
396 recruitment, H3K4me3 and H3K27ac histone marks.

397

398 While H3K4me3, H3K27ac and H3K27me3 ChIP-seq data were available for mouse islets,
399 we then performed ChIP-seq experiments in Min6 cells as a surrogate of β -cell. H3K4me3,
400 H3K27ac and H3K27me3 ChIP-seq signals were thus interrogated within promoter
401 (centered to transcription start site [TSS] +/- 1 kb) of up- and downregulated genes both in
402 Min6 cells and mouse pancreatic islets (Figures 6C-D and Supplementary figures S7A-B).
403 H3K4me3 as well as H3K27ac signals were stronger within promoter of genes that are
404 downregulated in *E2f1* ^{β -/-} isolated islets compared to upregulated genes, both in Min6 cells
405 and mouse pancreatic islets (Figure 6C and Supplementary figures S7A-B). Conversely,
406 H3K27me3 ChIP-seq signals were lower in the promoter region of downregulated genes
407 compared to upregulated genes (Figure 6D and Supplementary figures S7A-B). Altogether,
408 these results suggest that the transcriptome of *E2f1* ^{β -/-} islets is associated to a specific
409 epigenomic pattern that may be involved in the control of E2f1-mediated transcriptional
410 activation or repression.

411

412 **E2f1 cistrome profiling by ChIP-seq identifies potential direct E2f1 target genes**
413 **involved in β -cell function.**

414

415 Having demonstrated that the transcriptome of *E2f1* ^{β -/-} isolated islets was altered compared
416 to controls, we next asked whether these up and down regulated genes identified in isolated
417 islets from *E2f1* ^{β -/-} mice were direct or indirect E2f1 target genes. To reach this aim, we
418 performed ChIP-seq experiments to determine chromatin-bound E2f1 target genes.

419 In a first series of experiments, ChIP-seq experiments targeting endogenous E2f1 were
420 conducted in pancreatic islets but failed to profile the endogenous E2f1 cistrome due to lack

421 of antibody specificity (data not shown). Alternatively, E2f1 was over-expressed in Min6 cells
422 as surrogate of β -cells through transfection of a plasmid encoding E2f1 fused to Flag tag
423 (E2f1-flag). As expected, E2f1-flag protein was overexpressed in Min6 cells transfected with
424 plasmid encoding E2f1-flag compared to those transfected with empty plasmid
425 (Supplementary figure S8A). These results prompted us to perform a ChIP-seq analysis
426 using an anti-flag antibody to profile E2f1-flag cistrome at genome-wide level in Min6 cells.
427 Among the E2f1-bound genomic regions, 94.5% were localized within promoter (≤ 1 kb)
428 whereas other genomic locations were marginally represented (Supplementary figure S8B)
429 confirming that E2f1 is a transcription factor mainly bound within GC-rich proximal promoter
430 (43). Indeed, a DNA motif enrichment analysis was performed within E2f1-enriched
431 promoter regions showing that E2f motif was the most significant enriched motif within these
432 regions suggesting that E2f1 was directly bound on promoter (Supplementary figure S8C).
433 Next, we consolidated our results in an independent experiment by performing a ChIP-qPCR
434 analysis targeting two E2f1-flag-bound promoters (from *Ezh2* and *Ccne1* genes) detected
435 by ChIP-seq (Supplementary figures S8D and E, respectively). As expected, ChIP-qPCR
436 performed with anti-Flag antibody led to a significant enrichment of E2f1-flag within both
437 *Ezh2* (Supplementary figure S8F) and *Ccne1* (Supplementary figure S8G) promoters
438 compared to ChIP-qPCR conducted with unspecific antibody (IgG). In addition, none E2f1-
439 flag enrichment was detected within an unspecific intergenic chromatin region (negative
440 control, Supplementary figure S8H), validating our E2f1 cistrome analysis.

441 After ChIP-qPCR-based validation of our anti-flag antibody approach in Min6 cells
442 (Supplementary figure S8), E2f1-flag ChIP-seq signal was interrogated within promoter
443 (centered to TSS +/- 1kb) of dysregulated genes identified in pancreatic islets isolated from
444 *E2f1* ^{β -/-} mice to identify E2f1-bound (*i.e.*, direct E2f1 target genes) and E2f1-unbound (*i.e.*,
445 indirect E2f1 target genes) genes. Among the upregulated genes in *E2f1* ^{β -/-} islets, we
446 identified 197 genes harboring E2f1-bound proximal promoters and 297 genes with E2f1-

447 unbound proximal promoters (Supplementary table S6). Among the downregulated genes,
448 95 genes harbored a E2f1-bound proximal promoter whereas 106 genes were identified as
449 E2f1-unbound proximal promoters (Supplementary table S6). This ChIP-seq and RNA-seq
450 intersecting analysis was exemplified by a series of genes including *Nkx6-1* (Supplementary
451 figure S9A) and *Tcf7* (Supplementary figure S9B) displaying E2f1 enrichment in the close
452 vicinity of TSS. Concerning E2f1-unbound promoters, we could observe that *Ins1*
453 (Supplementary figure S9C) and *Gzma* (Supplementary figure S9D), although differentially
454 regulated at the mRNA level, were not bound by E2f1 at the chromatin level. Altogether,
455 these results suggested that E2f1 could have a dual role on the regulation of gene
456 expression by acting either as a transcriptional activator or repressor in pancreatic islets,
457 through both indirect and direct mechanisms at the chromatin level.

458 To better appreciate the potential role of E2f1 in the control of gene expression, canonical
459 pathway analysis was performed using the different clusters of genes identified above. Our
460 analysis revealed that E2f1-unbound downregulated genes were mostly associated to
461 insulin secretion signaling pathway (Supplementary figures S9E-H). IPA could not reveal
462 any enrichment of pathways involved in insulin secretion in E2f1-bound promoters.
463 However, a detailed analysis of ChIP-seq data from down- and upregulated genes revealed
464 that E2f1 was associated to the chromatin region of several genes involved in β -cell function,
465 such as *Glis3*, *Glp1r*, *Manf*, *Nkx6-1*, *Ppp1r1a* or *Wfs1* or β -cell dysfunction, such as *Bcl11a*
466 or *Cxcl14* (Supplementary figure S9A and Supplementary table S6).

467

468 Since E2f1-bound genes in Min6 cells are predicted to be potential E2f1 direct target genes,
469 we next investigated whether there were differences in the epigenomic activation level of
470 these promoters. Therefore, we conducted a ChromHMM analysis (Chromatin Hidden
471 Markov Model) allowing characterization of chromatin states based on differential
472 enrichment levels of histone marks as well as transcription factor at genome-wide level (44).

473 ChromHMM analysis was thus performed by combining ChIP-seq data obtained in Min6
474 cells from both E2f1-Flag and a selection of histone marks related to the active/repressive
475 state of promoter (i.e., H3K4me3, H3K9ac, H3K27ac, and H3K27me3) and enhancers (i.e.,
476 H3K4me1, H3K27ac and H3K27me3). By applying a 16-state ChromHMM analysis, we
477 demonstrated that only 3 states were enriched with E2f1-Flag (states 6, 14 and 15) (Figure
478 7A). Whereas states 14 and 15 displayed the typical features of active promoter (i.e.,
479 H3K4me3, H3K9ac and/or H3K27ac), chromatin state related to state 6 was more
480 associated with repressed promoter (H3K4me3 and H3K27me3). The TSS-centered
481 genomic distribution analysis of these 16 chromatin states confirmed that states 6, 14 and
482 15 corresponded to proximal promoter of genes (Supplementary figure S10A).

483 To go further in the characterization of the role of E2f1 in the β -cell, we next decided to
484 analyze the differential transcriptomic data from *E2f1* ^{β -/-} isolated islets in the light of this
485 ChromHMM analysis by determining whether the promoter of deregulated genes belonged
486 to one of the chromatin states described above. This analysis showed that 23.4% of the
487 upregulated genes (109 on 465 genes) harbored a state 6-promoter indicating that the
488 expression of these genes could be repressed by E2f1 in β -cells *in vivo* (Supplementary
489 Table S7). Conversely, promoters of downregulated genes were more associated with state
490 14 (46.5%, 87 out of 187 genes, Supplementary Table S7) and 15 (41.1%, 77 out of 187
491 genes, Supplementary Table S7) indicating that E2f1 could play a positive role in the
492 regulation of expression of these genes in β -cell. Although pathway analysis of the different
493 chromatin states of the direct down- and upregulated genes could not precisely demonstrate
494 a specific enrichment of pathways involved in insulin secretion or β -cell function
495 (Supplementary figures S10B to G), we could observe that most of the non β -cell markers,
496 such as *Cxcl12* (Figure 7B) or the β -cell disallowed genes *Gab1* (Figure 7C), *Mgll*, *Oat*
497 (Supplementary Table S7), *Slc25a33* (Figure 7D) or *Yap1* (Figure 7E), were mostly
498 associated to segment 6 and were upregulated in *E2f1* ^{β -/-} isolated islets (Supplementary

499 Table S7). Interestingly, genes related to β -cell function, such as *Glis3* (Figure 7F), *Glp1r*
500 (Figure 7G), *Manf* (Figure 7H), *Nkx6-1* (Supplementary Table S7), *P2ry1* (Figure 7I) or *Wfs1*
501 (Supplementary Table S7), were downregulated and associated to state 14 or 15
502 (Supplementary Table S7). Altogether, these results support a potential dual active and
503 repressive role for E2f1 on transcriptional regulation within β -cells. Importantly, our data
504 suggest that E2f1 modulates β -cell and non β -cell transcriptional programs in pancreatic
505 islets through direct, epigenomic based-mechanisms as well as indirect processes probably
506 through the upstream regulation of β -cell enriched transcriptional regulators, such as Pdx-1
507 or Hnf1a.

508 **Discussion**

509

510 In the present study, we show that the transcription factor E2F1 plays an essential role in
511 maintaining β -cell function and identity through the control of transcriptomic and epigenetic
512 programs within the pancreatic islets. Our study is the first one to demonstrate a direct, cell-
513 autonomous contribution of *E2f1* in controlling not only *in vivo* insulin secretion but also β -
514 cell identity maintenance, without affecting the pancreatic islet cell number and β -cell mass.
515 The role of E2F1 in the control of cell cycle and proliferation has been extensively studied,
516 particularly in the context of cancer (18). However, its function in non-proliferating fully
517 differentiated cells, including β -cells, remains to be precisely deciphered. The observation
518 that cell cycle regulators, including E2F1, are expressed in cells that are not proliferating,
519 suggest that they may be involved in adaptive pathways that are independent of cellular
520 proliferation. We and others have demonstrated that this pathway plays a key role in post-
521 natal β -cell proliferation (45-47), glucose homeostasis and insulin secretion (20; 48; 49).
522 Studies also revealed that the Cdk4-E2F1-pRb pathway controls the fate of pancreatic
523 progenitors through the transcriptional control of the expression of *Ngn3* and *Pdx1* as well
524 as *Pdx1* protein stability (50; 51). Most of these studies were performed using germline *E2f1*
525 deficient mice, which precludes to ascertain a cell-autonomous role of *E2f1* in the endocrine
526 pancreas and β -cell functions. To better appreciate the specific role of E2F1 in β -cells, we
527 specifically knocked-down *E2f1* in the β -cell using the Cre/loxP technology. Although we
528 cannot rule out an early role for *E2f1* in pancreatic progenitors due to the use of the RIP-
529 Cre mice (28), our data demonstrate that *E2f1* expression within the β -cell is necessary to
530 maintain a proper gene expression program to regulate insulin secretion and glucose
531 homeostasis. Moreover, we observe that the specific *E2f1* deficiency in adult, mature β -cells
532 results in glucose homeostasis impairments and failure in glucose-stimulated insulin
533 secretion. Since E2F1 overexpression stimulates β -cell proliferation and function (48), our

534 results further suggest that targeting *E2f1* might be of interest to maintain β -cell functions in
535 the context of diabetes.

536

537 The complexity of E2f1 biology resides in the fact that it can positively or negatively regulate
538 the expression of its target genes. Our data suggest that E2f1 may be part of a repressor
539 complex that regulates β -cell identity. In line with this, we observe that genes mostly
540 upregulated in *E2f1* ^{β -/-} isolated islets, including *Gab1*, *Slc25a33* or *Yap1*, were identified as
541 β -cell “ disallowed ” genes, *i.e.* genes that are repressed in β cells (52), or genes involved
542 in the inflammatory response such as *Cxcl12*, *Cxcl14* or *Irf5*. This suggests that the
543 repressive effects of E2f1 are key in maintaining β -cell identity and subsequent β -cell
544 function. Accordingly, repression of non β -cell programs is crucial for maintaining β -cell
545 identity. Pdx1 (14), Pax6 (15), Nkx6.1 (16) and Nkx2.2 (17) are key transcription factor
546 required to maintain gene repression of non- β -cell programs. Interestingly, *Nkx6.1* mRNA
547 levels are decreased in *E2f1* ^{β -/-} isolated islets, and *Nkx6.1* promoter is directly bound by
548 E2f1, suggesting that E2f1 could modulate β -cell functions through *Nkx6.1* regulation.
549 Chromatin regulators and epigenomic features play important roles in the control of β -cell
550 identity and plasticity (53-55). Indeed, the modulation of islet-enriched transcription factor
551 activity, including Pdx1 or Nkx2.2, involves their interaction with coregulators such as
552 Dnmt1, Dmnt3a or Hdac1 (56-58) or their accessibility to chromatin, as demonstrated for
553 the β -cell specific deletion of protein arginine methyltransferase 1 (Prmt1) that results in the
554 loss of β -cell identity and diabetes development (59). In addition, recent studies also indicate
555 that loss of Polycomb silencing in human and mouse β -cells contributes to the loss of β -cell
556 identity in diabetes (12). Indeed, the β -cell specific deletion of *Eed*, a component of the
557 Polycomb repressive complex (PRC)-2, triggers β -cell dysfunction, dedifferentiation and
558 diabetes development associated to chromatin-state-associated transcriptional
559 dysregulation (12). In addition, as PRC2 loss induces β -cell plasticity through epigenomic

560 reprogramming at both active and silent genes suggest that maintaining proper and specific
561 histone marks and chromatin state at precise loci is crucial to maintain normal β -cell
562 functions and avoid T2D development. Interestingly, most of the upregulated genes in $E2f1^{\beta-/-}$
563 β pancreatic islets were characterized by bivalent H3K4me3/H3K27me3 and Polycomb-
564 repressed (H3K27me3) marks. In addition, epigenomic interventions triggering ectopic
565 acetylation and gene derepression contribute to β -cell dysfunctions. Indeed, blocking HDAC
566 activity through the use of the HDAC inhibitor SAHA, impairs glucose intolerance in mice
567 fed a HFD (12). Here we show that the loss of $E2f1$ function triggers transcriptional
568 dysregulation of specific genes that are in a bivalent (*i.e.* H3K4me3/H3K27me3 and
569 Polycomb-repressed (H3K27me3) marks) and active (*i.e.* RNA-Pol2 recruitment, H3K4me3
570 and H3K27ac histone marks) state in healthy pancreatic islets. This suggests a potential
571 ectopic acetylation in the promoter region of upregulated genes in $E2f1^{\beta-/-}$ islets and
572 decreased activation of the promoter region of downregulated genes. Interestingly, we
573 demonstrate in this study that $Ezh2$, a member of the PRC2 complex, is also a direct $E2f1$
574 target gene. Although $E2f1$ is a ubiquitous transcription factor that is weakly expressed
575 within β -cell compared to *bona fide* β -cell genes, we speculate that this transcriptional
576 regulator may cooperate with β -cell transcription factors and/or the chromatin machinery
577 such as HDAC or the PRC2 complex to integrate some signals necessary for β -cell
578 maintenance in physiological conditions. Since $E2f1$ regulates gene expression through its
579 interaction with repressor complexes including pRb, SWI/SNF and HDACs (18), our finding
580 that $E2f1$ mediates repression of non β -cell programs deserves deeper investigations to
581 identify the $E2f1$ complexes that can trigger these transcriptomic and epigenomic effects in
582 the β -cell and their patho(physio)logical consequences.

583 The current study has a number of limitations. First, the use of RipCre transgenic mice to
584 delete $E2f1$ in the β cells may also contribute to side-effects on glucose homeostasis.
585 Although we observed that these mice do not have a metabolic phenotype (Figure 1 and

586 (22; 31)), it cannot be excluded that the transgene *per se* could exert specific deleterious
587 functions in β cells.

588 Second, over-expression studies in Min6 and pharmacological treatment with the E2F
589 inhibitor may display adverse side-effects and induce off-target actions, such as non-specific
590 inhibition of other cell-cycle/E2f related proteins or modulation of cofactor activity due to
591 overexpression of transcription factors (60).

592 Third, the use of bulk RNA-seq on total pancreatic islets does not allow to perfectly address
593 the effect of *E2f1* deletion on the β -cell transcriptome. Transcriptomic analyses using sorted
594 β cells or single-cell RNA-sequencing will provide direct evidences regarding the alteration
595 of β -cell identity within specific pancreatic cell populations.

596 Finally, we observe increased α -cell positive staining associated with decreased endocrine
597 cell proliferation in *E2f1* ^{β -/-} islets, and lineage tracing experiments demonstrate that α -cells
598 do not originate from β -cell. The origin of the supernumerary α cells observed in *E2f1* ^{β -/-}
599 islets remains unknown and requires further investigations.

600 In summary, the present data highlight that E2f1 transcriptional activity within pancreatic
601 islets is key for maintaining glucose homeostasis and insulin secretion through the
602 regulation of key β -cell identity genes and the repression of non β -cell programs, both in
603 mouse and human islets. The observation that E2F1 levels are decreased in human T2D
604 islets (24) suggests that a reduced E2F1 expression or activity may contribute to β -cell
605 failure in diabetes.

606

607 **Author contributions.** F.O., C.B., M.E.F., E.C., L.R., X.G., M.M., C.C., N.R., E.B. and
608 S.A.H. contributed to the *in vivo* and cellular experiments. F.O., M.M., C.B., E.D., S.A., L.B.,
609 M.D. and A.B. performed the RNA-seq and ChIP-seq experiments and analysis. P.D.D.,
610 Z.B., P.M., L.F., J.K.C., F.P., B.P. and P.C. provided reagents and data and discussed the
611 results from the study. J.-S.A. designed the study, supervised the project and contributed to
612 experiments and/or their analysis and the funding of this project. F.O., C.B., M.E.F., E.C.,
613 N.R., P.F., A.B. and J.-S.A. wrote and/or edited the manuscript. F.O., C.B., M.E.F. and E.C.
614 contributed equally to this work. J.-S.A. is the guarantor of this work and, as such, had full
615 access to all of the data in the study and take responsibility for the integrity of the data and
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617

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639

640 **Conflict of interest.** The authors declare no competing financial interests.

641

642 **References**

643

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- 836

837 **Figure legends**

838

839 **Figure 1. The β cell-specific deletion of *E2f1* impairs glucose tolerance and insulin**
840 **secretion in mice. (A)** Intraperitoneal glucose tolerance test (IPGTT) was performed on
841 *E2f1* ^{β -/-} (n=12), RIP-Cre^{+/+} (n=7) and *E2f1*^{fl/fl} (n=8) male mice at 12 weeks of age. **(B)** Area
842 under the curve (AUC) calculated from (B). **(C)** Plasma insulin levels at 0 and 30 min after
843 intraperitoneal glucose injection in *E2f1* ^{β -/-} (n=12), RIP-Cre^{+/+} (n=7) and *E2f1*^{fl/fl} (n=8) male
844 mice at 12 weeks of age. **(D)** IPGTT was performed on 5-month-old adult *E2f1*^{MIP-CreERT β -/-}
845 (n=12) and *E2f1*^{fl/fl} (n=8) male mice 3 months after tamoxifen administration. **(E)** Area under
846 the curve (AUC) calculated from (D). **(F)** Plasma insulin levels at 0 and 20 min after
847 intraperitoneal glucose injection in *E2f1*^{MIP-CreERT β -/-} (n=11) and *E2f1*^{fl/fl} (n=11) male mice at
848 5 months of age 3 months post tamoxifen treatment. All values are expressed as mean \pm
849 s.e.m. and were analysed by one-way analysis of variance (ANOVA) with Tukey's test (B,
850 C), two-way ANOVA with Tukey's test (A, D, F) or two-tailed unpaired *t*-test (E). **p* < 0.05;
851 ***p*<0.01.

852

853 **Figure 2. Normal β -cell mass but altered α -to- β cell ratio in β cell-specific *E2f1***
854 **deficient mice. (A to D)** Morphometric analysis revealed comparable islet density (A), mean
855 islet size (B), β -cell fraction (C), and mass (D), area (E) and proliferation (F) in pancreata of
856 3-month-old *E2f1* ^{β -/-} (n=5) and control *E2f1*^{fl/fl} (n=5) male mice. **(G)** Representative
857 immunofluorescent staining of insulin and glucagon in pancreatic sections from 3-month-old
858 *E2f1* ^{β -/-} and control *E2f1*^{fl/fl} male mice. **(H)** Ratio of glucagon labelled cells (Glucagon +) over
859 pancreatic islets in *E2f1* ^{β -/-} and *E2f1*^{fl/fl} male mice calculated from (F) (n=5). **(I)**
860 Representative immunofluorescent staining of insulin and somatostatin in pancreatic
861 sections from 3-month-old *E2f1* ^{β -/-} and control *E2f1*^{fl/fl} male mice. **(J)** The ratio of
862 somatostatin labelled cells over pancreatic islets in *E2f1* ^{β -/-} and *E2f1*^{fl/fl} male mice was

863 calculated from (G) (n=5). All values are expressed as mean \pm s.e.m. and were analysed by
864 two-tailed unpaired Mann-Whitney test (A, B, C, D, E, F, G, H, J). *p < 0.05; **p<0.01.

865

866 **Figure 3. Lineage tracing of β cells reveals that *E2f1*-deficient β cells are not converted**
867 **into α cells. (A-B)** Representative immunofluorescent staining of Dapi, Tomato, insulin (A)
868 and Dapi, Tomato, glucagon (B) in pancreatic sections from 12-week-old Rip-
869 *Cre⁺::E2f1^{+/+}::tdTomato* (*E2f1 ^{β +/+}*) and *E2f1 ^{β -/-}::tdTomato* (*E2f1 ^{β -/-}*) mice. **(C-D)**
870 Representative immunofluorescent staining of Dapi, red fluorescent protein (RFP), insulin
871 (C) and Dapi, RFP, glucagon (D) in pancreatic sections from 12-week-old *E2f1 ^{β -/-}::ECFP*
872 (*E2f1 ^{β -/-}*) mice.

873

874 **Figure 4. RNA-seq analysis of *E2f1* β cell-specific knockout islets reveal altered**
875 **transcriptional programs. (A)** Volcano plot providing adjusted P value (*i.e.*, FDR, false
876 discovery rate) and fold change for all gene transcripts in islets from *E2f1 ^{β -/-}* mice. Genes
877 that are differentially expressed compared to *E2f1^{fl/fl}* with an AdjP<0.05 are indicated by two-
878 level color coding. 199 downregulated protein-coding genes are highlighted in red. 493
879 upregulated protein-coding genes are highlighted in green (n=3 per genotype for RNA-seq
880 analysis). **(B-C)** Ingenuity Pathway Analysis of downregulated (B) and upregulated (C)
881 genes in *E2f1 ^{β -/-}* compared to *E2f1^{fl/fl}*. Histogram of enriched terms across input gene lists
882 are shown. **(D)** Evolutionary conserved α - and β -cell markers were recovered from Tarifeno-
883 Saldivia E *et al.* (42) and were used to filter our RNA-seq dataset. Volcano plots provides
884 AdjP values (*i.e.*, FDR, false discovery rate) and fold change for both α - and β -cell marker
885 transcripts in islets from *E2f1 ^{β -/-}* mice. The α - and β -cell markers are displayed as orange
886 square and blue triangle, respectively. Gene symbols of differentially expressed α - and β -
887 cell markers are displayed (AdjP<0.05). **(E-F)** Enrichment plot from Gene Set Enrichment

888 Analysis (GSEA) was conducted with 82 probe sets specifically expressed in α -cells (E) and
889 with 26 probe sets specifically expressed in β -cells (F).

890

891 **Figure 5. The pharmacological inhibition of E2f transcription factor activity induces a**
892 **loss of β -cell function in mouse and human islets. (A)** Min6 cells were transiently co-
893 transfected with the E2F-RE-Tk promoter luciferase construct in the absence (PCDNA3) or
894 presence of E2F1:DP1 heterodimer (E2F1/DP1) and were subsequently treated with DMSO
895 (0.1 %, 48h) or HLM006474-treated (10 μ M, 48h). Raw data for luciferase activity were
896 normalized to β -galactosidase activity. **(B)** Glucose stimulated insulin secretion (GSIS) at
897 indicated glucose concentration on DMSO (0.1 %, 48h) or HLM006474-treated (10 μ M, 48h)
898 Min6 cells (n=6). **(C)** qPCR-based analysis of β -cell specific mRNA expression in DMSO
899 (0.1 %, 48h) or HLM006474-treated (10 μ M, 48h) Min6 cells (n=3). **(D)** Glucose stimulated
900 insulin secretion (GSIS) at indicated glucose concentration on human islets treated with
901 DMSO (0.1 %, 48h) or HLM006474 (10 μ M, 48h) (n=3) (see supplementary Table S1 for
902 donor information). **(E)** qPCR-based analysis of β -cell specific (*INS*, *PDX1*, *PAX4*, *MAFA*
903 and *NEUROD1*) and α -cell specific (*ARX* and *GCG*) mRNA expression in DMSO (0.1 %,
904 48h) or HLM006474-treated (10 μ M, 48h) human islets (n=3). Data are represented as mean
905 \pm s.e.m. and were analyzed by two-way ANOVA with Tukey's test (A, B, D) and two-tailed
906 unpaired *t*-test (C, E). **p* < 0.05; ***p*<0.01; ****p*<0.001.

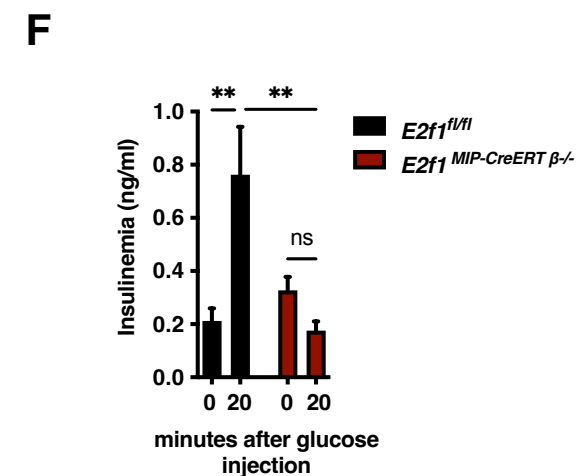
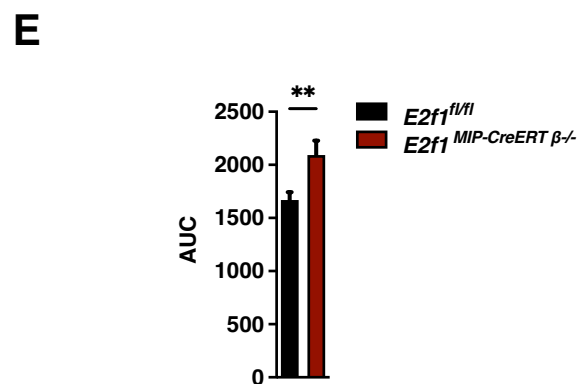
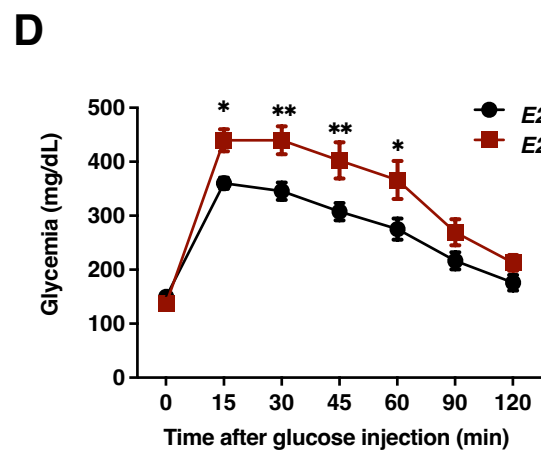
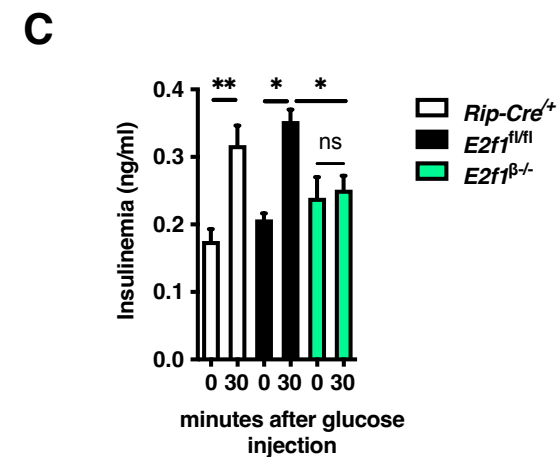
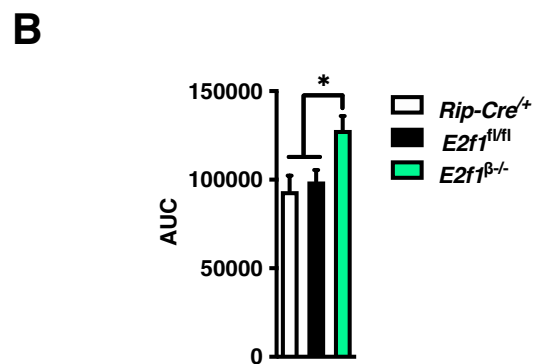
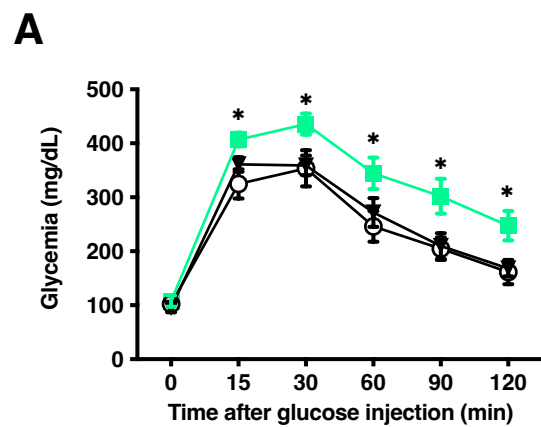
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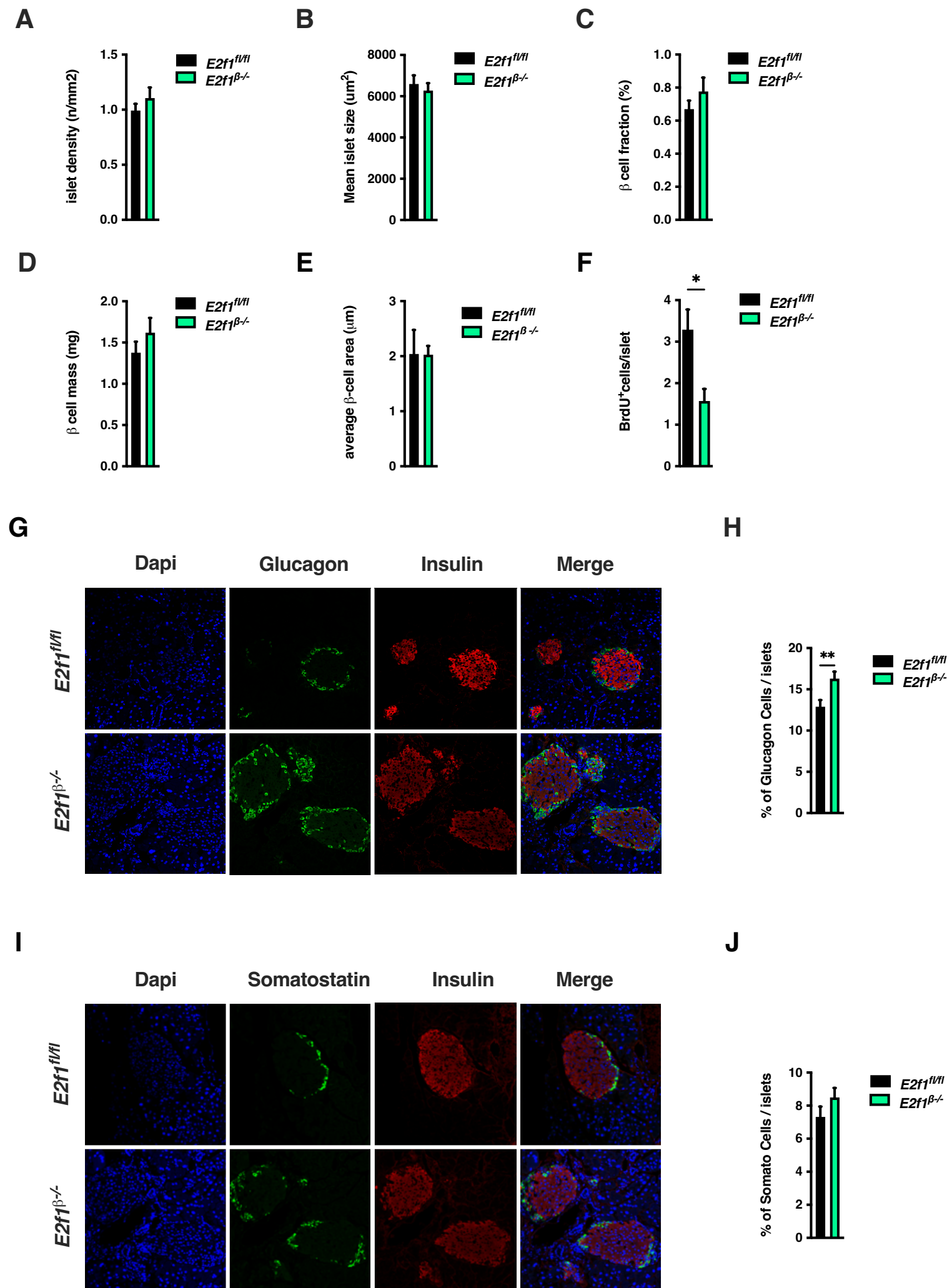
908 **Figure 6. The transcriptome of *E2f1* ^{β -/-} islets is associated to a specific epigenomic**
909 **pattern. (A)** Expression level of *E2f1* ^{β -/-} up- and down- regulated genes both in pancreatic
910 islets from control (WT) and *E2f1* knock-out (*E2f1* ^{β -/-}) mice. Results are displayed as
911 Log₁₀(TPM+1) calculated from TPM obtained from RNA-seq data. Data are represented as
912 mean s.e.m and were analyzed by unpaired *t*-test (**** *p*<0.0001). **(B)** Pie-chart displaying
913 chromatin state of *E2f1* ^{β -/-} up- and down- regulated genes according to pancreatic islets

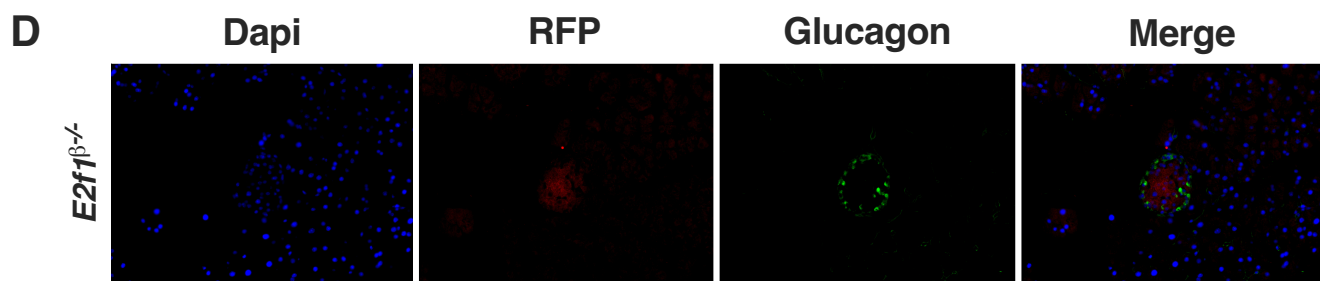
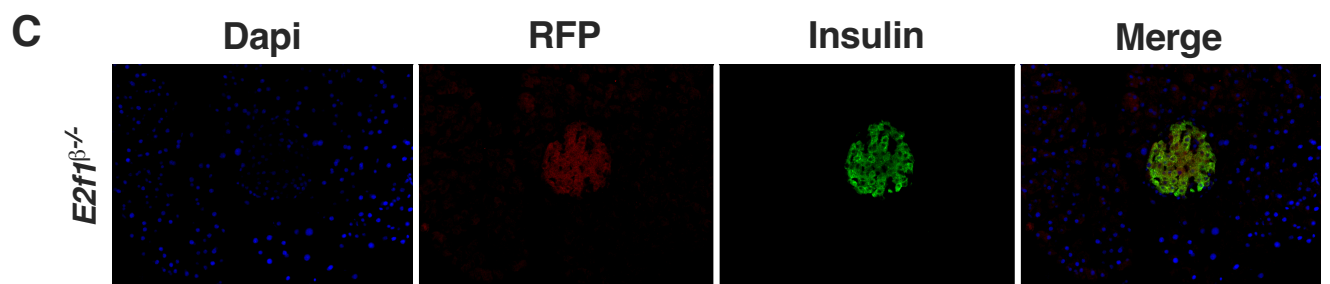
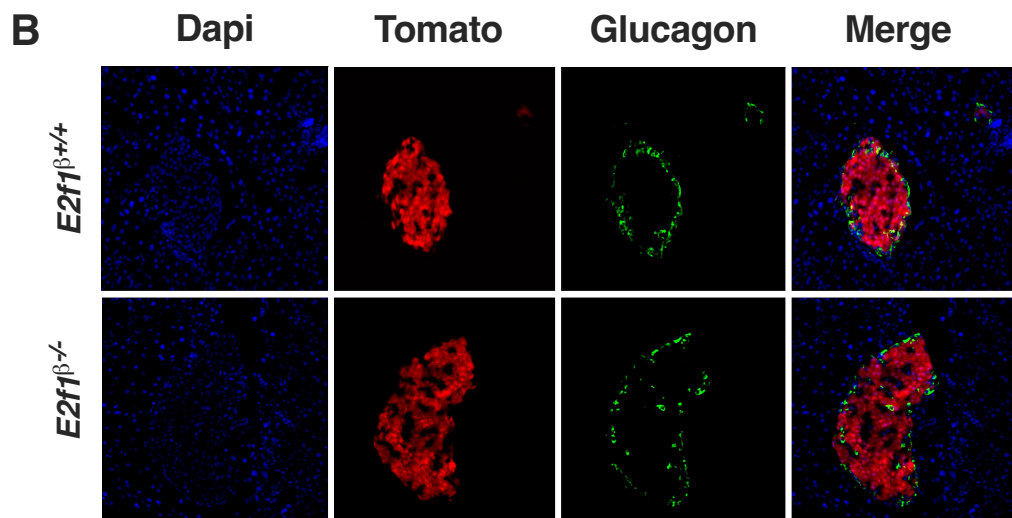
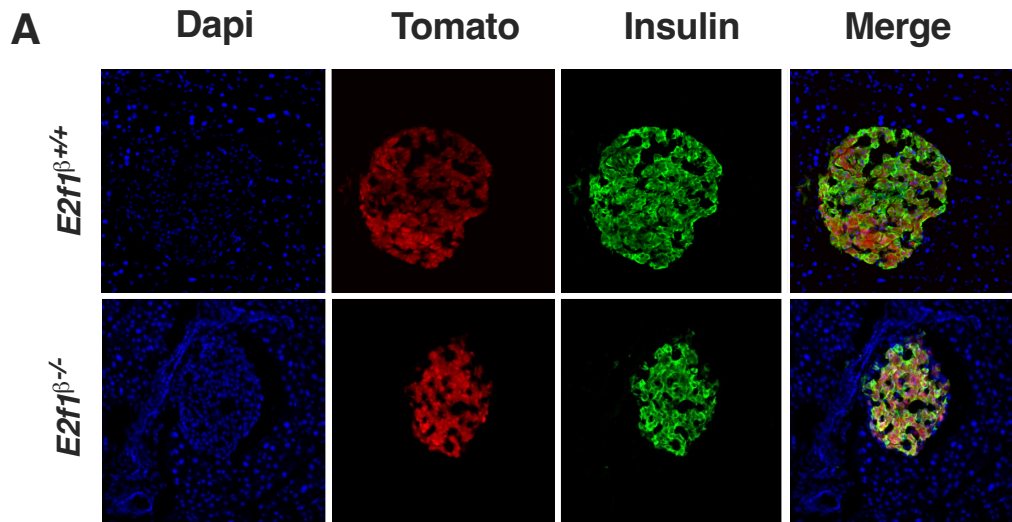
914 genes-associated chromatin state stratification from Lu TT *et al.* (12) **(C)** H3K4me3 and
915 H3K27ac ChIP-seq mean signal within promoter (centered to TSS +/- 1kb) of *E2f1*^{β-/-}-up- and
916 down- regulated genes both in Min6 cells and mouse pancreatic islets (12). **(D)** H3K27me3
917 ChIP-seq mean signal within promoter (centered to TSS +/- 1kb) of *E2f1*^{β-/-}-up- and down-
918 regulated genes both in Min6 cells and mouse pancreatic islets (12).

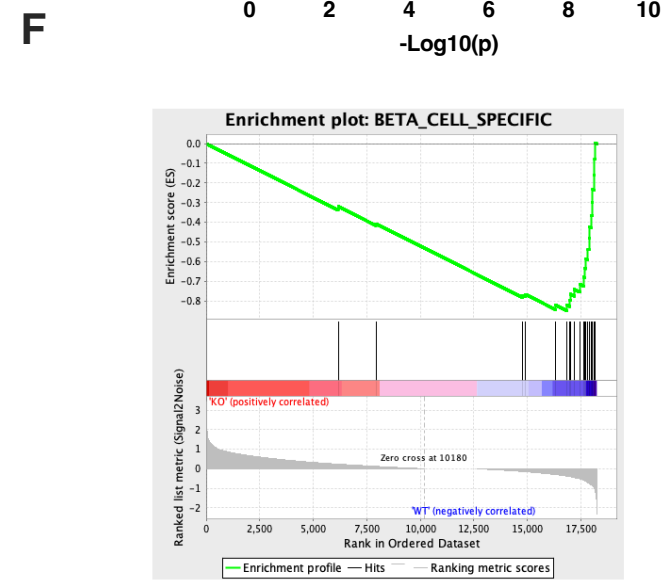
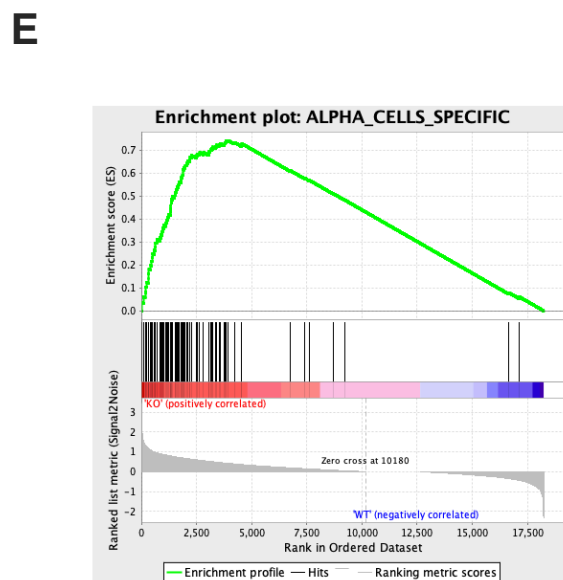
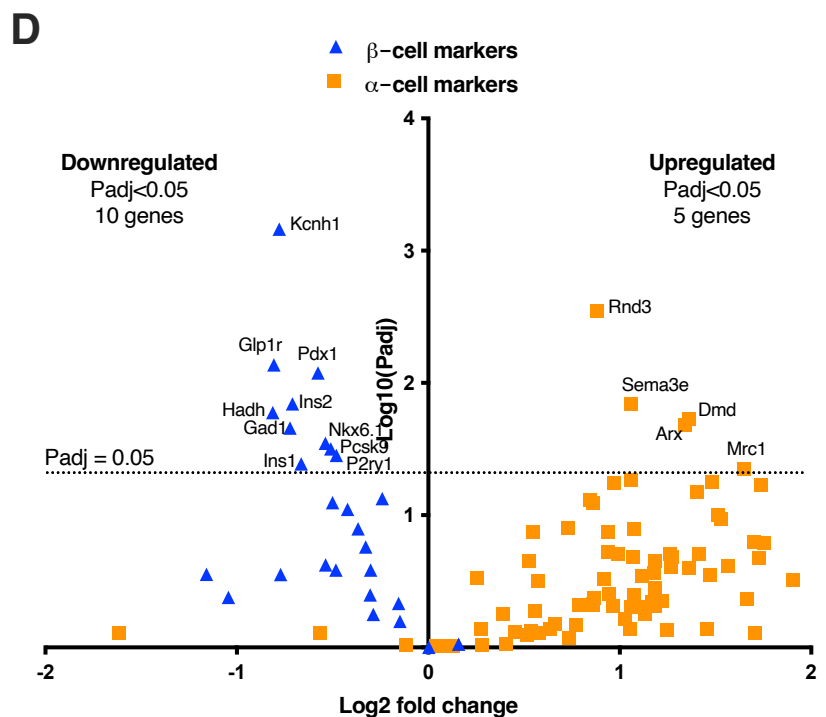
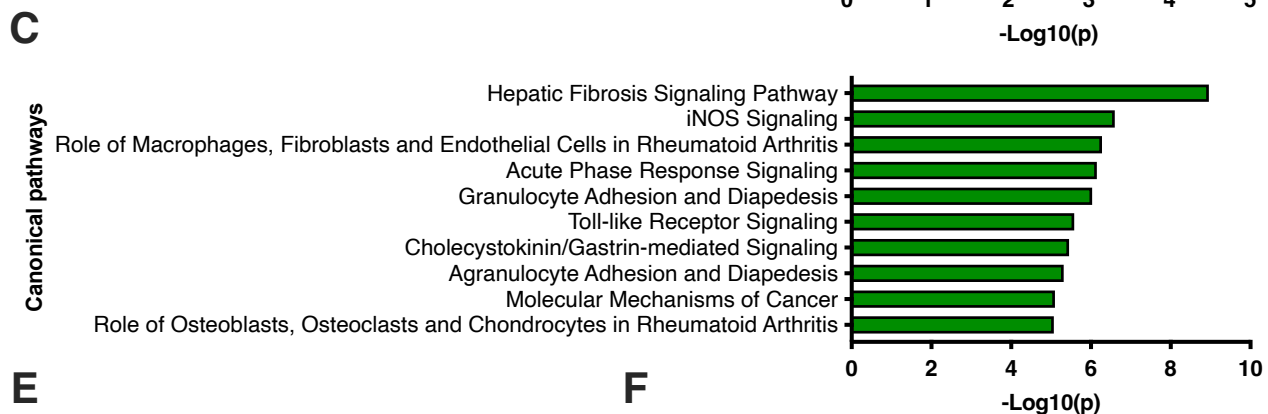
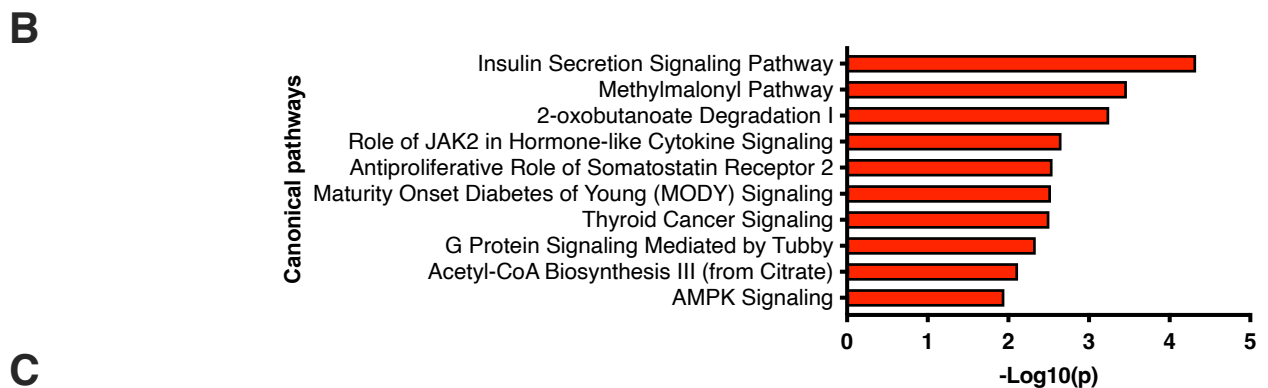
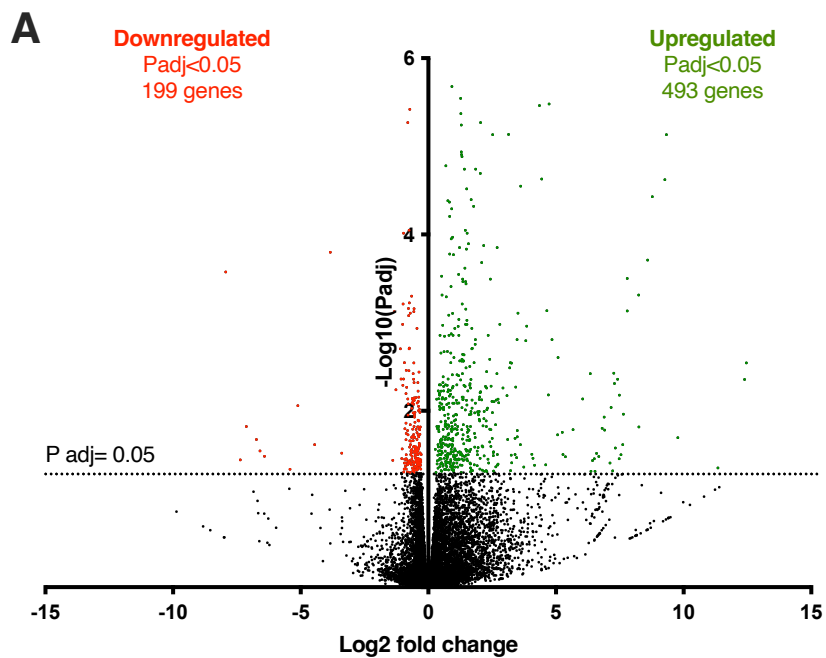
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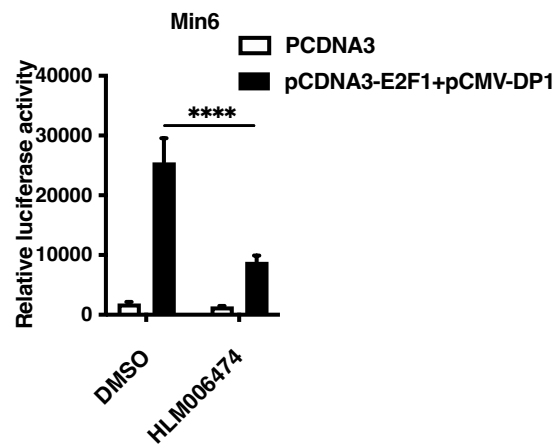
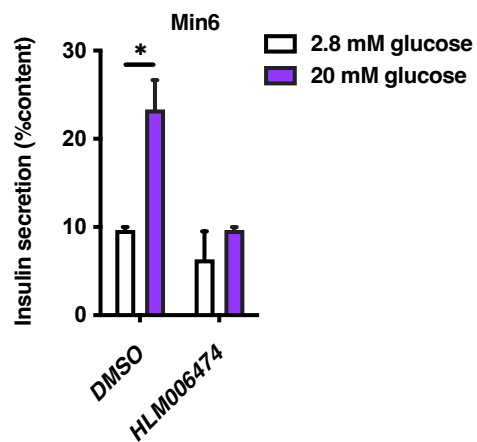
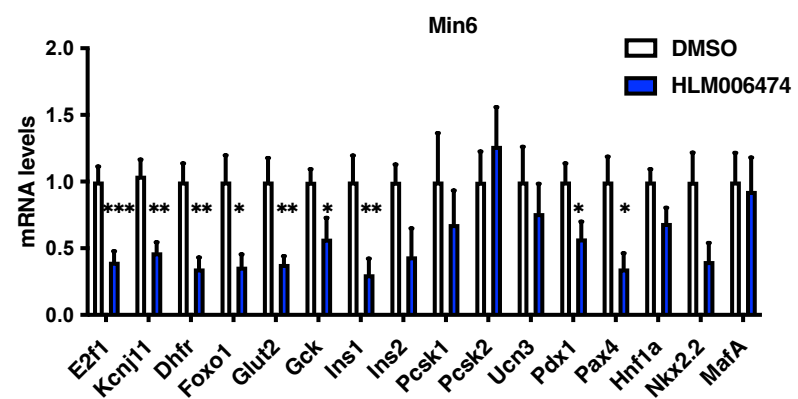
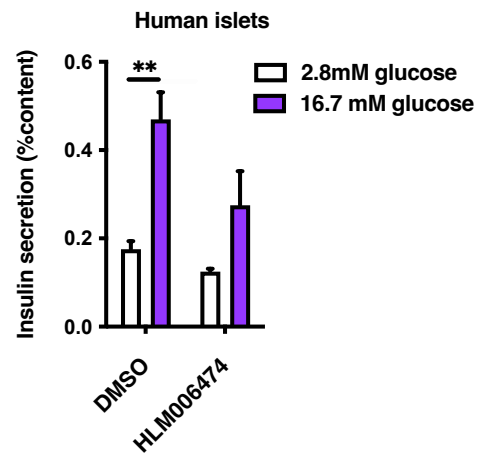
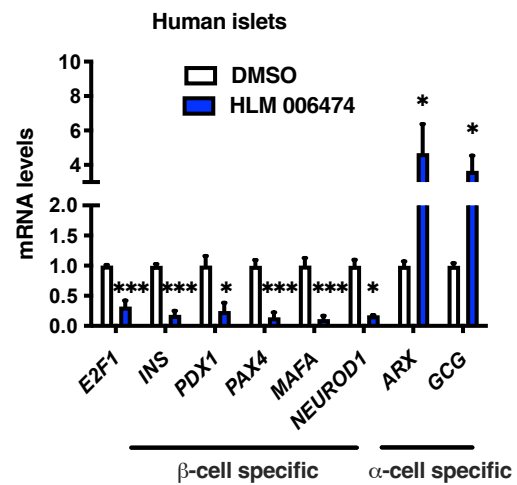
920 **Figure 7. Integrating ChIP-seq and RNA-seq data reveals that E2f1 modulates β-cell**
921 **and non-β-cell genes associated to different epigenomic marks. (A)** ChromHMM model
922 based on Min6 cells. Heatmap displays ChromHMM 16-state model obtained with ChIP-seq
923 data sets for H3K4me3, H3K27ac, H3K9ac, H3K4me1, H3K27me3 and E2f1. ChromHMM
924 identifies functionally distinct chromatin states representing both repressive, bivalent and
925 active domains. **(B to I)** Integrated Genome Browser profiles displaying H3K4m3, H3K27ac
926 and H3K27me3 ChIP-seq signal intensities from Min6 cells and mouse pancreatic islets and
927 E2f1 ChIP-seq signal intensity at selected promoters of *E2f1*^{β-/-} upregulated (B to E) and
928 downregulated (F to I) genes.

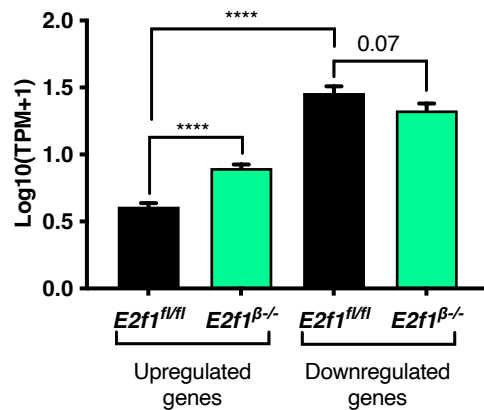
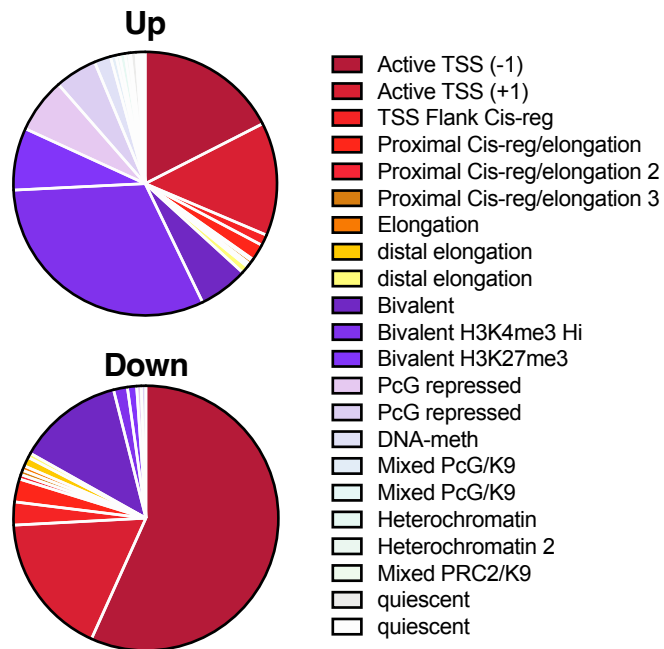
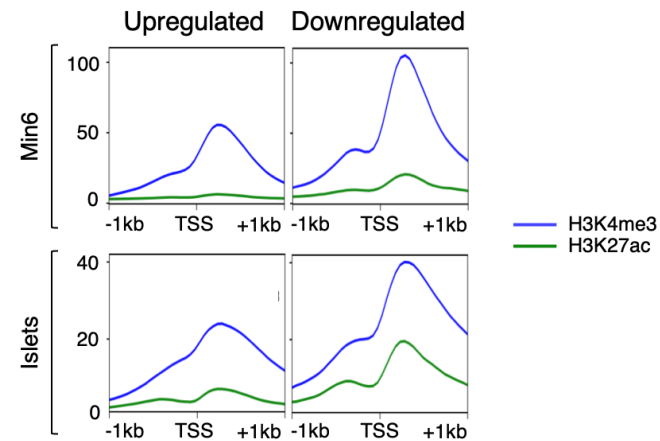
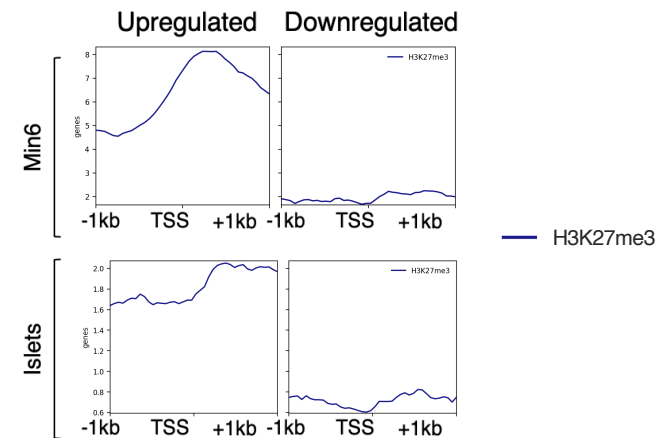




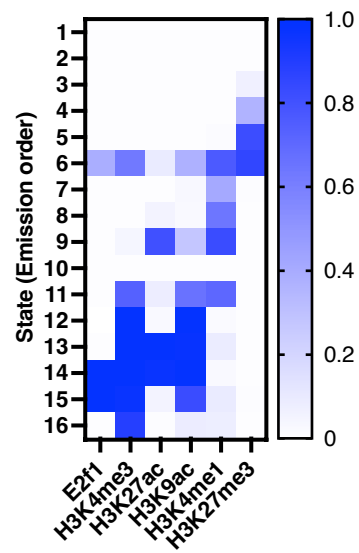




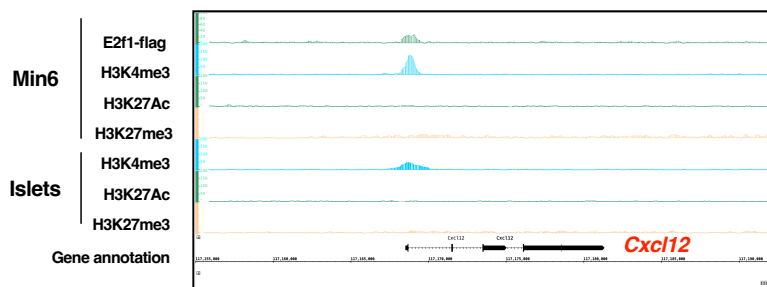
A**B****C****D****E**

A**B****C****D**

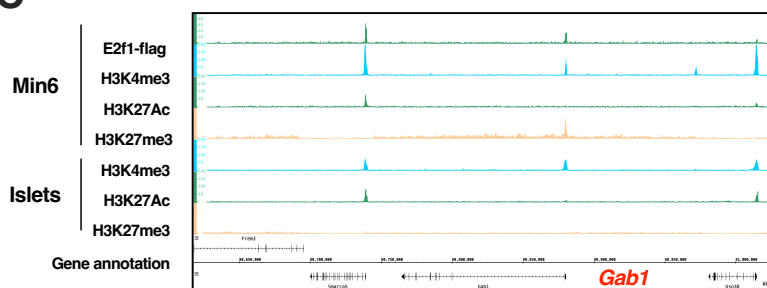
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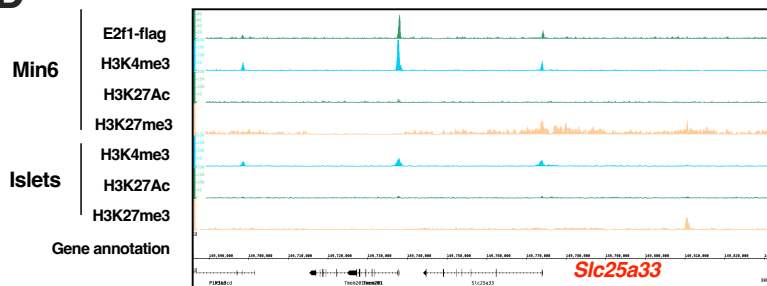
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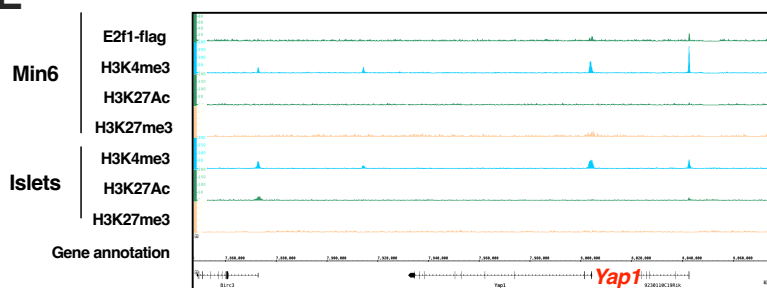
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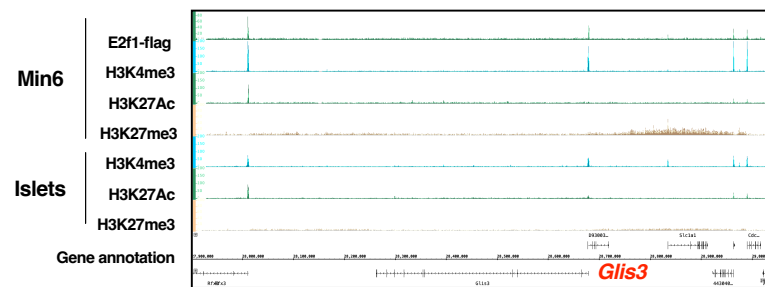
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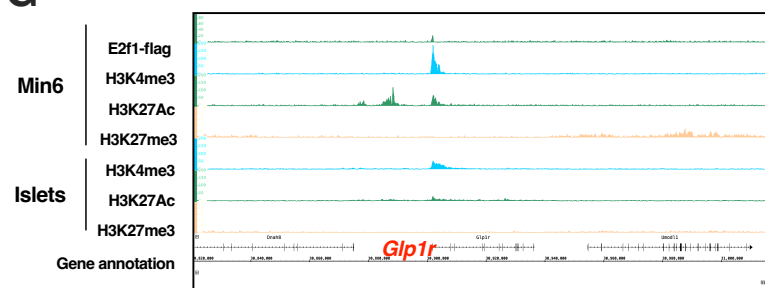
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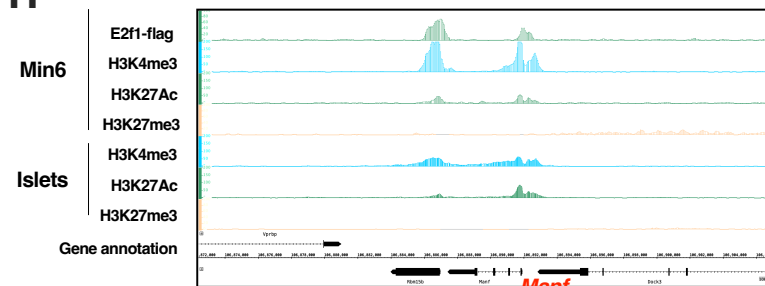
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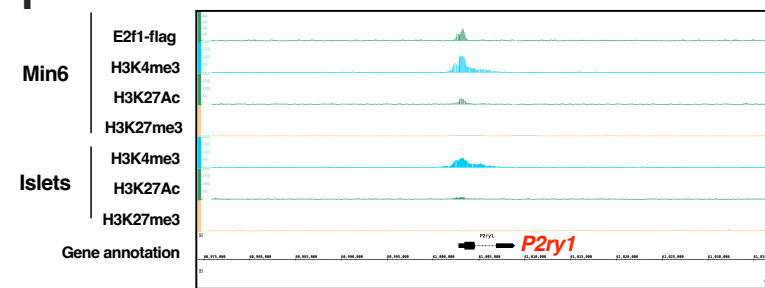
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H



I



Supplemental material

Supplementary methods

Materials and Oligonucleotides. Anti-BrdU (ab6326), anti-insulin (guinea pig, ab7842), anti-glucagon (rabbit, ab92517), anti-RFP (ab124754) and IgG (ab37415 ChIP grade for ChIP-seq experiments) antibodies were from Abcam; H3K4me3 (#61379), H3K27ac (#39685) and H3K27me3 (#61017) antibodies were from Active motif; anti-Glut2 (#07-1402-1) was from Merck; anti-cleaved caspase 3 antibody (#9661S) was from Cell Signaling; anti-PC1/3 (AB10553) was from Millipore. Anti-glucagon (mouse, G2654) and anti-FLAG (clone M2) were from Sigma-Aldrich. The HLM006474 compound was first described in (1) and synthesized as previously described (2). The list of primers used in this study is presented in Supplementary Table S2.

Animal Experiments. Mice were maintained according to European Union guidelines for the use of laboratory animals. Mice were housed under a 12-hr light/dark cycle and given a regular chow (A04;Safe).

E2f1^{-/-} (B6; 129S4-*E2f1*^{tm1Meg/J}) mice and *db*^{+/+} mice (Janvier Labs) were crossed to obtain *db/db::E2f1*^{+/+} and *db/db::E2f1*^{-/-} mice and were previously described in (3). *CMV-CDK4*^{R24C} (4) and *Cdkn2a*^{-/-} (5) were described elsewhere and were crossed with *E2f1*^{-/-} mice to obtain *E2f1*^{-/-::CMV-CDK4}^{R24C} and *E2f1*^{-/-::Cdkn2a}^{-/-}.

The congenic mice carrying the floxed *E2f1* allele were thereafter mated with rat insulin II promoter (RIP)-Cre (6) to generate RIPcre^{Tg/+::E2f1}^{flox/flox} mice. To delete *E2f1* in adult β cells, we developed a mouse model allowing targeted recombination of *E2f1* in

β cells through the use of a tamoxifen inducible strategy. To this end, $E2f1^{flox/flox}$ were crossed with MIP-CreERT mice (Jax Lab, stock number #024709). $E2f1^{flox/flox}$, $Rip-Cre^{+/+}$ and MIP-CreERT were intercrossed to generate pure mutant $Rip-Cre^{Tg/+}/E2f1^{flox/flox}$ and $MIP-CreERT^{Tg/+}/E2f1^{flox/flox}$ mice. A PCR genotyping strategy was subsequently used to identify $RIP-cre^{Tg/+}::E2f1^{+/+}$ ($Rip-Cre^{+/+}$), $Rip-cre^{+/+}::E2f1^{flox/flox}$ or $MIP-CreERT^{+/+}::E2f1^{flox/flox}$ ($E2f1^{fl/fl}$), $RIPcre^{Tg/+}::E2f1^{flox/flox}$ ($E2f1^{\beta-/-}$) and $MIP-CreERT^{Tg/+}::E2f1^{flox/flox}$ ($E2f1^{MIP-CreERT \beta-/-}$) mice. Tamoxifen was dissolved in corn oil (stock solution, 20mg/mL) at 52°C in agitation for 15min and was then administrated to both 2-month-old $E2f1^{fl/fl}$ control and $E2f1^{MIP-CreERT \beta-/-}$ transgenic animals by gavage once per day for 7 days at the dose of 4mg/day. After gavage, a stock solution of 1 mg/mL (stored at 4°C) was prepared in advance by dissolving 100mg of Tamoxifen Citrate (Biogaran) in 100 mL of drinking water. This solution was then diluted 1:20 in drinking water and provided to the animals for 1 week after the gavage induction in black bottles to prevent any alteration of the drug.

Metabolic phenotyping experiments were performed according to the EMPRESS protocols. For in vivo insulin secretion, $E2f1^{fl/fl}$ and $E2f1^{MIP-CreERT \beta-/-}$ mice were starved for 5/6 hours prior Glucose-Stimulated Insulin Secretion (GSIS) to evaluate the basal insulinemia. Blood was collected from mice anesthetized with isoflurane delivered in oxygen at a flow rate of 1l/min. Whole blood samples were collected from the retro-orbital cavity into blood collection tubes containing EDTA, using sterile glass capillaries. To assess insulin secretion level, a second blood sample was collected 20 minutes after an intraperitoneal injection of 2g/kg of body weight of D-(+)-glucose. Plasma was obtained by centrifuging at 2000g for 10 minutes at 4°C. Thereafter, it was transferred into pre-cooled tubes and directly frozen in liquid nitrogen and then stored at -80°C.

Plasma insulin concentration was evaluated by using Enzyme-Linked Immunosorbent Assay (ELISA) Ultrasensitive immunoassay (Mercodia, Uppsala, Sweden), following manufacturer's instructions. All reagents and samples were pre-warm at room temperature before use. The optical density was read at 450 nm, using a spectrophotometer ELISA reader (Sunrise BasicTecan, Crailsheim, Germany), supported by the Tecan's Magellan data analyses software. Insulin concentration was calculated using the online analyses software (myAssay.com), as suggested from the provider.

Measurement of cell proliferation, apoptosis and β -cell size. To assess cellular proliferation, 5-bromo-2'-deoxyuridine (BrdU, B9285, Sigma Aldrich) was administered to 4 *E2f1* ^{$\beta^{-/-}$} mice and 4 *E2f1*^{*fl/fl*} control littermates. BrdU was dissolved in drinking water (1mg/ml) and provided to mice in dark bottles to protect the solution from the light. The solution was prepared fresh and it was changed every two days for 8 days prior to analyses. Pancreata were harvested, embedded in paraffin, and sectioned at 5 μ m. The pancreatic sections were co-stained with anti-BrdU and anti-PC1/3, and slides were mounted with DAPI mounting-medium for nuclei-staining. Islet numbers and area were calculated with Axiovision software in squared-Pixel (PC1/3 positive area), and BrdU+/DAPI+ nuclei were counted. To measure apoptosis and β -cell size, pancreatic tissues were fixed with 10% formalin solution, dehydrated and embedded in paraffin. Immunofluorescence analysis were performed on 5 μ m tissue sections. The sections were first de-paraffinized and re-hydrated, followed by a heat-induced antigen retrieval in citrate buffer. Sections were then incubated with blocking buffer for 30minutes and primary anti-Glut2 (for measuring β -cell size) or anti-cleaved caspase 3 antibodies (for measuring apoptosis) diluted at 1:100 in blocking buffer solution over night at +4°C. Immunofluorescent stainings were revealed using an

alexa-conjugated anti-rabbit secondary antibody (for Glut-2) or fluorescein-isothiocyanate-conjugated anti-rabbit (for cleaved caspase-3). Nuclei were stained with Dapi (SigmaAldrich, D9542). For cleaved caspase 3 immunostaining, intestinal FFPE sections from murine trinitrobenzene sulphonic acid (TNBS)-induced model of colitis (a kind gift of Dr Laurent Dubuquoy, Lille) was a positive control. Image acquisitions were done using a Spinning disk confocal microscope (Zeiss). 20 islets per mice were analyzed and 5 mice from each genotype were used to analyze β -cell size and apoptosis. Analysis and quantification were performed on ImageJ software using a macro program (developed in the lab and available upon request).

RNA-Sequencing. RNA quality was verified using RNA 6000 nanochips (Agilent, 5067-1511) on the Agilent 2100 bioanalyzer (Agilent, G2939A). Purified RNA (50ng) with RNA integrity number ≥ 6.5 was subsequently used for library preparation (TruSeq Stranded mRNA Library Preparation Kit, #20020594, Illumina) and sequenced on a HiSeq2500 system (Illumina). 3 biological replicates per condition were sequenced using paired-end mode. The demultiplexing of sequence data (from BCL files generated by Illumina sequencing systems to standard FASTQ file formats) was performed using bcl2fastq Conversion Software (Illumina; version 2.19.1). Trimming of residuals adapters and low-quality reads was performed using Cutadapt software (version 1.7.1). A mean of 54 million paired-end reads of 75 bp were generated for each sample. After initial checks and validation of sequence quality, RNA-seq reads were aligned to the mouse reference genome (mm10) using TopHat2 or STAR Aligner (version 2.5.2b). Subsequently, both quantification and annotation of the reads were performed using Bioconductor package Rsubread. The counting of the different genes

and isoforms was performed using RSEM (version 1.3). Finally, the differential gene expression analyses were performed using Bioconductor package DESeq2.

ChIP sequencing. 1 ng of eluted and purified DNA was used to prepare DNA sequencing library with the Nextflex rapid DNA seq kit 2.0 (Perkin Elmer, NOVA-5188-01) on the NextSeq 500 system (Illumina) using single read 100 base pairs mode. Sequence reads from FASTQ files were mapped to the mouse genome (mm10) using Bowtie2 Aligner (version 2.3.5.1). The demultiplexing of sequence data (from BCL files generated by Illumina sequencing systems to standard FASTQ file formats) was performed using bcl2fastq Conversion Software (Illumina; version 2.20). Trimming of residuals adapters and low-quality reads was performed using TrimGalore (version 0.4.5). Finally, peak-calling was performed with MACS2 software (version 2.2.7.1).

Bioinformatic analysis. Bioinformatic analysis were mainly performed using the open web-based platform Galaxy Europe (<https://usegalaxy.eu>). Motif search was performed using Pscan Web Interface (7).

Supplementary References

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Supplementary figures and legends

Supplementary Figure S1, related to Figure 1. Validation of the *E2f1* ^{β -/-} mouse model. (A) qPCR-based analysis of *E2f1* mRNA expression in different tissues (pancreatic islets, hypothalamus (Hypo), heart, epididymal white adipose tissue (eWAT), brown adipose tissue (BAT) and muscle) isolated from 3-month-old male *E2f1* ^{β -/-}, RIP-Cre^{+/+} and *E2f1*^{fl/fl} control mice (n=3-6). **(B and C)** Body weight (B, n=5-8) and fasting glycaemia (C, n=7-12) of 3-month-old male *E2f1* ^{β -/-}, RIP-Cre^{+/+} and control *E2f1*^{fl/fl} mice. Statistical analysis were performed using one-way analysis of variance (ANOVA) with Tukey's test. **p<0.01. Results are represented as mean \pm s.e.m.

Supplementary Figure S2, related to Figure 1. Metabolic phenotyping of the *E2f1* ^{β -/-} and *E2f1*^{MIP-CreERT β -/-} mouse models. Body weight (A, F, n=5-7), fasting

glycaemia (**B, G**, n=5-7), ipGTT (**C, H**, n=5-7) and its corresponding AUC (**D, I**, n=5-7), and plasma insulin levels at 0 and 30 min after intraperitoneal glucose injection (**E, J**, n=5-7) of 6-week-old (**A to E**) and 8-week-old (**F to J**) male *E2f1* ^{$\beta^{-/-}$} and control *E2f1*^{fl/fl} mice. (**K**) Intraperitoneal insulin tolerance test (IPITT) of *E2f1* ^{$\beta^{-/-}$} (n=8), RIP-Cre^{+/+} (n=8) and *E2f1*^{fl/fl} (n=8) male mice at 12 weeks of age. (**L**) qPCR-based analysis of *E2f1* mRNA expression in pancreatic islets isolated from 5-month-old male *E2f1*^{MIP-CreERT $\beta^{-/-}$} and *E2f1*^{fl/fl} control mice 3 months after tamoxifen administration (n=9-10). (**M-N**) ipGTT (**M**, n=9-10) and its corresponding AUC (**N**, n=9-10) was performed one month after tamoxifen administration in *E2f1*^{MIP-CreERT $\beta^{-/-}$} and *E2f1*^{fl/fl} control mice. All values are expressed as mean \pm s.e.m. and were analysed by two-tailed unpaired Mann-Whitney test (A, B, D, F, G, I, L, N) or two-way ANOVA with Bonferroni's multiple comparisons test (C, H, K, M). *p < 0.05; **p<0.01; ***p<0.001.

Supplementary Figure S3, related to Figure 2. The E2f1-CDK4-Cdkn2a pathway is required to maintain normal α -to- β cell ratio. (**A**) Representative immunofluorescent staining of Glut-2 in pancreatic sections from 3 months old *E2f1* ^{$\beta^{-/-}$} and control *E2f1*^{fl/fl} male mice. Quantification of β -cell size was performed as described in the supplemental material using confocal images from 20 islets and 5 mice per genotype and ImageJ macro. (**B-D**) Representative immunofluorescent staining of cleaved caspase 3 (B-C) and BrdU staining (D) in pancreatic sections from 3 months old *E2f1* ^{$\beta^{-/-}$} and control *E2f1*^{fl/fl} male mice (B-D). Small intestine FFPE sections from control C57bl6/J mice treated with TNBS were used as a positive control for apoptotic cell detection through cleaved caspase 3 staining (C). Nuclei were stained with Dapi.

Supplementary Figure S4, related to Figure 2. The E2f1-CDK4-Cdkn2a pathway is required to maintain normal α -to- β cell ratio. (A, B). Representative immunofluorescent staining of insulin and glucagon in pancreatic sections from 16-week-old global *E2f1* knockout male mice (*E2f1*^{-/-}, B) compared to littermate controls (*E2f1*^{+/+}, A). **(C)** Quantification of glucagon (Glucagon +) and insulin (Insulin +) labelled cells from the different mouse models (n=3 per genotype). **(D)** Scheme representing the different genetically-engineered mouse models used in this study. **(E to H)** Representative immunofluorescent staining of insulin and glucagon in pancreatic sections from male CMV-CDK4^{R24C} (E), *E2f1*^{-/-}::CMV-CDK4^{R24C} (F), *Cdkn2a*^{-/-} (G), *E2f1*^{-/-}::*Cdkn2a*^{-/-} (H) mice. Values in C are expressed as mean \pm s.e.m. and were analysed by one-way ANOVA with Tukey's test. ***p<0.001 and ****p<0.0001 compared to *E2f1*^{+/+}; #####p<0.0001 compared to *E2f1*^{-/-}.

Supplementary Figure S5, related to Figure 2. Altered α -to- β cell ratio in germline *E2f1*-deficient mice. (A) Representative immunofluorescent staining of insulin and glucagon in pancreatic sections from 14 to 15 week old global *E2f1* knockout male mice in a *Db/Db* background (*Db/Db*::*E2f1*^{-/-}) compared to littermate control (*Db/Db*::*E2f1*^{+/+}). **(B)** Quantification of glucagon (Glucagon +) and insulin (Insulin +) labelled cells in *Db/Db*::*E2f1*^{-/-} and *Db/Db*::*E2f1*^{+/+} mice calculated from C (n=4 per genotype). Values in B are expressed as mean \pm s.e.m. and were analysed by two-tailed unpaired *t*-test. *p < 0.05; **p<0.01.

Supplementary Figure S6, related to Figure 4. Gene expression analysis of pancreatic islets isolated from β cell-specific *E2f1* knockout mouse (*E2f1* ^{β -/-}) compared to littermate controls (*E2f1*^{fl/fl}). (A) Aligned reads and sequencing

coverage of *E2f1* gene exons in *E2f1^{fl/fl}* and *E2f1^{β-/-}* isolated islets in RNA-sequencing experiments. **(B and C)** Heatmap from gene set enrichment analysis (GSEA) displaying differentially expressed β-cell specific genes **(B)** and α-cell specific genes **(C)** in islets isolated from *E2f1^{β-/-}* and *E2f1^{fl/fl}* mice. **(D)** qPCR-based analysis of *E2f1*, *Pcsk9*, *Foxo1* and some β-cell specific genes (*Pdx1*, *Mafa*, *Ins2*, *Glp1r*) in islets isolated from 6-month-old *E2f1^{β-/-}* and *E2f1^{fl/fl}* control male mice (n=5-11). **(E)** qPCR-based analysis of *Arx* (α-cell specific gene) in islets isolated from 6-month-old *E2f1^{β-/-}* and *E2f1^{fl/fl}* control male mice (n=3-5). Results are represented as mean ± s.e.m. Statistical analysis for D and E were performed using one-way ANOVA with Tukey's test. *p < 0.05; **p<0.01; ***p<0.001.

Supplementary Figure S7, related to Figure 6. Chromatin state of specific examples of *E2f1^{β-/-}* up- and down- regulated genes in pancreatic islets and Min6 cells. **(A-B)** Integrated Genome Browser (IGB, (8)) was used to visualize H3K4m3, H3K27ac and H3K27me3 ChIP-seq signal intensities from Min6 cells and mouse pancreatic islets (9) within a series of **(A)** *E2f1^{β-/-}* down-regulated genes and **(B)** *E2f1^{β-/-}* up-regulated genes.

Supplementary Figure S8, related to Figure 7. E2f1 ChIP-seq validation. **(A)** Western blot assay showing efficacy of pCMV-hE2F1-Flag plasmid transfection using a Flag antibody in Min6 cells transfected during 24h with the empty pCMV plasmid (Empty plasmid) and pCMV-hE2F1-Flag (E2f1 Flag) plasmid during 24h and 48h. **(B)** Pie-chart showing localization of E2F1 binding in the genome divided in proximal promotor (<1kb), distal promotor (between 1 and 3 kb), gene body, downstream and distal intergenic region. **(C)** Transcription factor binding motifs enriched in ChIP-Seq

from Min6 cells transfected with pCMV-hE2F1-Flag plasmid. **(D)** Integrated genome browser (IGB) representation of hE2F1-Flag fixation site in the promoter region of *Ezh2* in Min6 cells transfected with pCMV plasmid (Empty-Flag) or pCMV-hE2F1-Flag (E2f1-Flag) plasmid (n=2). **(E)** Representation of hE2F1-Flag fixation site in the promoter of *Ccne1* in Min6 cells transfected with pCMV plasmid or pCMV-hE2F1-Flag plasmid realized using IGB software (n=2). **(F, G, H)** ChIP-qPCR showing fixation of hE2F1-Flag in *Ezh2* (F), *Ccne1* (G) and an intergenic region in Min6 cells transfected with pCMV plasmid or pCMV-hE2F1-Flag after an immunoprecipitation with IgG or Flag antibodies (n=2).

Supplementary Figure S9, related to Figure 7. Pathway analysis of direct and indirect E2f1 target genes. **(A-D)** IGB profiles of E2f1 bound (A-B) and unbound (C-D) genes identified through E2f1-Flag Chip-seq analysis. **(E-H)** Ingenuity Pathway Analysis (IPA) of E2f1 bound and unbound downregulated (E-G) and upregulated (F-H) genes in *E2f1*^{β/-} compared to *E2f1*^{fl/fl}. Histogram of the 10 top enriched canonical pathways across input gene lists are shown.

Supplementary Figure S10, related to Figure 7. Pathway analysis of E2f1 direct and indirect target genes. **(A)** Genomic localisation of 16-state ChromHMM model. Heatmap displays the fold enrichment for each state for each 200-bp bin position within 2 kb around a set of transcription start sites (TSSs). **(B to G)** Ingenuity pathway analysis identified 10 top canonical pathways of *E2f1*^{β/-} up- and down-regulated genes belonging to segment 6 (B-C), 14 (D-E) and 15 (F-G).

Supplementary Table S1, related to Figure 5. Donor information.

Supplementary Table S2, related to Figures 5, S1, S2, S6 and S8. List of oligonucleotides used in this study.

Supplementary Table S3, related to Figures 4, 6, 7, S6, S7, S8, S9 and S10. List of ChIP-seq and RNA-seq data sets used in this study.

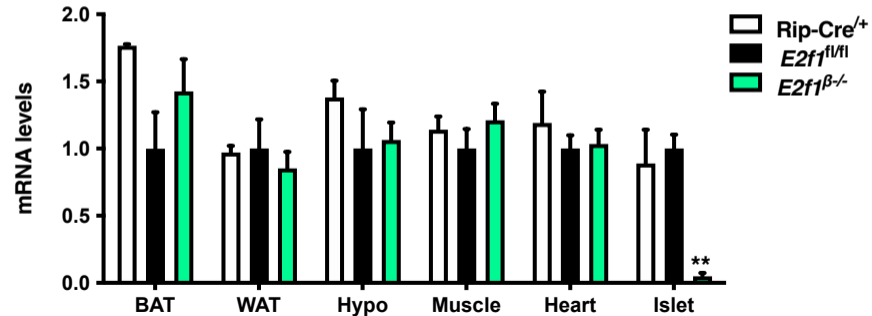
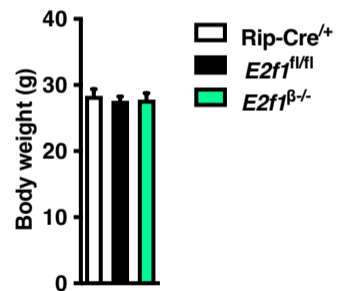
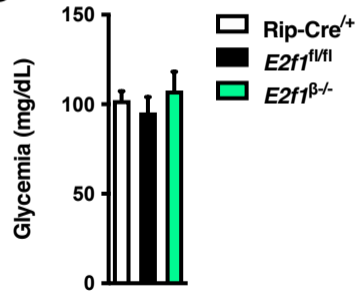
Supplementary Table S4, related to Figures 4, 6 and S6. List of transcripts differentially regulated in *E2f1* ^{β -/-} and *E2f1*^{fl/fl} pancreatic islets identified by RNA-sequencing and their chromatin state.

Supplementary Table S5, related to figure 4. Pathway analysis of RNA-sequencing data in pancreatic islets isolated from control *E2f1*^{fl/fl} and β -cell specific *E2f1* ^{β -/-} deficient mice identifies potential upstream regulators associated to *E2f1* deficiency.

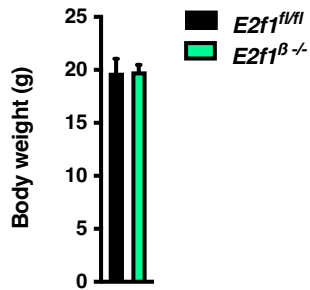
Supplementary Table S6, related to figure 7, S9 and S10. E2f1-flag ChIP-seq in Min6 cells reveals direct and indirect E2f1 target genes involved in beta cell function. Download the excel file at : <https://nextcloud.univ-lille.fr/index.php/s/ATYtizjgHkQCEpb>

Supplementary Table S7, related to figure 7 and S10. List of the up- and downregulated genes that are bound by E2f1 at the chromatin level identified through ChromHMM 16-state segmentation (10). Chromatin state of E2f1 target genes were identified through intersecting E2f1-flag ChIP sequencing and RNA-sequencing data in pancreatic islets isolated from control *E2f1*^{fl/fl} and β -cell specific *E2f1* ^{β -/-} deficient mice. Genes belonging to segment 6, 14 and 15 are listed with their corresponding

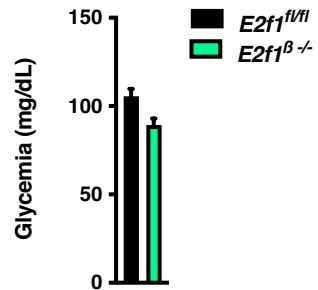
adjPval and Log2FC. Download the excel file at: <https://nextcloud.univ-lille.fr/index.php/s/cgxD5gQjqKbwZpQ>

A**B****C**

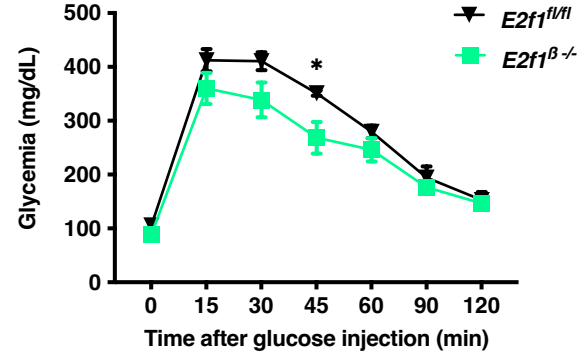
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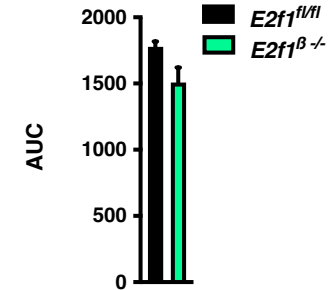
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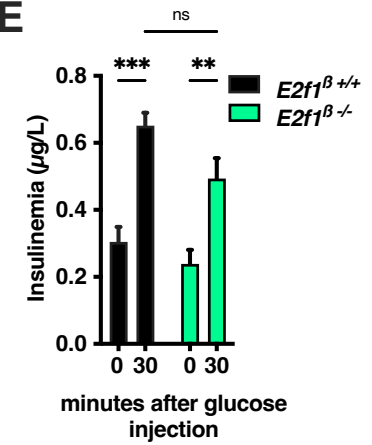
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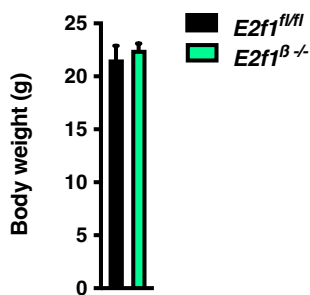
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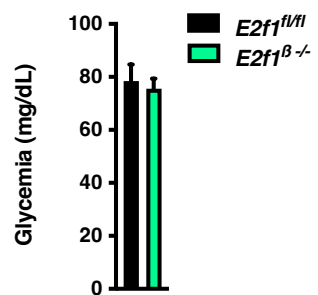
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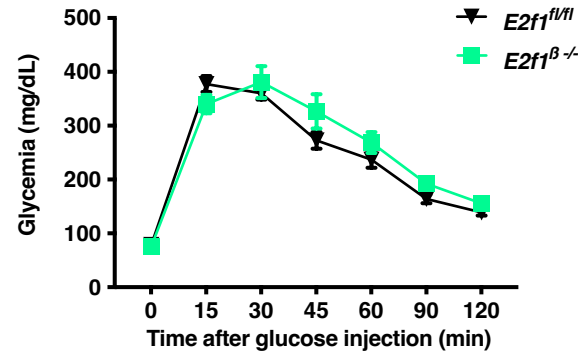
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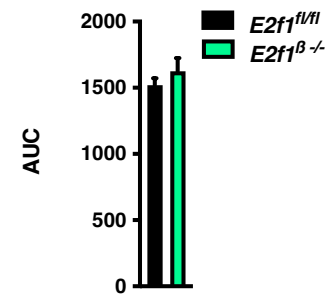
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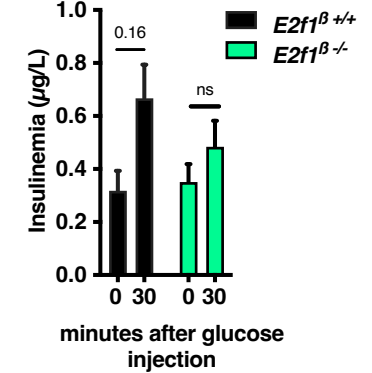
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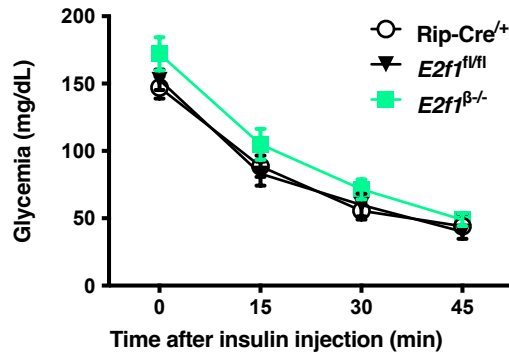
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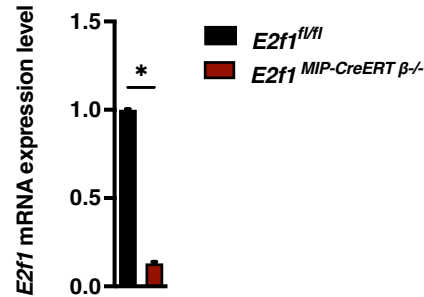
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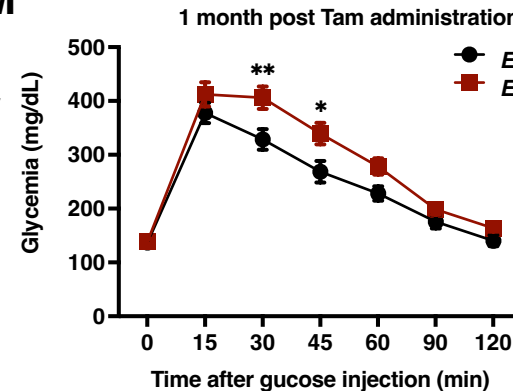
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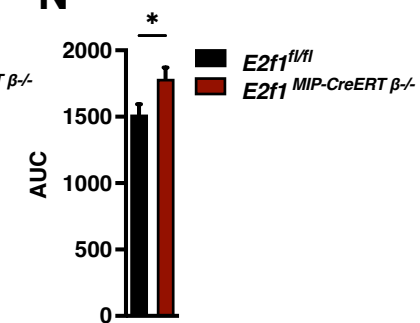
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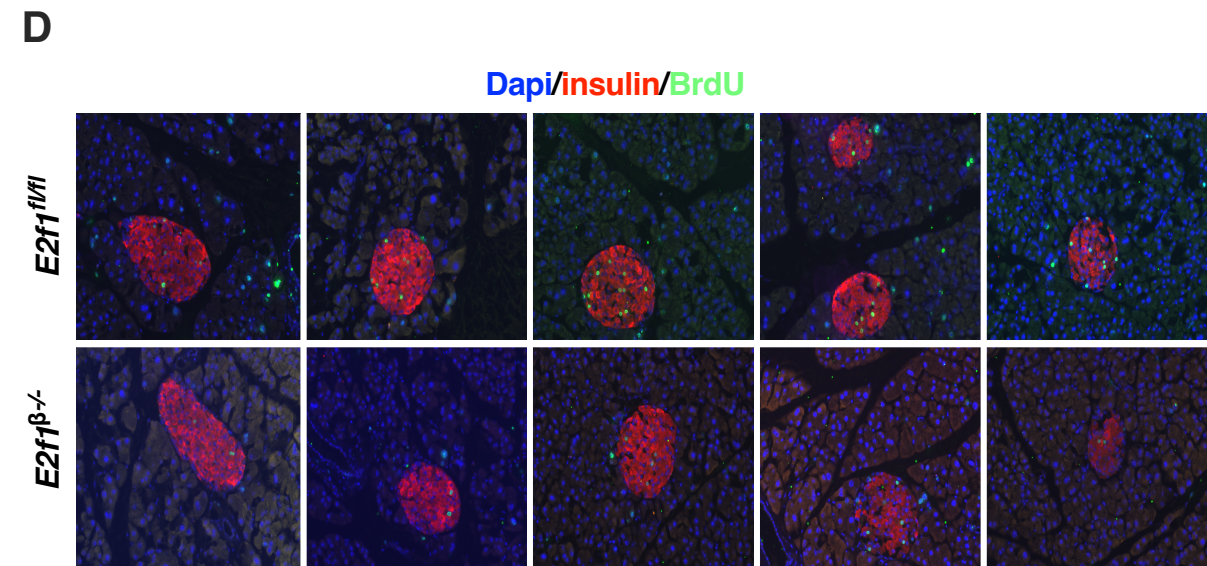
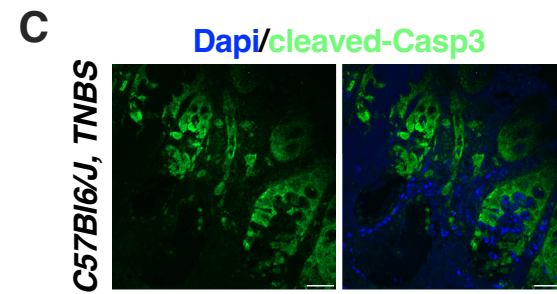
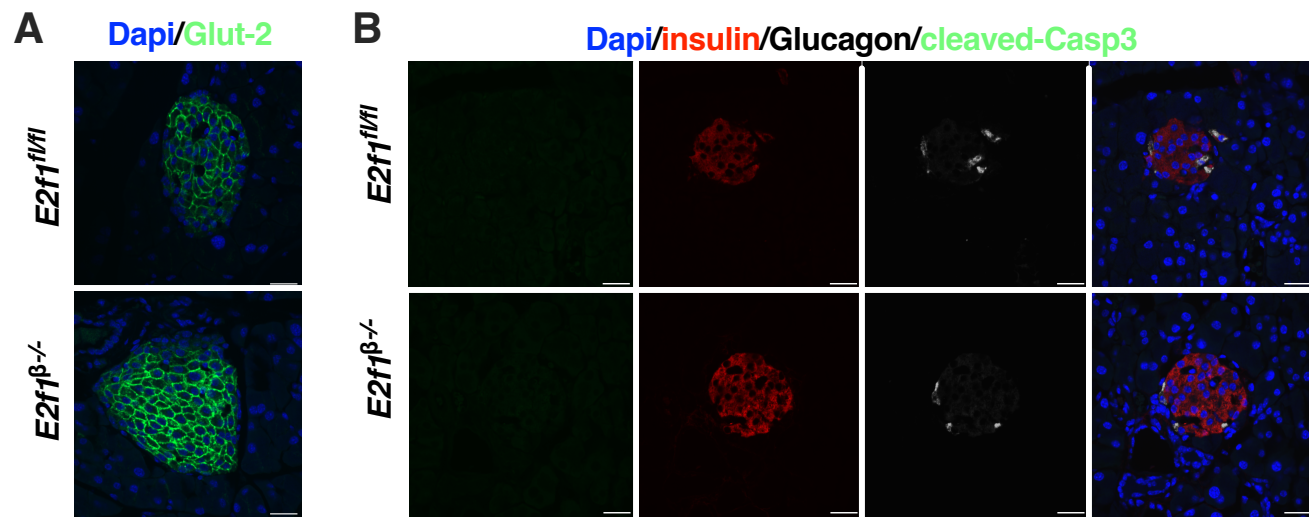


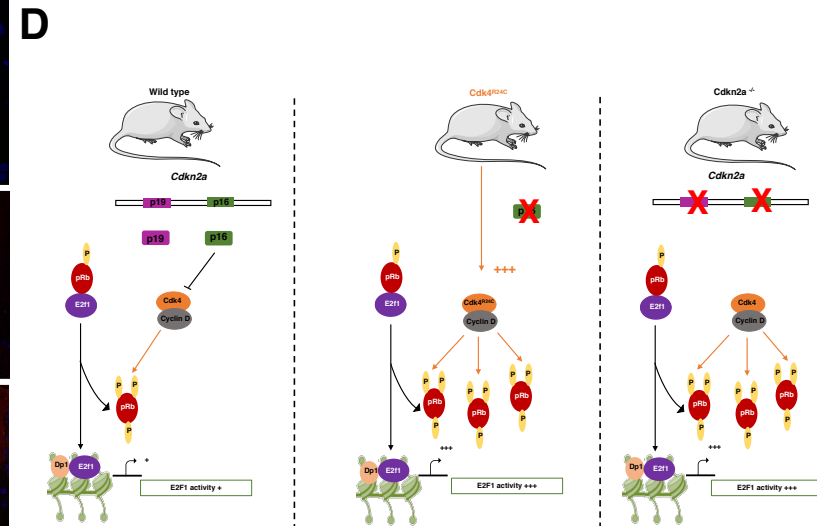
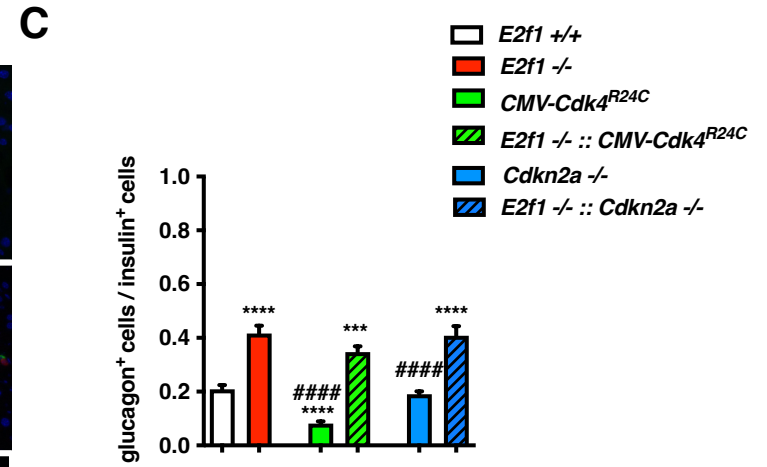
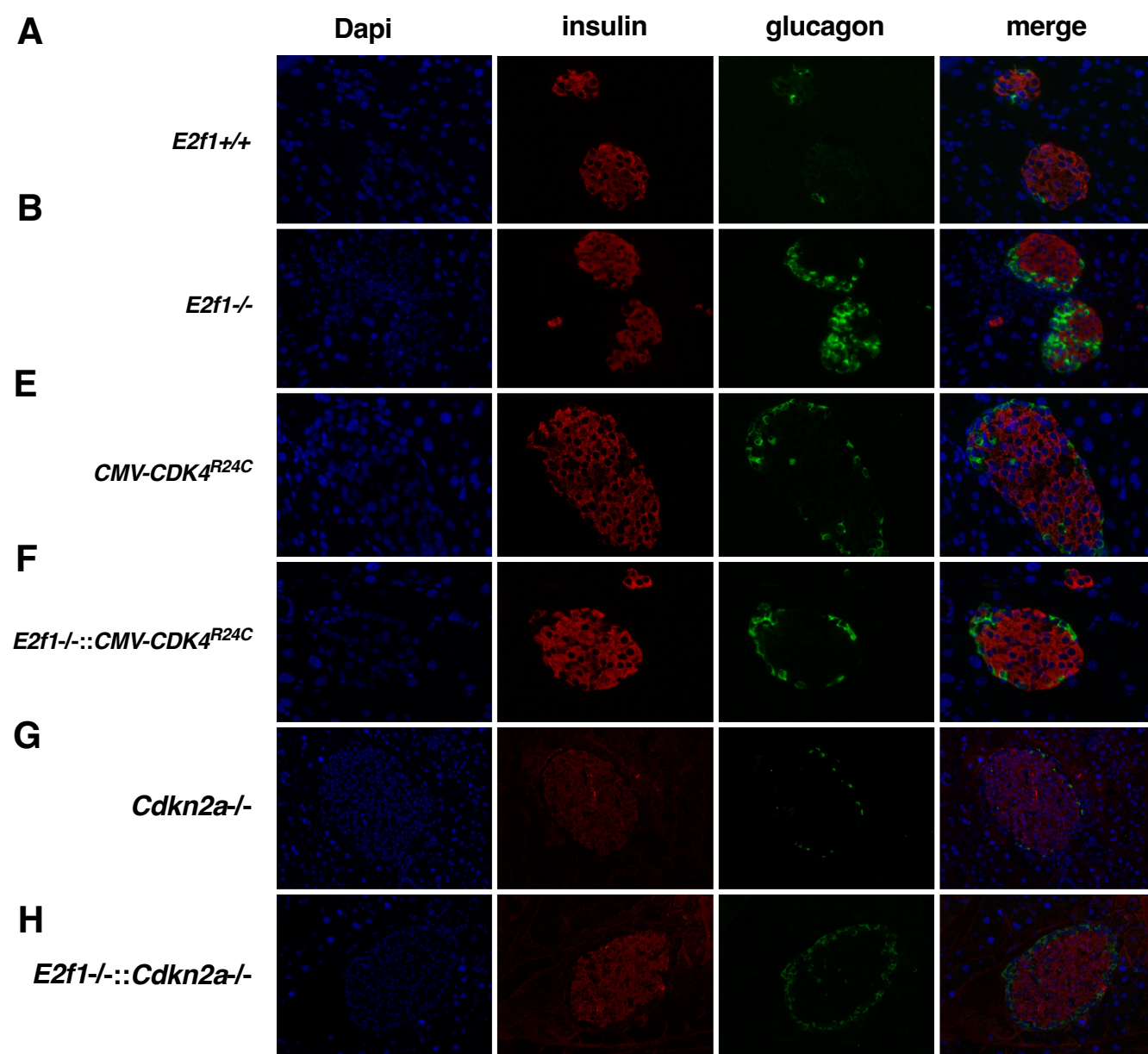
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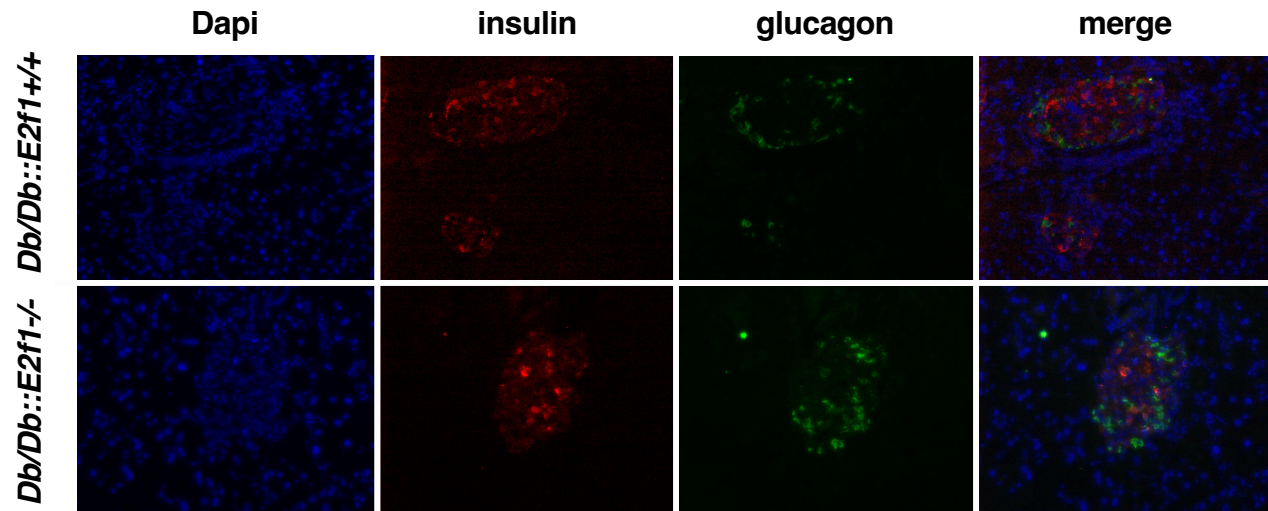
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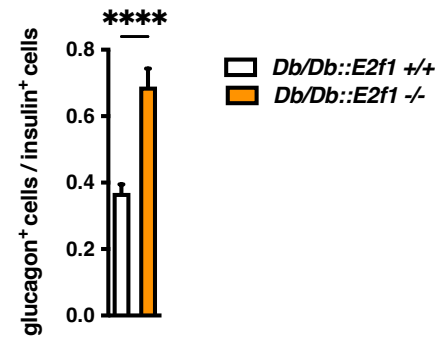


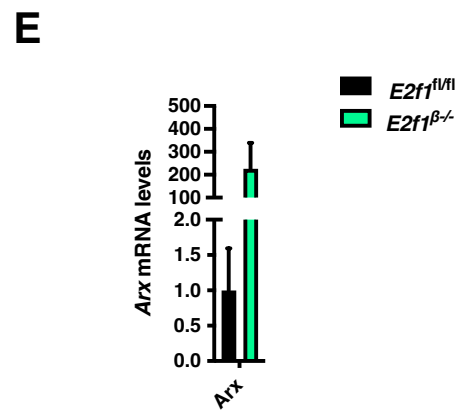
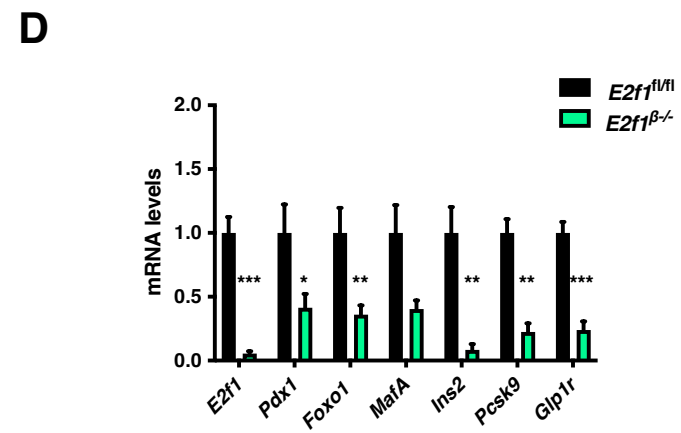
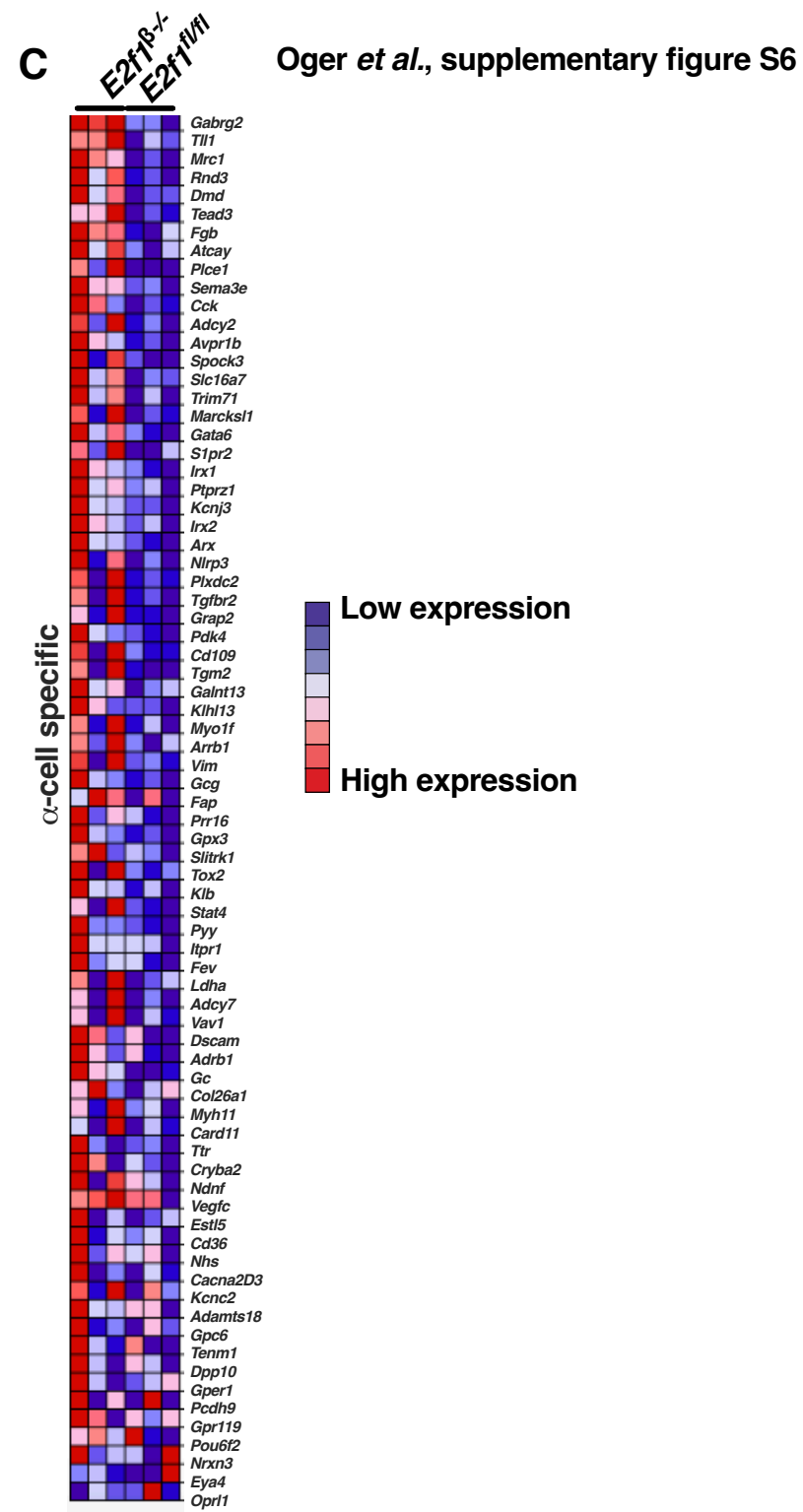
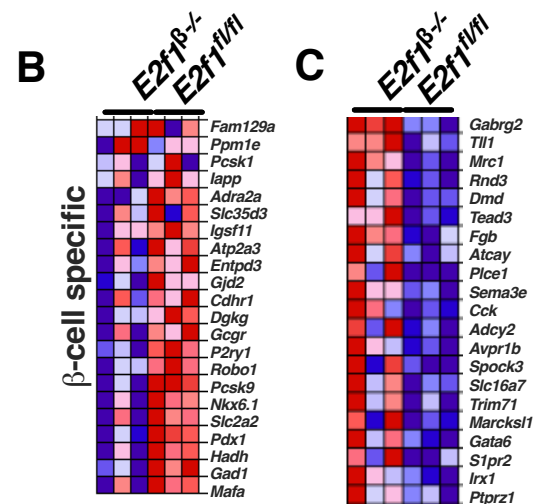
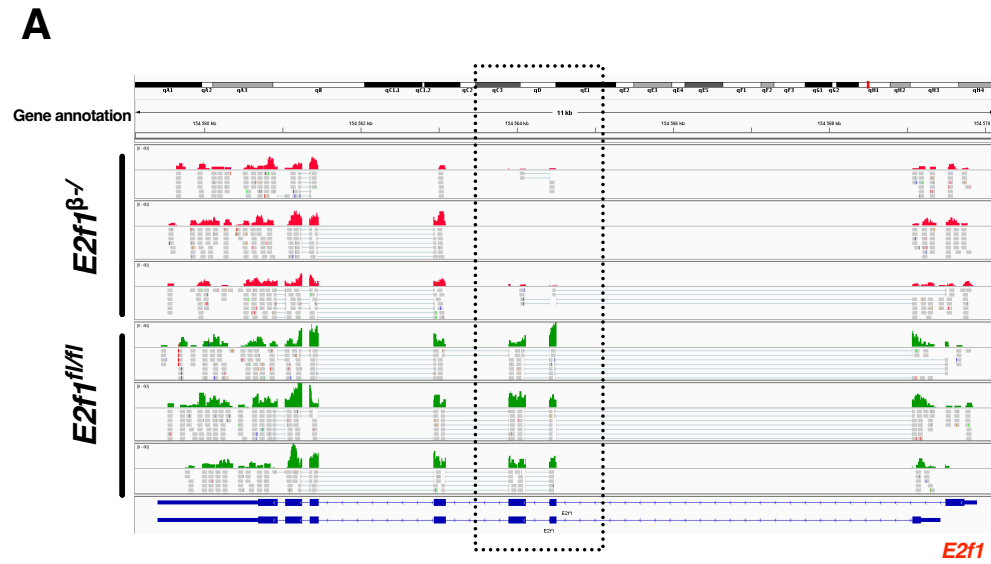


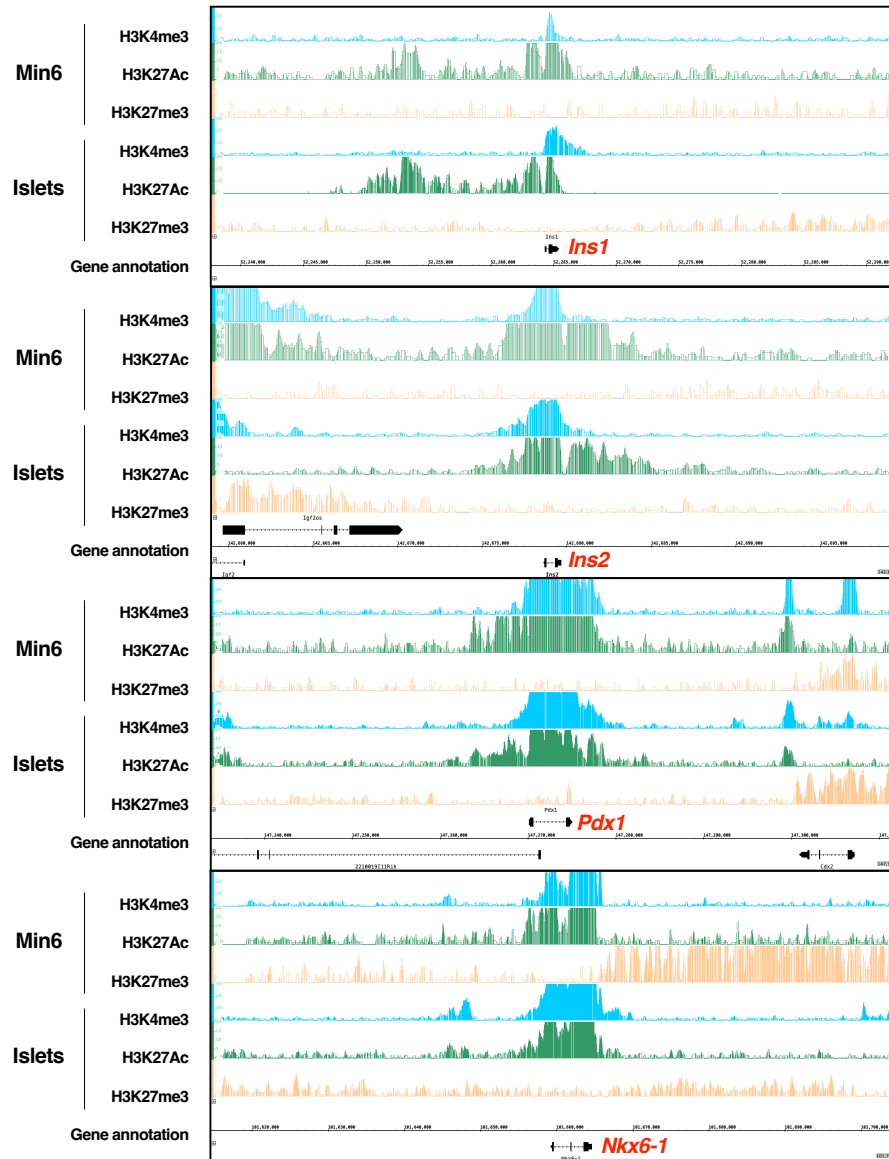
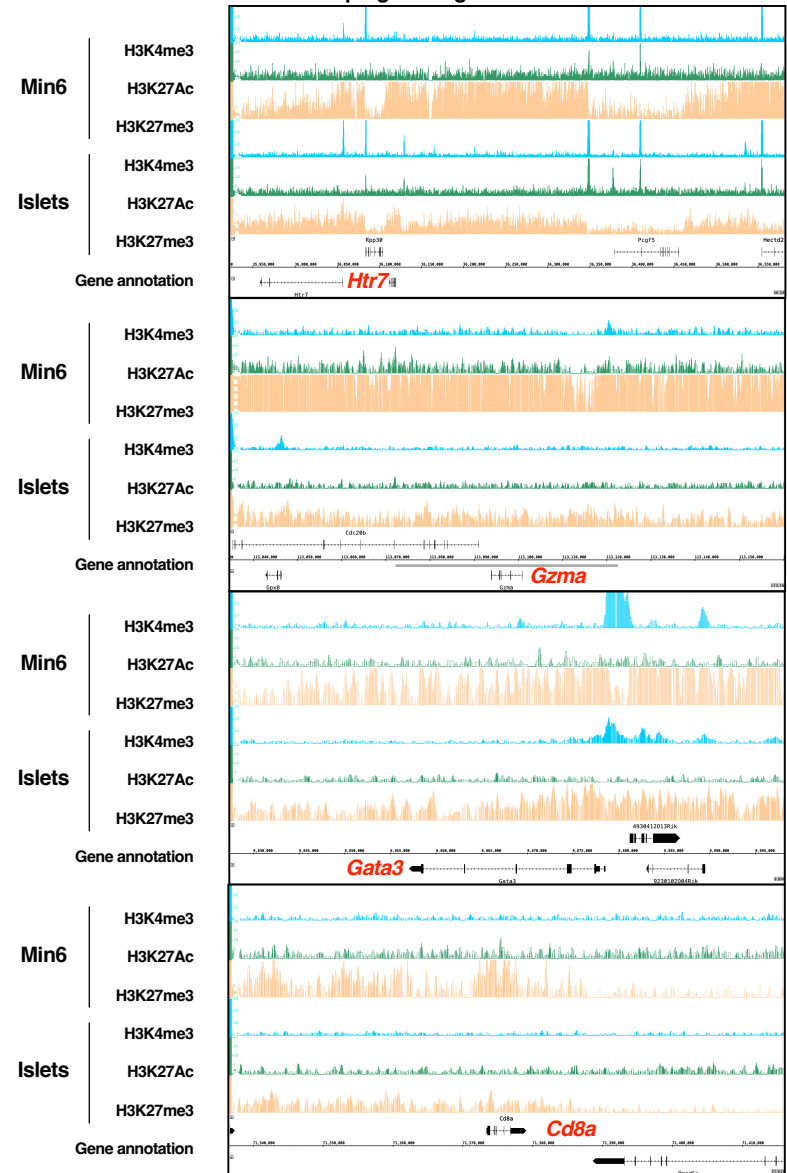
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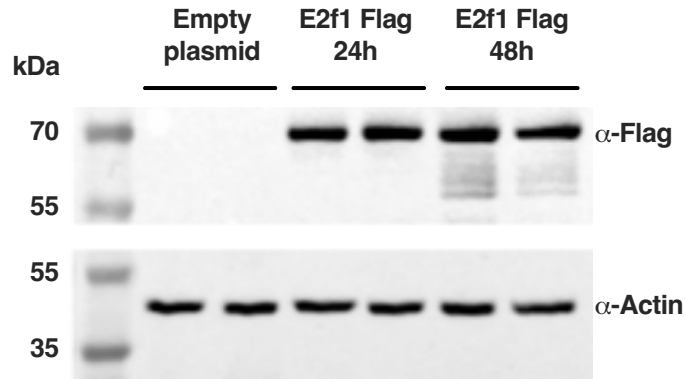
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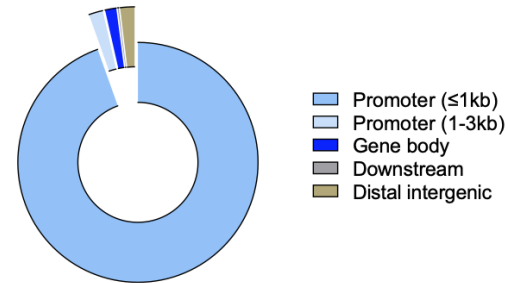


ADownregulated genes in *E2f1*^{β-/-} islets**B**Upregulated genes in *E2f1*^{β-/-} islets

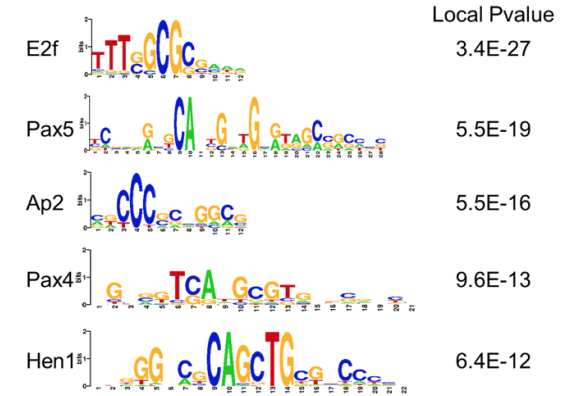
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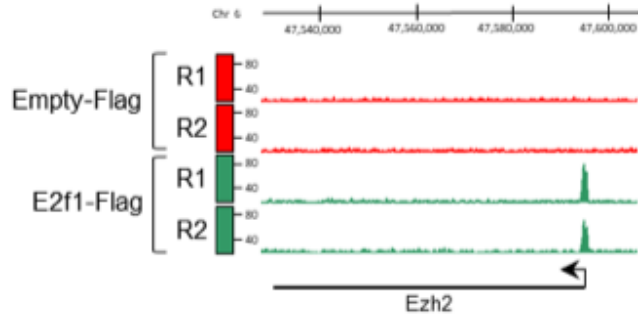
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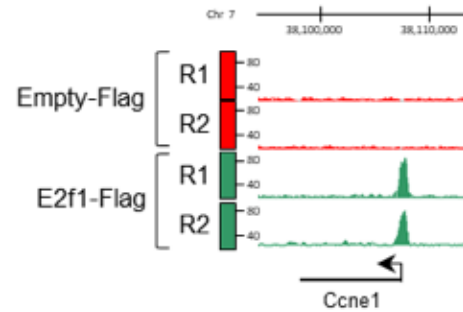
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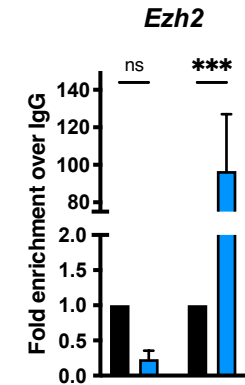
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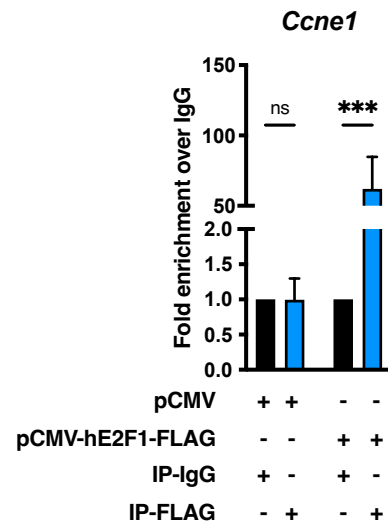
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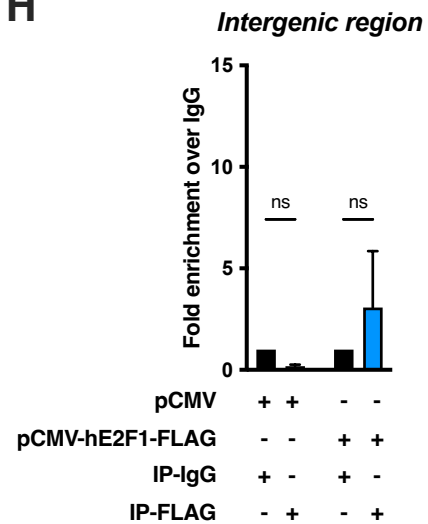
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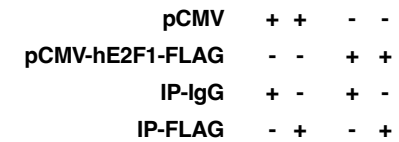
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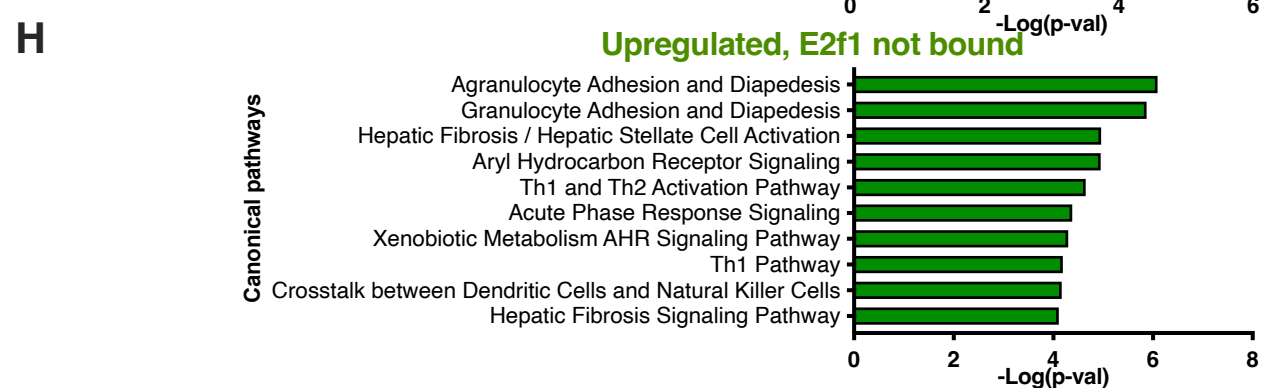
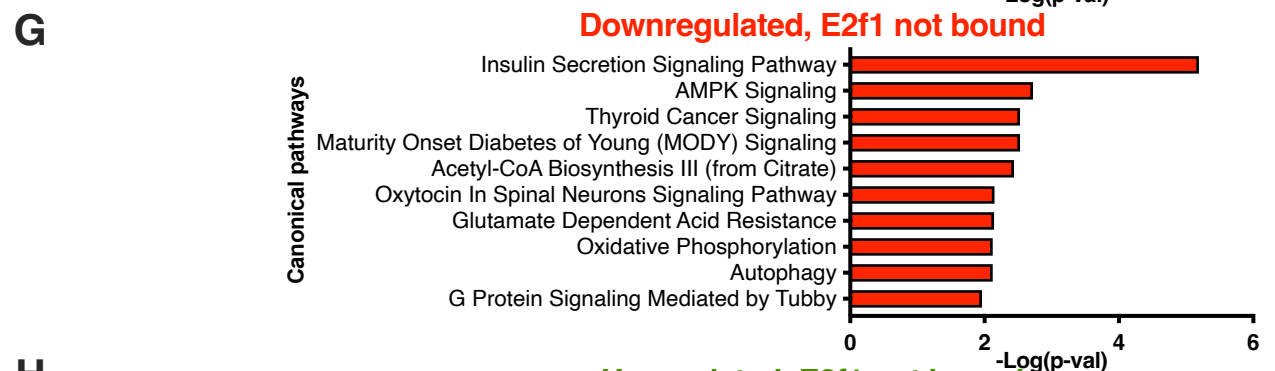
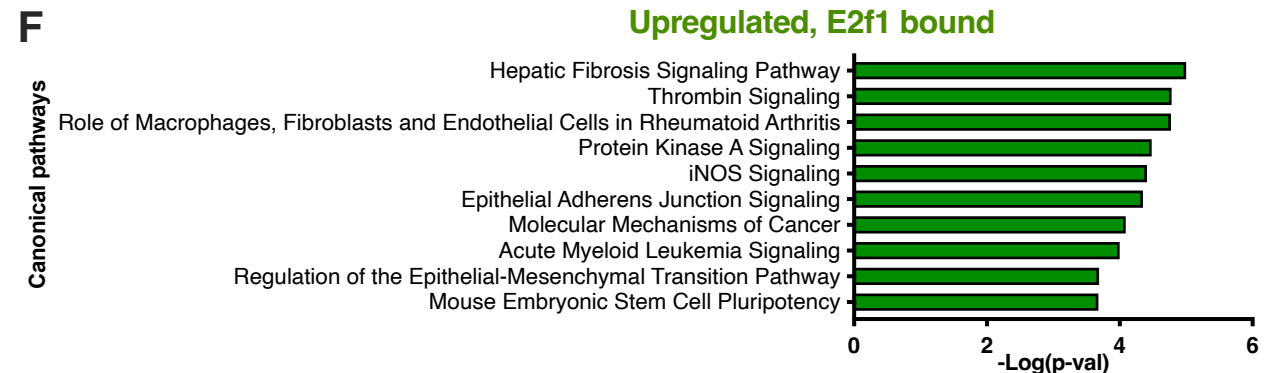
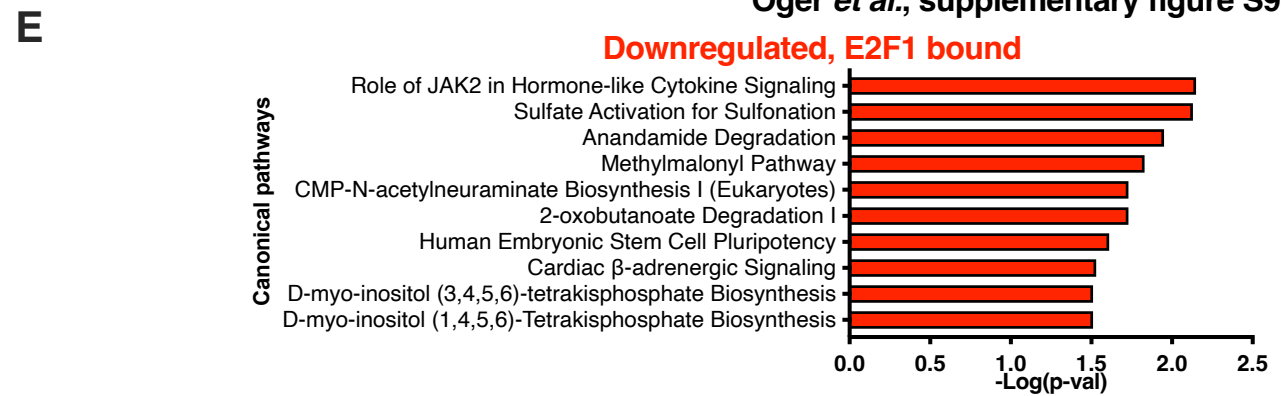
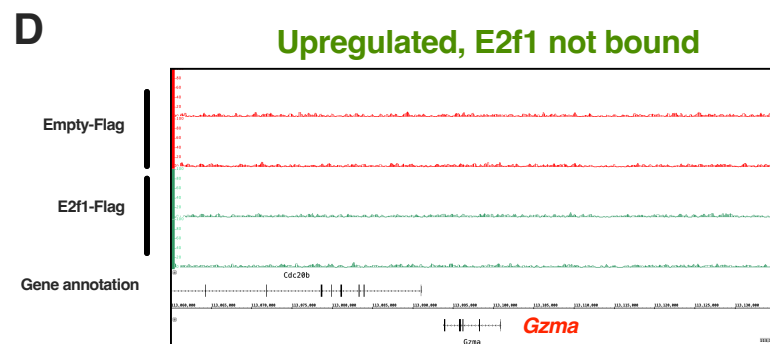
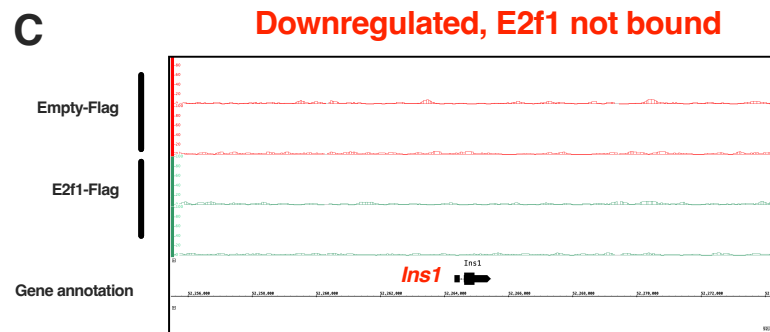
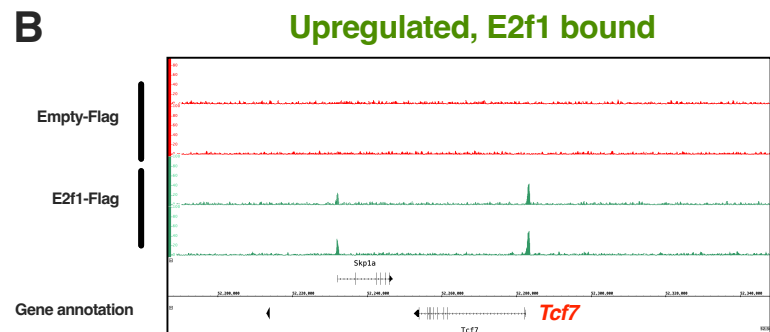
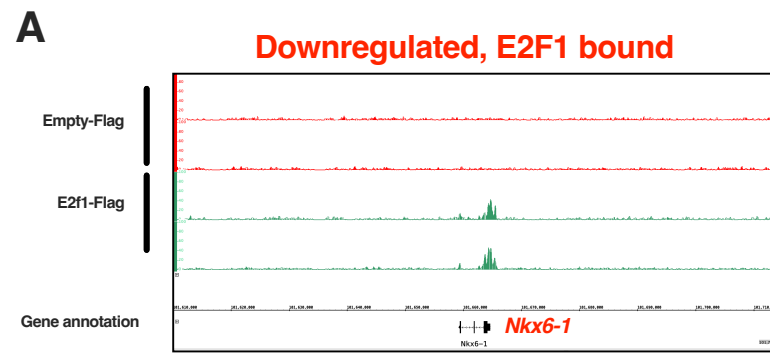


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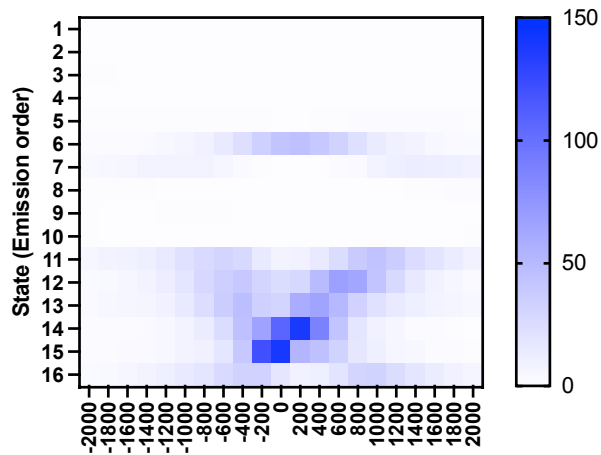


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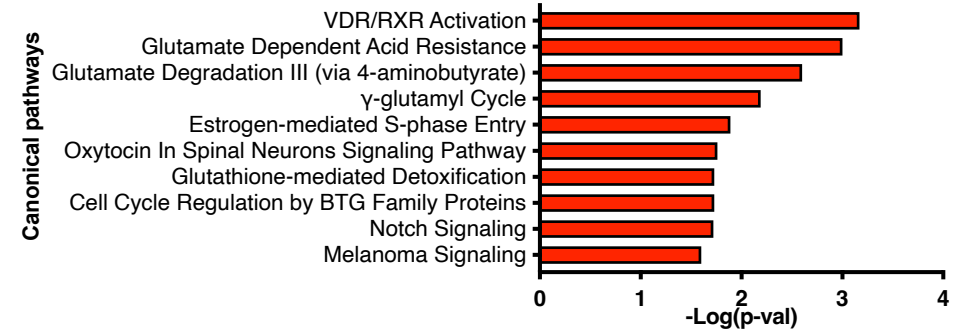


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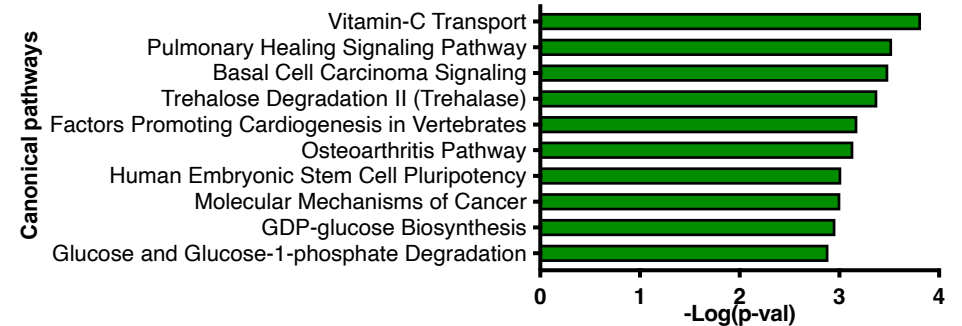
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Segment 6, downregulated genes



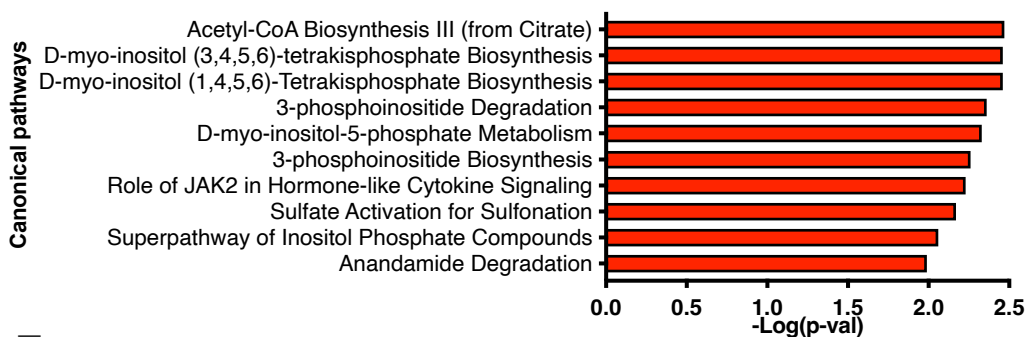
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Segment 6, upregulated genes



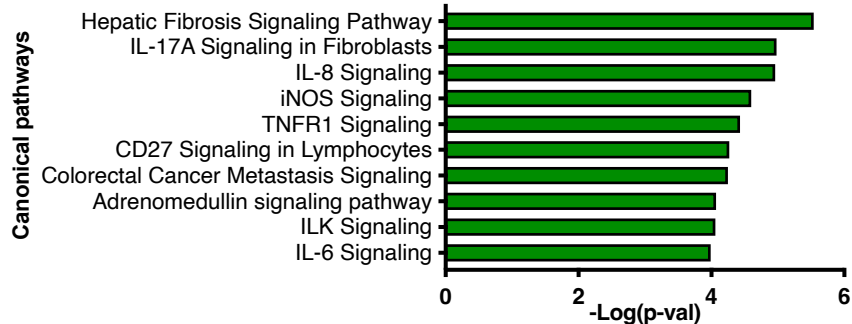
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Segment 14, downregulated genes



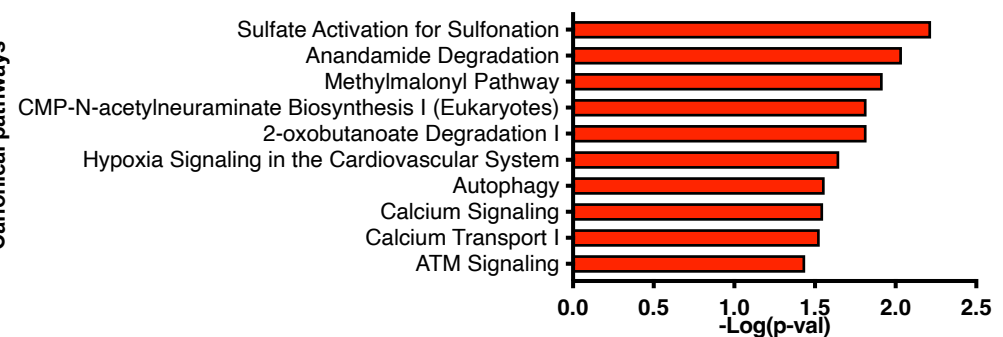
E

Segment 14, upregulated genes



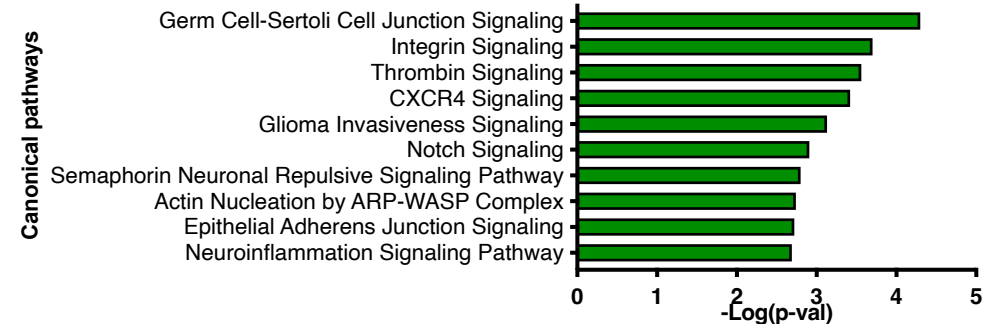
F

Segment 15, downregulated genes



G

Segment 15, upregulated genes



Continues on the next page

RECOMMENDED INFORMATION								
Donor cause of death	Hémorragie Méningée	AVC	AVC					
Warm ischaemia time (h)	0	0	0					
Cold ischaemia time (h)	3H38	6H20	6H35					
Estimated purity (%)	80	80	80					
Estimated viability (%)	98,1	93,7	95,3					
Total culture time (h) ^d	18	18	36					
Glucose-stimulated insulin secretion or other functional measurement ^e	1,18	3,67	1,56					
Handpicked to purity? Please select yes/no from drop down list	No	No	No					
Additional notes								

^aIf you have used more than eight islet preparations, please complete additional forms as necessary

^bFor example, IIDP, ECIT, Alberta IsletCore

^cPlease specify the therapy/therapies

^dTime of islet culture at the isolation centre, during shipment and at the receiving laboratory

^ePlease specify the test and the results

Supplementary Table S2, related to Figure 5, S1, S2, S5 and S7 . List of oligonucleotide used in this study. (To modify for publication)

Gene Name	Gene symbol	Species	Primer
Cyclophilin	Cyclo	Mouse	ATGGCACTGGCGGCAGGTCC
			TTGCCATTCCTGGACCCAAA
E2f1	E2f1	Mouse	GATCGAAGCTTTAATGGAGCG
			CCCTTGCTTCAGAGAACAGG
E2f1 Exon3	E2f1 Exon3	Mouse	ACAGCTGCAACTGCTTTCGGAG
			AGCTTGTAGTTGGGTCTCAGGAGG
Paired Box 4	Pax4	Mouse	GTGTACCCTCAGCTGCCTTG
			ATAGGCCTGGGATGAGGTGT
Pancreatic and duodenal homebox 1	Pdx1	Mouse	ATTGTGCGGTGACCTCGGGC
			GATGCTGGAGGCTGTGGCG
Aristaless-related homebox	Arx	Mouse	GCGGGCTTCCAGAAGACGC
			CTGGAACCACTGGACTCGG
Homeobox protein Nkx2.2	Nkx2.2	Mouse	GTGCAGGAGTATTGGAGGC
			GAAGGGCCAGAGGAGGAGA
Forkhead box protein O1	Foxo1	Mouse	TGCCCAACCAAGCTTCCACA
			TGGACTGCTCCTCAGTTCCTGCT
Insulin1	Ins1	Mouse	GCCAAACAGCAAAGTCCAGG
			GTTGAAACAATGACCTGCTGC
Insulin2	Ins2	Mouse	CAGCAAGCAGGAAGCCTATCT
			CAGGTGGGAACCAAAAGGT
Glucagon	Gcg	Mouse	AGGCCGAGGAAGGCGAGACT
			GGAGCCATCAGCGTGCCTGC
Potassium voltage-gated channel subfamily J member 11	Kcnj11	Mouse	CACAAGCTGGGTTGGGGGCTC
			TGCCCTCAGCTGGGTTCTGC
Dihydrofolate reductase	Dhfr	Mouse	ATGGTTCCGACATTGAACTGCATCG
			TCTTCTCAGGAATGGAGAACCAGG
Glucokinase	Gck	Mouse	GCTCAGTGAACCCCGTCAAGC
			TGTGCGCAGCTGCTCTGAGG
v-maf musculoaponeurotic fibrosarcoma oncogene family, protein A	MafA	Mouse	CCTGTAGAGGAAGCGGAGGAA
			CCTCCCCAGTCGAGTATAGC
v-maf musculoaponeurotic fibrosarcoma oncogene family, protein B	MafB	Mouse	TTAGCGCAGACAGACTACCCAAA
			ATACTTTTACACTCCACCCTCG
Solute carrier family 2 (facilitated glucose transporter)	Slc2a2	Mouse	AACCGGATGATTGGCATGT
			GGCGAATTTATCCAGCAGCA
Proprotein convertase subtilisin/kexin type1	Pcsk1	Mouse	CCGGAGGGCAAGAAGCTGCC
			TGTTACGCCACGTCACACGAT
Proprotein convertase subtilisin/kexin type2	Pcsk2	Mouse	AAAGATGGCGCTGCAACAAG
			TTGCCAGTGTGAACAGGT
Proprotein convertase subtilisin/kexin type9	Pcsk9	Mouse	TTGCAGCAGCTGGAACTT
			CCGACTGTGATGACCTCTGGA
Urocortin 3	Ucn3	Mouse	TGATGCCACCTACTTCTCTG
			CTGTGTTGAGGCAGCTGAAG
Hepatocyte nuclear factor 1 homeobox a	Hfn1a	Mouse	ACCGTACACCGTGGACCTTA
			CCTGAGATCTACAGCACCTG
Glucagon like peptide 1 receptor promoter	Glp1r	Mouse	CTGCGGCTCTAAACCTGAG
			CTGTCTCTTCGCGCTGG
Enhancer of zeste homolog 2 promoter	Ezh2	Mouse	TTCGCCCTCTGATTGGAC
			CATCGCTTTATTTGGCCCC
Cyclin E1 promoter	Ccne1	Mouse	GTTCTTAACCTCGGGCCCT
			CAAGTGGAAATGTCAGCAGGG
Intergenic region (Chromosome 7)	Chr7	Mouse	ACTCTGCCTGTACCCTTTT
			GGGTCAAGAGAGTGTGGGA
E2F1	hE2F1	Human	ATGGCACTGGCGGCAGGTCC
			TTGCCATTCCTGGACCCAAA
Paired Box 4	hPAX4	Human	AGCAGAGGCACTGGAGAAAGATT
			CAGCTGCATTTCCACTTTCAGCTT
Pancreatic and duodenal homebox 1	hPDX1	Human	CGTCCAGCTGCCTTTCCTAT
			CCGTGAGATGTACTTGTGAATAGGA
Aristaless-related homebox	hARX	Human	CTGCTGAAACGCAAACAGAGGC
			CTCGGTCAAGTCCAGCCTCATG
v-maf musculoaponeurotic fibrosarcoma oncogene family, protein A	hMAFA	Human	TTGTACAGGTCCCGCTCTTT
			AGCAGAGGCACTGGAGAAAGATT
Neurogenic Differentiation	hNEUROD1	Human	GCCCCAGGGTTATGAGACTAT
			GAGAAGTGAAGACTCGTCTGT
Insulin	hINS	Human	AGCCTTTGTGAACCAACACC
			GCTGGTAGAGGGAGCAGATG
Glucagon	hGCG	Human	CATTACAGGGCACATTCAC
			CGGCCAAGTTCTTCAACAAT

Supplementary Table S3, related to Figures 4, 5, 6, 7, S5, S6, S7, S8 and S9 . List of ChIP-seq and RNA-seq data sets used in this study.

References	Experiment	Mouse strain	Genotype	Biological samples	Antibody	Accession number	Database	Related figures
Lu et al., Cell Metab, 2018	ChIP-seq	C57B6/J (8-10 weeks)	WT	Pancreatic islets	H3K4me3 H3K27ac H3K27me3	GSE110648	Gene expression omnibus (https://www.ncbi.nlm.nih.gov/geo/)	Figure 6, Figure 7 and Figure S6 Figure 6, Figure 7 and Figure S6 Figure 6, Figure 7 and Figure S6
This study	ChIP-seq	N/A	N/A	Min6 cells (DMSO)	H3K4me3 H3K27ac H3K27me3 Flag M2	In progress In progress In progress In progress		Figure 6, Figure 7 and Figure S6 Figure 6, Figure 7 and Figure S6 Figure 6, Figure 7 and Figure S6 Figure 7, Figures S7, S8 and S9
This study	RNA-seq	C57B6/J (12 weeks) C57B6/J (12 weeks) N/A	E2f1 ^{fl/fl} (ctrl) E2f1 ^{β-/-} (KO) N/A	Pancreatic islets (n=3) Pancreatic islets (n=3) Min6 cells (n=3)	N/A	In progress In progress In progress		Figure 4, Figure 6, Figure 7, Figures S5, S6, S8 and S9 Figure 4, Figure 6, Figure 7, Figures S5, S6, S8 and S9 Figure 6

Supplementary Table S4, related to Figures 4 and S5. List of transcripts differentially regulated in E2f1beta-/- and E2f1f1/ f1 pancreatic islets identified by RNA-sequencing and their chromatin state.

ENSMUSG	baseMean	log2FoldChange	lfcSE	stat	pvalue	padj	ensembl_gene_external_name	gss_chromatin_state		
ENSMUSG00000096515	493,7382422	25.67664338	3.90685555	6.57220187	4.9577E-11	8.2973E-08	ENSMUSG001gkiv14-100		A	Active TSS (-1)
ENSMUSG00000082855	15,93590967	20,94433456	2.81784241	7,43275581	1,0636E-13	3,2634E-10	ENSMUSG001Cca1	N	B	Active TSS (+1)
ENSMUSG00000076576	484,1335785	12,46127603	2,93493697	4,2458411	2,1777E-05	0,00285572	ENSMUSG001gkiv6-32		C	TSS Flank Cis-reg
ENSMUSG00000095335	460,363887	12,38863751	3,01346965	4,11018753	3,9388E-05	0,00439383	ENSMUSG001gkiv4-5		D	Proximal Cis-reg/elongation
ENSMUSG00000095630	697,2342764	11,34603634	3,58965915	3,1607559	0,0015736	0,00449198	ENSMUSG001gkiv6-23		F	Proximal Cis-reg/elongation 2
ENSMUSG00000076556	75,37816893	9,77816893	2,77504099	5,52362251	0,0002569	0,02014642	ENSMUSG001gkiv4-57		D	Proximal Cis-reg/elongation 3
ENSMUSG00000095442	55,29094767	9,331579038	1,63397948	5,71095239	1,235E-08	7,3867E-06	ENSMUSG001gkiv1-4		G	Elongation
ENSMUSG00000056290	46,12129767	9,263777657	1,69696397	5,45903024	4,7874E-08	2,3821E-05	ENSMUSG001Msa44b	W	H	distal elongation
ENSMUSG00000021223	38,37088841	8,772852677	1,63515241	5,365159	8,087E-08	3,7242E-05	ENSMUSG001Papln	L	I	distal elongation
ENSMUSG00000023132	33,11067298	8,59154443	1,72616564	4,97724218	6,4497E-07	0,00019465	ENSMUSG001Gzma	N	J	Active TES/distal enhancer
ENSMUSG00000093861	917,61571876	8,246225838	2,26741157	3,63684561	0,000276	0,01520599	ENSMUSG001gkiv1-110		K	Bivalent
ENSMUSG00000053977	26,91486277	8,240684634	1,73174626	4,75859819	1,9494E-06	0,00048498	ENSMUSG001Cdba	N	L	Bivalent H3K4me3 High
ENSMUSG00000106797	19,09370507	7,797063646	1,60276462	4,86475903	1,146E-06	0,00031488	ENSMUSG001Gm42936		M	Bivalent H3K27me3 High
ENSMUSG00000024798	17,52679147	7,789610914	1,67696295	4,64507037	3,3996E-06	0,00073631	ENSMUSG001Htr7	L	N	PCg repressed
ENSMUSG00000041449	17,16188954	7,64681725	2,03317004	3,76103183	0,00016921	0,01090687	ENSMUSG001Serpina3h		O	PCg repressed 2
ENSMUSG00000071716	16,84112609	7,616630477	2,2050798	3,45412918	0,00055207	0,02410638	ENSMUSG001Apol7e	R	P	DNA-meth
ENSMUSG00000076652	16,09520681	7,551529017	2,26856017	3,32877616	0,00087228	0,015265	ENSMUSG001gkiv7-3		Q	Mixed PCg/K9
ENSMUSG00000015619	19,53736019	7,489807109	1,89146109	3,95979972	7,5013E-05	0,00663934	ENSMUSG001Gata3	M	R	PCg repressed
ENSMUSG00000076522	15,27985042	7,475498061	2,27878601	3,28047392	0,00103633	0,03487899	ENSMUSG001gkiv16-104		S	Heterochromatin
ENSMUSG00000009185	14,62072498	7,413407455	1,80191873	4,11417414	3,3885E-05	0,00438867	ENSMUSG001Cdb	N	T	Heterochromatin 2
ENSMUSG000000095130	13,71271619	7,327103007	2,14705233	3,41263365	0,00064338	0,02632154	ENSMUSG001gkiv1-39		U	Mixed PR/C2/K9
ENSMUSG000000083161	11,91656623	7,289934592	1,78717353	4,07903007	4,5224E-05	0,00489749	ENSMUSG001Gm11427		V	ZFP genes + repeats
ENSMUSG000000094622	31,19075197	7,264180589	1,74209753	4,17004984	3,0459E-05	0,00173383	ENSMUSG00181009006FQ		W	quiescent
ENSMUSG00000022491	12,83740959	7,224931162	2,31028185	3,12728664	0,00176428	0,04976993	ENSMUSG001Glycam1	L	X	quiescent 2
ENSMUSG00000028167	9,510678808	7,165071738	1,87265046	3,82616612	0,00013015	0,00914559	ENSMUSG001Bdh2	K		
ENSMUSG00000024211	9,201281748	7,117088093	2,21106263	3,21885414	0,00128704	0,03909966	ENSMUSG001Gm8	L		
ENSMUSG00000027379	9,406954178	6,910462926	1,92088394	3,59754319	0,00032124	0,01656576	ENSMUSG001Bub1	L		
ENSMUSG00000090264	10,15501244	6,886247967	1,84532287	3,73173069	0,00019017	0,01178808	ENSMUSG001Eif4ebp3	G		
ENSMUSG000000113841	9,634962891	6,810322486	1,87818381	3,62601491	0,00028783	0,01572382	ENSMUSG001Gm48701			
ENSMUSG00000044103	8,797830101	6,680655999	2,02194368	3,3040762	0,0009529	0,0303743	ENSMUSG001Iif9	N		
ENSMUSG00000096375	8,30968383	6,596255546	1,97089253	3,34683674	0,00081739	0,03040838	ENSMUSG001Gm7094			
ENSMUSG00000033882	7,814807895	6,5281565	2,09006534	3,12342221	0,00178761	0,04839694	ENSMUSG001Rbm46	N		
ENSMUSG00000081665	7,80585912	6,506881988	1,98237638	3,28236456	0,0010294	0,03483701	ENSMUSG001Gm15922			
ENSMUSG00000022132	8,13504613	6,433753301	1,97768904	3,2531673	0,00114126	0,0360392	ENSMUSG001Cldn10	N		
ENSMUSG00000026069	27,0811594	6,375359854	2,04272579	3,12106619	0,00180234	0,04851522	ENSMUSG001Hr11	N		
ENSMUSG00000100001	23,8774635	6,346466386	1,52490963	4,16186394	3,1566E-05	0,00378433	ENSMUSG001810007D17Q			
ENSMUSG00000035775	22,69017844	6,05170726	1,54455046	3,91810266	8,9249E-05	0,00733513	ENSMUSG001Krt20	N		
ENSMUSG00000058119	12,17412868	5,970186761	1,70309687	4,89127199	2,0439E-17	1,2543E-13	ENSMUSG001Gm5771	P		
ENSMUSG00000026012	27,42073306	5,675164935	1,57411845	3,60529726	0,0003118	0,01633045	ENSMUSG001Cdz8	W		
ENSMUSG00000025058	13,19712146	5,370625992	1,62620609	3,30254942	0,0009581	0,0315537	ENSMUSG0015430427019Rik			
ENSMUSG00000079455	18,31529583	5,280215983	1,58338789	3,3473584	0,00085374	0,03112795	ENSMUSG001Gm16026			
ENSMUSG00000095512	30,6957216	5,252352208	1,46811052	3,5767292	0,00034673	0,001753636	ENSMUSG001Nkx2			
ENSMUSG00000094661	47,65693597	5,084649589	1,18377553	3,2954568	1,7442E-05	0,00248922	ENSMUSG001Ftr3-22			
ENSMUSG00000021835	29,87876404	5,064484846	1,42572229	3,55222394	0,00038199	0,01865366	ENSMUSG001Bmp4	M		
ENSMUSG00000024670	37,25426578	4,845004518	1,09388204	4,42918371	9,459E-06	0,00155483	ENSMUSG001Cdb6	O		
ENSMUSG00000071519	1206,790689	4,729010537	0,8001376	5,91024661	3,416E-09	3,3099E-06	ENSMUSG001Prr3	T		
ENSMUSG00000041479	24,78766966	4,709553933	1,18819762	3,96361165	7,3824E-05	0,0065976	ENSMUSG001Syt15	M		
ENSMUSG00000071517	71,07675696	4,640419309	0,99812784	4,6491232	3,3335E-06	0,00073059	ENSMUSG001Gm10334	P		
ENSMUSG00000029188	17,14644104	4,601826481	1,43877985	3,19842294	0,00138181	0,04099798	ENSMUSG001Sic3a2	M		
ENSMUSG00000066513	82,081214	4,444719588	0,81310564	5,46634946	4,594E-08	2,3493E-05	ENSMUSG001Krl1b4	N		
ENSMUSG00000042195	89,05745752	4,35131527	0,73814325	5,89494692	3,748E-09	3,4501E-06	ENSMUSG001Sic3f2	L		
ENSMUSG00000076490	30,62424688	4,165058627	1,30584028	3,18956207	0,00142489	0,04150655	ENSMUSG001Trbc1			
ENSMUSG00000032083	50,82340123	4,104863884	1,24840507	3,28808651	0,00100871	0,03451686	ENSMUSG001Apoa1	O		
ENSMUSG00000000782	208,8707391	4,054063538	1,21380776	3,3399552	0,00083792	0,03103841	ENSMUSG001Tcf7	M		
ENSMUSG00000078249	283,4976504	3,847019505	0,3719978	10,415927	2,0974E-25	3,8614E-21	ENSMUSG001Hmg1a1b			
ENSMUSG00000053219	57,81421675	3,853258099	0,85103448	4,52773438	5,9619E-06	0,00109759	ENSMUSG001Raet1e	L		
ENSMUSG00000024857	142,5143771	3,822309397	0,86522742	4,41769334	9,976E-06	0,00159702	ENSMUSG001Cabp2	O		
ENSMUSG00000050232	42,7379781	3,739944627	1,17940737	3,17103719	0,00151896	0,0433633	ENSMUSG001Cxcr3			
ENSMUSG00000016283	271,7240211	3,622323657	0,66789093	4,52352753	5,8435E-08	2,831E-05	ENSMUSG001H2-M2	T		
ENSMUSG00000029082	59,80482846	3,613922334	1,04708432	3,45141481	0,00055766	0,02410638	ENSMUSG001Bst1	N		
ENSMUSG00000095512	197,124242	3,51494591	0,76012028	4,62415581	3,7613E-06	0,00077803	ENSMUSG001Klfb1b5	N		
ENSMUSG00000042817	45,80278391	3,48882321	0,9860724	3,53899945	0,00040485	0,01966583	ENSMUSG001Ftr3	L		
ENSMUSG00000050921	72,50075765	3,48294648	0,96496911	3,52623276	0,00032735	0,01674051	ENSMUSG001P2ry10			
ENSMUSG00000048852	80,82502379	3,480698754	0,78646402	4,42575715	9,6105E-06	0,00155655	ENSMUSG001Gm12185	K		
ENSMUSG00000027715	48,06128975	3,459486926	1,05015541	3,29426187	0,00098681	0,03395717	ENSMUSG001Cna2	A		
ENSMUSG00000027358	157,1916444	3,423805858	0,84809304	4,03711703	5,4112E-05	0,00538488	ENSMUSG001Bmp2	L		
ENSMUSG00000043003	63,67700275	3,40152204	0,96733924	3,51636934	0,00043749	0,02054046	ENSMUSG001Rasef	M		
ENSMUSG00000066687	25,18424988	3,395426509	1,01781276	3,33603007	0,00084992	0,03112795	ENSMUSG001Zbtb16	L		
ENSMUSG00000027863	107,3001113	3,267693733	1,01313344	3,22534001	0,00125826	0,03886665	ENSMUSG001Cdb2	N		
ENSMUSG00000027375	97,07406245	3,256705878	0,76777694	4,24173441	2,218E-05	0,00287558	ENSMUSG001Mal	L		
ENSMUSG00000045091	83,67860719	3,246424195	0,97680986	3,32349653	0,0008897	0,03171677	ENSMUSG001Aqp12	N		
ENSMUSG00000084803	27,13973729	3,227414022	1,03064248	3,13145836	0,0017394	0,0475544	ENSMUSG0015830444B04Rik			
ENSMUSG00000052477	196,095592	3,216595597	0,75642605	4,2523596	2,1153E-05	0,00284414	ENSMUSG00130026212R	U		
ENSMUSG00000053886	112,2575096	3,192679975	0,7582515	4,20908305	2,5641E-05	0,00325551	ENSMUSG001Sh2d4a	M		
ENSMUSG00000102425	190,7114927	3,147172378	0,54971908	5,72505577	1,034E-08	7,3215E-06	ENSMUSG001Gm26616			
ENSMUSG00000021569	42,18905338	3,106946489	0,88642619	3,5052056	0,00045656	0,02111892	ENSMUSG001Trip13	B		
ENSMUSG00000001281	222,642467	3,08556019	0,78002018	3,95574404	7,6297E-05	0,00672069	ENSMUSG001Igtb7	M		
ENSMUSG00000070034	246,1829212	2,928708891	0,72738688	4,06232477	5,6651E-05	0,0054905	ENSMUSG001Sp110			
ENSMUSG00000030157	130,9487314	2,80681151	0,61797305	5,54196426	5,7372E-06	0,00104697	ENSMUSG001Clec2d	B		
ENSMUSG0000007415	88,44894843	2,75915412	0,71878946	3,87587261	0,00060624	0,00808239	ENSMUSG001Gp6f8			
ENSMUSG00000027875	190,8049591	2,733283641	0,6900271	3,91876932	9,0081E-06	0,00253821	ENSMUSG001Hmg52	O		
ENSMUSG00000031957	105,439,7715	2,730132413	0,85186212	3,2048994	0,00013511	0,04025087	ENSMUSG001Ctbn1	O		
ENSMUSG00000021508										

ENSMUSG00000041119	67,01857038	2,088617716	0,53502009	3,90381177	9,4689E-05	0,00751393	ENSMUSG0C Pde9a	L
ENSMUSG00000087259	138,3314445	2,048365315	0,3534007	5,79615536	6,7852E-09	5,3867E-06	ENSMUSG0C 2610035D17L	L
ENSMUSG00000030144	220,9186651	2,044381428	0,51230741	3,99053648	6,5924E-05	0,0060683	ENSMUSG0C Clec4d	O
ENSMUSG00000000058	220,9186651	2,036095107	0,37037315	5,49741552	3,854E-08	2,0272E-05	ENSMUSG0C Cav2	L
ENSMUSG000000078920	347,6375101	2,031301269	0,50991102	3,98363866	6,7868E-05	0,00621617	ENSMUSG0C Ifi47	K
ENSMUSG00000070337	121,8992921	2,028076498	0,61699068	3,28704559	0,00101244	0,03451686	ENSMUSG0C Cpr179	D
ENSMUSG00000026994	250,9688539	2,018715418	0,64069347	3,15082879	0,00162808	0,04568081	ENSMUSG0C Galnt3	L
ENSMUSG000000073489	232,2905104	2,017279673	0,51126287	3,94567995	7,9574E-05	0,00649291	ENSMUSG0C Ifi204	P
ENSMUSG00000106634	94,3659941	2,011197964	0,54341113	3,70102679	0,00021473	0,0130042	ENSMUSG0C Gm43042	S
ENSMUSG000000026639	386,4440786	1,995023604	0,51034779	3,90914522	9,2623E-05	0,0074263	ENSMUSG0C Lamm3	O
ENSMUSG00000008090	103,9437039	1,994336308	0,53677086	3,7154333	0,00020286	0,01244858	ENSMUSG0C Fgfri1	L
ENSMUSG000000071714	466,055316	1,993672862	0,52649131	3,78671561	0,00015265	0,01014555	ENSMUSG0C Csf2rb2	N
ENSMUSG00000029771	122,6141134	1,966998738	0,52431156	3,75158374	0,00017572	0,01017885	ENSMUSG0C Irf5	L
ENSMUSG00000015396	274,9986671	1,952864979	0,51777475	3,77164973	0,00016217	0,01052215	ENSMUSG0C Cd83	L
ENSMUSG00000024043	90,85308316	1,949157393	0,57037251	3,41734106	0,00063236	0,02604418	ENSMUSG0C Arhgap28	B
ENSMUSG000000061353	1415,013159	1,946329921	0,29391853	6,22004074	3,5436E-11	6,8859E-08	ENSMUSG0C Cxcl12	L
ENSMUSG00000024778	203,2718547	1,934088169	0,51114607	3,78382672	0,00015444	0,01022718	ENSMUSG0C Fas	L
ENSMUSG00000032854	207,3849468	1,923336793	0,57819474	3,32645157	0,00087959	0,03152665	ENSMUSG0C Uft8a	O
ENSMUSG00000046056	111,716243	1,920500131	0,56896934	3,37540181	0,00073708	0,02862793	ENSMUSG0C Sbsn	O
ENSMUSG00000037370	189,1189288	1,919581361	0,60244067	3,18634095	0,00144085	0,041905	ENSMUSG0C Enpp1	B
ENSMUSG00000027864	650,9162172	1,857941736	0,33616153	5,52693153	3,2588E-08	1,8149E-05	ENSMUSG0C Ptgfrn	B
ENSMUSG00000034463	725,9330609	1,84932063	0,41791366	4,42512607	9,6386E-06	0,00155655	ENSMUSG0C Scarca3	B
ENSMUSG000000053559	86,91062325	1,847291883	0,47794878	3,86504156	0,00011107	0,0082048	ENSMUSG0C Smapg	L
ENSMUSG000000006731	508,0715103	1,839221422	0,52163679	3,525866	0,0004221	0,02007283	ENSMUSG0C B4galnt1	L
ENSMUSG00000005639	231,8907352	1,837492623	0,41821706	3,94679153	1,1094E-05	0,0017607	ENSMUSG0C Sfiga1	N
ENSMUSG00000041734	373,7412006	1,824416959	0,48374711	3,77142707	0,00016232	0,01052215	ENSMUSG0C Kirrel	L
ENSMUSG00000023348	136,6993142	1,821911185	0,53266039	3,42039925	0,00062529	0,02581086	ENSMUSG0C Trip6	M
ENSMUSG00000038128	130,7949909	1,81379695	0,50838523	3,56776094	0,00036004	0,0180611	ENSMUSG0C Camk4	L
ENSMUSG000000006628	218,9622236	1,801216937	0,56334533	3,19735844	0,00138692	0,00499798	ENSMUSG0C H2	L
ENSMUSG00000001761	227,4593755	1,792863736	0,42190919	4,24940667	2,1434E-05	0,00284414	ENSMUSG0C Smo	L
ENSMUSG00000040026	1187,801305	1,778324649	0,33537795	5,3024955	1,1426E-07	4,7807E-05	ENSMUSG0C Saa3	M
ENSMUSG00000020282	296,0072115	1,767676451	0,27685528	6,38483921	1,7158E-10	2,1058E-07	ENSMUSG0C Rhdhf1	L
ENSMUSG00000048070	160,66973	1,735354612	0,55411754	3,13174458	0,00173771	0,0475544	ENSMUSG0C Prr1	N
ENSMUSG00000032625	292,8382	1,724026072	0,39468611	4,36809409	1,2534E-05	0,00195545	ENSMUSG0C Thsd7a	L
ENSMUSG000000046818	135,9357471	1,715615211	0,43977862	3,9010883	9,5761E-05	0,0075507	ENSMUSG0C Ddit4	L
ENSMUSG000000079363	1718,295907	1,711835335	0,26531289	6,45213795	1,1028E-10	1,4502E-07	ENSMUSG0C Gbp4	K
ENSMUSG00000029338	307,6649706	1,711186401	0,44824299	3,81754195	0,00013479	0,0092938	ENSMUSG0C Antxr2	L
ENSMUSG00000035314	138,283519	1,709195371	0,37899376	4,50982455	6,4881E-06	0,00115971	ENSMUSG0C Gdpd5	L
ENSMUSG00000021097	390,444565	1,707649706	0,25580337	6,67563417	2,4617E-11	5,6649E-08	ENSMUSG0C Cmm	B
ENSMUSG00000028982	183,0787657	1,701846893	0,39014978	4,36203473	1,2886E-05	0,00197238	ENSMUSG0C Sic25a33	L
ENSMUSG000000061132	430,8863407	1,687688551	0,53780046	3,13813146	0,00170029	0,04678963	ENSMUSG0C Bnk	K
ENSMUSG000000095115	1023,111809	1,680526932	0,31431332	5,34666159	9,9591E-08	4,0229E-05	ENSMUSG0C Itrip12	L
ENSMUSG000000039981	307,3551595	1,674929384	0,44218877	3,78779592	0,00015199	0,01013815	ENSMUSG0C Zc3h12	L
ENSMUSG000000051803	231,8907352	1,674692458	0,44541745	3,75982674	0,00017003	0,00108626	ENSMUSG0C Bst	M
ENSMUSG00000028937	456,955846	1,672639767	0,40683092	4,1138797	3,9329E-05	0,00439895	ENSMUSG0C Acat7	L
ENSMUSG00000039997	277,1492292	1,660249919	0,48851083	3,98859387	0,00067733	0,02725051	ENSMUSG0C Ifi203	O
ENSMUSG00000002930	456,2295076	1,652470928	0,51492954	3,20912047	0,00133142	0,03994561	ENSMUSG0C Ppp1r17	O
ENSMUSG000000066519	554,3481545	1,65225171	0,45350571	3,64328753	0,00026918	0,01507156	ENSMUSG0C Cyb1	L
ENSMUSG000000026712	82,37929831	1,651273125	0,52249417	3,16036661	0,00157571	0,04449198	ENSMUSG0C Mrc1	N
ENSMUSG00000024511	162,7269012	1,649933936	0,40954045	4,02874472	5,6075E-05	0,0054905	ENSMUSG0C Rab27b	L
ENSMUSG00000024349	250,5500285	1,649710312	0,52929541	3,1168045	0,00182823	0,04906366	ENSMUSG0C Tmem173	K
ENSMUSG00000047180	3056,954494	1,645261007	0,25332977	6,49454275	8,3286E-11	1,1795E-07	ENSMUSG0C Neur3	K
ENSMUSG00000054200	524,416114	1,634165544	0,40093316	4,07590523	4,5836E-05	0,00494371	ENSMUSG0C Ffar4	L
ENSMUSG00000034528	315,7091757	1,632116681	0,50619516	3,22428344	0,00126288	0,03894419	ENSMUSG0C Hsdl17b13	X
ENSMUSG00000027376	135,6548678	1,630977889	0,40203383	4,05681756	9,4746E-05	0,00511633	ENSMUSG0C Prom2	M
ENSMUSG00000039004	184,0497407	1,62822264	0,46504452	3,50121888	0,00046314	0,02120975	ENSMUSG0C Bmp6	M
ENSMUSG00000020592	1053,337664	1,625415163	0,38507069	4,22108257	2,4313E-05	0,00313011	ENSMUSG0C Sdc1	L
ENSMUSG00000072812	212,30577	1,61567904	0,47930067	3,37090923	0,00074921	0,02891587	ENSMUSG0C Ahnak2	N
ENSMUSG00000025017	553,7025633	1,611337271	0,46067137	3,49788002	0,00046897	0,02137072	ENSMUSG0C Pk3ap1	L
ENSMUSG00000041889	191,8267198	1,610626612	0,46154588	3,48963491	0,00048368	0,02171555	ENSMUSG0C Shis4	L
ENSMUSG000000063873	141,5828868	1,606360782	0,42780807	3,75485615	0,00017344	0,01104862	ENSMUSG0C Sic24a3	L
ENSMUSG000000034957	172,3354614	1,589522388	0,44209443	3,59543743	0,00023285	0,01665369	ENSMUSG0C Cebp	L
ENSMUSG000000051803	1565,96506	1,576286516	0,30989455	5,08576394	3,6615E-07	0,00012719	ENSMUSG0C Mest	M
ENSMUSG000000012526	317,8124647	1,569780185	0,47193594	3,22625694	0,00080821	0,03152665	ENSMUSG0C Ifi7	L
ENSMUSG000000112526	214,8328239	1,560521005	0,43250204	3,60812354	0,00030842	0,01619939	ENSMUSG0C Adam19	R
ENSMUSG00000024538	237,5764176	1,556459688	0,43989898	3,53822069	0,00040283	0,01961947	ENSMUSG0C Ppic	L
ENSMUSG00000027074	281,252518	1,552119908	0,388038	3,99991728	6,3365E-05	0,00595175	ENSMUSG0C Sic3a3	M
ENSMUSG00000070530	190,295541	1,542637337	0,47493097	3,24812956	0,00116166	0,03687281	ENSMUSG0C Wfdc16	C
ENSMUSG00000012428	12022,2227	1,53881175	0,17860443	8,6157535	6,9483E-18	6,3959E-14	ENSMUSG0C Steap4	M
ENSMUSG000000050686	498,6185628	1,534914372	0,45327985	3,38624002	0,00070857	0,02814066	ENSMUSG0C Ampd3	M
ENSMUSG00000028776	362,4689967	1,527846361	0,42686056	3,57926334	0,00034456	0,017475	ENSMUSG0C Tinagl1	L
ENSMUSG00000027878	973,0957829	1,525903649	0,41884381	3,6431329	0,00026934	0,01507156	ENSMUSG0C Ntch2	L
ENSMUSG00000018849	961,0814833	1,520939927	0,22995708	6,61401666	3,7403E-11	6,8859E-08	ENSMUSG0C Wwv1	L
ENSMUSG00000029762	1447,397882	1,518326094	0,29488552	5,14886616	2,6207E-07	9,6493E-05	ENSMUSG0C Akr1b8	K
ENSMUSG00000044734	737,8229843	1,516803495	0,39429064	3,8469173	0,00011961	0,00860188	ENSMUSG0C Serpinb1a	K
ENSMUSG00000031714	653,6121177	1,514922784	0,3312601	4,57321237	4,803E-06	0,00094068	ENSMUSG0C Gab1	B
ENSMUSG00000028337	360,6760912	1,512302684	0,43254065	3,496325	0,00047171	0,02144219	ENSMUSG0C Coro2a	X
ENSMUSG00000001604	83,53673235	1,510807787	0,46123269	3,27558693	0,00105443	0,03523048	ENSMUSG0C Tcea3	L
ENSMUSG00000033174	157,9600037	1,508991985	0,33213441	4,54331728	5,5376E-06	0,00104697	ENSMUSG0C Mgl1	L
ENSMUSG000000049521	412,7446004	1,507142113	0,44638557	3,37632358	0,00073461	0,02859251	ENSMUSG0C Cdc42ep1	B
ENSMUSG00000004951	870,6102529	1,504242197	0,2782577	5,40593203	6,4472E-08	3,0434E-05	ENSMUSG0C Hspb1	L
ENSMUSG00000004763	1796,533013	1,496292453	0,2955366	5,04560435	5,4209E-07	0,00014602	ENSMUSG0C Basp1	L
ENSMUSG00000027809	618,0137188	1,493149298	0,3849845	3,89589094	9,793E-05	0,00106025	ENSMUSG0C Tmem41	L
ENSMUSG00000001249	144,1553124	1,488800703	0,44805619	3,3227991	0,00089119	0,03173466	ENSMUSG0C Hpn	O
ENSMUSG00000022126	751,1271323	1,481122167	0,35179941	4,21013262	2,5522E-05	0,00325551	ENSMUSG0C Acd11	M
ENSMUSG000000075012	222,8796782	1,479180897	0,30674294	4,82221654	1,4197E-06	0,00036301	ENSMUSG0C Fjx1	M
ENSMUSG00000029484	892,5616786	1,470970312	0,43292419	3,39775497	0,00067941	0,02720551	ENSMUSG0C Anxa3	L
ENSMUSG00000014444	892,7862086	1,465468036	0,31449155	4,659801	3,1652E-06	0,00070205	ENSMUSG0C Piez1	B
ENSMUSG00000020010	1020,934892	1,461522214	0,32127666	4,54910796	5,3874E-06	0,00104402	ENSMUSG0C Vmn3	K
ENSMUSG00000024302	216,297008	1,460864218	0,3018272	4,84006809	1,2979E-06	0,00034136	ENSMUSG0C Dtna	L
ENSMUSG00000026604	478,4227093	1,456027411	0,38312461	3,80040173	0,000			

ENSMUSG00000041859	403,9687236	1,287250447	0,38462537	3,34676426	0,00081761	0,03040838	ENSMUSG0C Mcm3	L
ENSMUSG00000034930	466,2419077	1,276359141	0,21839699	5,84421573	5,0896E-09	4,2591E-06	ENSMUSG0C Rtkn	L
ENSMUSG00000004267	2381,683954	1,270069689	0,21368853	5,94355582	2,789E-09	2,8526E-06	ENSMUSG0C Zc3h12a	A
ENSMUSG000000040717	397,4971749	1,269128765	0,30908653	4,106063	0,0246E-05	0,00446342	ENSMUSG0C I17rd	B
ENSMUSG000000105383	257,740768	1,266067273	0,38055545	3,32689561	0,00087848	0,0315265	ENSMUSG0C NA	K
ENSMUSG000000075010	525,3482214	1,257870887	0,37403472	3,36246352	0,0007725	0,0294216	ENSMUSG0C AW112010	K
ENSMUSG00000047281	857,5727312	1,248913694	0,39082899	3,19555029	0,00139564	0,04104444	ENSMUSG0C Sfn	L
ENSMUSG000000031825	5486,929793	1,241791057	0,18125526	6,85106208	7,3304E-12	1,9279E-08	ENSMUSG0C CrispId2	M
ENSMUSG000000003153	325,5033009	1,235025745	0,28926239	4,26956898	1,9585E-05	0,00271099	ENSMUSG0C Sic2a3	L
ENSMUSG000000040249	2838,032494	1,225895171	0,24235875	5,0581841	4,2327E-07	0,0001406	ENSMUSG0C Lrp1	L
ENSMUSG000000066800	229,996996	1,220097317	0,36256179	3,36521206	0,00076485	0,0292134	ENSMUSG0C Rnasel	K
ENSMUSG00000028028	501,4109473	1,217365635	0,37250605	3,26804255	0,00108294	0,03560168	ENSMUSG0C Alpk1	N
ENSMUSG00000026980	819,513466	1,199311806	0,3096907	3,87261163	0,00010768	0,00812419	ENSMUSG0C Ly75	L
ENSMUSG000000037012	1333,903084	1,19678631	0,26848327	4,45758239	8,2889E-06	0,00138826	ENSMUSG0C Hk1	N
ENSMUSG00000021700	856,6387973	1,196041272	0,26108694	4,58100768	4,6274E-06	0,00091603	ENSMUSG0C Rab3c	L
ENSMUSG00000001333	358,323353	1,190380075	0,2872362	4,14425506	3,4092E-05	0,00399767	ENSMUSG0C Sync	B
ENSMUSG000000050721	656,161705	1,188890252	0,36269017	3,27797761	0,00104554	0,03506072	ENSMUSG0C Plekho2	A
ENSMUSG000000052920	191,0064624	1,18779709	0,36368945	3,26596523	0,00109092	0,03573625	ENSMUSG0C Prk1	L
ENSMUSG00000038067	2307,697039	1,184221729	0,24207659	4,89192993	9,9852E-07	0,00028281	ENSMUSG0C Csf3	K
ENSMUSG000000037405	5789,568683	1,176574415	0,14814476	7,942059	1,9885E-15	9,1522E-12	ENSMUSG0C Icam1	M
ENSMUSG00000036718	592,9082762	1,173622922	0,25938765	4,52459058	6,0513E-06	0,00110301	ENSMUSG0C Mical2	K
ENSMUSG00000018774	1081,605756	1,170254171	0,34813046	3,36153916	0,00077509	0,0294216	ENSMUSG0C Cdb8	F
ENSMUSG000000027583	150,0648953	1,166897148	0,35773069	3,26194307	0,00110651	0,0360222	ENSMUSG0C Zbtb46	B
ENSMUSG000000074457	601,4570005	1,155686406	0,32402196	3,56669158	0,00036152	0,01808565	ENSMUSG0C S100ab16	K
ENSMUSG00000004996	121,1188964	1,151520009	0,30683194	3,17052634	0,00152158	0,0433633	ENSMUSG0C Tsl	B
ENSMUSG00000001750	535,453459	1,149877112	0,31585502	3,64052185	0,00027209	0,01508766	ENSMUSG0C Trg1	L
ENSMUSG000000047261	552,310333	1,137507267	0,29441788	3,86358076	0,00011174	0,0082048	ENSMUSG0C Gap43	M
ENSMUSG00000045348	409,5378667	1,126787098	0,31279033	3,60237186	0,00031533	0,01306365	ENSMUSG0C Nyp1	L
ENSMUSG000000056596	686,1646432	1,125873337	0,27115393	4,15215573	3,2936E-05	0,00388685	ENSMUSG0C Trmp1	L
ENSMUSG000000059401	993,2867895	1,120290026	0,27565587	4,06408917	4,822E-05	0,00507279	ENSMUSG0C Mam1d1	L
ENSMUSG00000030257	450,6704845	1,115659789	0,34640929	3,22064051	0,00127904	0,03902319	ENSMUSG0C Srgap3	B
ENSMUSG00000020019	611,5342067	1,112944063	0,29664475	3,75170655	0,00017563	0,0107885	ENSMUSG0C Ntn4	L
ENSMUSG00000000409	267,8152783	1,108044409	0,33371507	3,32033076	0,0008911	0,0318923	ENSMUSG0C Lck	O
ENSMUSG00000034127	3002,11689	1,097648554	0,28172126	3,89622197	9,7705E-05	0,0070635	ENSMUSG0C Tspan8	L
ENSMUSG00000035864	808,6587635	1,091321335	0,30702338	3,55452188	0,00037867	0,01865366	ENSMUSG0C Svt1	L
ENSMUSG00000028073	277,4641033	1,081652155	0,33085908	3,26922308	0,00107843	0,03551689	ENSMUSG0C Pear1	W
ENSMUSG000000055805	529,1171583	1,080220174	0,33122448	3,26131295	0,00110898	0,0360222	ENSMUSG0C Fmn1	L
ENSMUSG00000012519	768,8170811	1,076756563	0,28659933	3,75701005	0,00017196	0,01099202	ENSMUSG0C Mki	B
ENSMUSG000000090877	458,9004661	1,074853453	0,28960689	3,71142228	0,0002061	0,01260553	ENSMUSG0C Hspa1b	A
ENSMUSG00000019851	977,2435441	1,06891275	0,31594974	3,38317338	0,00071653	0,02834773	ENSMUSG0C Perp	A
ENSMUSG000000060550	1936,217918	1,060987897	0,33476319	3,16936842	0,00152771	0,04349997	ENSMUSG0C H2-Q7	L
ENSMUSG000000063531	1061,513588	1,059274541	0,28909254	3,66413658	0,00024817	0,01439485	ENSMUSG0C Sem43	B
ENSMUSG000000110386	2725,086453	1,056027181	0,29189455	3,617838	0,00029707	0,0115945	ENSMUSG0C Gm42031	B
ENSMUSG00000004986	1403,844995	1,046865199	0,31665501	3,05910741	0,00094601	0,03288421	ENSMUSG0C Fapb5	B
ENSMUSG00000027398	730,7715879	1,037783667	0,30683393	3,3223244	0,00071899	0,02834773	ENSMUSG0C I1b	O
ENSMUSG00000000078	2025,887264	1,036441029	0,22991033	4,50802296	6,5434E-06	0,00115971	ENSMUSG0C Klf6	A
ENSMUSG00000035385	3292,031895	1,035317613	0,30411041	3,40441358	0,00066306	0,02692823	ENSMUSG0C Ccl2	N
ENSMUSG000000003849	1067,644241	1,032739785	0,31550313	3,27331069	0,00106296	0,03529294	ENSMUSG0C Nop1	D
ENSMUSG00000038463	255,1982929	1,014364486	0,26256394	3,8633047	0,00011186	0,0082048	ENSMUSG0C Olfml2b	L
ENSMUSG00000022960	287,0301027	1,010574543	0,27310722	3,70028497	0,00021536	0,0130042	ENSMUSG0C Donson	A
ENSMUSG00000070639	1421,174589	1,000593964	0,23290337	4,29617646	1,7377E-05	0,00248922	ENSMUSG0C Lrrc8b	A
ENSMUSG00000045312	978,073109	0,997353131	0,30991607	3,21813949	0,00129025	0,03913264	ENSMUSG0C Hfp12	L
ENSMUSG00000073409	2306,179091	0,997148411	0,31772133	3,13843709	0,00169851	0,04678963	ENSMUSG0C H2-Q6	L
ENSMUSG00000031453	659,6741476	0,996006158	0,29952809	3,2555175	0,00088244	0,03154499	ENSMUSG0C Rasa3	B
ENSMUSG00000060626	333,6487635	0,991101701	0,26486437	3,74192154	0,00018262	0,01339663	ENSMUSG0C Dhrs3	L
ENSMUSG00000031934	586,328822	0,990900931	0,31691694	3,12668968	0,00176786	0,04800351	ENSMUSG0C Panx1	L
ENSMUSG00000030332	709,7560929	0,988468846	0,19742904	5,0067405	5,537E-07	0,00016989	ENSMUSG0C Klf4	A
ENSMUSG000000027347	583,7435932	0,98526962	0,27266628	3,61346339	0,00030213	0,0161244	ENSMUSG0C Rasgrp1	L
ENSMUSG000000091387	484,7289705	0,985184073	0,2979844	3,30615988	0,00094584	0,03288421	ENSMUSG0C Gnt4	B
ENSMUSG00000030934	1176,868624	0,979759541	0,29114075	3,36524356	0,00076476	0,0292134	ENSMUSG0C Oat	L
ENSMUSG000000060477	791,1432954	0,971025246	0,21761479	4,46212883	8,1149E-06	0,00138826	ENSMUSG0C Irak2	A
ENSMUSG00000019889	1943,976985	0,97085881	0,24631664	3,94150712	8,0971E-05	0,00697732	ENSMUSG0C Pprk	L
ENSMUSG00000031925	564,7736695	0,96750775	0,23933915	4,04241329	5,2904E-05	0,00529226	ENSMUSG0C Mamm12	D
ENSMUSG00000004044	681,7837321	0,965029367	0,3104184	3,20563205	0,00134766	0,04025087	ENSMUSG0C Cavm1	B
ENSMUSG00000019539	862,0184882	0,960857241	0,24870466	3,8634473	0,0001118	0,0082048	ENSMUSG0C Rcn3	M
ENSMUSG00000047963	1060,564588	0,957828186	0,27472844	4,48645445	0,00048947	0,0219486	ENSMUSG0C Stbd1	A
ENSMUSG00000039982	450,501155	0,956313486	0,27200677	3,51577089	0,00043848	0,02054046	ENSMUSG0C Dtv4	B
ENSMUSG00000049382	37058,38855	0,955222173	0,20677171	4,61969474	3,8431E-06	0,00078612	ENSMUSG0C Krt8	A
ENSMUSG000000104713	8600,034222	0,953524695	0,18603393	5,12537668	2,9694E-07	0,00010719	ENSMUSG0C Gbp6	L
ENSMUSG00000002489	525,1376559	0,95085087	0,27577099	3,44809685	0,00056455	0,04228363	ENSMUSG0C Tiam1	O
ENSMUSG00000039089	299,2746013	0,950112817	0,29861215	3,18176212	0,00146382	0,04237252	ENSMUSG0C L3mbt13	L
ENSMUSG00000019850	3022,25271	0,946502636	0,2349361	4,02876633	5,607E-05	0,0054905	ENSMUSG0C Trfai3p	E
ENSMUSG00000037706	6076,760773	0,944096709	0,22733003	4,15297843	3,2818E-05	0,00388685	ENSMUSG0C Cdb1	B
ENSMUSG000000085795	469,2844355	0,940963935	0,29746107	3,16331788	0,00155982	0,04424695	ENSMUSG0C Zfp703	B
ENSMUSG00000024074	765,4114084	0,938074783	0,27359781	4,42866329	0,00060656	0,02549497	ENSMUSG0C Crim1	B
ENSMUSG00000020674	1745,20397	0,937312657	0,25902572	3,61860843	0,00029619	0,015945	ENSMUSG0C Pxdn	L
ENSMUSG00000021959	805,5878052	0,935777159	0,25700059	3,64114794	0,00027143	0,01508766	ENSMUSG0C Lats2	B
ENSMUSG00000038387	722,6098899	0,924652125	0,26788493	3,45167653	0,00055712	0,02410638	ENSMUSG0C Rras	B
ENSMUSG00000048489	2810,538616	0,924429087	0,15398168	6,00350035	1,9311E-09	2,0912E-06	ENSMUSG0C Depp1	L
ENSMUSG000000058952	388,1179892	0,922627281	0,29364436	3,14198872	0,00167804	0,04645535	ENSMUSG0C Ch	L
ENSMUSG00000014599	6966,989842	0,919955566	0,17404395	5,28576596	1,2518E-07	5,1221E-05	ENSMUSG0C Csf1	A
ENSMUSG00000010816	958,0315116	0,915450084	0,25343998	3,58551952	0,00033641	0,01715587	ENSMUSG0C Frrm18	B
ENSMUSG00000023090	1364,184728	0,90765052	0,13076724	6,44954475	8,2904E-11	1,1795E-07	ENSMUSG0C Mov10	B
ENSMUSG00000035954	993,5170332	0,903835936	0,24529993	3,68461561	0,00021905	0,0136025	ENSMUSG0C Dock4	A
ENSMUSG00000029298	3064,196944	0,901207523	0,20136289	4,47553935	7,6219E-06	0,00133637	ENSMUSG0C Gbp9	K
ENSMUSG000000047501	14263,69912	0,899538843	0,17589966	5,11393179	3,1552E-07	0,00011171	ENSMUSG0C Cln4	A
ENSMUSG00000038740	474,5688412	0,899167654	0,26462064	3,39794984	0,00067893	0,02270551	ENSMUSG0C Mvl112a	M
ENSMUSG000000000861	389,9228408	0,894636459	0,24765992	3,61235867	0,00030342	0,0161244	ENSMUSG0C Bcl1b	B
ENSMUSG00000016256	10454,48054	0,892977595	0,18582802	4,80539799	1,5444E-06	0,0003895	ENSMUSG0C Ctsz	L
ENSMUSG00000029919	2581,469114	0,891955834	0,26530225	3,36203649	0,0007737	0,0294216	ENSMUSG0C Hpgds	L
ENSMUSG00000030166	251,4153044	0,883604211	0,27793213	3,17920857	0,00147678	0,04261361	ENSMUSG0	

ENSMUSG0000026421	3785,429203	0,753833175	0,22843935	3,29992696	0,0009671	0,0333414	ENSMUSG0C	Srpr1	A
ENSMUSG00000006435	4419,975017	0,748139984	0,17225418	4,3432327	1,404E-05	0,00211868	ENSMUSG0C	Neur11a	C
ENSMUSG00000037411	13897,63324	0,7432801	0,22994509	3,23242434	0,00122745	0,03823568	ENSMUSG0C	Serpine1	C
ENSMUSG00000048218	3840,742564	0,741983903	0,18277257	4,05960201	4,9156E-05	0,00511633	ENSMUSG0C	Amigo2	A
ENSMUSG00000037434	1319,609049	0,739985085	0,22885919	3,23339414	0,00122342	0,03823568	ENSMUSG0C	Slc30a1	A
ENSMUSG00000039115	452,473176	0,738978579	0,20392775	3,63272734	0,00029039	0,01581668	ENSMUSG0C	Itpa9	L
ENSMUSG00000028701	802,5607005	0,735835398	0,22425539	3,28123834	0,00103352	0,03484883	ENSMUSG0C	Lurap1	L
ENSMUSG00000040093	672,5164557	0,727056235	0,21911302	3,31817902	0,00090606	0,03021658	ENSMUSG0C	Bmf	B
ENSMUSG00000008641	737,7874245	0,726155291	0,22452759	3,23414727	0,00122007	0,03823	ENSMUSG0C	2410006H1GRik	
ENSMUSG000000046711	4679,133652	0,723456773	0,18784236	3,85140381	0,00011744	0,0084789	ENSMUSG0C	Hmga1	A
ENSMUSG00000020227	1023,534669	0,719653709	0,22656389	3,17638311	0,00149124	0,04286641	ENSMUSG0C	Irak3	L
ENSMUSG00000042228	2396,393218	0,711794553	0,19428557	3,66365109	0,00024865	0,01439485	ENSMUSG0C	Lyn	B
ENSMUSG00000005973	2201,68985	0,711379706	0,20630714	3,44815845	0,00056442	0,04228633	ENSMUSG0C	Rcn1	B
ENSMUSG00000039835	2022,292619	0,710167155	0,14981255	4,74037154	2,1333E-06	0,00051004	ENSMUSG0C	Nhs1	L
ENSMUSG00000042331	1133,545488	0,696245133	0,19714293	3,53167697	0,00041293	0,01979715	ENSMUSG0C	Specc1	A
ENSMUSG00000039145	514,3061008	0,692561552	0,22024566	3,14449585	0,00166373	0,0461979	ENSMUSG0C	Camk1b	B
ENSMUSG00000024066	1400,05722	0,689022426	0,21558921	3,19599673	0,00139349	0,04104444	ENSMUSG0C	Xdh	K
ENSMUSG00000039960	2809,842054	0,688190542	0,12404294	5,54800253	2,8895E-08	1,6624E-05	ENSMUSG0C	Rhou	A
ENSMUSG00000028469	705,0401645	0,686806371	0,21355912	3,21600118	0,0012999	0,03925992	ENSMUSG0C	Npr2	L
ENSMUSG00000042129	5558,487444	0,686475836	0,1748922	3,92513685	8,668E-05	0,00725358	ENSMUSG0C	Rassf4	A
ENSMUSG00000023905	2627,192605	0,681121165	0,16748183	4,06683628	4,7656E-05	0,00507279	ENSMUSG0C	Tnfrsf12a	A
ENSMUSG00000104346	1730,512126	0,676379475	0,20379553	3,3189122	0,00090369	0,03199404	ENSMUSG0C	Pcdhga3	S
ENSMUSG00000038508	1353,992334	0,675482979	0,20828686	3,24304167	0,00118261	0,03740865	ENSMUSG0C	Gdf15	X
ENSMUSG00000021087	2149,483762	0,672498599	0,18289638	3,67693781	0,00023605	0,0139285	ENSMUSG0C	Rtn1	L
ENSMUSG00000021876	3526,24833	0,670112693	0,18245248	3,5527858	0,00025941	0,00437772	ENSMUSG0C	Rras4	B
ENSMUSG00000020407	5245,917214	0,669408444	0,18106215	3,69711258	0,00021807	0,01307684	ENSMUSG0C	Upp1	B
ENSMUSG00000048087	1140,468676	0,666589408	0,19734755	3,37774358	0,00073083	0,02856606	ENSMUSG0C	Gm4737	S
ENSMUSG00000022965	2645,598957	0,665460442	0,19308061	3,44654207	0,00056781	0,04236686	ENSMUSG0C	Ifngr2	A
ENSMUSG00000018417	3078,222163	0,664284393	0,18197941	3,65032731	0,00026191	0,01497421	ENSMUSG0C	Myo1b	L
ENSMUSG00000009585	2945,936756	0,659122478	0,17988029	3,66422837	0,00024809	0,01439485	ENSMUSG0C	Apobec3	B
ENSMUSG00000069805	2053,285029	0,649190827	0,18535111	3,50249222	0,00046093	0,02116127	ENSMUSG0C	Fbp1	L
ENSMUSG00000047648	652,4183483	0,64368009	0,16448143	3,91339071	9,1009E-07	0,00736341	ENSMUSG0C	Fbxo30	A
ENSMUSG00000042524	1094,119682	0,64182055	0,17128005	3,74719977	0,00017882	0,01119752	ENSMUSG0C	Sun2	A
ENSMUSG00000090035	2214,641251	0,638548191	0,1435091	4,44953095	8,6058E-06	0,00142732	ENSMUSG0C	Galnt4	A
ENSMUSG00000026425	900,442253	0,638144521	0,20293483	3,14457863	0,00166326	0,0461979	ENSMUSG0C	Srgap2	B
ENSMUSG00000040525	2765,403669	0,629244881	0,19140266	3,28754513	0,00101065	0,03451686	ENSMUSG0C	Cblc	B
ENSMUSG00000021025	9684,250512	0,622779741	0,10016778	6,21736598	5,0557E-10	5,8172E-07	ENSMUSG0C	Nfkbia	A
ENSMUSG00000021895	1695,0604	0,614760443	0,14163679	4,34040075	1,4222E-05	0,00212872	ENSMUSG0C	Arhgef3	L
ENSMUSG00000028413	2250,364335	0,604623279	0,1590336	3,80185863	0,00014361	0,00972039	ENSMUSG0C	B4galt1	A
ENSMUSG00000027994	1189,940227	0,603123131	0,15752557	3,82873161	0,00012881	0,00910744	ENSMUSG0C	Mcbp	A
ENSMUSG00000040659	3776,159532	0,600525019	0,15005309	4,00208361	6,2787E-05	0,00592775	ENSMUSG0C	Ehd2	A
ENSMUSG00000024048	5727,080849	0,598705452	0,14797599	4,04596606	5,2108E-05	0,0052835	ENSMUSG0C	My12a	A
ENSMUSG00000030042	177,1635305	0,592103506	0,16756214	3,5356356	0,00040989	0,01970234	ENSMUSG0C	Pole4	A
ENSMUSG00000039048	4884,248337	0,587448959	0,14367609	4,13676001	3,5224E-05	0,00410471	ENSMUSG0C	Ucn3Bb1	D
ENSMUSG00000021823	4760,348373	0,585343282	0,16681074	3,46745295	0,00052542	0,02330882	ENSMUSG0C	Vcl	A
ENSMUSG00000021996	11455,73734	0,58226953	0,15250609	3,8180084	0,00013453	0,00929398	ENSMUSG0C	Esd	F
ENSMUSG00000034917	2521,475146	0,579266385	0,16048574	3,60945701	0,00030684	0,01619939	ENSMUSG0C	Tjp3	C
ENSMUSG00000023036	1424,7391309	0,576445068	0,18112666	3,18255335	0,00145983	0,04232346	ENSMUSG0C	Pcdhgc4	
ENSMUSG00000041135	2900,218972	0,57399574	0,14049113	4,08563676	4,3956E-06	0,00478835	ENSMUSG0C	Ripk2	A
ENSMUSG00000024052	1959,961636	0,563175137	0,12416341	4,53575777	5,7397E-06	0,00106735	ENSMUSG0C	Lpin2	B
ENSMUSG00000024661	72052,40933	0,557881099	0,17407217	3,20488384	0,00135117	0,04025087	ENSMUSG0C	Ftn1	A
ENSMUSG00000052684	5574,423264	0,556329774	0,14140236	3,93437412	8,3414E-05	0,00707672	ENSMUSG0C	Jun	A
ENSMUSG00000034422	6466,152334	0,550408307	0,16404396	3,35524876	0,00079294	0,02991385	ENSMUSG0C	Parp14	B
ENSMUSG00000019947	2055,182047	0,539384864	0,13756895	3,92083278	8,8243E-05	0,00730646	ENSMUSG0C	Arid5b	L
ENSMUSG00000023030	7772,112677	0,537390533	0,11301002	4,75524688	1,982E-06	0,00048652	ENSMUSG0C	Slc11a2	A
ENSMUSG00000032786	2948,649781	0,537228519	0,15693664	3,42321913	0,00061884	0,02565963	ENSMUSG0C	Alas1	A
ENSMUSG00000022500	4316,464458	0,532184753	0,15511776	3,4308435	0,00060171	0,02540697	ENSMUSG0C	Litaf	A
ENSMUSG00000040128	8074,875922	0,530226067	0,13751256	3,85858746	0,00011533	0,00839249	ENSMUSG0C	Prrc1	A
ENSMUSG00000006818	21722,58205	0,527614909	0,15099148	3,49433554	0,00047524	0,02149688	ENSMUSG0C	Sod2	A
ENSMUSG00000018340	19504,63145	0,52511555	0,10762883	4,87894857	1,0665E-06	0,0002975	ENSMUSG0C	Anxa6	A
ENSMUSG00000051043	2900,190086	0,521727379	0,16716796	3,12097704	0,00180252	0,04851522	ENSMUSG0C	Gprc5	B
ENSMUSG00000044864	3048,367388	0,520882681	0,16146885	3,22590894	0,00125573	0,04886665	ENSMUSG0C	Ankrd5	A
ENSMUSG00000009003	25611,63141	0,519335829	0,15200709	3,41666047	0,00063389	0,00219719	ENSMUSG0C	Gstp1	A
ENSMUSG00000029455	2453,996351	0,512356187	0,1536925	3,3736675	0,0007174	0,02868979	ENSMUSG0C	Alb1	B
ENSMUSG00000069662	4918,73417	0,510735251	0,14785496	4,54229979	0,00055172	0,02410638	ENSMUSG0C	Marc3a	A
ENSMUSG00000002983	2105,624371	0,50898455	0,14500472	3,5101241	0,0004479	0,02087543	ENSMUSG0C	Relb	A
ENSMUSG00000050912	4070,060174	0,505382429	0,12647003	3,99606514	6,4404E-05	0,00598827	ENSMUSG0C	Tmem123	A
ENSMUSG00000016382	3883,820564	0,503241149	0,15357238	3,27689887	0,00104954	0,03513095	ENSMUSG0C	Pls3	A
ENSMUSG00000030203	3197,737328	0,502578095	0,16054268	3,13049515	0,00174512	0,0475965	ENSMUSG0C	Disp16	A
ENSMUSG00000035356	8865,466883	0,499378575	0,11536878	4,32854162	1,501E-05	0,00221443	ENSMUSG0C	Nfkbia	A
ENSMUSG00000038235	10131,95788	0,498855077	0,14561572	3,42583263	0,00061292	0,02564504	ENSMUSG0C	F11r	A
ENSMUSG00000050708	136184,542	0,498418957	0,13055497	3,81769435	0,0001347	0,00929398	ENSMUSG0C	Ft1	A
ENSMUSG00000036620	2703,732063	0,495106858	0,14873043	3,32888738	0,00087194	0,0315265	ENSMUSG0C	Gm4tb4	B
ENSMUSG00000033545	2516,805536	0,492743863	0,13345808	3,69212472	0,00022239	0,01329276	ENSMUSG0C	Znf1	L
ENSMUSG00000050587	9483,344542	0,486333346	0,15153444	3,20939161	0,00133016	0,03994561	ENSMUSG0C	Cdr4	B
ENSMUSG00000034573	2420,931349	0,480274155	0,13739108	3,49567196	0,00047287	0,02144219	ENSMUSG0C	Ptpn13	B
ENSMUSG00000026479	5554,417345	0,477770834	0,11751023	4,0657807	4,7872E-05	0,00502779	ENSMUSG0C	Lamc2	B
ENSMUSG00000039943	3178,787824	0,471311184	0,13564702	3,47454135	0,00055173	0,02275558	ENSMUSG0C	Plcb4	I
ENSMUSG00000028961	9811,403023	0,464718297	0,14135232	3,28765954	0,00101024	0,03451686	ENSMUSG0C	Pgd	A
ENSMUSG00000068876	1346,75979	0,461662007	0,10357137	4,45742893	8,2949E-06	0,00138826	ENSMUSG0C	Cgn	A
ENSMUSG00000057406	3192,646452	0,461545374	0,11917792	3,87274222	0,00010762	0,00812419	ENSMUSG0C	Ns2	D
ENSMUSG00000007816	2885,232509	0,454850739	0,14323885	3,17554489	0,000149571	0,04295787	ENSMUSG0C	Pk2	H
ENSMUSG00000023959	1442,829845	0,454837708	0,1536925	3,3736675	0,0007174	0,02868979	ENSMUSG0C	Alb1	B
ENSMUSG00000038252	13558,39992	0,449523034	0,11807117	3,80720394	0,00014055	0,00861884	ENSMUSG0C	Rspo4	B
ENSMUSG00000031897	4669,009592	0,446398157	0,11272362	3,96011208	7,4915E-05	0,00663934	ENSMUSG0C	Psm10	L
ENSMUSG00000017009	7289,876496	0,444407571	0,13313636	3,3798808	0,00084387	0,0311337	ENSMUSG0C	Sdc4	A
ENSMUSG00000079254	11345,26872	0,437272009	0,1102302	3,96689851	7,2814E-05	0,00653905	ENSMUSG0C	Hep1	A
ENSMUSG00000023224	25746,99976	0,433166655	0,11294124	3,83532746	0,0001254	0,00891336	ENSMUSG0C	Serping1	D
ENSMUS									

ENSMUSG00000028926	2810,638068	-0,970737149	0,1884006	-5,1525161	2,5701E-07	9,6493E-05	ENSMUSG0C Cdk14	B
ENSMUSG000000105263	8287,220339	-0,969095457	0,23541155	-4,1200593	3,7877E-05	0,0043628	ENSMUSG0C Gm42427	B
ENSMUSG000000039628	734,6382013	-0,960140017	0,30836003	-3,113698	0,00184758	0,04943901	ENSMUSG0C Hs3t6	B
ENSMUSG000000073791	184,4739954	-0,944319948	0,29974172	-3,1504455	0,00163022	0,04568081	ENSMUSG0C Efabcf7	E
ENSMUSG000000030785	1631,338161	-0,937222907	0,29107305	-3,219889	0,0012824	0,03902319	ENSMUSG0C Cow6a2	H
ENSMUSG000000042797	652,9864155	-0,936042471	0,22027764	-4,2493757	2,1437E-05	0,00284414	ENSMUSG0C Aasb11	B
ENSMUSG000000051435	681,6815899	-0,92676236	0,28315037	-3,2730427	0,00106396	0,03252994	ENSMUSG0C Fhd11	A
ENSMUSG000000037843	5970,418924	-0,916070892	0,25318875	-3,6181343	0,00029673	0,015945	ENSMUSG0C Vsm21	A
ENSMUSG000000059824	746,7541073	-0,898189384	0,28256881	-3,1786572	0,00147959	0,04262792	ENSMUSG0C Dbp	A
ENSMUSG000000036800	772,4370102	-0,894664734	0,27757281	-3,2231713	0,0012678	0,03902319	ENSMUSG0C Fam135b	L
ENSMUSG000000016179	272,8207984	-0,875807177	0,23794831	-3,6806615	0,00023263	0,01370778	ENSMUSG0C CamK1g	L
ENSMUSG000000057069	81456,37061	-0,874627724	0,21997159	-3,976094	7,0056E-05	0,0063534	ENSMUSG0C Eri1b	A
ENSMUSG000000027487	857,7664583	-0,870466072	0,24871169	-3,4999002	0,00046543	0,02126206	ENSMUSG0C Cdk5rap1	A
ENSMUSG000000035299	1310,349301	-0,867340958	0,27535055	-3,1499517	0,00163297	0,04568507	ENSMUSG0C Mtd1	A
ENSMUSG000000028825	561,6371392	-0,86730947	0,2607245	-3,3265361	0,00087933	0,0315265	ENSMUSG0C Rhd	Q
ENSMUSG000000005373	1925,580749	-0,865794203	0,26384639	-3,2814328	0,00103321	0,0348483	ENSMUSG0C Mxipl	A
ENSMUSG000000021287	440,807743	-0,863380362	0,24192877	-3,568749	0,00035869	0,0180423	ENSMUSG0C Xrcc3	A
ENSMUSG000000038058	1623,420677	-0,862463612	0,20564795	-4,1938838	2,7422E-05	0,00345778	ENSMUSG0C Nod1	D
ENSMUSG000000021071	1255,944353	-0,849562613	0,21056208	-4,034737	5,4664E-05	0,00541051	ENSMUSG0C Trim9	B
ENSMUSG000000022235	845,4250531	-0,848535698	0,26039751	-3,2586168	0,00111957	0,03616008	ENSMUSG0C Cmb1	L
ENSMUSG000000024553	1343,051801	-0,815976106	0,25515158	-3,1980052	0,00138382	0,04099798	ENSMUSG0C Galr1	B
ENSMUSG000000027984	18235,73686	-0,811756169	0,22589783	-3,593466	0,00032631	0,01673352	ENSMUSG0C Hadh	A
ENSMUSG0000000097530	681,5678173	-0,808212058	0,25948923	-3,1142798	0,00184395	0,04941344	ENSMUSG0C Kans12-ps	B
ENSMUSG000000024027	7143,335379	-0,806171402	0,20564941	-3,9201251	8,8503E-05	0,00730646	ENSMUSG0C Gp1r	A
ENSMUSG000000031026	536,83920234	-0,802702344	0,25059296	-3,2042886	0,00135387	0,04026903	ENSMUSG0C Trim66	L
ENSMUSG000000034211	3095,615055	-0,798771384	0,13794773	-5,7903916	7,0223E-09	5,3867E-06	ENSMUSG0C Atm	B
ENSMUSG000000024972	547,5412522	-0,796767195	0,22425312	-3,5529816	0,00038089	0,01865366	ENSMUSG0C Lgals12	L
ENSMUSG000000044207	4071,950756	-0,79448671	0,2119561	-3,7483643	0,00017799	0,01118371	ENSMUSG0C Adh1	A
ENSMUSG0000000044139	57317,62381	-0,787997278	0,20423821	-3,8582265	0,00011421	0,00834388	ENSMUSG0C Prss53	A
ENSMUSG000000058248	4901,878824	-0,77826955	0,16668871	-4,6689998	3,0267E-06	0,00068792	ENSMUSG0C Kenh1	L
ENSMUSG000000009246	1952,47086	-0,773548737	0,23929073	-3,2326732	0,00122638	0,03823568	ENSMUSG0C Trpm5	K
ENSMUSG000000030761	1294,919401	-0,771882992	0,16768988	-4,6030385	4,1637E-06	0,0008332	ENSMUSG0C Myo7a	N
ENSMUSG000000036402	53072,5212	-0,756331509	0,180571	-4,1885548	2,8074E-05	0,00351589	ENSMUSG0C Gng12	B
ENSMUSG000000037279	642,9940423	-0,753935098	0,23447793	-3,2153777	0,00130273	0,03931681	ENSMUSG0C Ovol2	L
ENSMUSG000000031255	12802,42819	-0,75039097	0,17207957	-4,3607208	1,2963E-05	0,00197238	ENSMUSG0C Sytl4	A
ENSMUSG000000026185	7384,795711	-0,746561707	0,14432811	-5,1726701	2,3077E-07	8,9457E-05	ENSMUSG0C Igfbp5	L
ENSMUSG000000027002	2316,854056	-0,743837372	0,15804947	-4,7063579	2,5218E-06	0,00059521	ENSMUSG0C Hira	A
ENSMUSG000000027314	861,6576648	-0,743230849	0,16999563	-4,3720586	1,2308E-05	0,00193668	ENSMUSG0C Dll4	L
ENSMUSG000000044645	2897,481789	-0,73830317	0,22716014	-3,250144	0,00115347	0,03680296	ENSMUSG0C Gm7334	L
ENSMUSG000000056158	3569,286629	-0,735376281	0,21492904	-3,421484	0,0006228	0,02576589	ENSMUSG0C Car10	A
ENSMUSG000000097908	688,7545295	-0,729992781	0,22484183	-3,2466947	0,00116754	0,0369954	ENSMUSG0C 4933404012	B
ENSMUSG00000013089	3296,154732	-0,726299039	0,12370785	-5,8710828	4,3296E-09	3,7956E-06	ENSMUSG0C Ets5	I
ENSMUSG000000070880	3095,521111	-0,721828946	0,20700933	-3,4869993	0,00048858	0,01924866	ENSMUSG0C Gad1	A
ENSMUSG000000002453	9157806,969	-0,709676093	0,15982267	-3,665821	0,00024655	0,01439985	ENSMUSG0C Ins2	A
ENSMUSG000000054009	11017,1338	-0,708512054	0,15314053	-4,2624883	3,7181E-06	0,00077784	ENSMUSG0C Nell1	B
ENSMUSG000000106313	434,734907	-0,707928548	0,22757464	-3,1107532	0,00186611	0,04977022	ENSMUSG0C Gm3724	A
ENSMUSG000000049971	1242,083927	-0,698021657	0,20224661	-3,4513392	0,00055781	0,02410638	ENSMUSG0C Gli1d1	A
ENSMUSG000000079620	7582,19844	-0,689708173	0,20676052	-3,3357828	0,0008506	0,0311295	ENSMUSG0C Muc4	D
ENSMUSG0000000202479	11056,3572	-0,679308285	0,20107682	-3,3783521	0,00072922	0,02856356	ENSMUSG0C Vdr	A
ENSMUSG000000055254	19604,4819	-0,67696089	0,19428133	-3,4844361	0,00049318	0,02203727	ENSMUSG0C Ntrk2	L
ENSMUSG000000041842	4606,442382	-0,675794096	0,20986874	-3,2200798	0,00128155	0,03902319	ENSMUSG0C Fhd1	A
ENSMUSG000000035804	3975391,361	-0,663569766	0,20754307	-3,1972629	0,00138738	0,04099798	ENSMUSG0C Ins1	C
ENSMUSG000000020169	1155,376083	-0,662953385	0,19785633	-3,3506807	0,00080613	0,03022584	ENSMUSG0C Best3	L
ENSMUSG000000041895	12913,85929	-0,662362588	0,19561924	-3,3859788	0,00070925	0,02814066	ENSMUSG0C Wip1	A
ENSMUSG000000042638	3859,924777	-0,657821798	0,18660161	-3,525274	0,00042304	0,02007283	ENSMUSG0C Gucy2c	L
ENSMUSG000000070348	13490,28492	-0,65616414	0,13821833	-4,7473019	2,0615E-06	0,00049937	ENSMUSG0C Cnd1	A
ENSMUSG000000025140	5783,033438	-0,646346808	0,1694412	-3,8145789	0,00013642	0,00937092	ENSMUSG0C Pycr1	L
ENSMUSG000000026443	786,2616553	-0,641878012	0,1962251	-3,271131	0,00107118	0,03534136	ENSMUSG0C Lrm2	A
ENSMUSG000000037106	2648,201143	-0,641554878	0,18898761	-3,3946227	0,00068706	0,02743756	ENSMUSG0C Fer1f6	O
ENSMUSG000000046593	1566,00000046593	-0,638839765	0,16513266	-3,8686456	0,00010944	0,00819032	ENSMUSG0C Tmem215	A
ENSMUSG000000026189	3063,542421	-0,637566488	0,19272699	-3,3081328	0,0009392	0,03280971	ENSMUSG0C Pccr	B
ENSMUSG0000000096956	531,3460911	-0,634889846	0,17965306	-3,5339773	0,00040936	0,01970234	ENSMUSG0C Sng18	B
ENSMUSG000000004453	9859,490984	-0,629675538	0,15968274	-3,9264328	8,6215E-05	0,00724757	ENSMUSG0C Ffar1	B
ENSMUSG000000019876	576,2191923	-0,621166351	0,19809736	-3,1579802	0,00158866	0,04472064	ENSMUSG0C Pkb	X
ENSMUSG000000026930	4126,487245	-0,613585248	0,16987712	-3,6119357	0,00030392	0,0161244	ENSMUSG0C Gpm1	C
ENSMUSG000000028445	5679,972936	-0,612633369	0,17327206	-3,5356732	0,00040674	0,01970234	ENSMUSG0C Erho	C
ENSMUSG000000025036	3747,972807	-0,609408247	0,18797485	-3,2419669	0,00118708	0,0374856	ENSMUSG0C Fsn2	A
ENSMUSG000000034584	3733,346337	-0,60767448	0,19465045	-3,1218756	0,00179703	0,04850923	ENSMUSG0C Exph5	B
ENSMUSG000000020614	2338,469872	-0,605115059	0,15481072	-3,9087412	9,2778E-05	0,0074263	ENSMUSG0C Fam20a	A
ENSMUSG000000033653	3549,399595	-0,602843317	0,15510036	-3,8867952	0,00010158	0,00779176	ENSMUSG0C Vps8	I
ENSMUSG000000020262	2064,695148	-0,596011129	0,14307724	-4,1656601	3,1045E-05	0,00378106	ENSMUSG0C Adarb1	A
ENSMUSG000000022420	1563,013973	-0,59202939	0,16962951	-3,490132	0,00048278	0,02177155	ENSMUSG0C Dna14	A
ENSMUSG000000030355	3355,526468	-0,591533977	0,15684634	-3,7714235	0,00016232	0,01052215	ENSMUSG0C Fkbp11	B
ENSMUSG000000039137	2778,40206	-0,591169974	0,18802782	-3,1440559	0,00166624	0,0461979	ENSMUSG0C Whrn	A
ENSMUSG000000029644	10843,76514	-0,575789139	0,14938499	-3,8543975	0,00011601	0,0084088	ENSMUSG0C Pdx1	A
ENSMUSG000000039062	9107,218462	-0,575425027	0,16799867	-3,4251761	0,0006144	0,0256488	ENSMUSG0C Anpep	L
ENSMUSG000000019066	19129,84062	-0,575167971	0,13971562	-4,1167049	3,8433E-05	0,00436758	ENSMUSG0C Rab3d	A
ENSMUSG000000027004	6949,341352	-0,573206663	0,16112444	-3,5582485	0,00037334	0,01852592	ENSMUSG0C Frzb	B
ENSMUSG000000062944	1782,05135	-0,56707281	0,16878799	-3,359675	0,00078034	0,02955987	ENSMUSG0C 9130023H24	A
ENSMUSG000000020471	1914,033066	-0,565341715	0,12193826	-4,6623948	3,5471E-06	0,0007506	ENSMUSG0C Pold2	A
ENSMUSG000000070392	1318,754284	-0,565180718	0,13314443	-4,2448737	2,1872E-05	0,00285572	ENSMUSG0C Gm20634	B
ENSMUSG000000039601	2368,239798	-0,563974337	0,17530274	-3,2171671	0,00129463	0,03920093	ENSMUSG0C Rcan2	A
ENSMUSG000000028544	13680,9829	-0,56268751	0,19809027	-3,1279488	0,00176031	0,04793976	ENSMUSG0C Pcsb2	D
ENSMUSG000000061911	1767,467763	-0,561127428	0,18041951	-3,1102161	0,00187007	0,04977022	ENSMUSG0C Mt11	B
ENSMUSG000000008881	1820,569354	-0,559727955	0,16310405	-3,4317233	0,00059976	0,02532891	ENSMUSG0C Dlg3	A
ENSMUSG000000036599	2230,513745	-0,558007361	0,13646996	-4,088866	4,3349E-05	0,00477874	ENSMUSG0C Cht12	A
ENSMUSG000000034171	2105,461458	-0,554514383	0,17405345	-3,1858857	0,00144312	0,041905	ENSMUSG0C Faah	B
ENSMUSG000000030515	1292,840573	-0,554350744	0,15201114	-3,646777	0,00026555	0,01503866	ENSMUSG0C Tars1	A
ENSMUSG000000032965	6160,397492	-0,553471658	0,11864908	-4,6647785	3,0895E-06	0,00069363	ENSMUSG0C Ift57	A
ENSMUSG000000026163	29676,50528	-0,553351824	0,16134442	-3,4296356	0,00060439	0,02546193	ENSMUSG0C Sphkap	A
ENSMUSG000000022661	3376,254265	-0,550400751	0,13999774	-3,9314974	8,4418E-05	0,0071291		

ENSMUSG00000042203	5472,431258	-0,423803738	0,12666124	-3,3472531	0,00081617	0,03040838	ENSMUSG0C Tbc1d22b	A
ENSMUSG00000029467	91654,93969	-0,420004883	0,13163128	-3,1907681	0,00141895	0,0413992	ENSMUSG0C Atp2a2	A
ENSMUSG00000032557	7881,072312	-0,416455263	0,12999674	-3,2050617	0,00135034	0,04025087	ENSMUSG0C Uba5	A
ENSMUSG00000017764	1951,666245	-0,415361445	0,12765493	-3,253783	0,00113879	0,03658842	ENSMUSG0C Zswim1	C
ENSMUSG00000020260	14551,26937	-0,413337849	0,11369729	-3,635424	0,00027752	0,01520599	ENSMUSG0C Pofut2	A
ENSMUSG00000066900	5646,041715	-0,412707629	0,130862	-3,1537623	0,0016118	0,04530275	ENSMUSG0C Sude3	A
ENSMUSG00000039263	8166,600461	-0,41124954	0,10065138	-4,0858808	4,291E-05	0,00478835	ENSMUSG0C Npep1	A
ENSMUSG00000029629	2563,479544	-0,410790686	0,12147788	-3,3816089	0,00072063	0,02834773	ENSMUSG0C Pfh14	A
ENSMUSG00000023915	4774,617527	-0,403332537	0,12400434	-3,2525679	0,00114367	0,03661742	ENSMUSG0C Trfrs21	A
ENSMUSG00000042178	4184,20181	-0,401835106	0,12229858	-3,285689	0,00101733	0,0346194	ENSMUSG0C Armc5	B
ENSMUSG00000052942	5713,177341	-0,400983075	0,1202595	-3,3343152	0,0008551	0,03117295	ENSMUSG0C Glis3	A
ENSMUSG00000067924	4911,838402	-0,3980071725	0,09960195	-3,9966257	6,425E-05	0,00598827	ENSMUSG0C Rtl8b	A
ENSMUSG00000032120	7883,8877	-0,397379363	0,10718423	-3,7074425	0,00020936	0,01276282	ENSMUSG0C C2cd2l	A
ENSMUSG00000022769	10645,89718	-0,395391387	0,11129131	-3,5527607	0,00038121	0,01865366	ENSMUSG0C Sdf211	A
ENSMUSG00000032839	2979,579928	-0,39196468	0,11525528	-3,4008391	0,00067179	0,0271818	ENSMUSG0C Trpc1	A
ENSMUSG00000023921	2998,880766	-0,388505658	0,09994953	-3,8870182	0,00010148	0,00779176	ENSMUSG0C Mut	A
ENSMUSG00000030780	2842,428676	-0,388439033	0,10682712	-3,6361461	0,00027675	0,01520599	ENSMUSG0C BC017158	B
ENSMUSG00000034850	12587,35693	-0,38443241	0,11255733	-3,4154365	0,0006368	0,02611017	ENSMUSG0C Tmem127	A
ENSMUSG00000041891	50559,83839	-0,382473545	0,10077414	-3,7953541	0,00014743	0,00990598	ENSMUSG0C Lman1	A
ENSMUSG00000029086	18314,63456	-0,380380144	0,11619043	-3,2737649	0,00106125	0,03529294	ENSMUSG0C Prom1	B
ENSMUSG00000028976	19224,79516	-0,379554251	0,09891521	-3,8371677	0,00012446	0,00888115	ENSMUSG0C Slc2a5	D
ENSMUSG00000057530	46918,95336	-0,375862178	0,09537694	-3,9408077	8,1208E-05	0,00697732	ENSMUSG0C Ece1	A
ENSMUSG00000039474	21446,12834	-0,375383165	0,1014726	-3,699355	0,00021615	0,0130042	ENSMUSG0C Wfs1	B
ENSMUSG00000020256	20384,87856	-0,373202713	0,11684915	-3,1938846	0,00140372	0,04121615	ENSMUSG0C Aldh1l2	A
ENSMUSG00000031634	6575,896164	-0,372847598	0,11477619	-3,248475	0,00116025	0,03687281	ENSMUSG0C Ufsp2	A
ENSMUSG00000070754	23405,25567	-0,370032438	0,10471225	-3,6338026	0,00040963	0,01970234	ENSMUSG0C Hsp94	L
ENSMUSG00000061306	38242,00441	-0,367326377	0,08790389	-4,1787274	2,9314E-05	0,00362201	ENSMUSG0C Slc38a10	A
ENSMUSG00000041997	7979,776404	-0,367221429	0,11385062	-3,2254672	0,00125767	0,03886665	ENSMUSG0C Tik1	A
ENSMUSG00000018102	7365,912236	-0,360880958	0,11308403	-3,1912637	0,00141652	0,04139384	ENSMUSG0C Hist1h2bc	A
ENSMUSG00000028032	7794,246647	-0,35198861	0,10154982	-3,4661666	0,00052794	0,0233637	ENSMUSG0C Paps1	A
ENSMUSG00000032575	34023,93709	-0,349883098	0,09193823	-3,8056323	0,00014144	0,00964427	ENSMUSG0C Manf	A
ENSMUSG00000022685	4281,025535	-0,348980733	0,1011102	-3,451489	0,0005575	0,02410638	ENSMUSG0C Parm	A
ENSMUSG00000030500	10383,75467	-0,347431309	0,10108855	-3,4369006	0,00058841	0,0251165	ENSMUSG0C Impdh1	A
ENSMUSG00000032743	2602,916463	-0,34623877	0,10607501	-3,2640936	0,00109815	0,03590927	ENSMUSG0C D430042009A	A
ENSMUSG00000042298	2422,136369	-0,344725972	0,10893669	-3,1644615	0,0015537	0,04414145	ENSMUSG0C Ttc19	A
ENSMUSG00000027230	8366,127433	-0,341784841	0,10448123	-3,2712558	0,00107071	0,03534136	ENSMUSG0C Creb3l1	A
ENSMUSG00000043733	20117,70888	-0,341021098	0,10586577	-3,2212592	0,00127629	0,03902319	ENSMUSG0C Ptpn11	A
ENSMUSG00000035227	26177,87793	-0,340455569	0,09448867	-3,6031366	0,0003144	0,01630453	ENSMUSG0C Spcs2	A
ENSMUSG00000025935	29617,13461	-0,33999618	0,09387831	-3,6216693	0,00029271	0,01589604	ENSMUSG0C Tram1	A
ENSMUSG00000002845	5684,630611	-0,332542156	0,09342382	-3,5595009	0,00037156	0,01848763	ENSMUSG0C Tmem39a	N
ENSMUSG00000045752	7764,694737	-0,332314013	0,10320283	-3,2200088	0,00128187	0,03902319	ENSMUSG0C Tssc4	A
ENSMUSG00000032042	69776,49007	-0,329953801	0,08732525	-3,7784465	0,00015781	0,01038523	ENSMUSG0C Srpr	A
ENSMUSG00000029472	14016,66516	-0,319355737	0,09521643	-3,3539984	0,00079653	0,02998791	ENSMUSG0C Anapc5	A
ENSMUSG00000026307	12454,39985	-0,308271842	0,08476792	-3,6366569	0,0002762	0,01520599	ENSMUSG0C Scly	A
ENSMUSG00000074102	4761,144515	-0,307006184	0,09619548	-3,1914823	0,00141545	0,04139384	ENSMUSG0C Rbm15b	A
ENSMUSG00000079487	7484,02724	-0,297935911	0,0913629	-3,2610162	0,00111014	0,0360222	ENSMUSG0C Med12	A
ENSMUSG00000028173	13310,53768	-0,295379867	0,09378537	-3,1495302	0,00163533	0,04568507	ENSMUSG0C Wis	A
ENSMUSG00000034586	27057,80754	-0,293478881	0,09071823	-3,2350597	0,00121617	0,03823	ENSMUSG0C Hid1	A
ENSMUSG00000030282	11812,57743	-0,276735176	0,08295817	-3,33584	0,00085042	0,03117295	ENSMUSG0C Cmas	A

Supp Table S5. Pathway analysis of RNA-sequencing data in pancreatic islets isolated from control E2f1fl/fl and beta-cell specific E2f1beta-/- deficient mice ider

Upstream Regulator	Expr Log Ratio	Molecule Type	Predicted	Activation	Notes	Bias Term	Bias-corrected z-score	p-value of
XBP1		transcription regulator	Inhibited	-2.581	bias	-0.771	0.462	7E-11
HNF1A		transcription regulator	Inhibited	-3.955	bias	-0.915	-0.537	2.35E-10
NEUROD1		transcription regulator	Inhibited	-2.762	bias	-0.947	-0.145	3.93E-09
DHTKD1		enzyme						8.21E-09
PDX1	-0.576	transcription regulator	Inhibited	-2.442	bias	-0.795	-0.501	9.09E-09
NEUROG3		transcription regulator	Inhibited	-2.423	bias	-1	0	1.08E-07
FAM6A		other						2.1E-06
PAX6		transcription regulator		-1.759	bias	-0.316	-0.822	4.68E-06
GLIS3	-0.401	transcription regulator						1.18E-05
ERN1		kinase	Inhibited	-2.135	bias	-0.57	-0.549	1.21E-05
G protein alpha		group	Inhibited	-2.646	bias	-0.828	-0.455	1.27E-05
ERCC1		enzyme				0.2	-0.132	0.489
THRA		ligand-dependent nuclear receptor						0.000333
CD38		enzyme	Inhibited	-2.804	bias	-0.907	-0.262	3.72E-05
BAD		other						6.58E-05
NKX2-2		transcription regulator						8.32E-05
CGA		other		0.896		0.103	0.645	9.42E-05
TGF4		transcription regulator		-1.263		-0.237	-0.515	9.63E-05
PCSK2		peptidase						0.000111
MAFA		transcription regulator						0.000142
MED1		transcription regulator	Inhibited	-2.2	bias	-0.305	-0.21	0.000146
MGAT4A		enzyme						0.000196
METTL14		enzyme						0.000224
TGFB		transcription regulator	Inhibited	-2.779	bias	-0.446	-1.54	0.000258
ACACB		enzyme						0.000274
SLC13A5		transporter						0.00039
SOX6		transcription regulator						0.000395
MAP4K4		kinase		0.816	bias	0.932	-1.466	0.000395
SPOP		other						0.000468
LEP		growth factor		-0.333		-0.202	0.222	0.000479
ATF6		transcription regulator						0.000486
Histone h3		group						0.000507
ISL1		transcription regulator	Inhibited	-2.213		-0.146	-1.889	0.000554
HTT		transcription regulator						0.000577
SREBF1		transcription regulator		-1.601	bias	-0.739	0.382	0.000606
OGT		enzyme		-0.277		0.125	-0.451	0.000618
CEL		enzyme						0.000647
TAF10		transcription regulator						0.000647
TRPC3		ion channel						0.000647
IL5		cytokine	Inhibited	-2.648	bias	-0.956	-0.118	0.000718
PRLR	-0.983	transmembrane receptor						0.000944
SST		other						0.000944
ERCC3		enzyme						0.000966
ERCC4		enzyme						0.000966
GHR	-0.488	transmembrane receptor						0.00127
NTRK2	-0.677	kinase						0.00127
FGFR4		kinase						0.00134
Hedgehog		group						0.00134
CCNT1		transcription regulator						0.00134
SHCBP1		other						0.00134
SLC2A2		transporter						0.00134
TRH		other						0.00134
P2RY14		G-protein coupled receptor						0.00149
ATP5IF1		other						0.00173
CCDC80		other						0.00178
Calneurin A		group						0.00178
MUC1		other		-1.044	bias	-0.472	-0.104	0.00184
BSCL2		other						0.00195
PHF21A		other						0.00228
SHANK3		other						0.00228
PTCH1		transmembrane receptor						0.00241
CX3CL1		cytokine						0.00255
FGF9		growth factor		-0.485		-0.171	-0.162	0.00255
PPARG		ligand-dependent nuclear receptor	Inhibited	-2.917	bias	-0.342	-1.92	0.00278
LAMTOR5		other						0.00284
RELN		peptidase						0.00284
DIO3		enzyme		-1.741		0.135	-2.066	0.00297
CAVI		transmembrane receptor						0.00302
NRX1		ligand-dependent nuclear receptor	Activated	2.449		0.246	1.847	0.00321
CCAR2		peptidase						0.00335
THRB		ligand-dependent nuclear receptor		-0.659		-0.079	-0.484	0.00342
DLX6-AS1		other						0.00345
KL8		enzyme						0.00345
NRX22		ligand-dependent nuclear receptor						0.00345
TAF1		transcription regulator						0.00345
TAFA5		transcription regulator						0.00345
NCOA1		transcription regulator				1	0.415	0.17
IRS2		enzyme						0.00362
TGSI		enzyme						0.0039
GIC		transcription regulator						0.00411
INHBB		growth factor						0.00411
NKX6-1	-0.538	transcription regulator						0.00411
STK24		kinase						0.00411
PTTG1		transcription regulator		1.067	bias	0.487	0.102	0.00414
Histone h4		group						0.00439
F2		peptidase						0.00449
FFAR3		G-protein coupled receptor						0.00484
RNF40		enzyme						0.00484
STK11		kinase		-0.447		-0.202	0.005	0.00544
MEN1		transcription regulator						0.00548
EPICAM		other						0.00561
PIK3CB		kinase						0.00561
TM6IM5		other						0.00561
PITX2		transcription regulator	Inhibited	-2	bias	-0.553	-0.895	0.0058
MED13		transcription regulator						0.00621
MAP2K2		kinase						0.00644
MAPK13		kinase						0.00644
NAE1		enzyme						0.00644
PRKDC		kinase						0.00644
RBMS-AS1		other						0.00644
SMC1A		transporter						0.007
MAZ		transcription regulator						0.00732
STMN1		other						0.00732
FGF21		growth factor						0.00741
CYP19A1		enzyme		-1.729		-0.089	-1.576	0.00758
FOXA2		transcription regulator	Inhibited	-2.219		-0.206	-1.762	0.00772
S430416N02Rk		other						0.00813
ABCOS		transporter						0.00813
ABHD11		enzyme						0.00813
AIDA		other						0.00813
ALG10		enzyme						0.00813
ALG5		enzyme						0.00813
ALG6		enzyme						0.00813
ALG8		enzyme						0.00813
ARFGEF3		other						0.00813
BAIAP2L1		other						0.00813
CALCOCO1		transcription regulator						0.00813
COL5A3		other						0.00813
GSH1/CSh2		other						0.00813
CXXC4		other						0.00813
Ces1b/Ces1c		enzyme						0.00813
DDOST		enzyme						0.00813
DRAXIN		other						0.00813
ENPD	-0.613	other						0.00813
FBXO31		enzyme						0.00813
FBXO4		enzyme						0.00813
FKHR		group						0.00813
FRMPD1		other						0.00813
FXN		kinase						0.00813
GPR142		G-protein coupled receptor						0.00813
HADH	-0.812	enzyme						0.00813
HADHA		enzyme						0.00813
INSRR		kinase						0.00813
KHK		kinase						0.00813
LINC01370		other						0.00813
MARK3		kinase						0.00813
MGAT4C		enzyme						0.00813

MCHR1		g-protein coupled receptor					0.0242
MCGAT2		enzyme					0.0242
NDUFAF3		other					0.0242
NIBAN2		transcription regulator					0.0242
NOP58		enzyme					0.0242
NPTX1		other					0.0242
NSD3		enzyme					0.0242
NUCKS1		kinase					0.0242
OLA1		enzyme					0.0242
PSMD14		peptidase					0.0242
PTGDS		enzyme					0.0242
PTTG1IP		other					0.0242
RAD50		enzyme					0.0242
RANBP9		other					0.0242
RDH16		enzyme					0.0242
RIMS2		other					0.0242
SERP1		other					0.0242
SERTAD1		transcription regulator					0.0242
SH2B2		other					0.0242
SLC39A4		transporter					0.0242
SNW1		transcription regulator					0.0242
SRGAP1		other					0.0242
THRSF		other					0.0242
UZAF2		other					0.0242
WAPL		other					0.0242
WIF1		other					0.0242
ZIC1		transcription regulator					0.0242
EGF		growth factor					0.0245
ADAM10		peptidase					0.0246
BTG2		transcription regulator					0.0246
GTF2B		transcription regulator					0.0246
SFRP1		transmembrane receptor					0.0246
RETNLB		other					0.0258
ROR2		kinase					0.0258
Hmgn3		other					0.0262
Ihht		enzyme					0.0262
TCF		group					0.0267
INS	-0.71	other	-0.277	-0.041	-0.197	0.0276	
Nr1h		group	0.152	0.382	-0.606	0.0276	
AZM		transporter				0.0278	
CTNWB1		transcription regulator	-1.147	-0.507	-0.152	0.0283	
EIF2AK3		kinase	-1.969	-0.843	-0.31	0.0283	
HIF1A		transcription regulator	-1.352	-0.444	-0.198	0.0292	
CXCR4		g-protein coupled receptor				0.0294	
DK1		other				0.0311	
RAF1		kinase				0.0311	
MAPK1		kinase	-0.816	0.088	-1.033	0.0321	
ADRA2B		g-protein coupled receptor				0.0321	
AGAP2-AS1		other				0.0321	
AGTRAP		g-protein coupled receptor				0.0321	
AKAP5		other				0.0321	
AP2M1		other				0.0321	
ARF1		enzyme				0.0321	
ATP2A1		transporter				0.0321	
BRS3		g-protein coupled receptor				0.0321	
CACNA1D		ion channel				0.0321	
CDC25B		phosphatase				0.0321	
CHN1		other				0.0321	
CPT1		group				0.0321	
Cathepsin		group				0.0321	
DDX19B		enzyme				0.0321	
DKK2		other				0.0321	
FFAR2		g-protein coupled receptor				0.0321	
GALR1	-0.816	g-protein coupled receptor				0.0321	
GH2		other				0.0321	
IGFBP4		other				0.0321	
ITPR1D2		other				0.0321	
Irs3		other				0.0321	
KRT10		other				0.0321	
LAMB1		other				0.0321	
MIR3662		microma				0.0321	
MUCL1		other				0.0321	
MYBPC3		other				0.0321	
NASP		other				0.0321	
NRZF1-AS1		other				0.0321	
ORAI3		other				0.0321	
PITPNA		transporter				0.0321	
PPP1R3C		phosphatase				0.0321	
PRKAB2		kinase				0.0321	
RAB11A		enzyme				0.0321	
SEMA3E		other				0.0321	
SGMS1		enzyme				0.0321	
SHBG		other				0.0321	
SIDT2		transporter				0.0321	
SLC2A8		transporter				0.0321	
SLC11B3		transporter				0.0321	
SNRK		kinase				0.0321	
STEAP4		enzyme				0.0321	
SUFU		transcription regulator				0.0321	
TACS1D2		other				0.0321	
TBC1D4		other				0.0321	
TCF4LEF		group				0.0321	
TEX11		other				0.0321	
VTCN1		other				0.0321	
ZFP42		transcription regulator				0.0321	
mi-194		microma				0.0321	
GSK3B		kinase				0.0321	
IGF2		growth factor				0.0328	
Mapk		group				0.0328	
FOXA1		transcription regulator	-1.982	0.02	-2.023	0.0329	
HMGAT1		transcription regulator				0.0341	
PTH		other				0.0341	
SMAD2		transcription regulator				0.0341	
PDPK1		kinase				0.0364	
GLI1		transcription regulator	-0.227	0.204	-0.792	0.0369	
IL10RA		transmembrane receptor	-1.633	-0.024	-1.575	0.0369	
DSCAML1		other				0.0371	
GH1		growth factor				0.0382	
KDM3A		transcription regulator				0.0382	
MLX		transcription regulator				0.0382	
MYBL2		transcription regulator				0.0382	
mi-30		microma				0.0382	
SLC13A1		transporter				0.0392	
ACACA		enzyme				0.04	
AKIRIN2		other				0.04	
APBB1		transcription regulator				0.04	
ARAF		kinase				0.04	
AXIN1		other				0.04	
CDH16		enzyme				0.04	
CHR3		ectoderm coupled receptor				0.04	
CXCL14		cytokine				0.04	
FZR1		kinase				0.04	
GATM		enzyme				0.04	
GNAS1		enzyme				0.04	
GPR99		g-protein coupled receptor				0.04	
GYS2		enzyme				0.04	
HCFC1		transcription regulator				0.04	
HINFP		transcription regulator				0.04	
HTR2C		g-protein coupled receptor				0.04	
INSL5		other				0.04	
UGALS12	-0.797	other				0.04	
MIR3936HG		other				0.04	
Muc1		transmembrane receptor				0.04	
NDN		transcription regulator				0.04	
Nesf		other				0.04	
PITX1		transcription regulator				0.04	
PORCN		enzyme				0.04	
PRMT2		enzyme				0.04	
PXN		other				0.04	
RAD51C		enzyme				0.04	
RBBP8		enzyme				0.04	
RNF187		enzyme				0.04	

RUVBL2		transcription regulator					0.04
SI3		transcription regulator					0.04
STX2		transporter					0.04
TPPP2		other					0.04
WFS1	-0.375	enzyme					0.04
WNT7B		other					0.04
WRN		enzyme					0.04
ZMY2		transcription regulator					0.04
miR-193a-3p (and other		mature microma					0.04
miR-455-3p (miRNAs w/s		mature microma					0.04
miR-455		microma					0.04
miR-489		microma					0.04
HDL_cholesterol		complex					0.04
LGALS3		other					0.0403
CYP11A1		enzyme					0.0414
CYP27B1		enzyme					0.0419
DRD2		g-protein coupled receptor					0.0419
AKT1		kinase					0.0425
DSCAM		other					0.0425
TSC2		other					0.0427
EGFR		kinase	-1.503 bias	-0.714	0.061		0.0427
MECP2		transcription regulator					0.0435
SILC25A13		transporter					0.0435
PIK3CA		kinase					0.0435
Grb		group					0.044
IFNG		cytokine	0.43 bias	-0.474	1.887		0.0454
SNAI2		transcription regulator					0.0458
TOB1		transcription regulator					0.0458
RGS2		enzyme					0.0459
KLF4		transcription regulator	Inhibited -2.19 bias	-0.588	-0.88		0.0461
EIF2S1		translation regulator					0.0478
NRG1		growth factor					0.0478
ACOT13		enzyme					0.0478
AKAP12		transporter					0.0478
ANK3PTL6		other					0.0478
ANKHD1/ANKHD1-EIF4		other					0.0478
CBR3-AS1		other					0.0478
CCND2		other					0.0478
CDKSR1		kinase					0.0478
CTNBP1		other					0.0478
DLX1		transcription regulator					0.0478
DMTF1		transcription regulator					0.0478
EOG1		enzyme					0.0478
ERVW-1		other					0.0478
FSTL3		other					0.0478
GLP1R	-0.806	g-protein coupled receptor					0.0478
GPAM		enzyme					0.0478
GUCY2C	-0.658	kinase					0.0478
HPRT1		enzyme					0.0478
IGFBP7		transporter					0.0478
MC3R		g-protein coupled receptor					0.0478
MEIT1		enzyme					0.0478
NRAS		enzyme					0.0478
Npy4r		g-protein coupled receptor					0.0478
OBP2B		transporter					0.0478
PDCD5		other					0.0478
PDE3A		enzyme					0.0478
PLSCR1		enzyme					0.0478
PRKAB1		kinase					0.0478
PRKG2		kinase					0.0478
Pdgf Ab		complex					0.0478
SH2D5		other					0.0478
SILC7A11-AS1		other					0.0478
TEF2		other					0.0478
VEGF		growth factor					0.0478
miR-637		microma					0.0478
PI3K (complex)		complex	-1.091 bias	-0.714	0.312		0.0486
Raf		group					0.0498

Supp Table S5. Pathway analysis of RNA-sequencing data in pancreatic islets isolated from control E2f1^{fl/fl} and beta-cell specific E2f1^{beta-/-} deficient mice identifies potential upstream regulators associated to E2f1 deficiency.

Upstream Regulator	Expr Log Ratio	Molecule Type	Predicted Activation	Activation z-score	p-value of Target Molecules in Dataset	Mechanistic N	
TNF		cytokine	Activated	6.542	9.24E-35	ALGALT,ACOD1,AKR1B10,ALCAM,ALDH2,AMPD3,APOA1,APOBEC3B,ARID5B,B4GALNT1	192 (14)
IFNG		cytokine	Activated	6.621	7.25E-33	ACOD1,BCL2L1,BIRC3,BLNK,BMF,BMP6,BST1,C1R,CAMK4,CASP3	199 (18)
IgG polysaccharide		chemical drug	Activated	8.302	3.99E-31	ACOD1,ALCAM,ALDH2,AMPD3,ANXA3,APOA1,APOBEC3B,ApolF6 (includes others),ARHGFE3,BATF	215 (14)
TGFbeta1		growth factor	Activated	7.757	1.73E-23	ACOD1,BATF,BST1,C22,C23,C24,C25,C26,C27,C28,C29,C30,C31,C32,C33,C34,C35,C36,C37,C38,C39,C40,C41,C42,C43,C44,C45,C46,C47,C48,C49,C50,C51,C52,C53,C54,C55,C56,C57,C58,C59,C60,C61,C62,C63,C64,C65,C66,C67,C68,C69,C70,C71,C72,C73,C74,C75,C76,C77,C78,C79,C80,C81,C82,C83,C84,C85,C86,C87,C88,C89,C90,C91,C92,C93,C94,C95,C96,C97,C98,C99,C100,C101,C102,C103,C104,C105,C106,C107,C108,C109,C110,C111,C112,C113,C114,C115,C116,C117,C118,C119,C120,C121,C122,C123,C124,C125,C126,C127,C128,C129,C130,C131,C132,C133,C134,C135,C136,C137,C138,C139,C140,C141,C142,C143,C144,C145,C146,C147,C148,C149,C150,C151,C152,C153,C154,C155,C156,C157,C158,C159,C160,C161,C162,C163,C164,C165,C166,C167,C168,C169,C170,C171,C172,C173,C174,C175,C176,C177,C178,C179,C180,C181,C182,C183,C184,C185,C186,C187,C188,C189,C190,C191,C192,C193,C194,C195,C196,C197,C198,C199,C200,C201,C202,C203,C204,C205,C206,C207,C208,C209,C210,C211,C212,C213,C214,C215,C216,C217,C218,C219,C220,C221,C222,C223,C224,C225,C226,C227,C228,C229,C230,C231,C232,C233,C234,C235,C236,C237,C238,C239,C240,C241,C242,C243,C244,C245,C246,C247,C248,C249,C250,C251,C252,C253,C254,C255,C256,C257,C258,C259,C260,C261,C262,C263,C264,C265,C266,C267,C268,C269,C270,C271,C272,C273,C274,C275,C276,C277,C278,C279,C280,C281,C282,C283,C284,C285,C286,C287,C288,C289,C290,C291,C292,C293,C294,C295,C296,C297,C298,C299,C300,C301,C302,C303,C304,C305,C306,C307,C308,C309,C310,C311,C312,C313,C314,C315,C316,C317,C318,C319,C320,C321,C322,C323,C324,C325,C326,C327,C328,C329,C330,C331,C332,C333,C334,C335,C336,C337,C338,C339,C340,C341,C342,C343,C344,C345,C346,C347,C348,C349,C350,C351,C352,C353,C354,C355,C356,C357,C358,C359,C360,C361,C362,C363,C364,C365,C366,C367,C368,C369,C370,C371,C372,C373,C374,C375,C376,C377,C378,C379,C380,C381,C382,C383,C384,C385,C386,C387,C388,C389,C390,C391,C392,C393,C394,C395,C396,C397,C398,C399,C400,C401,C402,C403,C404,C405,C406,C407,C408,C409,C410,C411,C412,C413,C414,C415,C416,C417,C418,C419,C420,C421,C422,C423,C424,C425,C426,C427,C428,C429,C430,C431,C432,C433,C434,C435,C436,C437,C438,C439,C440,C441,C442,C443,C444,C445,C446,C447,C448,C449,C450,C451,C452,C453,C454,C455,C456,C457,C458,C459,C460,C461,C462,C463,C464,C465,C466,C467,C468,C469,C470,C471,C472,C473,C474,C475,C476,C477,C478,C479,C480,C481,C482,C483,C484,C485,C486,C487,C488,C489,C490,C491,C492,C493,C494,C495,C496,C497,C498,C499,C500,C501,C502,C503,C504,C505,C506,C507,C508,C509,C510,C511,C512,C513,C514,C515,C516,C517,C518,C519,C520,C521,C522,C523,C524,C525,C526,C527,C528,C529,C530,C531,C532,C533,C534,C535,C536,C537,C538,C539,C540,C541,C542,C543,C544,C545,C546,C547,C548,C549,C550,C551,C552,C553,C554,C555,C556,C557,C558,C559,C560,C561,C562,C563,C564,C565,C566,C567,C568,C569,C570,C571,C572,C573,C574,C575,C576,C577,C578,C579,C580,C581,C582,C583,C584,C585,C586,C587,C588,C589,C590,C591,C592,C593,C594,C595,C596,C597,C598,C599,C600,C601,C602,C603,C604,C605,C606,C607,C608,C609,C610,C611,C612,C613,C614,C615,C616,C617,C618,C619,C620,C621,C622,C623,C624,C625,C626,C627,C628,C629,C630,C631,C632,C633,C634,C635,C636,C637,C638,C639,C640,C641,C642,C643,C644,C645,C646,C647,C648,C649,C650,C651,C652,C653,C654,C655,C656,C657,C658,C659,C660,C661,C662,C663,C664,C665,C666,C667,C668,C669,C670,C671,C672,C673,C674,C675,C676,C677,C678,C679,C680,C681,C682,C683,C684,C685,C686,C687,C688,C689,C690,C691,C692,C693,C694,C695,C696,C697,C698,C699,C700,C701,C702,C703,C704,C705,C706,C707,C708,C709,C710,C711,C712,C713,C714,C715,C716,C717,C718,C719,C720,C721,C722,C723,C724,C725,C726,C727,C728,C729,C730,C731,C732,C733,C734,C735,C736,C737,C738,C739,C740,C741,C742,C743,C744,C745,C746,C747,C748,C749,C750,C751,C752,C753,C754,C755,C756,C757,C758,C759,C760,C761,C762,C763,C764,C765,C766,C767,C768,C769,C770,C771,C772,C773,C774,C775,C776,C777,C778,C779,C780,C781,C782,C783,C784,C785,C786,C787,C788,C789,C790,C791,C792,C793,C794,C795,C796,C797,C798,C799,C800,C801,C802,C803,C804,C805,C806,C807,C808,C809,C810,C811,C812,C813,C814,C815,C816,C817,C818,C819,C820,C821,C822,C823,C824,C825,C826,C827,C828,C829,C830,C831,C832,C833,C834,C835,C836,C837,C838,C839,C840,C841,C842,C843,C844,C845,C846,C847,C848,C849,C850,C851,C852,C853,C854,C855,C856,C857,C858,C859,C860,C861,C862,C863,C864,C865,C866,C867,C868,C869,C870,C871,C872,C873,C874,C875,C876,C877,C878,C879,C880,C881,C882,C883,C884,C885,C886,C887,C888,C889,C890,C891,C892,C893,C894,C895,C896,C897,C898,C899,C900,C901,C902,C903,C904,C905,C906,C907,C908,C909,C910,C911,C912,C913,C914,C915,C916,C917,C918,C919,C920,C921,C922,C923,C924,C925,C926,C927,C928,C929,C930,C931,C932,C933,C934,C935,C936,C937,C938,C939,C940,C941,C942,C943,C944,C945,C946,C947,C948,C949,C950,C951,C952,C953,C954,C955,C956,C957,C958,C959,C960,C961,C962,C963,C964,C965,C966,C967,C968,C969,C970,C971,C972,C973,C974,C975,C976,C977,C978,C979,C980,C981,C982,C983,C984,C985,C986,C987,C988,C989,C990,C991,C992,C993,C994,C995,C996,C997,C998,C999,C1000,C1001,C1002,C1003,C1004,C1005,C1006,C1007,C1008,C1009,C1010,C1011,C1012,C1013,C1014,C1015,C1016,C1017,C1018,C1019,C1020,C1021,C1022,C1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trabutyn		chemical drug	Activated	2.157	bias	5.75E-05	BCL2A1, BIRC3, CASP3, ID3, IL1B, SLC30A1, SOD2, TNFAIP3	
CpG ODN 2395		chemical reagent	Activated	2.236	bias	5.79E-05	Cc2, CD14, CD40, CD86, IL1B	141 (15)
CYP2J2		enzyme		-0.785	bias	5.79E-05	Cc2, CD44, ICAM1, IL1B, NFKBIA	127 (17)
fulvestrant		chemical drug		-0.233	bias	5.84E-05	APOA1, BMP2, BMP4, CAV2, Cc2, CCNA2, CSF1, CXCL12, GJB2, GSTP1	210 (20)
gloxifen		chemical drug		0.033	bias	6.08E-05	ANKX3, BLNK, BMP2, BMP4, CSF1, CXCL12, JUN, KLF6, LITAF, MYO1B	221 (22)
PFARD		ligand-dependent nuclear recep		7.26E-05	bias	6.08E-05	APOA1, Cc2, CD8, CD86, CSF1, CXCL12, ICAM1, IL1B, LPIN2, RASGRP1	187 (18)
NOX4		enzyme	Activated	2.425	bias	6.31E-05	BMP, Cc2, CD4, ICAM1, Saa3, SERPINE1	183 (18)
PAF1		other	Activated	2.646	bias	6.35E-05	BIRC3, KLF4, NFKB1Z, OASL, SDC4, SERPINE1, SOD2	212 (23)
MAPK7		kinase	Activated	2.580	bias	6.35E-05	BCL2A1, ID1, IL1B, JUN, KLF4, NQO1, STEP4	212 (23)
Mapk3		kinase		1.616	bias	6.42E-05	BMP4, CASP3, Cc2, IL1B, JUN, NFKB1Z, NOD2, Vnn3	183 (18)
SMARCB1		transcription regulator		1.933	bias	6.46E-05	CCNA2, CD44, CSF1, CYP3A7, DOCK4, I1R, FAS, FBP1, GJB2, IF16	183 (18)
mycohexanoic acid		chemical drug	Activated	2.121	bias	6.67E-05	BIRC3, ID3, IL1B, KRT19, RUNX2, SERPINE1, SLC30A1, SOD2, TNFAIP3	142 (14)
dicosahexaenoic acid		chemical drug		-0.367	bias	6.85E-05	BCL2A1, Cc2, CD40, CD44, CD83, CD86, CSF1, FAS, IL1B, MRC1	143 (15)
HP2		transcription regulator	Activated	2.277	bias	6.91E-05	ANG, CD14, HK2, ID1, Irf7, IL1B, IL6ST, KLF4, MAPK9, PSM10	156 (16)
Gsp		other		0.707	bias	7.16E-05	ANG, ARX, FBP9, FBP1, Hamp, Hamp2, OAT, RNASE4, SDC1	212 (23)
TCF7L2		transcription regulator	Activated	2.299	bias	7.17E-05	BMP4, CSRP1, CYP3A7, DOCK10, FBP1, FTH1, GAB1, HMGCS2, ID1, ID3	138 (7)
NR1H3		ligand-dependent nuclear recep		-1.309	bias	7.29E-05	APOA1, Cc2, CD8, CCNA2, CCR7, CD40, CSF3, CXCL16, FBP1, GSTP1	193 (15)
LYN	0,712	kinase		1.177	bias	7.31E-05	BCL2A1, Cc2, CCNA2, CD40, CD86, CSF1, IL1B, NFKBIA, NFKB1Z	178 (15)
L-sulthimine (SR)-sulfoximine		chemical drug		0.000	bias	7.36E-05	CASP3, NFKBIA, NQO1, SERPINE1, TNFAIP3	165 (11)
lecovosin		chemical - protease inhibitor		0.300	bias	7.45E-05	Cc2, CD3, FAS, FBP1, FOSL1, FTL, GATA3, GSTP1, HLA-A, HSPB1	188 (20)
KRT11		other		0.000	bias	7.90E-05	BMP2, JUN, KLF4, SOD2	
PIK3CA		kinase		1.941	bias	7.97E-05	ALCAM, Cc2, CD14, CD24a, CD44, CEBPD, JAG1, SERPINE1	211 (23)
PLAU		peptidase		0.186	bias	7.97E-05	ANG, Cc2, GDF15, ICAM1, IL1B, RELB, SERPINE1, SERPINE2	222 (24)
CLA2		cytokine		1.401	bias	8.01E-05	Cc2, CD40, CD86, CEBPD, ICAM1, IL1B, SERPINE1, ZC3H12A	157 (17)
FADD		other		0.333	bias	8.01E-05	BIRC3, Cc2, FAS, GADD45B, ICAM1, Irf5, JUN, KLF6, TNFAIP3	146 (18)
BRD2		kinase		8.26E-05	bias	8.26E-05	CBLC, Cc2, IL1B, IL7R, LY9, NQO1, PRKD3	
SREBF1		transcription regulator	Activated	2.466	bias	8.34E-05	CAMK10, CD14, CE2PA, CE2PD, CFI, CSRP1, DEPP1, FAPB5, FAS, HK2	186 (20)
TMPPRSS6		peptidase			bias	8.58E-05	BMP6, Hamp, Hamp2, ID1	202 (22)
Wisc71		other			bias	8.58E-05	Cc2, IL1B, MRC1	
IKBK		kinase		0.594	bias	8.76E-05	ACOD1, BIRC3, Cc2, CSF3, CXCL12, HLA-A, IFI16, NFKBIA, SLC2A3	175 (15)
RARG		ligand-dependent nuclear recep		1.230	bias	8.76E-05	APOA1, BMP2, DHR93, GAP43, JUN, KLF4, KLF3, KRT20, ZNF703	160 (10)
FASLG		cytokine		0.692	bias	8.82E-05	CASP3, CD44, FAS, FTH1, IL1B, RUNX2	187 (18)
PF4		cytokine	Activated	2.401	bias	8.92E-05	Cc2, CD8, ICAM1, IL1B, KLF4, L75	187 (18)
NGF		growth factor	Activated	2.488	bias	8.90E-05	AKR1B10, CCR7, CD40, CD83, CD86, FAS, FOSL1, GAP43, ID1, JUN	149 (18)
inosine		chemical - endogenous mamma	Activated	2.646	bias	9.38E-05	ALCAM, ANTXR2, CD68, FTL, GAP43, SERPINE1, SERPING1	192 (22)
caragogenan		chemical drug	Activated	2.592	bias	9.38E-05	Cc2, FOSL1, GRM8, ICAM1, IL1B, JUN, NFKBIA	205 (18)
ZFP36		transcription regulator	Inhibited	-2.415	bias	9.57E-05	BIRC3, FOSL1, ICAM1, IL1B, JUN, LATS2, NFKB1, NFKBIA, PNR3	181 (17)
tert-butylhydroquinone		chemical reagent	Activated	1.401	bias	9.57E-05	FOSL1, FTH1, FTL, GSTA3, GSTP1, JUN, NQO1, SERPINE1, UGT1A7 (includes others)	186 (19)
17-alpha-ethinylestradiol		chemical drug		1.863	bias	9.75E-05	Cc2, CCR7, CD86, CXCR3, GDF15, IFI16, JUN, KRT19, MRC1, PERP	247 (20)
SYK		kinase		-0.256	bias	9.80E-05	BIRC3, CCR7, CD44, DOCK10, FOSL1, GATA3, ICAM1, IL1B, LY9, RASSF4	192 (22)
wortmannin		chemical - kinase inhibitor	Inhibited	-2.689	bias	1.02E-04	CASP3, Cc2, CD14, CD44, CE2PD, CSF1, CXCL16, GAP43, GSTP1, ICAM1	206 (20)
SAA		group	Activated	2.401	bias	1.03E-04	Cc2, CSF3, ICAM1, IL1B, MRC1	181 (17)
NORAD		other	Activated	2.449	bias	1.03E-04	BASP1, GADD45B, ID3, JUN, SDC1, TNFRSF12A	93 (7)
Ins1		other		1.372	bias	1.04E-04	ALAS1, APOA1, CE2PA, CE2PD, GATA3, GSTP1, HK2, IL1B, IL6ST, JUN	233 (23)
hemn		chemical - endogenous mamma		0.838	bias	1.04E-04	Cc2, CD86, FTH1, FTL, GSTP1, IL1B, JUN, NFKBIA, NQO1	220 (19)
KITLG		growth factor		1.344	bias	1.08E-04	CASP3, Cc2, CCNA2, CD14, CD24a, CD86, CE2PA, CSF1, CXCL12, FAPB5	142 (16)
lysophosphatidylcholine		chemical reagent	Activated	1.082	bias	1.09E-04	Cc2, FAPB5, ICAM1, IL1B, JUN, KLF4	189 (17)
Bay 11-7082		chemical - kinase inhibitor	Inhibited	-2.789	bias	1.09E-04	BCL2A1, BMP2, Cc2, CD44, CD83, ICAM1, IL1B, SOD2	141 (15)
PLA2G2D		enzyme		-1.000	bias	1.12E-04	Cc2, CD86, IL1B, MRC1	190 (12)
BCR (complex)		complex		1.354	bias	1.12E-04	BGALNT1, BCL2A1, CASP3, CCNA2, CCR7, CD44, CD86, FAS, KLF4, LCK	140 (16)
JUNB		transcription regulator		1.920	bias	1.12E-04	Cc2, CD8, CD86, CE2PA, CSF1, FTH1, FTL, Irf1, Irf2, Irf4, RelB, RUNX2, SERPINE1	157 (18)
APC		enzyme	Inhibited	-2.121	bias	1.12E-04	CD4, CXCL12, HK2, ID1, ID3, JAG1, KLF4, LCK, TIAM1, TNFRSF12A	130 (7)
TCF		group			bias	1.14E-04	BMP4, CD44, ID3, KLF3, PL3, RCN1, SERPINE1, SFN, TSPAN8	134 (7)
IL36b		cytokine			bias	1.15E-04	CD40, CD83, CD86, IL1B, NFKB1Z	180 (13)
BMPER		other		-1.432	bias	1.15E-04	BMP4, Hamp, Hamp2, ICAM1, Irf1, RUNX2	15 (4)
ANGPT2		growth factor	Activated	3.384	bias	1.18E-04	C1R, CASP3, Cc2, CD86, CD86, CYBA, FAS, ICAM1, IL1B, LYN	160 (16)
NKX3-1		transcription regulator		1.20E-04	bias	1.20E-04	CTS2, KLF3, PTP4A2, PTPRK, SDC1, SDC4, Vnn3	15 (4)
NFKB1B		transmembrane receptor		-0.391	bias	1.20E-04	BCL2A1, CD40, CD86, ICAM1, IL1B, NFKBIA, Saa3	117 (12)
IL4R		transmembrane receptor		0.447	bias	1.20E-04	Cc2, CD14, CLCA1, FAS, GATA3, IL1B, RUNX2	157 (17)
carbonyl cyanide m-chlorophen		chemical reagent	Activated	1.690	bias	1.20E-04	BMP6, GDF15, HK2, LAM1, NFKB1Z, NFKB1, SERPINE1	158 (18)
TLR5		transmembrane receptor		1.964	bias	1.21E-04	Cc2, CD40, CD86, CSF3, ICAM1, IL1B	143 (15)
thalidomide		chemical drug	Inhibited	-2.186	bias	1.21E-04	BIRC3, GADD45B, GDF15, ICAM1, IL1B, SERPINE1	165 (19)
RACT1		enzyme	Activated	2.184	bias	1.23E-04	Cc2, CD86, FAS, FOSL1, HSPB1, ICAM1, IL1B, JUN, PRKG1, SOD2	182 (19)
GNA15		enzyme		1.236	bias	1.23E-04	BMP4, CAV2, Cc2, CE2PD, ENPP1, FOSL1, Irf1, MDM1, SOD2, XDH	182 (19)
GW626		chemical reagent	Inhibited	-2.183	bias	1.24E-04	CD14, CD83, CD86, CE2PA, FADS3, GDF15, KLF4, KRT20, SERPINE1	167 (17)
10E, 12Z-octadecadienoic acid		chemical - endogenous mamma		0.921	bias	1.24E-04	BUB1, CASP3, Cc2, CE2PA, CLIC5, GNT24, GDF15, IL1B, IL6ST, LRP1	162 (20)
SPP1		cytokine	Activated	2.414	bias	1.28E-04	Cc2, CD44, CD9, CXCL12, CXorf21, HOMER2, ICAM1, IL1B, JAG1, KRT20	200 (21)
SVVN1		transporter	Activated	2.525	bias	1.28E-04	GAVIN1, CD44, FAS, HLA-A, HSPB1, IL1R, Irf4, SCAR4, SLC2A3, SLC30A1	162 (20)
BMP7		growth factor		1.991	bias	1.28E-04	BMP4, BMP4, CD44, CE2PA, CE2PD, ICAM1, ID1, IL1B, KLF4, RUNX2	157 (19)
tramcinolone acetonide		chemical drug		0.997	bias	1.32E-04	BGALNT1, BCL2A1, BMP2, BMP4, BMP6, CD44, GZMA, IL6ST, JUN, NFKBIA	117 (7)
heparin		chemical - endogenous mamma	Activated	2.180	bias	1.32E-04	ALAS1, CD40, CD83, CD86, Hamp, Hamp2, ICAM1, IL6ST, RUNX2	139 (16)
SRF		transcription regulator		1.598	bias	1.33E-04	BATF, BMP2, Csk1, CE2PD, CSRP1, DMD, FOSL1, ITGA9, JUN, LRP1	29 (3)
colchicine		chemical drug	Activated	2.271	bias	1.35E-04	CD40, FAS, GAP43, IL1B, JUN, NQO1, TMEM123	208 (19)
nitrosomethylbenzylamine		chemical reagent		1.199	bias	1.35E-04	AKR1B10, BUB1, CD44, CYP3A7, GSTA3, GSTP1, JUN, KRT20, LAMB3, MAPK6, PL33, SDC1	208 (19)
CARM1		transcription regulator	Activated	2.911	bias	1.40E-04	Cc2, CSF3, FTH1, FTL, ICAM1, STC2	178 (14)
fluvastatin		chemical drug		-0.059	bias	1.40E-04	CD40, CD81, CD9, CYBA, LRP1, SERPINE1	145 (14)
pristane		chemical reagent		1.621	bias	1.40E-04	BIRC3, HK2, KRT19, NFKBIA, STC2	145 (14)
CCMD11		transporter		-1.732	bias	1.41E-04	BIRC3, HK2, KRT19, NFKBIA, STC2	145 (14)
hemc		chemical - endogenous mamma		0.659	bias	1.41E-04	ALAS1, CD14, CD86, ICAM1, MRC1	122 (10)
calcitriyn		chemical reagent	Activated	2.658	bias	1.42E-04	CD14, CD40, CD83, CD86, FOSL1, ICAM1, ID3, IL1R1, JUN, SERPINE1	194 (21)
monomycin		chemical reagent		3.524	bias	1.43E-04	B3GAT1, BCL2A1, BMP2, CASP3, CLDN4, CSF3, ENPP1, FAS, GATA3, HTR7	153 (15)
SM11		transcription regulator	Activated	3.329	bias	1.46E-04	ANG, BST1, CD86, CYBA, FNBP1, GALNT4, GRM8, GSTA3, HLA-A, ICAM1	153 (15)
EHF		transcription regulator		1.484	bias	1.46E-04	ALAS1, BMP4, CASP3, GRM8, JAG1, KLF3, LAM1, NFKB1Z, NFKB1, NQO1, CXCL12	154 (17)
lipoic acid		chemical reagent	Activated	2.904	bias	1.46E-04	BST1, Cc2, CD44, CD86, CLEC4D, CSF3, IL1B, Saa3, TNFRSF12A	198 (15)
emitsopentanoic acid		chemical drug		-1.089	bias	1.46E-04	CD40, CD44, CD83, CD86, CE2PD, IL1B, JUN, MRC1, SERPINE1	185 (19)
bortezomib		chemical drug		-0.498	bias	1.50E-04	BCL2A1, BIRC3, Cc2, CSF2R8, CXCL12, DMD, FAS, GADD45B, GDF15, Hspa1b	193 (17)
CpG ODN 1668		chemical reagent	Activated	1.623	bias	1.51E-04	Cc2, CD40, CD86, CSF3, ICAM1, IL1B, RARG	186 (16)
fenofibrate		chemical drug		-0.273	bias	1.56E-04	APOA1, Cc2, CD40, CD86, FBP1, GSTA3, ICAM1, IL6ST, JUN, MDM1	166 (17)
PPiF		enzyme		0.522	bias	1.59E-04	AMIGO2, BMP6, Cc2, CD8, CSRP1, CXCL12, CXCR3, Irf5, Sepsin3h	123 (7)
ADAM12		peptidase		-1.425	bias	1.60E-04	Cc2, CD8, GDF15, IL1R1, LAMB3, Nrg1, SERPINE1, SERPINE2	173 (18)
Ccd42		enzyme		-1.400	bias	1.62E-04	Cc2, CD86, CE2PA, CSF1, CTS2, SDC4	187 (18)
SO2		transcription regulator		3.132	bias	1.64E-04	ACOD1, BMP4, CD44, CD9, CXCL14, DOCK10, GAB1, GADD45B, GATA3, ID3	238 (20)
IFNA2		cytokine	Activated	2.473	bias	1.64E-04	C1R, CD28, CD86, CCR2A, CXCR3, ENPP1, FAS, HLA-A, IFI16, IL1B	169 (18)
coumarn		chemical drug		1.69E-04	bias	1.69E-04	GSTA3, GSTP1, NQO1	
MAPKAPK2		kinase		1.741	bias	1.70E-04	Cc2, CE2PD, HSPB1, ICAM1, IL1B, MRC1, NFKBIA	208 (19)
mi-163		microRNA	Inhibited	-1.724	bias	1.72E-04	IUP, KLF4, LRP1, SERPINE3, SLC30A1	172 (14)
arsenic		chemical reagent		0.796	bias	1.72E-04	BIRC3, CCR7, FTH1, FTL, NQO1	170 (15)
CREB1		transcription regulator	Activated	2.198	bias	1.72E-04	ALAS1, CAMK1D, CAMK4, CCNA2, CD86, CD9, CE2PD, CRIM1, ESD, GADD45B	179 (13)
oleic acid		chemical - endogenous mamma		-0.748	bias	1.76E-04	Cc2, CD86, GADD45B, GDF15, HK2, ICAM1, IL1B, NFKBIA, PLIN3, SERPINE1	198 (19)
TLR7		transmembrane receptor	Activated	3.532	bias	1.86E-04	BCL2A1, Cc2, CCR7, CD40, CD44, CD83, CD86, FOSL1, ICAM1, IL1B	132 (14)
carbon tetrachloride		chemical reagent	Activated	3.134	bias	1.86E-04	BMP4, CD40, CD86, DHR93, FAS, GATA3, IL1B, KRT19	238 (20)
F7		peptidase		-0.291	bias	1.87E-04	Cc2, FOSL1, ICAM1, IL1B, JAG1, RND3	191 (21)
2-amino-5-phosphonvaleric ac		chemical - other		-0.971	bias	1.88E-04	ZB10303D17Rk, ADM19, BTG3, CGN, GADD45B, JUN, LHFPL2, LURAP1, NHSL1, RELB	180 (16)
cerivastatin		chemical drug		-0.519	bias	1.93E-04	APOA1, BMP2, CD40, HSPB1, ICAM1, JUN, MDM1, SERPINE1	148 (17)
NKX3-3		transcription regulator		1.059	bias	1.95E-04	BMP4, BMP4, CSF3, CXCL12, Irf1, Irf2, Irf4, Glycyl1, IL7R, KLF4	159 (13)
EIF2AK2		kinase	Activated	2.124	bias	2.01E-04	BCL2A1, CE2PD, FAS, Hspa1b, IL1B, NFKBIA, PSM10, SOD2, TNFAIP3	159 (13)
ETS1		transcription regulator	Activated	2.554	bias	2.05E-04	BCL11A, BMP4, Cc2, CD14, CD44, GZMA, ICAM1, IL7R, KRT19, LCK	225 (21)
BMPR2		kinase		1.984	bias	2.07E-04	CXCL12, Hamp, Hamp2, ICAM1, ID1, RUNX2	187 (18)
TRB3		kinase		-0.555	bias	2.07E-04	CE2PA, GDF15, ID1, RUNX2, STC2	134 (7)
hustain		chemical drug		1.967	bias	2.07E-04	CD40, CD86, ICAM1, IL1B, RARG	155 (19)
CHRNA1		transmembrane receptor		-0.577	bias	2.07E-04	CD28, CD40, CD86, FAS	136 (11)
NRP1		transmembrane receptor	Inhibited	-2.000	bias	2.07E-04	CD40, CD86, IL1B, IL1B	143 (18)
IL11		cytokine		0.447	bias	2.11E-04	BCL2A1, CD40, CE2PD, Cc2, CD86 (includes others), ICAM1, IL1B, IL6ST	181 (19)
POLR2A		enzyme		1.119	bias	2.11E-04	BMP, CCNA2, KLF3, NFKBIA, STC2, TNFAIP3, YAP1	134 (17)
ACOX1		enzyme		-0.632	bias	2.12E-04	CXCL12, GSTP1, KLF6, KRT23, KRT8, MGLL, OAT, Saa3, SLC4A4, UGT8	114 (7)
CR5		G-protein coupled receptor		1.211	bias	2.14E-04	CASP3, Cc2, CD9, CXCL12, FAS, IL1B	184 (18)
MAP2K1		kinase	Activated	2.412	bias	2.16E-04	BCL2A1, BIRC3, CCNA2, CD4	

Fcer1		complex		1.802	bias	3.19E-04	BCL2A1, Cc2, CD83, CSF1, IL1B, JUN, MRC1	160 (17)
IL25		cytokine		1.608	bias	3.19E-04	Cc2, CSF3, F11R, GATA3, IL1B, IL1RL1, JAG1	179 (17)
CSF3	1,184	cytokine		1.146	bias	3.20E-04	BATF, BIRC3, Cc2, CCR7, CD14, CD44, CE2PA, CXCL12, GADD45B, ICAM1	141 (15)
reactive oxygen species		chemical - toxicant		1.824	bias	3.20E-04	CASP3, CSF3, FAS, ICAM1, IL1B, JUN, KLF6, SERPINE1, SOD2, TNFAIP3	205 (18)
cardiolin		chemical - other	Activated	2.828	bias	3.21E-04	CASP3, Cc2, Cc2A, CSF2RB, FLT3, IL1B, IL17R, ITGB7, MCM9, MEST	132 (11)
spid1/namycin		chemical - endogenous non-mar	Inhibited	2.724	bias	3.41E-04	CD40, CE2PD, GPR173, Hspa13, IL1, IL1, IRF5, JUN, KLF, RNASL, RTN1	123 (11)
TRAF2		enzyme		0.822	bias	3.25E-04	BIRC3, FAS, ICAM1, Muc1, PTPN14, RHD6F1, Serpina3a (includes others), TNFAIP3	100 (12)
zinc		chemical drug		-0.167	bias	3.25E-04	AKR1B10, CD86, FAS, IL1B, NFKBIA, SLC11A2, SLC30A1, SLC39A4	182 (17)
IL22		cytokine		1.334	bias	3.41E-04	GLOA1, CXCL12, CYBA, FTH1, HSPB1, IL1B, IL136G, Muc1, SOD2, TGM3	154 (12)
lanesopimol		chemical drug		-1.770	bias	3.41E-04	BCL2A1, BIRC3, FAS, IL1B, JUN, KLF6, RNASL, SERPINE1, SOD2, TNFAIP3	152 (12)
metroxprogesterone acetate		chemical drug		-1.019	bias	3.41E-04	CAMK1, CASP3, Cc2, CD44, FAS, ICAM1, IL1B, JUN, NEK2, Nrg1	218 (25)
PTX3		other		-1.571	bias	3.48E-04	Cc2, Cc8, GATA3, IL1B, JUN	142 (17)
ACSL4		enzyme		-1.342	bias	3.48E-04	CAMK1D, ENPP1, FERMT1, PRKG1, RHOU	208 (19)
vinblastine		chemical drug	Activated	2.213	bias	3.48E-04	CD40, CD86, HLA-A, IL1B, SOD2	142 (17)
Cy223		enzyme		0.983	bias	3.50E-04	Cc2, CDNA2, CD86, IL136G	142 (17)
PPP2R5C		other	Inhibited	-2.000	bias	3.50E-04	BCL2A1, BIRC3, RELB, TNFAIP3	117 (12)
P2RY2		G-protein coupled receptor				3.50E-04	Cc2, GAP43, ICAM1, SERPINE1	142 (17)
DAXX		transcription regulator		-1.982	bias	3.50E-04	CASP3, HSPB1, KLF3, SERPINE1	208 (19)
SPB		transcription regulator	Activated	2.813	bias	3.52E-04	BLNK, BMP6, CD86, Hspa1b, JUN, KLF6, KLF3, LILRB3, P2RY10	97 (7)
HMSB1		transcription regulator		1.983	bias	3.52E-04	CASP3, CD40, CD83, CD86, ICAM1, IL1B, MRC1, RELB	161 (19)
SMAD1		transcription regulator	Activated	2.429	bias	3.56E-04	CSF1, GADD45B, Hamp/Hamp2, ICAM1, ID1, RUNX2	158 (13)
PROC		peptidase		-0.294	bias	3.56E-04	BCL2A1, Cc2, ICAM1, IL1B, SERPINE1, TNFAIP3	154 (16)
stallimycin		biologic drug	Activated	2.449	bias	3.56E-04	ICL1, IF116, IL1B, IL136G, IL7R, SP110	97 (7)
Nr1h		group	Inhibited	-2.723	bias	3.59E-04	BMP6, Cc2, CCR7, CD40, CSF1, CSF3, HSPD, IL1B, NFKBIZ, SP110	225 (19)
SNAI1		transcription regulator		0.896	bias	3.79E-04	BMP4, CGN, CLDN4, FOSL1, GDF15, ID1, KR78, LAMP1, RUNX2, SDC1	226 (22)
dimethyl sulfoxide		chemical drug	Activated	2.578	bias	3.86E-04	BMP2, BMP4, IF116, IL1B, JUN, PTK2B, RUNX2, SLC11A2, Tcf7, Tpm2	206 (22)
Go 6976		chemical - kinase inhibitor	Inhibited	-2.607	bias	3.87E-04	BMP2, BMP6, Cc2, CD83, CSF3, NFKBIA, SOD2	144 (16)
NET		kinase		0.633	bias	3.89E-04	BMP, CD44, Hspa1b, HSPB1, IL1B, JUN, KLF4, NFKBIZ, SOD2	173 (18)
Cmb		group		3.91E+04	bias	3.91E-04	ANTXR1, ANTXR2, BMP6, CD11, CE2PA, CE2PD, CLMN, CSRP1, FAS, FOSL1	159 (11)
obetholic acid		chemical drug		-1.347	bias	4.01E-04	APOA1, Cc2, CD86, CE2PA, ICAM1, IL1B	144 (17)
NGFR		transmembrane receptor		0.895	bias	4.07E-04	CNA2, DMD, IL1RL1, JUN, SERPINE1	162 (12)
TNFSF15		cytokine	Activated	2.200	bias	4.07E-04	BIRC3, CCR7, CD40, CD83, CD86	155 (16)
crocidote asbestos		chemical toxicant		1.935	bias	4.07E-04	Cc2, CD44, FOSL1, JUN, ZFX	122 (16)
protease inhibitor PSI		chemical - protease inhibitor		1.342	bias	4.07E-04	BMP2, Cc2, FAS, MAPK6, RUNX2	192 (16)
Taf beta		group		1.334	bias	4.09E-04	BASP1, Cc2, CCR7, CSF1, CSF3, GADD45B, GATA3, ID1, ID3, IL1B	216 (20)
EP2AK3		kinase		1.846	bias	4.17E-04	ANG, BIRC3, Cc2, FOSL1, IL1B, JUN, KLF4, RELB, RNASL	192 (18)
VIP		other		-0.509	bias	4.17E-04	Cc2, CD40, CD86, CE2PD, GATA3, IL1B, IL1RL1, IRAK2, NFKBIA	153 (17)
aspirin		chemical drug	Inhibited	-2.372	bias	4.17E-04	APOA1, Cc2, CD40, CD86, CSF1, CSF3, GDF15, ICAM1, IL1B	122 (16)
1,2-dithiol-3-thione		chemical reagent	Activated	3.650	bias	4.24E-04	AKR1B10, ALA51, ANG, B4GALNT1, ESD, FTH1, GSTA3, GSTP1, MGLL, NQO1	45 (3)
vitamin E		chemical drug		-1.941	bias	4.26E-04	APOA1, CD44, Hamp/Hamp2, IL1B, KLF6, SERPINE1, SLC11A2	177 (19)
LEF1		transcription regulator		0.371	bias	4.26E-04	CASP3, CD44, FAS, GATA3, IL7R, LCK, RUNX2	160 (12)
NBD2		transcription regulator		0.115	bias	4.28E-04	AMY2A, BIRC3, GSTP1, HK2, OAT, PLA2G16, RELB	160 (12)
IL17RC		transmembrane receptor				4.29E-04	PLET1, STEAP4	
ZNF385B		other				4.29E-04	FAS, PERP	
PARM1		other				4.29E-04	BMP2, BMP4	
diazepam		chemical drug				4.29E-04	CD40, IL1B	
cobimetinib		chemical drug				4.29E-04	CD44, CSF3	
cyclic AMP		chemical - endogenous mamma	Activated	2.925	bias	4.37E-04	ANTXR1, ANTXR2, BMP2, CD86, CE2PA, CE2PD, GAP43, GATA3, IL1B, JUN	230 (22)
mannotol		chemical - endogenous mamma		1.231	bias	4.43E-04	Cc2, ICAM1, JUN, SOD2	174 (21)
NR13		ligand-dependent nuclear recept	Activated	2.759	bias	4.46E-04	ALAS1, APOA1, CYP3A7, GADD45B, GSTP1, HK1, ICAM1, PGD, STEAP4	139 (10)
FRP1		transcription regulator	Activated	2.410	bias	4.50E-04	BMP6, GDF15, HK2, LAMB3, NFKBIZ, TNFAIP3	132 (16)
GATA1		transcription regulator		1.117	bias	4.57E-04	BMP6, CAVINI, CE2PA, CXCR3, ENPP1, GATA3, IL1RL1, IL6ST, IL7R, JDP2	210 (16)
EPO		cytokine		-0.404	bias	4.57E-04	ATOH8, BMP4, CASP3, CTS2, CXCL12, FABP5, FAS, GATA3, GDF15, Hamp/Hamp2	210 (16)
butyl N-(3-(4-(imidazol-1-ylmethyl		chemical reagent				4.58E-04	CASP3, IL1B, MLK1	
CD8L		transmembrane receptor				4.58E-04	Cc2, CD8, IL1B	
EM1A		transcription regulator				4.58E-04	Cc2, CD8, IL1B	83 (7)
GIPR		G-protein coupled receptor				4.58E-04	Cc2, Cc8, Tcf7	143 (13)
MIA-602		chemical reagent				4.58E-04	CASP3, Cc2, IL1B	
GSK4		chemical reagent				4.58E-04	CD40, CD83, CD86	
Fc gamma receptor		group	Activated	2.200	bias	4.75E-04	CNA2, CD40, CD86, ICAM1, TNFAIP3	117 (17)
TRB		transmembrane receptor		0.468	bias	4.75E-04	CD44, CD8A, CXCR3, FAS, GATA3	147 (11)
8-bromo-cAMP		chemical reagent		-0.731	bias	4.79E-04	ALDH2, APOA1, BMP2, Cc2, FAS, GSTP1, IL1B, JUN, KR78, NQO1	164 (19)
ATN1		transcription regulator				4.91E-04	BASP1, BTG3, CAMK4, Cc2A4, IF116, JUN, LTPB2, Marcks, TIAM1, TM6SF1	
glucosylated		chemical drug		0.268	bias	4.92E-04	BMP6, Cc2, CD44, CE2PD, CSF1, CSF3, CYP3A7, FAS, ICAM1, IL1B	170 (15)
PTPN6		phosphatase	Inhibited	-2.412	bias	4.94E-04	Cc2, CD44, CD86, CSF1, CSF3, GDF15, IL1B, JUN	155 (16)
zymosan		chemical - endogenous non-mar		1.988	bias	5.12E-04	Cc2, CD40, CD86, CSF1, CSF3, DEPP1, IL1B	134 (15)
3,3'-diindolylmethane		chemical drug		1.937	bias	5.12E-04	FAS, GDF15, HLA-A, IL1B, KR78, NFKBIA, NQO1	215 (21)
PI3K (family)		group		1.510	bias	5.45E-04	AKR1B10, BIRC3, CXCL12, FTH1, HK1, IL1B, NQO1, PREX1, SERPINE1	195 (20)
IL36A		cytokine	Activated	2.290	bias	5.50E-04	Cc2, CD8, IL1B, IL136G, NFKBIZ	151 (19)
prostaglandin E1		chemical - endogenous mamma		-1.192	bias	5.51E-04	CD14, CD40, CD86, ICAM1	211 (19)
TMSB4		group		1.964	bias	5.51E-04	BMP2, BMP4, RUNX2, SERPINE1	132 (12)
AORB3		G-protein coupled receptor				5.51E-04	Cc2, CXCL12, IL1B, JUN	178 (19)
BIRC2		enzyme				5.51E-04	BIRC3, CDNA2, CSF1, CSF3	146 (11)
Usp17a (includes others)		peptidase		1.987	bias	5.51E-04	Cc2, CD44, IL1B, KLF4	87 (7)
ethoxyquin		chemical toxicant		1.934	bias	5.51E-04	FTH1, GSTA3, GSTP1, NQO1	
metyrapone		enzyme		0.000	bias	5.51E-04	ALAS1, CXCL12, ICAM1, IL1B	124 (11)
CD38		chemical drug		1.964	bias	5.53E-04	ANXA6, CD44, CD86, CSF2RB, HIGD1A, ICAM1, ITGB7, NEK2, POLI1M, SDC1	
Raf		group		2.290	bias	5.59E-04	Cc2, GDF15, IF116, JUN, RUNX3, SLC24A3, TNFAIP3	220 (20)
FANCC		other				5.59E-04	CXCL12, GDF15, IL1B, JAG1, OAT, RND3, TAX1BP3	147 (16)
TBX21		transcription regulator		-0.180	bias	5.59E-04	CXCR3, GATA3, GZMA, IL1RL1, IL6ST, IL7R, Tcf7	159 (15)
ADAM10		peptidase				5.63E-04	CSF1, CXCL12, CXCL16, DTNA, IL36G, IL6ST, LCK, SYT1	
NRX1		transmembrane receptor	Inhibited	-2.449	bias	5.63E-04	BIRC3, CD40, IL1B, NFKBIA, RELB, TNFAIP3	158 (13)
sphingosine-1-phosphate		chemical - endogenous mamma	Activated	2.044	bias	6.08E-04	Cc2, CD44, FAS, GAP43, ICAM1, JUN, RUNX2, SERPINE1	167 (19)
PDX1		transcription regulator		1.066	bias	6.08E-04	Cc2, CD44, GAP43, HK1, ID1, ID3, IL1B, JUN, KLF6, KR78	120 (7)
RIFK2	0,574	kinase	Activated	2.621	bias	6.11E-04	ACOD1, Cc2, CD40, CD86, ICAM1, RASGRP1, SOD2	132 (17)
TER1		enzyme		-0.686	bias	6.19E-04	ICAM1, IF116, IL1B, JUN, KLF3, KR78, NFKBIA, PCDDHGA3, RASA3, SOD2	191 (14)
TSC2D3		transcription regulator		1.072	bias	6.27E-04	CD86, CD86, CE2PA, ICAM1, IL1B, RUNX2	225 (18)
TIMP3		other		-0.816	bias	6.27E-04	BMP4, FAS, JUN, KLF4, LAMC2, SERPINE1	225 (18)
APOA1	4,105	transporter		-1.636	bias	6.27E-04	APOA1, Cc2, ICAM1, IL1B, SOD2, XDH	153 (19)
OSCAR		other		1.342	bias	6.34E-04	CD40, CD83, CD86, ICAM1, RRAS	153 (15)
GATA3	7,490	transcription regulator		0.470	bias	6.34E-04	BATF, BCL11A, BMP6, CE2PA, GATA3, GZMA, ICAM1, IL1RL1, IL7R, KLF4	180 (16)
CFP1		transporter		1.934	bias	6.45E-04	ALAS1, CASP3, Cc2A4, CD86, GDF15, GSTO1, IL1B, PGD, RNASL, SERPINE1	130 (7)
CD36		transmembrane receptor		1.170	bias	6.52E-04	APOA1, CD86, CSF3, FAS, ICAM1, IL1B, LRP1, SERPINE1	162 (18)
AG490		chemical - kinase inhibitor	Inhibited	-2.792	bias	6.52E-04	BIRC3, CASP3, Cc2, CD86, ICAM1, IL1B, LYN, SOD2	224 (21)
CNDN1		transcription regulator		0.132	bias	6.57E-04	CNA2, CD44, CD86, CSF2RB, HIGD1A, ICAM1, ITGB7, NEK2, POLI1M, SDC1	137 (7)
melatonin		chemical - endogenous mamma		1.768	bias	6.60E-04	Cc2, CASP3, FAS, GDF15, KR78, IL1B, KR78, NQO1, RUNX2, SOD2	151 (19)
nicotine		chemical drug		1.115	bias	6.67E-04	BMP2, CASP3, Cc2, CD40, CD44, CD86, GATA3, ICAM1, ID1, IL1B	148 (16)
sphingosylphosphocholine		chemical - endogenous mamma				6.77E-04	Cc2, ICAM1, JUN	185 (19)
C8		complex				6.77E-04	Cc2, ICAM1, IL1B	107 (9)
SLC16A3		transporter				6.77E-04	CASP3, HK2, IL1B	
salmoneella typhimurium lipopol		chemical - endogenous non-mar				6.77E-04	Cc2, CD86, IL1B	
TNFRSF17		transmembrane receptor				6.77E-04	CD40, CD86, ICAM1	136 (15)
ATG16L1		enzyme				6.77E-04	IL1B, NFKBIA, SOD2	112 (9)
RTKN	1,276	other				6.77E-04	BCL2A1, BIRC3, TNFAIP3	91 (9)
C7		other				6.77E-04	Cc2, ICAM1, IL1B	107 (9)
DEK		transcription regulator				6.77E-04	BIRC3, Cc2, NFKBIA	95 (8)
1,1-bis(3'-indolyl)-1-(4-fluoromethyl		chemical reagent				6.77E-04	CAV2, GDF15, KLF3	160 (7)
pyromycin		chemical - endogenous non-mar				6.78E-04	CASP3, CD40, IL1B, SERPINE1	186 (22)
TFS3/CDR1		chemical reagent	Activated	2.000	bias	6.78E-04	CASP3, FAS, IL1B, SOD2	174 (13)
S-2,2-bis(4-methylpiperpropyl)-o		group		2.119	bias	6.78E-04	ApofA (includes others), CD40, CD86, ICAM1	85 (7)
Pkc6		other	Activated	2.673	bias	6.89E-04	APOA1, DMD, FAS, FOSL1, GADD45B, GAP43, IL1B, JUN, KLF6, KR78	207 (19)
PRKAG3		enzyme				7.14E-04	ALAS1, DDIT4L, FTL, ID1, KLF4, PLIN3, POLE4, RHOU, SLC2A3, TSPAN8	
GNA14		enzyme				7.24E-04	ANXA3, BMP2, BMP4, ENPP1, HK2, KLF6, XDH	
aminoglycoside		chemical drug		0.447	bias	7.27E-04	CASP3, GATA3, GSTP1, ICAM1, IL1B	180 (21)
SN-38		chemical drug		1.982	bias	7.27E-04	BIRC3, BMP6, FAS, GDF15, HK2	183 (14)
miR-146a-5p (and other miRNA		microRNA	Inhibited	-2.791	bias	7.52E-04	ATOH8, CNA2, CD40, IL136G, IRAK2, IRF5, NFKBIA, SYT1	91 (6)
Rock		group		1.664	bias	7.73E-04	BMP2, CAVINI, DMD, ICAM1, Nrg, RUNX2	217 (22)
NO3		growth factor		1.634	bias	7.73E-04	BMP2, BMP4, Cc2, FAS, ID3, RUNX2	189 (23)
PTPRJ		phosphatase	Activated	2.236	bias	7.73E-04	CNA2, CE2PD, NFKBIZ, OASL, Vmn3, ZC3H12A	
monocycline		chemical drug		-1.775	bias	7.87E-04	CASP3, Cc2, CD86, GATA3, ICAM1, IL1B, IL6ST	174 (17)
YY1		transcription regulator		0.447	bias	8.01E-04	ALCAM, BLNK, BMP4, BMP6, CNA2, CXCL12, DMD, FAS, ID3, IL1B	202 (19)
HDCAC3		transcription regulator		0.751	bias	8.07E-04	BIRC3, BMP2, ICAM1, JUN, KLF3, NFKBIA, RELB, SERPINE1	218 (23)
Pia		complex		1.915	bias	8.16E-04	ANTXR1, ANTXR2, CAMK4, CCR7, CD14, CD40, CD44, JUN, KLF6, MEST	200 (18)
Fibrinogen		complex		1.929	bias	8.24E-04	Cc2, CD40, ICAM1, IL1B	133 (17)
ITGA9	0,739	other	Activated	2.000	bias	8.24E-04	Cc2, CXCL12, CXCL14, IL1B	146 (12)
RP58KA5		kinase				8.24E-04	CCR7, FOSL1, IL1B, JUN	191 (21)
PCDH11Y		other	Activated	2.000	bias	8.24E-04	BMP4, CD44, FOSL1, JUN	136 (16)
IL37		cytokine		-1.938	bias	8.24E-0		

anthrhomol		chemical drug	-0.218	bias	9.44E-04	BIRC3, ICAM1, IL1B, NQO1, RUNX2	142 (10)
XDH	0.689	enzyme	-0.094		9.44E-04	Cd2, CE2PA, ID3, IL1B, SERPINE1	224 (24)
CD80		transmembrane receptor			9.44E-04	CASP3, CD28, FAS, ICAM1, IL1B	161 (20)
lrp		group			9.52E-04	FTH1, FTL, SLC11A2	
RBPJL		transcription regulator			9.52E-04	AMY2A, CPA2, CTBR2	
SELE		transmembrane receptor			9.52E-04	Cd2, CSF3, IL1B	148 (17)
RANBP9		other			9.52E-04	GAP43, JUN, PTK2B	130 (7)
FTH1	0.558	enzyme			9.52E-04	CD86, FTH1, FTL	36 (3)
TRF2		transporter			9.52E-04	BMP6, GDF15, Hamp/Hamp2	120 (9)
sodium dodecyl sulfate		chemical drug			9.52E-04	FABP5, IL1B, SERPINE2	
clomipramine		chemical drug			9.52E-04	DEPP1, HPN, SLC2A3	
tin mesoporphyrin		chemical drug			9.52E-04	Cd2, ICAM1, IL1B	99 (7)
pepslatin		chemical - protease inhibitor			9.52E-04	BMP2, CD9, STC2	
perillis alcohol		chemical drug			9.52E-04	BCL2A1, IL1B, NFKBIA	116 (11)
NRAS		enzyme	-2.804	bias	9.56E-04	CD63, CD86, HL, FNBP116, IL1B, MCM3, MEST, NQO1, PERP, SDC1	159 (17)
IL27		cytokine	1.444		9.57E-04	CD14, CD86, CEPD, DEPP1, GATA3, HLA-A, ICAM1, IL1B, LAG3, MRC1	185 (17)
Ifn gamma		complex	2.226	bias	9.90E-04	CASP3, Cd2, CD86, CXCL16, CXCR3, FAS, ICAM1, IL1B	157 (20)
lactosylceramide		chemical - endogenous mamma			9.91E-04	Cd2, CD40, ICAM1, RELB	144 (15)
Flg		group	1.067	bias	9.91E-04	HK2, JUN, SOD2, VCL	180 (16)
EIF4Q2		transcription regulator			9.91E-04	JUN, KLF4, RTR19, SERPINE2	
LRPAP1		other	-0.308		9.91E-04	Cd2, IL1B, LRP1, SERPINE1	144 (16)
EPCAM		other	-0.762		9.91E-04	FABP5, FOSL1, ID1, JUN	164 (13)
GRN		growth factor			9.91E-04	Cd2, CT52, ICAM1, IL1B	212 (19)
ketamine		chemical drug			9.91E-04	CASP3, HK1, KLF6, NQO1	102 (7)
apicidin		chemical - endogenous non-mar	0.000		9.91E-04	AMPD3, FAS, HSPD, ITGB7	
IFI16	2.317	transcription regulator	1.815	bias	1.00E-03	CD28, CD81, ICAM1, IFI16, IL1B, IL7R, NFKBIA	211 (20)
HTT		transcription regulator	1.372		1.00E-03	AP0A1, BASP1, BTG3, C1R, CAMK4, CASP3, Cd24a, Cd9, CE2PA, FOSL1	232 (21)
PARP1		enzyme	0.537	bias	1.01E-03	Cd2, CXCL12, FAS, G8P6, GDF15, ICAM1, IL1B, JUN, KLF3	215 (20)
Bthum chloride		chemical drug	0.923	bias	1.01E-03	BGAL11, BMP2, BMP4, CD44, GATA3, GDF15, KLF3, KRT20, Maresk	219 (26)
CBL		transcription regulator			1.04E-03	CSF2RB, FLT3, IL1B, LCK, LYN, RUNX2	110 (7)
cholesterol		chemical - endogenous mamma	1.021	bias	1.04E-03	CAMK1D, CAV2, Cd2, CD14, CD86, CSF1, FABP5, ICAM1, IL1B, SMO	137 (17)
KMT2D		transcription regulator	1.372	bias	1.04E-03	BTG3, CDC47, GJB2, GPRC5C, KLF4, KRT23, LAMB3, LCK, POLE4, PPIIC	
TLR2		transmembrane receptor	Activated		1.05E-03	BMP2, Cd2, CD40, CD86, CEPD, CSF3, GATA3, ICAM1, IL1B, IRAK3	148 (18)
Iysoosphosphatic acid		chemical - other	Activated		1.06E-03	Cd2, CD14, CSF1, ICAM1, IL1B, JUN, RALA, SERPINE1	149 (19)
NQO1	1.033	enzyme	-1.387		1.07E-03	BIRC3, Cd8, CE2PA, CXCL12, CXCR3	105 (7)
IGHM		transmembrane receptor	-0.577		1.07E-03	Cd2, CD86, FAS, IL1B, JUN	191 (20)
mevalonic acid		chemical - endogenous mamma	1.477		1.07E-03	AP0A1, CD40, ICAM1, IL1B, SERPINE1	171 (19)
CDM7		other	0.990		1.07E-03	ANXA3, B4GALNT1, CD86, FADS3, FOSL1, PLA2G16, SERPINB1, SYTL2, TINAGL1	
Growth hormone		group	1.098	bias	1.08E-03	ARID5B, BMP2, BMP4, CE2PA, CEPD, FTH1, GDF15, GSTP1, ID1, JUN	227 (18)
Nolch		group	1.144	bias	1.08E-03	CDCA7, GADD45B, GATA3, ID1, ID3, JAG1, Nes	123 (14)
Sos		group			1.09E-03	BGALNT1, CD44, DOCK1, HPGD5, IL36G, KLF6, MAPK9, Nrg1, SEMA3B, SEMA3E	
2-(4-aminoc-1-isopropyl-1H-pyraz		chemical reagent	0.889		1.10E-03	ALDH2, AP0A1, FNBP1, GDF15, JAG1	118 (12)
estrogen		chemical drug	Activated		1.10E-03	AP0A1, BMP2, CCKAR, CXCL12, FAS, FTH1, GAP43, GJB2, ICAM1, IL1B	178 (20)
adenosine		chemical - endogenous mamma	-0.394		1.14E-03	CD28, CD86, ICAM1, IL1B, Saa3, SERPINE1	197 (21)
CLEC4G		other	0.816	bias	1.14E-03	BMP2, CSF1, CSF3, FLT3, IL1B, Nrg1	
FAK5		transcription regulator	-0.730		1.14E-03	BLNK, CD40, FLT3, HK2, SDC1, SLC2A3	
FOSL2		transcription regulator	Activated		1.14E-03	Cd2, FAS, FOSL1, IL1B, RELB, RUNX2	130 (11)
nibclamide		chemical - endogenous mamma	-1.698		1.14E-03	BCL2A1, CD14, CD40, CXCL12, ICAM1, SLC34A2	149 (15)
CTR9		other	1.000		1.18E-03	CXCL12, RASGRP1, SDC1, TIAM1	
epicalcchin gallate		chemical drug			1.18E-03	GDF15, ICAM1, LYN, PERP	96 (7)
evodiamine		chemical - endogenous non-mar	-1.715	bias	1.18E-03	BCL2A1, BIRC3, CASP3, ICAM1	98 (7)
chelonanthrine		chemical drug	-1.000	bias	1.18E-03	Cd2, CYBA, ICAM1, NFKBIA	110 (14)
TNFRSF1B		transmembrane receptor	1.809	bias	1.20E-03	CASP3, CXCL12, FAS, ICAM1, JUN, SERPINE1, SOD2, TNFAIP3	134 (16)
MEOX2		transcription regulator	-1.400	bias	1.21E-03	ICAM1, ID1, ID3, LRP1, TNFAIP3	
NR2F1		ligand-dependent nuclear recep	0.000		1.21E-03	ALDH2, AP0A1, FNBP1, GDF15, JAG1	
mitoxantone		chemical drug	0.923	bias	1.21E-03	FAS, IFI16, IL1B, KLF3, PERP	167 (13)
paricalcitol		chemical drug	-1.000	bias	1.21E-03	BMP2, Cd2, CYP3A7, ICAM1, IL1B	155 (17)
SIRT6		enzyme			1.25E-03	BIRC3, Cd2, CSF1, IL1RL1, IRAK3, SOD2	212 (16)
mR-145-5p (and other mRNAs)		mature microRNA	Inhibited		1.25E-03	CCNA2, F11R, KLF4, RTKN, SERPINE1, SOD2	
CD14	1.316	transmembrane receptor	Activated		1.25E-03	BCL2A1, Cd2, CXCL12, ICAM1, IL1B, TNFAIP3	144 (16)
MAP2K12		group	1.772	bias	1.26E-03	Cd2, FOSL1, HK2, HSPB1, IL1B, JAG1, JUN	189 (21)
PTPN11		phosphatase	-1.254		1.26E-03	CD14, CD86, CE2PA, CSF1, GAB1, JUN, PERP	194 (23)
SFTPA1		transporter	-1.087	bias	1.26E-03	Cd2, GPR88, IL1B, IL1RL1, MRC1, SERPINE1, TCEA3	138 (15)
galactosylceramide		chemical - endogenous mamma			1.27E-03	CD40, CD86	
C10orf112		other			1.27E-03	Cd2, IL1B	103 (7)
NIPBL		transcription regulator			1.27E-03	KLF4, POLE4	
ASH1L		transcription regulator			1.27E-03	IRAK3, TNFAIP3	
KLHL21		other			1.27E-03	NFKBIA, NFKB2	
CNDP2		peptidase			1.27E-03	CD4, CXCR3	
Ap1 gamma		group			1.27E-03	CD28, HLA-A	
CARD6		other			1.27E-03	BCL2A1, IL1B	
FTMT		enzyme			1.27E-03	FTH1, FTL	
STRAP		other			1.27E-03	JUN, SERPINE1	
Debb2		other			1.27E-03	CD24a, CD40	
TIGAR		enzyme			1.27E-03	Cd2, TNFAIP3	142 (10)
1-heptanol		chemical reagent			1.27E-03	CD40, CD86	
ellipticine		chemical reagent			1.27E-03	CD40, IL1B	
prostatin		chemical - endogenous non-mar			1.27E-03	CASP3, ICAM1	95 (7)
Mn2+		chemical - endogenous mamma			1.27E-03	GAP43, ICAM1	
teniflumide		chemical drug			1.29E-03	FAS, ICAM1, IL1B	126 (11)
Tra119		other			1.29E-03	Cd2, CD40, CD86	135 (11)
GPR132		G-protein coupled receptor			1.29E-03	Cd2, ICAM1, MRC1	175 (13)
ACY2A		kinase			1.29E-03	Hamp/Hamp2, ICAM1, ID1	
APOH		transporter			1.29E-03	CD40, CD83, CD86	
MAS1		G-protein coupled receptor			1.29E-03	Cd2, IL1B, MRC1	156 (18)
NQDIP1		other			1.29E-03	IL1B, LYN, SLC11A2	179 (17)
Z18-isopropyl-4-(4-(2-pyridyl)		chemical - kinase inhibitor			1.29E-03	Cd2, CDNA2, CD86	
Ifnz (includes others)		cytokine			1.29E-03	CD40, CD83, CD86	119 (8)
HMOX1		enzyme	0.000		1.34E-03	CASP3, Cd2, CD14, CXCL12, ICAM1, ID1, ID3, IL1B, NQO1	197 (21)
ERG		transcription regulator	1.000	bias	1.34E-03	ARHGAP28, BIRC3, CAMK1D, CCNA2, DOCK1, DOCK10, ICAM1, KLF3, MYO1D, RRAS	
TSLP		cytokine	1.966	bias	1.35E-03	BMP4, Cd2, ICAM1, KLF3, NFKBIA, RACK1, Saa3	154 (16)
CEACAM1		transporter	1.342	bias	1.35E-03	ANG, CD40, CD86, CSF3, ICAM1	176 (18)
Tc7	4.054	transcription regulator	-1.167	bias	1.35E-03	BATF, GATA3, GZMA, IL7R, LYN	
monocrotaline		chemical toxicant	0.600		1.35E-03	Cd2, GAP43, ID1, ID3, IL1B	103 (7)
RETNL8		other	2.630	bias	1.36E-03	CASP3, Cd2, CD8, CD86, IL1B, Saa3, TINAGL1	197 (18)
Gsk3		group	0.911	bias	1.36E-03	CD40, CE2PA, GDF15, ICAM1, IL1B, JUN, TNFAIP3	185 (16)
JUND		transcription regulator			1.36E-03	ALAS1, Cc8, CXCL16, FOSL1, FTH1, RUNX2, SDC1	91 (9)
ciglitazone		chemical drug	-0.509		1.36E-03	CAV2, Cd2, ICAM1, JUN, KLF3, NFKBIA, SERPINE1	247 (24)
NAc-Leu-Leu-norleucine		chemical - protease inhibitor	-0.506	bias	1.36E-03	CAMK4, CASP3, CE2PA, HLA-A, ICAM1, NFKBIA, RUNX2	232 (22)
dehydroandrosterone		chemical - endogenous mamma	-0.742	bias	1.36E-03	BMP4, Cd2, ICAM1, KLF3, NFKBIA, RACK1, Saa3	197 (22)
IL12B		cytokine	1.129	bias	1.37E-03	Cd2, CD86, CEPD, ICAM1, IL1B, RPKAP1	182 (18)
TCF12		transcription regulator	0.655	bias	1.37E-03	BLNK, FLT3, GATA3, GJB2, IL7R, ZC3H12A	30 (2)
sodium arsenite		chemical drug	1.400	bias	1.37E-03	CE2PA, FTH1, GADD45B, HK2, JUN, LITAF	187 (18)
TFAP2A		transcription regulator	-1.623		1.37E-03	ALCAM, BIRC3, CE2PA, KLF4, PLA2G16, RAB27B, SERPINE1, SOD2	195 (16)
HNS1		enzyme	2.828	bias	1.37E-03	Cc8, CCR7, CD86, CLEC4D, FABP5, HMGCS2, MRC1, NFKB2	
BIRC1		transcription regulator	Activated		1.38E-03	Cd24a, FAS, GADD45B, GDF15, HSPB1, KLF3, NEK2, NQO1, PERP, SERPINE2	198 (17)
zeuribone		chemical - endogenous non-mar	-0.832	bias	1.39E-03	BCL2A1, BIRC3, CASP3, ICAM1	101 (10)
NFAT (complex)		complex			1.39E-03	CD86, CD86, ICAM1, SERPINE1	
TRPS1		transcription regulator	0.152		1.39E-03	ENPP1, GALNT3, RUNX2, SERPING1	
TRAF3		kinase			1.39E-03	BMP2, JUN, STAP, TNFAIP3	150 (17)
CLDN6		other			1.39E-03	CLDN10, CLDN4, KLF4, TGM3	
TRPV4		ion channel	Activated		1.39E-03	Cd2, Cc8, FAS, Saa3	113 (7)
SB 290157		chemical reagent	Inhibited		1.39E-03	BMP4, CD40, CD86, IL1B	176 (13)
GLI1		transcription regulator	Activated		1.40E-03	BCL2A1, Cd2, CD24a, CSF1, FAS, JUP, KLF4, KLF3, KRT19, MEST	139 (7)
4-hydroxytamoxifen		chemical drug	Activated		1.44E-03	CDCA7, CE2PA, CEPD, CLDN4, IL7R, JUN, KRT19, NFKBIA, RND1, TMSF1	215 (22)
ZLLL-CHO		chemical - protease inhibitor	1.791	bias	1.46E-03	BIRC3, Cd2, CE2PA, DMD, FAS, GSTP1, HSPB1, ICAM1, IL1B, JUN	217 (22)
USF1		transcription regulator	1.925	bias	1.46E-03	CD2, CE2PA, GATA3, Hamp/Hamp2, PRKG1, SERPINE1, TNFAIP3	
NCOA3		transcription regulator	Activated		1.46E-03	CCNA2, CE2PA, GJB2, HK2, Muc1, NFKBIA, XDH	151 (11)
KLF8	1.036	transcription regulator			1.46E-03	Cd2, IL1B, MRC1, NFKBIA, SDC1, TNFAIP3, TNIP1	154 (16)
PRNP		other	0.059		1.46E-03	CASP3, CD44, FOSL1, HSPB1, IL1B, LRP1, NFKBIA	212 (20)
STAT2		transcription regulator	1.980	bias	1.49E-03	Cd2, CD40, CD86, G8P6, Irf47, IRF5	137 (10)
GPS2		transcription regulator	-1.706	bias	1.49E-03	BLNK, Cd2, CD14, DHR33, NFKBIA, ZNF703	
dichloroveneidomium		chemical reagent	Inhibited		1.49E-03	BMP2, Cd2, CLDN4, IL1B, SERPINE1, SOD2	189 (18)
DICER1		enzyme	-2.621		1.49E-03	CASP3, CD44, CD86, DEPP1, ICAM1, ID3, IL1B, IL7R, JUN, RASGRP1	210 (22)
CDKN2A		transcription regulator	-0.432		1.49E-03	BTG3, CASP3, Cd2, Cc8, CCNA2, CCR7, CEPD, CXCL14, DONSON, IL1B	226 (22)
FN1		enzyme	1.571	bias	1.52E-03	BIRC3, CD83, CD86, HK1, IL1B, NFKBIA, RUNX2, SDC1, SDC4, SERPINE1	215 (17)
RNA5E2A		enzyme			1.52E-03	IFI16, IFNGR2, IRF5, NFKBIA, OASL	
TLR7/8		other	Activated		1.52E-03	CD2A1, NFKBIA, NFKB2, PINK1, TNFAIP3	107 (7)
TNFSF12		cytokine	Activated		1.55E-03	BST1, Cd2, CD68, CLEC4D, ICAM1, IL1B, NFKBIA, TNFRSF12A	174 (17)
PTGER2		G-protein coupled receptor	1.725	bias	1.55E-03	CCNA2, CCR7, CLEC4D, ESD, IL1B, IL36G, NEK2, SERPINE1	157 (17)
TNFRSF8		transmembrane receptor	0.816		1.63E-03	CCR7, FAS, IFI16, LCP2, RELB, VCL	
NODAL		growth factor	0.000		1.63E-03	CCR7, CD40, CD86, MRC1	94 (7)
SLPI		other	-0.762	bias	1.63E-03	CD40, CD86, ICAM1, NFKBIA	126 (16)
NFKBIZ	0.499	transcription regulator	1.960	bias	1.63E-03	Cd2, CEPD, CSF3, IL36G	189 (12)
HSPD1		enzyme	1.969	bias	1.63E-03	Cd2, GATA3, ICAM1, IL1B	156 (19)
ochratoxin A		chemical toxicant			1.63E-03	CASP3, FAS, GSTP1, NQO1	
IRS1		enzyme	1.054	bias	1.66E-03	BMP4, BUB1, CE2PA, CEPD, GATA3, KLF4, NFKBIA, RHOJ, Tc7	173 (12)
chloroptomazine		chemical drug	-0.555	bias	1.69E-03	CD83, DEPP1, HPN, IL1B, SLC2A3	
azithromycin		chemical drug			1.69E-03	Cd2, IL1B, MRC1	199 (20)
iclin		chemical reagent			1.69E-03	Cd2, CSF3, IL1B	
chloroxydine		chemical drug			1.69E-03	DEPP1, HPN, SLC2A3	
WWC1	1.521	transcription regulator			1.69E-03	BMP2, RASSF4, YAP1	49 (6)
LECT2		other			1.69E-03	Cd2, CSF3, IL1B	123 (9)
SH3BP1		other			1.69E-03	BCL2A1, CD86, SERPINE1	86 (6)
PTGIR		G-protein coupled receptor			1.69E-03	Cd2, CXCL12, IL1B	169 (16)
9		other			1.69E-03	Cd2, ICAM1, IL1B	107 (8)
CACNA1A		ion channel			1.69E-03	Cd2, CD68, IL1B	
CXCL1		cytokine			1.69E-03	Cd	

SR 144528		chemical reagent			1.69E-03	ICAM1, IL1B, NFKBIA	187 (16)
5-fluorouracil		chemical drug	Activated	2.031	1.70E-03	CASP3, CD40, CD81, CD86, FAS, GAD43, GDF15, IL1B, IL18, JUN, RHBDF2	207 (19)
5-N-ethylcarboxamide adenosine		chemical reagent		-0.707	1.75E-03	Cd2, CEPBD, CSF2RB, DUSP16, HK2, IL1B, KLF6, SERPINE1	177 (15)
TSC2		other	Inhibited	-2.355	1.75E-03	Cd2, CD68, CP, GAP43, HK2, HMGCS2, HSPB1, RASSF4, SOD2	198 (19)
EGLN1		enzyme		1.000	1.77E-03	Cd2, CD86, Hamp/Hamp2, ICAM1, IL1B, SDCA	196 (19)
RHO		G-protein coupled receptor		-3.447	1.77E-03	CASP3, CD44, CEPBD, HK2, SERPINE1, TNFAIP3	143 (14)
SINGA		transcription regulator			1.77E-03	CASP3, GADD45B, GSTP1, KLF6, KLF3, SERPINE1	162 (11)
IRF1		transcription regulator	Activated	3.056	1.79E-03	C1R, CASP3, CD40, CXCL16, IRF4, IL1B, IRF5, OASL, PLA2G16, PSMB10	168 (16)
CDH1		other		0.051	1.80E-03	BMP4, CD44, FOSL1, JUN, JUP, KRT19, RALA	213 (22)
GTR		ion channel		-3.896	1.80E-03	BLNK, CSF1, FAS, NFKBIA, NFKB1Z, Saa3, TNFAIP3	143 (14)
phytohemagglutinin		chemical drug	Activated	2.720	1.81E-03	ALDH2, CASP3, CCR7, CD44, CD83, CSF1, CXCL12, FAS, GATA3, ICAM1	173 (19)
CD24		other			1.85E-03	APOBEC3B, GDF15, ICAM1, JUN, OASL, RELB, SLC30A1, SLC4A4	135 (7)
ACKR2		G-protein coupled receptor	Inhibited	-2.236	1.88E-03	ACOD1, IFI16, IRF4, IL1B, OASL	148 (17)
D-galactosamine		chemical - endogenous mamma	Activated	2.219	1.88E-03	CD14, GDF15, ICAM1, JUN, SOD2	148 (17)
TNFAI3		transcription regulator			1.90E-03	JUN, NFKB1, TNFAIP3, ZBTB16	143 (14)
OSMR		transmembrane receptor		1.969	1.92E-03	BIRC3, Cd2, GAP43, IFI47, IL6ST, Serpina3g (includes others)	175 (18)
USF2		transcription regulator			1.92E-03	Cd2, GATA3, Hamp/Hamp2, KLF3, PRKG1, SERPINE1	143 (14)
HDA4		transcription regulator			2.04E-03	DMD, FOSL1, HOMER2, JUN, RAB3C, RTN1, RUNX2, SYN2, TNFRSF12A	143 (14)
LCN2		transporter		0.163	2.06E-03	BMP2, Cd2, Cc8, IL1B, MRC1, RUNX2, TINAG1	116 (9)
emphelamine		chemical drug		1.050	2.06E-03	BMP4, BUB1, FOSL1, GMB, ICAM1, JUN, TNFAIP3	106 (7)
ATP		chemical - endogenous mamma	Activated	2.515	2.08E-03	Cd2, CCR7, CD14, CD83, CD86, ICAM1, IL1B, SERPINE1	150 (18)
EGLN		group	Inhibited	-3.109	2.09E-03	CAVIN1, Cd2, FTL, GATA3, Hamp/Hamp2, HK2, RNASE4, Serpina3g (includes others), SERPINE1, STC2	151 (7)
resatorvid		chemical drug			2.17E-03	APOBEC3B, Cd2, IL1B	134 (16)
peroxinone		chemical drug			2.17E-03	DEP1, HNF1B, SLC2A3	143 (14)
LILRA2		other			2.17E-03	CD40, CSF3, MRC1	143 (14)
ERFE		other			2.17E-03	ATOH8, Hamp/Hamp2, ID1	143 (14)
mi-373		microRNA			2.17E-03	CD44, LATS2, SERPINE1	143 (14)
FSTL1		other			2.17E-03	Cd2, GDF15, IL1B	146 (16)
AT2A3		peptidase			2.17E-03	CXCL12, IL1RL1, SOD2	146 (16)
KRT8	0.955	other			2.17E-03	KRT19, KRT20, Reg3d	143 (14)
CCL3L3		cytokine			2.17E-03	Cd2, CD40, IL1B	135 (13)
SIRP4		phosphatase			2.17E-03	Cd2, CSF3, IL1B	150 (17)
hydroquinone		chemical - endogenous mamma			2.17E-03	IL1B, JUN, SFN	143 (14)
MRTFA		transcription regulator		0.946	2.19E-03	CXCL12, CYBA, F1R, HLA-A, ICAM1, ID1, RAB27B, Saa3, TST, VCL	29 (3)
UTP		chemical - endogenous mamma			2.19E-03	Cd2, CD14, ICAM1, SERPINE1	161 (18)
PROCR		other		-0.747	2.19E-03	Cd2, G8P6, ICAM1, IL1B	169 (19)
SCAF31		transporter		-0.152	2.19E-03	Cd2, CD81, CD9, IL1B	146 (16)
BGN		other		0.862	2.19E-03	BMP2, IL1B, RUNX2, SERPINE1	220 (22)
Saa3	1.778	other			2.19E-03	APOA1, BMP2, CSF3, RUNX2	146 (16)
SLC9A3		ion channel			2.19E-03	IFI47, Reg3d, Saa3, UPP1	146 (16)
BMP1B1		kinase		1.969	2.19E-03	ID1, ID3, RUNX2, SERPINE1	176 (17)
disilyl disulfide		chemical - endogenous non-mar		1.980	2.19E-03	CASP3, GDF15, CSTA3, NOD1	146 (16)
ceramide		chemical - endogenous mamma		1.091	2.19E-03	CASP3, ICAM1, IL1B, JUN	169 (21)
NCOA2		transcription regulator		0.964	2.20E-03	BMP2, Cd2, CEPBA, IL1B, KLF3, KRT19, NFKBIA, OASL	196 (18)
arsenite		chemical toxicant			2.20E-03	ESD, GSTP1, Hspa15, HSPB1, JUN, NOD1, PRKG1, SERPINE1	217 (22)
FOX42		transcription regulator		1.668	2.24E-03	ALAS1, APOA1, Cc8, CEPBA, CLCA1, CLDN4, EPHD2, FAPB5, GPRC5C, HK2	111 (7)
MR21		microRNA	Inhibited	-1.119	2.25E-03	BCL2A1, CCNA2, FAS, GATA3, GPR98, ICAM1, IFI16, IL1B, IL26	184 (18)
FOXL2		transcription regulator	Activated	2.429	2.26E-03	BCL2A1, BMP2, FAS, ICAM1, SOD2, TNFAIP3	160 (18)
BCL2L1		other		-0.928	2.26E-03	CASP3, Cd2, CD44, FAS, IL1B, NOD1	160 (18)
QASR		G-protein coupled receptor		1.667	2.26E-03	ARHGEP3, CD44, Cc8, Cd2 (includes others), CSF1, GATA3, ID1, ITGB7, VCL, ZYX	132 (7)
TLR9		transmembrane receptor	Activated	2.235	2.26E-03	BIRC3, Cd2, CD83, CD86, IL1B	180 (20)
A2M		transporter		0.372	2.31E-03	Cd2, GADD45B, GAP43, IL1B, LRP1	160 (18)
IFNGR1		transmembrane receptor		1.698	2.31E-03	Cd2, CXCL12, FAS, ICAM1, IL1B	151 (15)
NLRP3		other		0.840	2.35E-03	Cd2, CSF3, CXCR3, GATA3, IL1B, MRC1, RELB	150 (15)
hexastere		chemical drug		1.411	2.40E-03	ALCAM, BMP6, Cd2, DEP1, DHRG3, ICAM1, ID1, IL1B, Nes, PNLRC1	193 (18)
galabrine		chemical drug	Activated	2.431	2.44E-03	CD40, CD86, FAS, HLA-A, ICAM1, IL1B	188 (18)
black raspberry extract		chemical drug			2.46E-03	AKR1B10, BUB1, CD44, KRT20, LAMB3, PLS3, SDC1, SLC30A1	143 (14)
RET		kinase	Activated	2.425	2.46E-03	Cd2, CSF1, CSF3, CXCL12, IL1B, KLF3, PTPN13, SCAR3	181 (17)
CCR2		G-protein coupled receptor	Activated	2.743	2.46E-03	Cd2, Cc8, CD40, CD86, CSF1, CSF3, CXCL12, IL1B	184 (19)
BIRD4		kinase	Activated	2.000	2.49E-03	CN2A2, CEPBA, ICAM1, IL1RL1, CX, MAL, MCM3, NOD1, STC2	159 (11)
RORA		ligand-dependent nuclear recep		1.609	2.49E-03	CaId1, Cd2, Cc8, CLCA1, GADD45B, GSTP1, IL1B, LPIN2, NFKBIA, SLC2A3	131 (13)
aluminum hydroxide		chemical drug			2.50E-03	Glycam1, ICAM1	143 (14)
LY75	1.199	transmembrane receptor			2.50E-03	CD40, CD86	97 (7)
B3GN2T		enzyme			2.50E-03	CD14, IL1B	137 (11)
CYP2C8		enzyme			2.50E-03	Cd2, IL1B	143 (14)
SIRT4		enzyme			2.50E-03	Cd2, IL1B	143 (14)
Casein		group			2.50E-03	ICAM1, IL1B	143 (14)
corotic acid		chemical - endogenous mamma			2.50E-03	CD40, IL1B	143 (14)
RNF5		transcription regulator			2.50E-03	BMF, KLF3	136 (7)
TAOK2		kinase			2.50E-03	GSTP1, SOD2	143 (14)
miR-328-3p (and other miRNAs)		mature microRNA			2.50E-03	CD44, CEPBA	143 (14)
EGFL7		other			2.50E-03	ICAM1, NFKBIA	143 (14)
FBXL5		enzyme			2.50E-03	FTTH, SLC11A2	143 (14)
PTO2		transmembrane receptor			2.50E-03	CXCL12, JAG1	143 (14)
CFL1		other			2.50E-03	ICAM1, JUN	122 (12)
M3		other			2.50E-03	CEBPD, GSTP1	143 (14)
DEETGE-CAL-Tat		chemical reagent			2.50E-03	NOD1, SOD2	143 (14)
ascocycin		chemical reagent			2.50E-03	CD83, CD86	143 (14)
phenanthridine		chemical toxicant			2.50E-03	CD83, CD86	143 (14)
sucilylacetone		chemical - endogenous mamma			2.50E-03	ALA1, CYBA	143 (14)
MAX		transcription regulator			2.51E-03	FTTH, GADD45B, HK2, HMGA1, ID1, KLF6, SLC2A3	181 (17)
COL18A1		other	Inhibited	-2.621	2.51E-03	ANTXR1, HK2, ICAM1, ID1, ID3, JUN, SERPINE1	143 (14)
GL1A		transcription regulator			2.51E-03	ACOD1, CD86, GLEAD3, GDF15, IL1B, LY96, STEAP4	143 (14)
choline fenofibrate		chemical drug		-0.218	2.51E-03	Cd2, IL1B, NFKBIA, SERPINE1, UGT1A7 (includes others)	111 (7)
CX3CR1		G-protein coupled receptor		0.000	2.51E-03	Cd2, CD14, ICAM1, IL1B	160 (17)
RC3H1		enzyme			2.51E-03	CCR7, IL1B, IL6ST, SDC1	143 (14)
MAL2-2a		chemical reagent	Activated	2.000	2.51E-03	BCL2A1, CD40, CD86, IL1B	194 (21)
SNCA		enzyme		1.779	2.55E-03	CASP3, Cd2, CD86, CD8L, DHRG3, HOMER2, Hspa15, IFI47, IL1B, PTK2B	201 (18)
VitaminD3-VDR-RXR		complex	Activated	2.207	2.55E-03	CD14, IL1RL1, KLF4, SEMA3B, SERPINB1	143 (14)
MYB12		transcription regulator		0.152	2.55E-03	BIRC3, BUB1, CCNA2, CEPBA, ID1	174 (18)
SPRK1		kinase		1.432	2.55E-03	BIRC3, Cd2, IL1B, JUN, SERPINE1	160 (16)
IL12A		cytokine		1.091	2.55E-03	CASP3, CD86, FAS, ICAM1, IL1B	170 (20)
vincristine		chemical drug		1.467	2.55E-03	FAS, GAP43, IL1B, JUN, SOD2	176 (14)
D-fructose		chemical - endogenous mamma	Activated	2.219	2.55E-03	Cd2, CD86, CEPBA, ICAM1, IL1B	176 (14)
TAL1		transcription regulator		-1.068	2.59E-03	BUB1, DOCK1, GATA3, HLA-A, ICAM1, JUN, MEST, NFKB1Z, PTK2B, SLC2A3	131 (12)
Hdac		group		-0.426	2.61E-03	BMP2, FOSL1, GADD45B, GATA3, IL1B, JUN, JUP, KLF6, PREX1, SMO	244 (22)
DKK1		growth factor	Inhibited	-2.389	2.63E-03	BMP4, BMP6, CD44, GATA3, RUNX2, Tcf7	146 (9)
RHOA		enzyme		1.347	2.67E-03	GDF15, ICAM1, IL1B, JUN, PRKG1, RND3, RUNX2	203 (21)
imatib		chemical drug		-0.292	2.71E-03	BLNK, BMP2, CASP3, CCNA2, CEPBA, CXCL12, ID1, IL1B, LYN, MAPK4	222 (23)
Actin		group			2.72E-03	CAVIN1, CD44, IL1B	143 (14)
RNF1		phosphatase			2.72E-03	Cd2, CEPBD, CXCL14	143 (14)
N2(gamma-D-glutamyl)-meso-elastase		chemical reagent			2.72E-03	Cd2, ICAM1, IL1B	152 (15)
PSMB10	0.446	group			2.72E-03	ICAM1, IL1B, MLK1	133 (15)
Betastatin/TCF		peptidase			2.72E-03	GATA3, NFKBIA, TNFAIP3	85 (7)
ACE2		peptidase			2.72E-03	CD44, JUN, RUNX2	160 (11)
Hsp27		group		0.000	2.80E-03	CASP3, CD14, CD86, CSF1, KLF3	192 (18)
LRP6		transmembrane receptor		-0.176	2.80E-03	CD86, GATA3, HK2, IL1B, SLC2A3	118 (10)
ADORA1B		G-protein coupled receptor			2.80E-03	CEBPD, FAPB5, IL6ST, JUN, RALA	123 (9)
TCF7		transcription regulator			2.80E-03	CEBPA, CEPBD, GATA3, CXCL12, Tcf7	179 (20)
Igm		complex		-1.119	2.84E-03	BCL2A1, CCNA2, CD40, CD44, FAS, ID3	100 (9)
SPDEF		transcription regulator			2.84E-03	BIRC3, CD40, KLF3, LASP1, SDC1, SERPINE1	137 (7)
RASSF1		other		0.628	2.85E-03	AMIGO2, CASP3, CAV2, CCNA2, GDF15, KLF4, LITAF	89 (6)
SAMSN1		other	Activated	2.646	2.85E-03	BATF, CD40, NFKB1Z, OASL, SDC1, Vmn3, ZC3H12A	164 (18)
CLEC7A		transmembrane receptor		1.940	2.87E-03	CCR7, CLCA1, CSF3, IL1B	164 (18)
B2M		transmembrane receptor		0.152	2.87E-03	CD8A, Hamp/Hamp2, HLA-A, IL1B	205 (20)
FCGR2A		transmembrane receptor		1.992	2.87E-03	Cd2, FAS, IL1B, SERPINE1	204 (17)
olipraz		chemical drug		1.961	2.87E-03	FTTH, GSTP1, NOD1, UGT1A7 (includes others)	204 (17)
methylthionitrosoguanidine		chemical toxicant		1.960	2.87E-03	CEBPA, FAS, GDF15, SERPINE1	150 (18)
suramin		chemical drug		-0.911	2.87E-03	Cd2, CD40, CD86, ICAM1	81 (7)
dicalbethoxydihydrocolidine		chemical toxicant			2.87E-03	Cd2, CCNA2, IL1B, KRT19	154 (18)
hemozoin		chemical - endogenous non-mar		1.921	2.87E-03	Cd2, CD83, ICAM1, IL1B	184 (20)
Cd2 ODN 2006		chemical reagent	Activated	2.507	2.93E-03	BIRC3, CD40, CD86, ICAM1, IL1B, NFKB1Z, OASL	146 (16)
MIF		cytokine	Activated	2.742	3.05E-03	Cd2, CD44, CXCL16, ICAM1, IL1B, IL6ST, IL7R, JUN	184 (20)
paraquat		chemical toxicant		1.916	3.05E-03	APOA1, CEPBD, FAS, GSTA3, GSTP1, KLF6, LAMC2, LPIN2	136 (7)
C3		peptidase		1.378	3.06E-03	CASP3, Cc2, CSF1, CXCL16, IL1B, JUN	143 (16)
MWRF		transcription regulator		0.000	3.06E-03	ANKK6, CF1, GDF15, HPQDS, MFS1, RHOU	204 (21)
PRKD1		kinase	Activated	2.190	3.08E-03	Cd2, CD86, IL1B, TNFAIP3	175 (18)
valsartan		chemical drug	Inhibited	-2.202	3.08E-03	Cd2, CYBA, ICAM1, IL1B, SERPINE1	154 (16)
PTH		other	Activated	2.296	3.09E-03	BMP2, Cd2, CSF1, CXCL12, CYBA, GALNT3, JUN, RUNX2, Saa3, SDCA	176 (16)
EDN1		cytokine	Activated	2.748	3.15E-03	ADAM19, ANXA6, BCL2A1, CCR7, FOSL1, ICAM1, JUN, P, G84, SDC1, SERPINE1	173 (15)
IRN Beta		group		1.445	3.16E-03	ACOD1, CCR7, CD40, CD83, CD86, HLA-A, IFI16, IL1B, OASL	201 (20)
miR-155		microRNA		-0.684	3.22E-03	CD86, CEPBA, CSF3, DOCK1, HK2, IL1B, IRAK3, SERPINE1	201 (20)
HNF1B		transcription regulator		0.816	3.22E-03	CD44, F1R, ID1, ID3, JAG1, RNASE4, UGT1A7 (includes others), UPP1	151 (9)
RPSA		translation regulator	Inhibited	-2.000	3.26E-03	CSF3, IFI47, IL1B, RELB	143 (16)
miR-221-3p (and other miRNAs)		mature microRNA		-1.994	3.26E-03	BMF, ICAM1, KLF3, SOD2	209 (17)
WAY3		cytokine			3.26E-03	BCL2A1, CAV2, KLF3, RALA	155 (20)
CDK5		kinase		1.929	3.26E-03	CD14, JUN, RALA, TNFAIP3	113 (10)
NFATc3		transcription regulator		-0.254	3.29E-03	B3GAT1, BMP2, CASP3, GAP43, JUN, PRKG3	164 (17)
2-deoxyglucose		chemical drug		0.056	3.29E-03	BMF, CASP3, Cd2, IL1B, JUN, SOD2	164 (17)
AKT1		kinase	Activated	2.751	3.29E-03	AKR1B10, BCL2A1, BIRC3, BMP2, CASP3, Cc8, CD40, CD86, CEPBD, FAPB5	155 (20)
monophosphoryl lipid A		chemical drug			3.34E-03	Cd2, CD86, IL1B	118 (12)
1-acetoxylchavicol acetate		chemical reagent			3.34E-03	BCL2A1, BIRC3, ICAM1	126 (15)
TIFA		other			3.34E-03	ICAM1, NFKBIA, TNFAIP3	143 (14)

FLM2		other		-1.890	bias	3.41E-03	BST1, CRISPLD2, FBP1, RTN1, SCAR3, SLC34A3, STC2
mir-210		microRNA	Inhibited	-2.368	bias	3.41E-03	CHD9, CXCL12, FGFRL1, KLK6, LAMP1, RADS2, SCAR3
FOXO4		transcription regulator		0.692		3.41E-03	ANXA3, FABP5, GADD45B, JAG1, LCP2, SERPINE1, SOD2
ciprofibrate		chemical drug		0.174		3.47E-03	CXCL12, GSTP1, KRT8, MGLL, NFKBIA, OAT, Saa3, SLC44A, Vnn3
L-tryptophan		chemical - endogenous mamma		-0.730	bias	3.49E-03	APOA1, BMP4, CAMK4, CD44, CEBA, CXCL12, FAS, GDF15, HBPD, ID1
UGAI S1		other		-0.533	bias	3.53E-03	ANG, CCL2, CXCL16, JFNCR2, IL1B, SERPINE1
GW9565		chemical reagent		-1.039		3.57E-03	APOA1, Cc2, Cc2A, Cc2B, Cc2C, Cc2D, Cc2E, Cc2F, Cc2G, Cc2H, Cc2I, Cc2J, Cc2K, Cc2L, Cc2M, Cc2N, Cc2O, Cc2P, Cc2Q, Cc2R, Cc2S, Cc2T, Cc2U, Cc2V, Cc2W, Cc2X, Cc2Y, Cc2Z, IL1B, NFKBIA
RPTOR		other		-0.136	bias	3.62E-03	Cc2, CCR7, CD86, HK2, IL1B, LY75, MRC1
TRAP		other		0.762	bias	3.68E-03	CD40, CD86, ICAM1, IL1B
VTN		other		1.199	bias	3.68E-03	IL1B, RUNX2, SERPINE1, SFN
TAB1		enzyme		-0.782	bias	3.68E-03	BIRC3, IL1B, JUN, SERPINE1
butylated hydroxyanisole		chemical toxicant		1.896	bias	3.68E-03	GSTA3, GSTP1, JUN, NQO1
selenium		chemical drug		-0.152	bias	3.68E-03	APOA1, CEBA, KLK3, MRC1
Hedgehog		group		3.68E-03		3.68E-03	CDNA2, JAG1, KLK4, KLK3, KRT19
isoleucic acid		chemical drug		-1.000	bias	3.68E-03	APOA1, CSF1, CSF3, GDF15, IL1B
AMPK		complex		1.195		3.75E-03	BMP, BMP2, Cc2, CXCL12, LITAF, OAT, RUNX2, SERPINE1
3M002		chemical reagent	Activated	2.204		3.75E-03	ACOD1, BCL2L1, CD40, CD83, CD86, FOSL1, IL1B, Saa3
staurosporine		chemical - kinase inhibitor		-1.238		3.75E-03	CASP3, CD28, FAS, FOSL1, ICAM1, IL1B, NQO1, SERPINE1
flamain		chemical drug	Activated	2.412	bias	3.79E-03	ALA51, CD14, CSF1, CYP3A7, GSTP1, IL1B, PDGFR, SERPINE1, UGT1A7 (includes others)
H99		chemical - kinase inhibitor		-1.796	bias	3.79E-03	Cc2, CD14, CD83, GSTP1, IL1B, NFKBIA, SDC1, SERPINE1, SOD2
daziden		chemical drug		0.816	bias	3.84E-03	CASP3, CD86, CXCR3, HLA.A, LCP2, NQO1, RASGRP1
ARNT		transcription regulator		0.277	bias	3.95E-03	CCR7, CD81, CSF3, CXCR3, HK2, NQO1, SERPINE1, SLC2A3
vorinostat		chemical drug		-1.356		3.99E-03	BIRC3, BMP, CASP3, CD8A, CEBA, FAS, ICAM1, IL1B, JUN, KLK4
9-10-dimethyl-1,2-benzanthracene		chemical toxicant		1.350	bias	4.02E-03	IL1B, JUN, MRC1, NQO1, SERPINE1
beta-naphthoflavone		chemical toxicant		1.350	bias	4.02E-03	FTH1, GSTP1, NQO1, Saa3, UGT1A7 (includes others)
HDAC5		transcription regulator		4.05E-03		4.05E-03	HK2, HMGCS2, JUN, KLK6, PTFN13, RUNX2
AGER		transmembrane receptor		1.449	bias	4.05E-03	Cc2, CSF1, FAS, ICAM1, IL1B, SERPINE1
SHARPIN		other		4.05E-03		4.05E-03	IL1B, MUKL, TNFAIP3
GAS2L3		other		4.05E-03		4.05E-03	FAS, PTFN14, TMSF1
BMP10		growth factor		4.05E-03		4.05E-03	ICAM1, ID1, NFKBIA
PRF1		transporter		4.05E-03		4.05E-03	Cc2, CD44, IL1B
MAFG		transcription regulator		4.05E-03		4.05E-03	GST3A3, GSTP1, NQO1
EPHX2		enzyme		4.05E-03		4.05E-03	Cc2, ICAM1, IL1B
MAPK10		kinase		4.05E-03		4.05E-03	CASP3, CD44, JUN
CXCL2		cytokine		4.05E-03		4.05E-03	Cc2, ICAM1, IL1B
VIPR1		G-protein coupled receptor		4.05E-03		4.05E-03	Cc2, CD40, CD86
SIUHRF2		enzyme		4.05E-03		4.05E-03	JUN, RUNX2, SERPINE1
NAM1		transcription regulator		4.05E-03		4.05E-03	IL1B, IL7R, RND3
EFNB2		kinase		4.05E-03		4.05E-03	IL7R, RUNX2, TIAM1
DSP		other		4.05E-03		4.05E-03	Cc2, CEBA, JUP
BHLHA15		transcription regulator		4.05E-03		4.05E-03	CKAR, GJB2, KRT19
cyclohexanoic acid		chemical - endogenous non-ma		4.05E-03		4.05E-03	BCL2A1, Cc2, FAS
silicon dioxide		chemical drug		4.05E-03		4.05E-03	FOSL1, IL1B, JUN
erythromycin		chemical drug		4.05E-03		4.05E-03	CD86, ICAM1, IL1B
CDK19		kinase		-1.414	bias	4.07E-03	CD81, FAS, JUN, RHD2, SDC1, SFN, UPP1
atorvastatin		chemical drug		-1.671		4.09E-03	APOA1, BMP2, BMP6, Cc2, CD40, CYBA, GADD45B, ICAM1, IL17RD, JUN
p38 Saps		group		4.11E-03		4.11E-03	CD83, CD86
Msi/Krs		group		4.11E-03		4.11E-03	RELB, YAP1
ATPase		group		4.11E-03		4.11E-03	CD40, ICAM1
Em		group		4.11E-03		4.11E-03	CD44, ICAM1
CYP		group		4.11E-03		4.11E-03	CD86, NQO1
olmesartan		chemical drug		4.11E-03		4.11E-03	CYBA, ICAM1
FOXK2		transcription regulator		4.11E-03		4.11E-03	MCM3, SERPINE1
ZM22		transcription regulator		4.11E-03		4.11E-03	CD44, JUN
Nuc9		group		4.11E-03		4.11E-03	CD83, CD86
DCB 3503		chemical reagent		4.11E-03		4.11E-03	Cc2, IL1B
TDP2		transcription regulator		4.11E-03		4.11E-03	KLK3, SYT1
HADHA		enzyme		4.11E-03		4.11E-03	Cc2, IL1B
MAPKAPK5		kinase		4.11E-03		4.11E-03	MAPK6, TNFAIP3
Gim1 (includes others)		other		4.11E-03		4.11E-03	Cc2, IL1B
EIF2AK1		kinase		4.11E-03		4.11E-03	Hamp/Hamp2, IL1B
BCAR3		other		4.11E-03		4.11E-03	RALA, RRAS
CES1		enzyme		4.11E-03		4.11E-03	Cc2, IL1B
Cw3		cytokine		4.11E-03		4.11E-03	CEBA, CEBPD
ELF2		transcription regulator		4.11E-03		4.11E-03	KLK3, VTN
4,4'-disubstitocyanostilbene-2,2'-dimethine		chemical drug		4.11E-03		4.11E-03	CASP3, Cc2
cimetidine		chemical drug		4.11E-03		4.11E-03	FAS, GDF15
cinamyl-3,4-dihydroxy-alpha-cyanobutane		chemical reagent		4.11E-03		4.11E-03	Cc2, MRC1
retinaldehyde		chemical - endogenous mamma		4.11E-03		4.11E-03	CASP3, ICAM1
Stia3-Stat3		complex	Activated	2.000	bias	4.14E-03	BMP2, CD44, CYBA, ICAM1, JAG1, JUN, SERPINE1
HOXC8		transcription regulator		-1.000	bias	4.14E-03	ADAM19, Cc2, KRT19, NQO1
SHH		peptidase		1.133	bias	4.28E-03	BMP2, BMP4, HK2, HMO2A1, ID1, LAMP1, MCM3, RUNX2, SERPINE1, YAP1
miR-199a-5p (and other miRNAs)		mature microRNA	Inhibited	2.403	bias	4.33E-03	CD3, JAG1, KLK4, LAM2, RND1, ZBTB16
methylphenylamine		chemical drug		2.407	bias	4.33E-03	Cc2, FAS, HOMER2, ICAM1, IL1B, JUN
PELP1		G-protein coupled receptor	Activated	2.236	bias	4.35E-03	AHNAK2, BMP2, CSF3, GJB2, IL1B, KLK3, MAPK4, MRC1
QPER1		G-protein coupled receptor	Activated	2.236	bias	4.37E-03	CEBPD, JUN, NFKBIA, RND1, TNFAIP3
enalapril		biologic drug		0.447		4.37E-03	CD44, Cc2, SERPINE1, SLC3A2, TNFRSF12A
RB1		transcription regulator		-0.473		4.41E-03	BTG3, CASP3, Cc2, CEBA, DONSON, FAS, FOSL1, GPR179, GPRC5C, ID1
Pdgf (complex)		complex		1.424	bias	4.55E-03	Cc2, CD44, CYBA, ICAM1, JAG1, JUN, SERPINE1
NTRK2		kinase		1.964	bias	4.63E-03	BMP2, CDNA2, JAG1, Muc1, SERPINE1, SYT1
KDMA5		transcription regulator		1.962	bias	4.63E-03	ALCAM, Cc2, GDF15, SERPINE1
ARHGAP31		other		1.413	bias	4.63E-03	BMP2, GADD45B, GDF15, JUN
SOST		other		1.980	bias	4.63E-03	Cc2, CEBA, IL1B, SOD2
CYBB		enzyme	Activated	2.000	bias	4.63E-03	Cc2, CYBA, ICAM1, IL1B
IL17RA		transmembrane receptor		1.992	bias	4.63E-03	Cc2, CSF3, CXCL12, IL1B
SIRP1		transmembrane receptor		1.413	bias	4.74E-03	CASP3, GATA3, RUNX2, SERPINE1, Tcf7
MMP1		peptidase		1.432	bias	4.74E-03	CXCL12, JUN, NFKBIA, RUNX2, SERPINE1
DCN		other		-0.836		4.74E-03	CASP3, ICAM1, IL1B, SDC1, SERPINE1
IL12 (family)		group	Activated	2.813	bias	4.79E-03	ADAM19, CD44, CD86, GATA3, IL1B, NFKB2, SERPINE1, SLC2A3
FZD9		G-protein coupled receptor		4.85E-03		4.85E-03	Cc2, CXCL14, IFI16
fenitrozinab		biologic drug		4.85E-03		4.85E-03	FAS, LA33, TGM5
GIP		other		4.85E-03		4.85E-03	Cc2, Cc8, Tcf7
CD70		cytokine		4.85E-03		4.85E-03	BCL2A1, CD44, FAS
IL17A		transmembrane receptor		4.85E-03		4.85E-03	CD14, CD40, IL1RL1
SIRP2		G-protein coupled receptor		4.85E-03		4.85E-03	Cc2, ICAM1, JUN
KLK5		peptidase		4.85E-03		4.85E-03	Cc8, ICAM1, IL1B
7-nitroindazole		chemical reagent		4.85E-03		4.85E-03	GSTP1, NFKBIA, PRKG1
phenyl-N-tert-butylurea		chemical reagent		4.85E-03		4.85E-03	CD40, CD83, CD86
glutaryl-Sa-methylselenocysteine		chemical - endogenous mamma		4.85E-03		4.85E-03	GSTP1, ID1, JUN
IB		cytokine		4.94E-03		4.94E-03	ADAM19, GDF14, CD88, CSF1, CSF3, FAS
MAP2K6		kinase		-0.763	bias	4.94E-03	Cc2, CD40, CD83, CD86, JUN, RELB
doxycycline		chemical drug		1.000		4.94E-03	BMP2, CD86, CXCL12, SDC1, SOD2, XDH
ESRRB		ligand-dependent nuclear recep	Activated	1.562	bias	4.99E-03	ALA51, CCR7, CEBA, CSF3, HK1, HK2, KRT19, KRT20, KRT23, RUNX2
acetaminophen		chemical drug		2.394	bias	4.99E-03	CASP3, Cc2, CXCR3, FAS, GSTP1, HMGCS2, ICAM1, IL1B, JUN, NQO1
dihydroxyflavone		chemical toxicant		0.555		5.07E-03	CASP3, CXCL12, GSTP1, Hspa1b, KRT8, OAT, Vnn3
L-methionine		chemical - endogenous mamma		5.14E-03		5.14E-03	BUB1, GADD45B, IFI16, NFKBIA, SOD2
CASP8		peptidase		5.14E-03		5.14E-03	CD14, CD44, CSF1, FAS, IL1B
LPL		enzyme		1.792	bias	5.14E-03	APOA1, CASP3, CSF1, ICAM1, IL1B
MAP3K1		kinase	Activated	2.176	bias	5.14E-03	BIRC3, FAS, HSPB1, JUN, SERPINE1
RGS10		other		5.14E-03		5.14E-03	Cc8, CXCR3, FAS, IL1B, IL6ST
DETA-NONOate		chemical reagent		0.365		5.14E-03	BIRC3, FAS, ICAM1, PRKG1, SERPINE1
ARRB2		other		-1.987		5.16E-03	Cc2, IL1B, NFKB2, SERPINE1
MAR2		kinase		1.000	bias	5.16E-03	BATE, CD44, NFKB2, Vnn3
green tea polyphenol		chemical drug		-1.067	bias	5.16E-03	CASP3, ICAM1, IL1B, JUN
barboxolone		chemical drug		1.067	bias	5.16E-03	CEBA, FTH1, NFKBIA, NQO1
PD173074		chemical reagent	Activated	2.449	bias	5.27E-03	CCR7, CEBA, DEPT1, GATA3, KRT23, PRR5
kaicic acid		chemical toxicant	Activated	2.919	bias	5.35E-03	CASP3, Cc2, FOSL1, GADD45B, GAP43, IL1B, JUN, SDC1, SLC39A4
IL1RN		cytokine	Inhibited	-2.179	bias	5.52E-03	CD44, HBPD, ICAM1, IL1B, KLK6, OASL, RHPK2, SERPINE1
MOG		other		5.56E-03		5.56E-03	Cc2, CD40, CD44, CD86, ICAM1
miR-34a-5p (and other miRNAs)		mature microRNA	Inhibited	-2.215	bias	5.56E-03	ICAM1, JAG1, KLK4, MCM3, NOTCH2
BNIP3L		other		0.000	bias	5.56E-03	BLNK, Cc2, Cc2A, NFKBIA, PTK2B
bucouline		chemical - endogenous non-ma	Activated	2.191	bias	5.56E-03	GADD45B, HK2, JUN, KLK4, SLC2A3
PRKCE		kinase		1.633	bias	5.61E-03	AMIGO2, BIRC3, CSF3, IL1B, LUS1, JUN
CCL5		cytokine	Activated	2.416	bias	5.61E-03	ALCAM, Cc2, CD40, CD44, HMG1A, IL1B
1-methyl-4-phenyl-1,2,3,6-tetrahydropyridin		chemical toxicant	Activated	2.180	bias	5.61E-03	CASP3, Cc2, HSPB1, IL1B, JUN, SOD2
rotitern		chemical toxicant	Inhibited	-2.415	bias	5.61E-03	AP086C3B, BIRC3, Cc2, CDNA, ICAM1, JUN
Ctbp		group		5.73E-03		5.73E-03	GATA3, JUN, PRRP
IFNW1		cytokine		5.73E-03		5.73E-03	CD40, CD83, CD86
GLIS2		transcription regulator		5.73E-03		5.73E-03	Cc2, IL1B, SERPINE1
SI00B		other		5.73E-03		5.73E-03	Cc2, IL1B, JUN
TAF1		transcription regulator		5.73E-03		5.73E-03	BCL2A1, CDNA2, RUNX2
PLA2G4A		enzyme		5.73E-03		5.73E-03	Cc2, ICAM1, IL1B
CXCL3		cytokine		5.73E-03		5.73E-03	Cc2, ICAM1, IL1B
EGLN3		enzyme		5.73E-03		5.73E-03	Cc2, Hamp/Hamp2, IL

CCAR1		transcription regulator				6.08E-03	CEBPA,CEBPD		
CENB		growth factor				6.08E-03	BMP4,ICAM1		
Cg3		complex				6.08E-03	CD40,CD86	100 (7)	
PXN		other				6.08E-03	KLK3,VCL	136 (7)	
CSRP3		other				6.08E-03	DMD,KRFB		
SDC4	0,444	other				6.08E-03	IL1B,KLF4	104 (7)	
W-54011		chemical reagent				6.08E-03	CD86,IL1B		
PTPRR		phosphatase				6.08E-03	FOSL1,JUN		
PIPSK1B		kinase				6.08E-03	IL1B,PIPSK1C		
FGF18		growth factor				6.08E-03	CSF1,RUNX2		
STX2		transporter				6.08E-03	BMP2,BMP4	130 (7)	
ABCB7		transporter				6.08E-03	FTH1,FTHL	36 (3)	
SERPIND1		other				6.08E-03	Cc2,IL1B	108 (7)	
ferric nitroacetate		chemical toxicant				6.08E-03	ID3,KLF4		
FC09		chemical reagent				6.08E-03	CD40,CD86		
calcium chloride		chemical drug				6.08E-03	ENPP1,ID3	106 (7)	
ferric chloride		chemical toxicant				6.08E-03	FTH1,FTHL		
phenylamyl		chemical reagent				6.08E-03	ID1,RUNX2		
zifenopril		chemical drug				6.08E-03	Cc2,CSF1		
NEAT1c1		transcription regulator				6.08E-03	B3GAT1,CD40,FAS,ICAM1,IL1B,NQO1,PLS3	187 (21)	
lipoxin A4	-1,982	chemical - endogenous mamma				6.35E-03	Cc2,ICAM1,IL1B,SERPINE1	198 (21)	
3-methyladenine	0,334	chemical toxicant				6.35E-03	CD40,CD86,IL1B,RUNX2	187 (21)	
asopironil	-1,000	chemical drug				6.35E-03	CASP3,LAMB3,SPN,XDH		
amiodolone		chemical drug				6.35E-03	HPN,ICAM1,SLC2A3,SOD2		
NCOR2		transcription regulator				6.47E-03	BIRC3,CEBPA,IL1B,JUN,RELB	180 (17)	
SERPINF1	-0,600	other				6.47E-03	BCL2A1,CEBPA,CYBA,NFKBIA,SOD2	208 (20)	
luteolin	0,492	chemical drug				6.47E-03	CASP3,FAS,ICAM1,JUN,SOD2	184 (19)	
EGR2	1,823	transcription regulator				6.54E-03	CAMK4,GATA3,ID3,IL1B,IL7R,JUN,LAG3,LAMA2,ZBTB16	155 (13)	
potassium chloride	1,087	chemical drug				6.58E-03	AMIGO2,CASP3,Cc2,ID3,IL1B,IL1B,JUN	183 (19)	
THRA	0,577	ligand-dependent nuclear recep				6.61E-03	APOA1,BMP4,CAMK4,Cc2,CD44,CEBPA,JUN,SERPINE1	184 (25)	
Pde4		group				6.70E-03	CD14,CD40,ICAM1	129 (12)	
CKSR1		kinase				6.70E-03	CD14,IL1B,SERPINE1	180 (14)	
TNFRSF11B		transmembrane receptor				6.70E-03	BMP2,Cc2,RUNX2	113 (9)	
Ibutinib		chemical drug				6.70E-03	CD44,CD86,FAS	136 (16)	
NT5E		phosphatase				6.70E-03	Cc2,IL1B,SERPINE1	175 (21)	
POCDA		other				6.70E-03	CASP3,IL1B,JUN	199 (18)	
RARRS2		transmembrane receptor				6.70E-03	Cc2,CDNA2,IL1B	61 (4)	
PS-1145		chemical - kinase inhibitor				6.70E-03	ICAM1,NFKBIA,TNFAIP3	109 (12)	
thioridazine		chemical drug				6.70E-03	DEPP1,HPN,SLC2A3		
vitamin K2		chemical drug				6.70E-03	CD14,CSF1,SERPINE1		
magnesium		chemical - endogenous mamma				6.70E-03	BMP4,PTIP42,RUNX2		
CXCL5		cytokine				6.73E-03	CD44,FAS,ICAM1,IL1B,KLK3,NFKBIA	174 (17)	
TGFA		growth factor				6.73E-03	BIRC3,GJB2,GSTP1,ICAM1,LAMC2,SERPINE1	239 (21)	
apigenin	-1,513	chemical - endogenous non-ma				6.73E-03	CASP3,Cc2,ICAM1,IL1B,KLK3,SOD2	146 (16)	
SUZ12	1,000	enzyme				6.90E-03	IRAK3,KLF4,LAMB3,LAMC2,LITAF,MGAT4B,Nes,PLCB4	79 (5)	
L-lysine	2,571	chemical - endogenous mamma	Activated			6.93E-03	CASP3,Cc2,GADD45B,IL1B,JUN,MSL,RUNX2	202 (20)	
Adapt	2,000	group	Activated			6.93E-03	AP0A1,CD14,IL1B,IRAK3,ITGB7,JUN,RUNX2	221 (27)	
MR-1.3p (and other miRNAs w		mature microRNA	Inhibited			6.94E-03	CSR1,LASP1,LRP1,MOV10,NOTCH2,OAT,PREX1,SDCA,SH2D4A,UNC93B1		
MAP2K4	-3,123	kinase				6.96E-03	BIRC3,CD44,CD86,FAS,JUN	194 (18)	
PTK2	-0,371	kinase				6.96E-03	BIRC3,Cc2,KRFB,PTK2B,SERPINE1	136 (7)	
CLC11	2,190	cytokine	Activated			6.96E-03	BMP4,CXCL12,FAS,ICAM1	121 (14)	
thioctic acid		chemical drug				6.96E-03	Cc2,ICAM1,JUN,NQO1,SOD2	139 (16)	
3M-001	1,987	chemical drug				7.01E-03	CD40,CD83,CD86,IL1B	100 (7)	
HSP2		transcription regulator				7.01E-03	Hspa1b,HSPB1,IL1B,JUN		
IL27RA	-1,414	transmembrane receptor				7.01E-03	CD44,CD86,FAS,IL1B	166 (17)	
pentoxifylline	-1,091	chemical drug				7.01E-03	Cc2,ICAM1,IL1B,NFKBIA	173 (18)	
NR12	-0,218	ligand-dependent nuclear recep				7.07E-03	ALAS1,ANG,CEBPA,CYP3A7,GSTP1,Hamp/Hamp2,HMGCS2,JUN,PGD	83 (8)	
FFAR3	1,039	G-protein coupled receptor				7.14E-03	BCL11A,CCR7,GBP6,ICAM1,IL1B,RCN1		
apironolactone	-2,418	chemical drug	Inhibited			7.14E-03	BMP4,CASP3,Cc2,CCR7,ICAM1,IL1B	151 (16)	
SLC2	-0,562	transporter				7.28E-03	CASP3,FAS,GAP43,GZMA,ICAM1,IL1B,NFKBIA	173 (18)	
MR-155-5p (miRNAs w/seed U)		mature microRNA	Inhibited			7.35E-03	AMIGO2,Cc2,IL1B,PLXND1,POLE4,RAB27B,SERPINE1,SLC30A1,TRIP13	146 (12)	
dalfampridine	2,191	chemical drug	Activated			7.48E-03	GADD45B,HK2,JUN,KLF4,SLC2A3	176 (12)	
pravastatin		chemical drug				7.48E-03	CD40,ICAM1,IL1B,RHOA,SDC4	150 (15)	
meformin	-0,500	chemical drug				7.64E-03	BMP2,CASP3,FTH1,GADD45B,NFKBIA,PARP14,RUNX2,SERPINE1,SOD2	176 (15)	
ursolic nitrate	1,912	chemical toxicant				7.64E-03	C21a6,Cc2,Cc2 (includes others),CSR1,ESD,FBP1,FTHL,RACK1		
TGFB2	-0,116	growth factor				7.64E-03	BMP4,CD40,CD86,DOCK4,FAS,JAG1,SERPINE1	209 (19)	
CP-55940		chemical reagent				7.70E-03	CSF1,JUN,NFKBIA,TNFAIP3	86 (7)	
DL4	0,000	other				7.70E-03	GATA3,MCMB,REL,B,IT2		
TIWST2	0,000	transcription regulator				7.70E-03	BCL11A,CD44,IL1B,KLF6		
SUMO3	1,087	other				7.70E-03	CAV2,CXCL16,HMGA1,RNASE4		
tempol	-1,000	chemical drug				7.70E-03	BMP4,ICAM1,SERPINE1,SOD2	171 (18)	
temozolamide	-0,283	chemical drug				7.70E-03	CASP3,FAS,NFKBIA,SOD2	195 (20)	
11,12-epoxyicosatetraenoic acid		chemical - endogenous mamma				7.76E-03	CD44,ICAM1,NFKBIA	100 (9)	
SRNA40		chemical reagent				7.76E-03	CD83,CD86,IL1B	144 (16)	
WLS		other				7.76E-03	BMP4,Cc2,IL36G		
MSR1		transmembrane receptor				7.76E-03	ACOD1,CD40,IL1B	138 (15)	
GDF15	0,675	growth factor				7.76E-03	GDF15,RND3,SERPINE1	153 (9)	
TFAM		transcription regulator				7.76E-03	FABP5,IKK1,IL1B		
HOXD3		transcription regulator				7.76E-03	JUP,SDC1,SERPINE1		
CND3		kinase				7.76E-03	CEBPA,KLK3,MCMB	114 (7)	
IL11RA		transmembrane receptor				7.76E-03	Cc2,Cc8,OLCA1		
TH21		chemical - Kinase inhibitor				7.76E-03	BIRC3,CD2,IGBBE1		
lulizafazine		chemical drug				7.76E-03	ICAM1,IL1B,NFKBIA	193 (21)	
2,4-dinitrofluorobenzene		chemical toxicant				7.76E-03	Cc2,ICAM1,IL1B	117 (7)	
CD28	5,675	transmembrane receptor	Activated			7.76E-03	BCL2A1,CASP3,CD28,CD86,CXCR3,GATA3,GZMA,HK2,HOMER2,IL1B	166 (18)	
3,4,5,3',4'-pentachlorobiphenyl		chemical toxicant				8.01E-03	BMP4,CD44,CYP3A7,GSTP1,JUN,NQO1	122 (10)	
PTGES		chemical drug				8.02E-03	Cc2,CD2,ICAM1,NFKBIA	188 (16)	
chloroquine		enzyme				8.03E-03	Cc2,CXCL14,CYBA,IL1B	137 (7)	
CLOCK	-1,498	chemical drug				8.03E-03	CD40,CD83,CD86,IL1B,RUNX2	190 (20)	
CLCK	-0,239	transcription regulator				8.12E-03	AHNK2,CD86,CEBPA,DTX4,GADD45B,HMGCS2,Hspa1b,ICAM1,IDI1,MAPK4		
EZF1	1,269	transcription regulator				8.16E-03	BMP4,CASP3,CDNA2,CD44,CD9,CEBPA,FAS,HMGA1,Hspa1b,ICAM1	221 (21)	
NR1H4	0,233	ligand-dependent nuclear recep				8.23E-03	AP0A1,Cc2,CEBPA,FABP5,FAS,GSTA3,IL1B,KLF4,SDC1	198 (16)	
nicotinic acetylcholine receptor		complex				8.40E-03	ID1,JUN	137 (7)	
tramadolone hexacetamide		chemical drug				8.40E-03	ICAM1,IL1B		
ANKRD42		transcription regulator				8.40E-03	CSF1,IL1B		
SFRP5		transmembrane receptor				8.40E-03	Cc2,IL1B	96 (7)	
valine		chemical - endogenous mamma				8.40E-03	CD83,SOD2		
iguatimod		chemical drug				8.40E-03	Cc2,CSF3	144 (14)	
Sik		group				8.40E-03	ICAM1,IL1B	196 (24)	
HNRPNR		other				8.40E-03	CaM1,Nes		
TSC2D1		transcription regulator				8.40E-03	IL1B,SERPINE1	103 (10)	
C6		other				8.40E-03	Cc2,IL1B		
CHGA		other				8.40E-03	IL1B,SERPINE2	146 (7)	
ERBIN		other				8.40E-03	Nrg1,SERPINE1		
KLK81		peptidase				8.40E-03	ICAM1,KLF4		
TSPO		transmembrane receptor				8.40E-03	ICAM1,SOD2		
teasapoinin		chemical - endogenous non-ma				8.40E-03	IL1B,NFKBIA		
WNT10B		other				8.40E-03	CEBPA,RUNX2	130 (7)	
PLRA		other				8.40E-03	Cc2,IL1B	82 (7)	
nicotinic		chemical drug				8.40E-03	CASP3,JUN	147 (7)	
thienyltrifluoroacetone		chemical reagent				8.40E-03	BIRC3,SERPINE1	111 (7)	
AR-A014418		chemical reagent				8.40E-03	CD44,GDF15		
6-methylsulfinylhexyl isothioya		chemical reagent				8.40E-03	CSF1,NQO1	45 (3)	
zamalidine		chemical drug				8.40E-03	DEP1,HPN		
7SK		other				8.40E-03	CaM1,Nes		
mandipine		chemical drug				8.40E-03	IL1B,JUN	142 (9)	
polyphosphate		chemical - endogenous mamma				8.40E-03	BMP2,ICAM1		
BAR501		chemical reagent				8.40E-03	Cc2,IL1B		
cyclosporin		biologic drug				8.40E-03	ICAM1,LAMA2		
MR-30c-5p (and other miRNAs)		mature microRNA	Inhibited			8.41E-03	CPNE8,JUN,PTGFRN,PTPRK,RAB27B,RUNX2,SLC12A4		
BMP1A	1,981	kinase				8.45E-03	Hamp/Hamp2,IDI1,JD1,SERPINE1	173 (14)	
TFAP4	-0,762	transcription regulator				8.45E-03	CD44,CDNA2,GDF15,IDI1		
NED03	2,000	other	Activated			8.45E-03	BMP2,GDF15,IRP1,SERPINE1		
popofol	-1,982	chemical drug				8.45E-03	CASP3,CD14,IL1B,SOD2	175 (13)	
IFNL1	2,219	cytokine	Activated			8.47E-03	CCR7,CD40,CD83,MLKL,OASL,SP110	172 (17)	
FGF19		growth factor				8.47E-03	AMY2A,BTG3,FABP5,FBP1,IDI1,Saa3		
ITGB1	1,175	transmembrane receptor				8.53E-03	ADAM10,ICAM1,IL1B,TGAP9,ITGB7,JUN,SERPINE1,TNFAIP2	196 (21)	
PKD1	-1,406	ion channel				8.54E-03	CAVIN1,Cc2,CDNA2,CXCL12,IL1B,IL1B,IL1B,KLK3,MCUB,Nrg1,RUNX2,YAP1	93 (7)	
Smad2/3		group				8.60E-03	AP0A1,GATA3,IDI1,RUNX2,SERPINE1		
miomycin C		chemical drug	Activated			8.60E-03	CASP3,FAS,ITIPRI2L2,JUN,NQO1	188 (18)	
MEID2		transcription regulator				8.91E-03	BMP4,GDF15,POLE4		
ITGAM		transmembrane receptor				8.91E-03	CD83,CD86,IL1B	156 (19)	
ACKR1		G-protein coupled receptor				8.91E-03	ICAM1,IT1B,TNFAIP3		
SOCS6		other				8.91E-03	CEBPB,IL1B,Vmn3	113 (10)	
MSX1		transcription regulator				8.91E-03	BMP2,BMP4,RUNX2		
NLRG5		transcription regulator				8.91E-03	CD40,HLA-A,IL1B	142 (17)	
Z-mecloplacetate		chemical drug				8.91E-03	CD83,ICAM1,IL1B		
alendronic acid		chemical drug				8.91E-03	ENPP1,IDI1,IL1B	91 (7)	
nickel		chemical toxicant				8.91E-03	CD86,ICAM1,SERPINE1	116 (10)	
PIK3R1		kinase				8.95E-03	CD44,CXCL12,ICAM1,IL1B,SERPINE1,SOD2	171 (16)	
MAFB		transcription regulator				8.95E-03	AKR1B10,ALCAM,CD28,CXCL12,IL1B,OLFM2B		
homocysteine	1,370	chemical - endogenous mamma				8.95E-03	AP0A1,Cc2,CXCL12,IDI1,IL1B,Saa3	207 (19)	
ZEB1		transcription regulator				9.20E-03	GATA3,KRT19,LAMC2,SERPINE1,XDH		
PLAUR		transmembrane receptor				9.24E-03	ANG,Cc2,FOSL1,JUN	188 (18)	
ABL1		kinase				9.24E-03	BMP2,CDNA2,CSF1,FAS	204 (21)	
pirogalpine	1,921	chemical drug				9.24E-03	CASP3,GADD45B,ICAM1,SERPINE1	86 (7)	
tetraethylammonium		chemical drug				9.24E-03	EFHD2,FTH1,GSTO1,HSPB1		
prednisolone	-1,554	chemical drug				9.37E-03	BIRC3,CASP3,Cc2,CD86,CEBPB,FAS,GAB1,IL1B,SOD2,TNFAIP3	145 (

NUPR1		transcription regulator		0.688	bias	9.57E-03	AP0REC3B,BUB1,CCNA2,CD68,FCHSD2,GDF15,HK2,KLF4,KLF6,LHFPL2
PP1		chemical - kinase inhibitor		-1.583	bias	1.01E-02	CXCL15,IL1B,JUN,SERPINE1
HOTAIR		other		0.819		1.01E-02	GDF15,ICAM1,LAMB3,LAMC2
LGR4		transmembrane receptor		-1.091	bias	1.01E-02	GD14,HSD17B13,IL1B,OAT
RCE1		peptidase				1.01E-02	Cd2,CXCL12,FLT3,RCN1
SRG		kinase	Activated	2.547	bias	1.01E-02	CAVIN1,CSF3,FOSL1,ICAM1,IDI1,JUN,KLK3
PARPBP		other				1.02E-02	KRT8,TIAMI,TST
CaMKII		complex				1.02E-02	BIRC3,CD44,IL1B
IKK (complex)		complex				1.02E-02	BIRC3,ICAM1,IL1B
SALL4		transcription regulator				1.02E-02	CDM4,CBPBA,KRT19
IgG1		complex				1.02E-02	CD14,CD40,CD86
IL2RA		transmembrane receptor				1.02E-02	CD86,GZMA,JUN
mR-218-5p (and other miRNAs)		mature microRNA				1.02E-02	CASP3,LAMB3,RUNX2
STK4		kinase				1.02E-02	FAS,IL7R,YAP1
ICFBP5		other				1.02E-02	RUNX2,SERPINE1,SFN
PLA2G6		enzyme				1.02E-02	Cd2,MRC1,RUNX2
SFTPD		other				1.02E-02	Cd2,CD14,IL1B
GADD45A		other				1.02E-02	IL1B,JUN,NEK2
CCN2		growth factor				1.02E-02	BMP4,RUNX2,SERPINE1
DYRK1A		kinase				1.02E-02	APC1,MCM3,SERPINE1
ELF5		transcription regulator				1.02E-02	GATA3,KLK3,KRT8
Gm21596/Hmgb1		transcription regulator				1.02E-02	CXCL12,IL1B,IL1RL1
probucol		chemical drug				1.02E-02	BMP2,CYBA,SERPINE1
lysine		chemical - endogenous mamma				1.02E-02	BMP2,BMP4,ICAM1
butanoic propionate		chemical drug		0.000		1.02E-02	CD83,CD86,GADD45B,GJB2,IL1B,ITGB7,OLFM2B,SDC4,SERPINE1
WT1		transcription regulator		0.734		1.03E-02	BCL2A1,CSF1,IL1B,JUP,KLF4,LRP1,PIR,SDC1,SERPINE1,SLC2A3
MMP2		peptidase				1.05E-02	CD8,IL6ST,NFKBIA,PLS3,VCL
gemfibrozil		chemical drug				1.05E-02	Cd2,CXCL12,FAS,FOSL1,IL1B
4-ohmethylbutyric acid		chemical - endogenous mamma		-0.816		1.05E-02	CASP3,Cd2,CXCL12,HLA-A,PADI2,SOD2
TO-901317		chemical reagent		-1.755	bias	1.09E-02	ALAS1,ALDH2,Cd2,FABP5,FBP1,GSTP1,HK2,HMGS2,IL1B,MGLL
Laminin (complex)		complex				1.10E-02	BIRC3,RUNX2,SDC4,SERPINE1
SUMO2		enzyme		1.067		1.10E-02	CAV2,CXCL16,HMGA1,RNA5E4
ATF1		transcription regulator				1.10E-02	FOSL1,IFIT1,JUN,SOD2
SAHM1		chemical reagent	Inhibited	-2.000	bias	1.10E-02	CD44,HK2,IDI1,RHOU
UDP		chemical - endogenous mamma				1.11E-02	Cd2,SERPINE1
L-phenylalanine		chemical - endogenous mamma				1.11E-02	FAS,SOD2
salicosaponin A		chemical reagent				1.11E-02	BMP4,JUN
ganglioside GM3		chemical - endogenous mamma				1.11E-02	CD40,ICAM1
Calcineurin B		group				1.11E-02	B3GAT1,CXCR3
Cyp4a14		enzyme				1.11E-02	Cd2,IL1B
butilast		chemical drug				1.11E-02	IL1B,NCST1
tocogenerin		chemical - endogenous non-mar				1.11E-02	ICAM1,IL1B
GPR84		G-protein coupled receptor				1.11E-02	Cd2,IL1B
GSTK1		enzyme				1.11E-02	Cd2,TMEM173
ADGRF5		G-protein coupled receptor				1.11E-02	Cd2,CSF1
TBP4		growth factor				1.11E-02	BMP4,IDI1
SMAD1/5		group				1.11E-02	IDI1,OD3
IL26		cytokine				1.11E-02	ICAM1,IL1B
ABCC1		transporter				1.11E-02	CYBA,NQO1
PDLM7		other				1.11E-02	BMP2,RUNX2
CD8A	8,241	other				1.11E-02	CASP3,IL1B
SLC25A4		transporter				1.11E-02	BIRC3,SOD2
MAP3K12		kinase				1.11E-02	CASP3,JUN
CAV3		enzyme				1.11E-02	CAV2,DMD
mR-326		microRNA				1.11E-02	NOTCH2,SMO
levetacetam		chemical drug				1.11E-02	GAP43,IL1B
SMN1/SMN2		other				1.11E-02	Cd2,DMD
LPA		other				1.11E-02	ICAM1,SERPINE1
RASSF10		other				1.11E-02	CASP3,JUN
LY86		other				1.11E-02	CD14,CD86
CXCL771		chemical reagent				1.11E-02	CD44,CXCL12
RBCK1		transcription regulator				1.11E-02	ICAM1,TNFAIP3
Plas2os2		other				1.11E-02	Cd2,Saa3
ULBP1		transmembrane receptor				1.11E-02	CD83,HLA-A
influncic acid		chemical drug				1.11E-02	CD83,FAS
NCX-4040		chemical drug				1.11E-02	GSTP1,NQO1
mechlorethamine		chemical drug				1.11E-02	CD40,IL1B
benzoic acid		chemical - endogenous mamma				1.11E-02	CD86,IL1B
SC-58125		chemical drug				1.11E-02	FAS,CDP15
acetic acid		chemical - endogenous mamma				1.11E-02	CASP3,JUN
apidine		biologic drug				1.11E-02	FOSL1,JUN
N,N-dimethylarginine		chemical - endogenous mamma				1.11E-02	ICAM1,SERPINE1
SOC35		phosphatase		-1.887	bias	1.11E-02	Cd2,CD40,CD86,ICAM1,IL1B,JUN
tunicamycin		chemical - endogenous non-mar		1.553	bias	1.11E-02	BIRC3,Cd2,CBP, GADD45B,Hamp/Hamp2,ICAM1,IL1B,KLF4,NFKBIA,Ntg1
12-(3-adamantan-1-ylureido) d		chemical reagent		0.000		1.12E-02	BIRC3,CASP3,CD40,FAS,RIPK2
BSCL2		other				1.12E-02	Cd2,CBPBA,HMGA1,IL1RL1,MGLL
NEUROG1		transcription regulator		-1.342		1.12E-02	AMISQ2,MEST,PPIC,PXDIN,SLC43A3
methotrexate		chemical reagent	Activated	3.360	bias	1.13E-02	CAV2,CAV2,CCNA2,FGFR1,GDF15,HK1,HK2,HOMER2,KLK3,MGLL
NB-Reia		complex				1.15E-02	ICAM1,IL1B,NFKBIA
PDGF-DD		complex				1.15E-02	CASP3,Cd2,TNFRSF12A
MGP		other				1.15E-02	JAG1,Prss1 (includes others),RUNX2
resolvin D2		chemical - endogenous mamma				1.15E-02	Cd2,IL1B,JUN
RNKL		cytokine				1.15E-02	CD40,CD83,CD86
LTB		cytokine				1.15E-02	Cd2,Glycam1,IL1B
hydrochloric acid		chemical - endogenous mamma				1.15E-02	ICAM1,IL1B,JUN
lipoarabinomannan		chemical - endogenous non-mar				1.15E-02	CD14,ICAM1,IL1B
diallyl trisulfide		chemical - endogenous non-mar				1.15E-02	FAS,JUN,NQO1
lomastat		chemical drug				1.15E-02	Cd2,F11R,IL1B
NCOR1		transcription regulator				1.16E-02	CCNA2,CBPBA,HK1,IL1B,KLK3,PDE9A
mR-10		microRNA		-1.166	bias	1.16E-02	BMP,CD40,CD44,CD86,KLF4,SMO
phosphate		chemical - endogenous mamma	Activated	2.449	bias	1.16E-02	BMP2,ENRFP1,FOSL1,HK2,SLC3A2,STC2
LMK2		kinase		2.193	bias	1.17E-02	IL1B,Cd2,Glycam1,ICAM1,IL1B,LYN,Saa3,SDC4
JD1		chemical reagent	Inhibited	-2.213	bias	1.19E-02	BIRC3,Cd2,CCNA2,MCM3,TNFAIP3
ACVR1		kinase				1.19E-02	C1R,Hamp/Hamp2,ICAM1,IDI1
mR-2006-3p (and other miRNA)		mature microRNA		-1.944	bias	1.19E-02	BST1,JAG1,PERP,PTPN13
EED		transcription regulator				1.19E-02	GATA3,KLF4,RUNX2,SCN1
SELPLG		other	Activated	2.000	bias	1.19E-02	BCL2A1,BST1,IL1B,LAG3
CALR		transcription regulator				1.19E-02	Cd2,CBPBA,ICAM1,VCL
GABPA		transcription regulator				1.19E-02	FAS,IL7R,NQO1,RRAS
4-hydroxynonenal		chemical toxicant		1.001	bias	1.19E-02	ICAM1,IL1B,JUN,SERPINE1
N,N-(5-(4-fluorophenyl)acetyl)-L-		chemical - protease inhibitor	Inhibited	-1.195	bias	1.19E-02	CSF1,IL1B,REL,B,NK3
NCOA1		transcription regulator		1.331	bias	1.22E-02	CBPBA,CHD9,GJB2,KLK3,Muc1,NFKBIA,NFKBIZ,SERPINE1
CDX2		transcription regulator		1.032	bias	1.22E-02	CD9,JUN,KLF4,KRT23,LAMC2,Muc1,SCIN,UGT1A7 (includes others)
EPZ7		transcription regulator		0.478	bias	1.22E-02	CAV2,CCNA2,CD9,CXCR3,ID3,MCM3,PLCB4,Rae1d/Rae1e,SERPINE1
HGX49		transcription regulator		1.949	bias	1.22E-02	CD83,F11R,HMGA1,IL7R,JUN,LYN,PRKQ3,SDC4,SERVIN2
FGF8		growth factor		0.747	bias	1.22E-02	BMP2,BMP4,CSF3,LAMB3,RUNX2,TRIP6
CP2A		other		-0.600	bias	1.26E-02	HK2,LASP1,S100A16,SCIN,SERPINE2
mR-29b-3p (and other miRNAs)		mature microRNA	Inhibited	-2.182	bias	1.26E-02	CAV2,KLF4,PPIC,TNFAIP3,Tpm1
TBP		transcription regulator				1.26E-02	BCL2A1,HLA-A,NFKBIA,TNFAIP3,XDH
Wnt1		group				1.29E-02	CDM4,CBPBA,GATA3,RUNX2
ALB		transporter		1.982	bias	1.29E-02	CASP3,Cd2,CYBA,IL1B
RAC2		enzyme				1.29E-02	Cd24a,IL1B,RUNX2,ZYX
TNC		other				1.29E-02	Cd2,CD8A,CXCL12,IL1B
OST		enzyme		-0.928		1.29E-02	DTNA,GAP43,HMGA1,JUN,JUP,NEK2
leukotriene B4		chemical - endogenous mamma				1.30E-02	Cd2,IL1B,JUN
dexamethasone phosphate		chemical drug				1.30E-02	ID3,IL1B,NFKBIA
deoxy corticosterone acetate		chemical drug				1.30E-02	Gald1,CD86,CYBA
Cbp		group				1.30E-02	Cd2,CSF3,IL1B
dapsinad		chemical drug				1.30E-02	IDI1,SERPINE1,TRIP13
GRHL2		transcription regulator				1.30E-02	BMP2,CLDN4,SEMA3B
CD81	0.944	other				1.30E-02	CD86,ICAM1,IDI1
IL36G	6.581	cytokine				1.30E-02	CD83,CSF3,MRC1
Coln1c		other				1.30E-02	CCNA2,MAL,MCM3
AZGP1		transporter				1.30E-02	BMP4,HK2,KRT19
carvedilol		chemical drug				1.30E-02	CYBA,GAP43,IL1B
N2+		chemical reagent				1.30E-02	BIRC3,CSF1,ICAM1
RUNX2		transcription regulator		1.726	bias	1.31E-02	BMP2,CBPBA,CBP, GADD45B,GALNT3,RUNX2,SERPINE1
TEAD1	2.637	transcription regulator	Activated	2.236	bias	1.34E-02	ARID1B,FKBP1,LATS2,NFKBIZ,TRNP1
F3		transmembrane receptor		1.951	bias	1.34E-02	Cd2,DOCK4,ICAM1,IL1B,SERPINE1
uric acid		chemical - endogenous mamma		1.178	bias	1.35E-02	Cd2,CD86,CSF3,ICAM1,IL1B,RELB
sodium bisulfide		chemical reagent		0.152		1.39E-02	CASP3,FAS,ICAM1,SOD2
ZMPSTE24		peptidase		1.964	bias	1.39E-02	Cd8,CXCL14,GADD45B,ICAM1
PPP2CA		phosphatase	Activated	2.000	bias	1.39E-02	Cd2,GZMA,Saa3,UPT1
PRKACA		kinase		1.951	bias	1.39E-02	ALAS1,ANTXR1,ANTXR2,SDC1
dimethylnitrosamine		chemical toxicant				1.39E-02	ICAM1,IL1B,NQO1,SOD2
R51-8220		chemical - kinase inhibitor		-1.987	bias	1.39E-02	ICAM1,IL1B,KLK3,SERPINE1
K1		chemical - endogenous mamma		-1.264	bias	1.39E-02	CASP3,IL1B,JUN,SLC12A4
ganglioside		chemical - endogenous mamma				1.40E-02	Cd2,ICAM1
16,16-dimethylprostaglandin E2		chemical - endogenous mamma				1.40E-02	CD44,IL1B
TEAD		group				1.40E-02	CAV2,CD44
bandoside GD3		chemical - endogenous mamma				1.40E-02	CD40,ICAM1
desoxy corticosterone		chemical - endogenous mamma				1.40E-02	CYBA,SERPINE1
SLC11A1		transporter				1.40E-02	Hamp/Hamp2,SLC11A2
(-)-epicatechin gallate		chemical - endogenous non-mar				1.40E-02	GDF15,RUNX2
APC/APC2		group				1.40E-02	JAG1,JUP
5'-diphospho-2'-guanosine		chemical reagent				1.40E-02	CD86,IL1B
bacterial lipopolysaccharides		chemical - other				1.40E-02	IL1B,Saa3
OLFM4		other				1.40E-02	Cd2,IL1B
FBXO42		other				1.40E-02	CSF1,ICAM1
FAT1		other				1.40E-02	IL1B,JUN

PHF8		enzyme				1.40E-02	ID1, IRAK3
MEMO1		other				1.40E-02	JUN, STC2
STK17A		kinase				1.40E-02	GSTO1, SOD2
nicotiflorin		chemical reagent				1.40E-02	ICAM1, IL1B
UNC5B		transmembrane receptor				1.40E-02	Cd2, YAP1
SERPINE2		other				1.40E-02	CN2A2, CD14
THBD		transmembrane receptor				1.40E-02	Cd2, IL1B
TRG		other				1.40E-02	CAV2, IL1B
DLX1		transcription regulator				1.40E-02	ARX, SERPINE1
CTS2	0.893	peptidase				1.40E-02	CD86, CD86
PTGDR		G-protein coupled receptor				1.40E-02	Cd2, IL1B
HAS2		enzyme				1.40E-02	Cd2, CD44
CDKN2B		transcription regulator				1.40E-02	CD86, SERPINE1
INK4		transcription regulator				1.40E-02	Cd2, NFKBIA
FKBP5		enzyme				1.40E-02	ICAM1, KLK3
USP37		peptidase				1.40E-02	CEBPA, ZBTB16
ST6GAL1		enzyme				1.40E-02	BIRC3, SLC2A3
COCH		other				1.40E-02	Cd2, IL1B
IL22RA1		transmembrane receptor				1.40E-02	Hamp/Hamp2, SOD2
cytochrome monophosphate		chemical - endogenous non-mam				1.40E-02	CSB, IL1B
asbestos		chemical toxicant				1.40E-02	FOSL1, JUN
6-aminocaproamide		chemical reagent				1.40E-02	Cd2, Saa3
sulindac sulfone		chemical - endogenous mamma				1.40E-02	NOO1, PRKG1
bupivacaine		chemical drug				1.40E-02	FOSL1, HPGDS
ketorolac		chemical drug				1.40E-02	Cd2, NFKBIA
SR1078		chemical reagent				1.40E-02	Cd2, PADI2
mR-182 inhibitor		chemical reagent				1.40E-02	CASP3, NFKBIA
2,4-dinitrobenzenesulfonic acid		chemical reagent				1.40E-02	CD86, ICAM1
YBX1		transcription regulator	1.982	bias		1.42E-02	Cd2, ID1, IRF5, KLF4, SLC2A3, STC2
ITGB3		transmembrane receptor	0.200	bias		1.42E-02	CD40, CSF1, IL1B, RUNX2, SERPINE1
CHD7		enzyme				1.45E-02	JAG1, PERP, POLE4
Smad		complex				1.45E-02	ID1, ID3, SERPINE1
BCL2L11		other				1.45E-02	CASP3, Cc2, IL1B
miR-124		microRNA				1.45E-02	CASP3, Cc2, RUNX2
BTG2		transcription regulator				1.45E-02	IL1B, NQO1, SOD2
BAG1		other				1.45E-02	Hspa1b, JUN, KLK3
hemocyanin		biologic drug				1.45E-02	CD14, CD83, CD86
amitriptyline		chemical drug				1.45E-02	DEP1, HPN, SLC2A3
piceatannol		chemical - endogenous non-mam				1.45E-02	FAS, ICAM1, IL1B
camptofol		chemical toxicant				1.45E-02	ICAM1, JUN, RUNX2
rescovitine		chemical drug	-1.954	bias		1.50E-02	CD4, CEBPA, Rael1d/Rael1e, RALA
EGR2		transcription regulator	1.980	bias		1.50E-02	ESD, ID3, JUN, NFKB1
TEAD3		transcription regulator	2.000	bias		1.50E-02	ARID5B, FJX1, NFKB2, TRNP1
ABCA1		transporter	-1.009	bias		1.50E-02	APOA1, Cc2, CSF3, IL1B
N-acetylsphingosine		chemical reagent	1.969	bias		1.50E-02	Cd2, JUN, SERPINE1, SOD2
dopiboprel		chemical drug	-1.342	bias		1.50E-02	ATOH6, BMP, CXCL12, DHRS3, STC2
Ibuprofen		chemical - endogenous mamma	-1.342	bias		1.53E-02	CANX4, CN2A2, CD2, ID1, DAT, PGD, RTN1, SERPINE2, TCEA3
DMD	1.365	other				1.55E-02	BLNK, DMD, FTH1, Marks, PADI2, PTGFRN, SCIN, SERPINE1, SYNC, WWC1
PC-SPES		chemical drug				1.56E-02	CN2A2, CD9, FTL, ID1, IL1B, KLK3
LCK	1.108	kinase				1.59E-02	CN2A2, CD2, GADD45B, JUN, NOTCH2
ID1	1.349	transcription regulator	1.380	bias		1.59E-02	DTX4, GATA3, ICAM1, IFI16, RUNX2
sulindac sulfide		chemical drug	1.460	bias		1.59E-02	ESD, GDF15, KRT19, NQO1, STC2
ADRA1D		G-protein coupled receptor				1.61E-02	CEBP, FABP5, IL6ST, JUN
herbimycin		chemical - kinase inhibitor	-1.118	bias		1.61E-02	ICAM1, IL1B, SERPINE1, SOD2
Sb202190		chemical - kinase inhibitor	-1.980	bias		1.61E-02	Cd2, CD86, ICAM1, IL1B, MAPK6, SERPINE1, XDH
Tms30c1		other				1.61E-02	Cd2, IL1B, PERP
CXCL10		cytokine				1.61E-02	Cd2, CXCR3, IL1B
LTBP1		other				1.61E-02	BMP, GATA3, SERPINE1
FGF5		growth factor				1.61E-02	BMP4, CSF3, RUNX2
HMG2		transcription regulator				1.61E-02	CSF3, IL1B, RUNX2
K-252		chemical - kinase inhibitor				1.61E-02	CD14, JUN, SOD2
geranylgeranyl pyrophosphate		chemical - endogenous mamma				1.61E-02	BMP2, ICAM1, IL1B
Inoic acid		chemical - endogenous mamma				1.61E-02	ICAM1, NFKBIA, SERPINE1
CEBPD	0.429	transcription regulator	0.447	bias		1.63E-02	BCL2L1, Cc2, CD14, CEBPD, IL1B, Saa3
Inoic acid		chemical - endogenous mamma	0.468	bias		1.68E-02	APOA1, Cc2, ICAM1, IL1B, NFKBIA
ATM		kinase				1.68E-02	FAS, GADD45B, JUN, SERPINE1, TNFAIP3
ETS2		transcription regulator	2.236	bias		1.68E-02	BMP4, CSF3, ICAM1, JUN, PLA2G16
TL6-hydroxymethyl-chiro-inositol		chemical - kinase inhibitor				1.73E-02	CXCL1b, GDF15
THO5		other				1.73E-02	APOA1, CEBPA
DPY30		other				1.73E-02	ID1, ID3
ADCY7		enzyme				1.73E-02	IL1RL1, IRAK2
FOXN1		transcription regulator				1.73E-02	GZMA, SERPINE1
SEMA4D		transmembrane receptor				1.73E-02	CD40, RRA3
ITGA4		transmembrane receptor				1.73E-02	IL1B, TNFAIP3
AMBP		transporter				1.73E-02	Cd2, IL1B
SPRY4-IT1		other				1.73E-02	F11R, ZNF703
FRM6		other				1.73E-02	BMP, RASSF4
HLA-G		other				1.73E-02	CD8, FAS
LUM		other				1.73E-02	FAS, IL1B
LY9	2.405	other				1.73E-02	CD81, ZBTB16
lckv1-117		other				1.73E-02	JUN, RELB
Sw		transcription regulator				1.73E-02	IL1B, SOD2
NFKBIE		transcription regulator				1.73E-02	CSF3, ICAM1
PA2G4		transcription regulator				1.73E-02	GDF15, KLK3
HBB		transporter				1.73E-02	ICAM1, SERPINE1
COP1		enzyme				1.73E-02	FAS, ICAM1
S100P		other				1.73E-02	KRT19, KRT8
CYBA	1.652	enzyme				1.73E-02	SERPINE1, SOD2
zileuton		chemical drug				1.73E-02	Cd2, ICAM1
astressin 2B		biologic drug				1.73E-02	Cd2, SLC2A3
polyoxin B		biologic drug				1.73E-02	APOBEC3B, IL1B
S-equol		chemical drug				1.73E-02	CD86, SERPINE1
formononetin		chemical - endogenous non-mam				1.73E-02	BMP2, CD86
lysophosphatidinositol		chemical - endogenous mamma	2.000	bias		1.73E-02	CSF3, ICAM1, IL1B, SOD2
JAK3		kinase				1.78E-02	CSF3, GATA3, IL7, IL13
EP2		transcription regulator				1.78E-02	CN2A2, ID1, MDM3, Rael1d/Rael1e, SERPINE1
PSEN1		peptidase	-0.762	bias		1.78E-02	AMY2A, BASP1, C1R, CASP3, CD9, CTS2, GADD45B, GSTP1, HK1, IL1B
glutamine		chemical - endogenous mamma	1.720	bias		1.79E-02	FABP5, HK1, ICAM1, JUN, KLF4, NFKBIA
tetrodotoxin		chemical drug				1.79E-02	AMIGO2, FAS, ID1
PRKDC		kinase				1.79E-02	BIRC3, ALK3, PRRX1
CTSS		peptidase				1.79E-02	CASP3, FAS, IL1B
miR-23		microRNA				1.79E-02	PTK2B, RUNX2, SOD2
ICOSL/LOC10273996		other				1.79E-02	CD28, IL1B, IL1RL1
PTPR22		phosphatase				1.79E-02	IL1B, LAG3, MRCl
ESRRA		ligand-dependent nuclear recep				1.79E-02	HK2, Hspa1b, POLE4
ozon		chemical toxicant				1.79E-02	Cd2, IL1B, JUN
PML		transcription regulator	-1.066	bias		1.81E-02	APOA1, FAS, FTL, HSPB1, IL1B, JUP, NQO1, TNFAIP3
isoprotorenol		chemical drug	1.860	bias		1.81E-02	ALDH3B1, CSF3, DHRS3, FOSL1, IL1B, JUN, PRKDC, SOD2
GFR2		kinase				1.81E-02	BMP4, FAS, ICAM1, IL1B, MEST, RUNX2, TSPAN8
PA2S1		transcription regulator	2.404	bias		1.84E-02	BIRC3, CEBPA, GADD45B, SERPINE1, SLC11A2, SLC2A3, SOD2, STC2, TNFAIP3, YAP1
SCARB1		transporter	-1.387	bias		1.85E-02	APOA1, CD86, ICAM1, IL1B
ITGA5		transmembrane receptor				1.85E-02	CD40, CD44, IL1B, JUN
RETN		other	1.067	bias		1.85E-02	APOA1, FABP5, ICAM1, SERPINE1
TEAD2		transcription regulator	2.000	bias		1.85E-02	ARID5B, FJX1, NFKB2, TRNP1
ATF4		transcription regulator				1.93E-02	GDF15, JAG1, JUN, KLF4, SOD2, STC2, TNFRSF12A, XDH
STAT4		transcription regulator	2.800	bias		1.94E-02	GATA3, Hspa1b, LRP1, Msa4b (includes others), RCN3, SERPINE1, SLC2A3, STC2, Tgf
N-cor		group				1.95E-02	Cd8, CXCL14, DHRS3, GSTP1, IL1B, IL1B, ZNF703
Mir122a.b		group				1.97E-02	Cd2, CD86, IL1B
CDH11		other				1.97E-02	CD9, JUP, PTK2B
USP7		peptidase				1.97E-02	BMP, KLK3, PDE9A
PLA2R1		transmembrane receptor				1.97E-02	ALDH2, BDH2, SOD2
FABP4		transporter				1.97E-02	Cd2, FABP5, IL1B
CD47		transmembrane receptor				1.97E-02	CSF1, FTL, IL1B
mpiramine		chemical drug				1.97E-02	DEP1, HPN, SLC2A3
BTN2L		transmembrane receptor	1.342	bias		1.97E-02	GJ2, Hspa1b, IL1RL1, SPECC1, XDH
tridamfon		chemical toxicant	1.000	bias		1.98E-02	ALAS1, CYP3A7, GSTA3, TST
fish oils		chemical drug				1.98E-02	APOA1, Cc2, CEBPA, IL1B
SOS1M1		transcription regulator				1.98E-02	IL1B, JUN, NFKBIA, NQO1
CUL3		enzyme	-0.849	bias		1.98E-02	NOO1, PLS3, Prss1 (includes others), TCEA3
ADRA1A		G-protein coupled receptor				1.98E-02	CEBP, FABP5, IL6ST, JUN
FOXO3		transcription regulator	1.597	bias		2.04E-02	ANKK3, BMP2, FABP5, GADD45B, HMGCS2, ICAM1, JAG1, LCP2, NFKBIA, NTM4
9-hydroxy(S)-10,12-octadecadi		chemical - endogenous mamma				2.07E-02	SERPINE1
acetylacetyl coenzyme A		chemical - endogenous mamma				2.07E-02	IL1B
endocannabinoid		chemical - endogenous mamma				2.07E-02	APOA1
GPSM3		other				2.07E-02	IL1B
COMMD5		other				2.07E-02	NOTCH2
rasburicase		biologic drug				2.07E-02	Cd2
BDNF-AS		other				2.07E-02	CASP3
BMP2/4		group				2.07E-02	Hamp/Hamp2
palchad		group				2.07E-02	SMO
IRAK14		group				2.07E-02	IL1B
glutathimide		chemical drug				2.07E-02	ALAS1
G-Actin		group				2.07E-02	JUN
acridine half-mustard		chemical toxicant				2.07E-02	ANTXR2
WSX1-sp130		complex				2.07E-02	GATA3
bovine testicular hyaluronidase		biologic drug				2.07E-02	CD44
PMM2		enzyme				2.07E-02	ICAM1
NLRP2		other				2.07E-02	ICAM1
III bos		other				2.07E-02	IL1B
REL13		enzyme				2.07E-02	IL1B

WFDC1		other			2,07E-02	ICAM1	
CMPK2		kinase			2,07E-02	IL1B	
PPP5K1		phosphatase			2,07E-02	RUNX2	
SV2B		transporter			2,07E-02	SYT1	
SNORD21		other			2,07E-02	HLA-A	
ID22		enzyme			2,07E-02	CD40	
FNDC3B		other			2,07E-02	RUNX2	
CLPX		enzyme			2,07E-02	ALAS1	
DAGLA		enzyme			2,07E-02	IL1B	
UBN1		transcription regulator			2,07E-02	CDNA2	
canakinumab		biologic drug			2,07E-02	IL1B	
DEPDC1		transcription regulator			2,07E-02	TNFAIP3	
SGMS2		enzyme			2,07E-02	APOA1	
MYADM		other			2,07E-02	ICAM1	
MACROD1		enzyme			2,07E-02	NFKBIA	
CDC22		other			2,07E-02	BIRC3	
MLLT11		other			2,07E-02	CD44	
COMMD9		other			2,07E-02	NOTCH2	
KIF26B		other			2,07E-02	NOO1	
CLIC1		ion channel			2,07E-02	IL1B	
TCFL5		transcription regulator			2,07E-02	CD2	
PHF10		other			2,07E-02	CASP3	
DSC2		other			2,07E-02	CD44	
THM123	0,505	other			2,07E-02	CD40	
DPP3		peptidase			2,07E-02	NOO1	
FANK1		transcription regulator			2,07E-02	JUN	
Testosterone-AR dimer		complex			2,07E-02	KLK3	
CEL3R3		G-protein coupled receptor			2,07E-02	Nrg1	
ganaparan		biologic drug			2,07E-02	CASP3	
landutinib		chemical drug			2,07E-02	ID1	
FAS-AS1		other			2,07E-02	FAS	
Os-4503		chemical drug			2,07E-02	CXCL12	
black cohosh extract		chemical drug			2,07E-02	SERPINE1	
GTPase		group			2,07E-02	BMP2	
EIF3		translation regulator			2,07E-02	SERPINE1	
ACBD3		other			2,07E-02	SLC11A2	
PRCC		other			2,07E-02	SERPINE1	
cabazitaxel		chemical drug			2,07E-02	KLK3	
DYNLRB1		other			2,07E-02	SERPINE1	
NFE2L3		transcription regulator			2,07E-02	NOO1	
FGF6		growth factor			2,07E-02	CSF3	
COL6A3		other			2,07E-02	WWC1	
RAB27A		enzyme			2,07E-02	CD44	
MED7		transcription regulator			2,07E-02	TNFAIP3	
LINC00872		other			2,07E-02	LASP1	
SLC22A1		transporter			2,07E-02	ICAM1	
miR-615-5p (and other miRNAs)		mature microRNA			2,07E-02	KRT19	
miR-690 (miRNAs wised AAG)		mature microRNA			2,07E-02	CEBPA	
miR690		microRNA			2,07E-02	CEBPA	
mi-1301		microRNA			2,07E-02	KLK6	
mi-613		microRNA			2,07E-02	RTKN	
AQUAPORIN		group			2,07E-02	IL1B	
CAMK2		group			2,07E-02	BIRC3	
EPST11		other			2,07E-02	NFKBIA	
Raet1d/Raet1e	3,853	other			2,07E-02	HLA-A	
RNF14		transcription regulator			2,07E-02	KLK3	
PLXNB1		transmembrane receptor			2,07E-02	KLK3	
COL4A2		other			2,07E-02	FAS	
AXIN2		other			2,07E-02	BMP4	
FSM1		peptidase			2,07E-02	GSTP1	
RNF7		enzyme			2,07E-02	JUN	
CTNNA1		other			2,07E-02	VCL	
SART3		other			2,07E-02	KLK3	
WED21		transcription regulator			2,07E-02	TNFAIP3	
Uux		enzyme			2,07E-02	IL1B	
B3GAT2		enzyme			2,07E-02	B3GAT1	
PRDM14		transcription regulator			2,07E-02	POLE4	
PPDP		other			2,07E-02	CD44	
UM2		other			2,07E-02	CXCL12	
RPN2		enzyme			2,07E-02	GSTP1	
FAP		peptidase			2,07E-02	Cd2	
VPS4B		transporter			2,07E-02	CASP3	
ZC3H8		transcription regulator			2,07E-02	GATA3	
gustarebin/daubucin		chemical drug			2,07E-02	CEBPA	
GDF10		growth factor			2,07E-02	SERPINE1	
F12		peptidase			2,07E-02	IL1B	
binapant		biologic drug			2,07E-02	MLKL	
quercetin-3-methyl ether		chemical reagent			2,07E-02	IL1B	
quercetin-3,4'-dimethyl ether		chemical reagent			2,07E-02	IL1B	
CDKL2		kinase			2,07E-02	CD44	
SRRM1		other			2,07E-02	CD44	
HIST1H4B		other			2,07E-02	Hsp91b	
inositol free base		chemical reagent			2,07E-02	IL1B	
IGHMBP2		enzyme			2,07E-02	APOA1	
Rhodobacter sphaeroides lipoteichoic acid		chemical - endogenous non-mammalian			2,07E-02	IL1B	
3MA052		chemical drug			2,07E-02	Cd2	
ETP-46464		chemical reagent			2,07E-02	OASL	
ISCU		other			2,07E-02	FTH1	
sintokamide A		chemical reagent			2,07E-02	KLK3	
eriberen		chemical drug			2,07E-02	IL1B	
metaboline		chemical - endogenous mammalian			2,07E-02	NOO1	
1,3-bisphosphoglycerate		chemical - endogenous non-mammalian			2,07E-02	IL1B	
3-hydroxybutyric acid		chemical - endogenous mammalian			2,07E-02	IL1B	
SC-19220		chemical reagent			2,07E-02	ICAM1	
bathophenanthroline		chemical reagent			2,07E-02	GT	
RC31-9790		chemical - protease inhibitor			2,07E-02	GAP43	
AZ10606120		chemical reagent			2,07E-02	CD86	
fluorescein		chemical drug			2,07E-02	CASP3	
1-(3-(1,4-dihydroimidazo[4,5-c]pyridin-2-yl)phenyl)ethanone		chemical - kinase inhibitor			2,07E-02	Cd2	
pentachlorophenol		chemical toxicant			2,07E-02	NOO1	
SM22N		chemical reagent			2,07E-02	CD86	
L18-muramyl dipeptide		chemical reagent			2,07E-02	ACOD1	
anti-miR-32 inhibitor		chemical reagent			2,07E-02	KLK4	
1-methylspemidine		chemical reagent			2,07E-02	AMY2A	
leucyl-leucine-methyl ester		biologic drug			2,07E-02	IL1B	
2-methoxy-5-(2',3',4'-trimethoxyphenyl)acetic acid		chemical reagent			2,07E-02	JUN	
carbon		chemical reagent			2,07E-02	GSTP1	
17S-hydroperoxy-docosahexaenoic acid		chemical - endogenous mammalian			2,07E-02	IL1B	
UMP		chemical - endogenous mammalian			2,07E-02	IL1B	
cladribine		chemical drug			2,07E-02	IL1B	
2'-fucosylactose		chemical - endogenous mammalian			2,07E-02	ICAM1	
P2y Receptor		group			2,07E-02	SLC2A3	
ferric citrate		chemical drug			2,07E-02	FTH1	
tetracycline		chemical drug	Activated	2,000	bias	2,08E-02	VSP1, JAG1, MAL, SERPINE1, SOD2
triploide		chemical drug		-9,277	bias	2,08E-02	CASP3, CXCL12, FAS, ICAM1, JUN
coal tar		chemical drug				2,08E-02	GSTP1, NOO1
METTL3		enzyme				2,08E-02	CD9, SERPINE2
APO1		transporter				2,08E-02	IFNGR2, IL1B
Adaptor protein 1		complex				2,08E-02	CD44, SOD2
T 0070907		chemical reagent				2,08E-02	Cd2, CEBPA
PLCL2		enzyme				2,08E-02	ID1, RUNX2
Angiotensin II		group				2,08E-02	NPR2, SERPINE1
Kaikarin		group				2,08E-02	Cd2, ICAM1
astragaln		chemical - endogenous non-mammalian				2,08E-02	ICAM1, IL1B
Mcp4		peptidase				2,08E-02	Cd2, CLDN4
TXK		kinase				2,08E-02	CD44, ZBTB16
DYRK1B		kinase				2,08E-02	CD2, SOD2
miR-208a-3p (and other miRNAs)		mature microRNA				2,08E-02	CD14, RUNX2
MAFF		transcription regulator				2,08E-02	GSTP1, NOO1
IL17RB		transmembrane receptor				2,08E-02	Cd2, CSF3
VLDR		transporter				2,08E-02	SERPINE1, TNFAIP3
ENTPD1		enzyme				2,08E-02	CD86, SERPINE1
CHRNA3		transmembrane receptor				2,08E-02	CASP3, GATA3
HIST2H3C		other				2,08E-02	IL1B, RND3
sevolunam		chemical drug				2,08E-02	CASP3, IL1B
ferric ammonium citrate		chemical drug				2,08E-02	FTH1, FTI
8-chlorophenylthio-adenosine		chemical - kinase inhibitor		1,982	bias	2,12E-02	BIRC3, CASP3, CEPB, LPIN2
IFN type 1		group		1,969	bias	2,12E-02	Cd2, IFI16, OASL, XDH
EPH4		kinase		1,000	bias	2,12E-02	BMP2, BMP4, GATA3, Nes
IGFBP2		other				2,12E-02	CASP3, CHD9, GDF15, PTGFRN
ARNTL		transcription regulator		0,591	bias	2,12E-02	CEBPA, HMSCS2, IL1B, NOO1
LMNB1		other				2,12E-02	Cd2, CXCL12, FL3, RGN1
benefin A		chemical - endogenous non-mammalian		-0,130		2,12E-02	CD44, GADD45B, HLA-A, KLF4
GRP		growth factor				2,17E-02	CTR2, JUN, KLK3
ACTL6A		other				2,17E-02	CDNA2, FAS, SFN
DL11		enzyme				2,17E-02	CD86, GATA3, JAG1
CHADL		other				2,17E-02	Cd2, FAS, STEAP4
CFLAR		other				2,17E-02	CSF3, GATA3, IL1B
PD 123319		chemical drug				2,17E-02	Cd2, CY8A, SERPINE1
chrysotile asbestos		chemical toxicant				2,17E-02	CLCA1, CTSZ, IL1B

isoxymvalenol		chemical toxicant			2.17E-02	CLDN4, ICAM1, IL1B	
isauric acid		chemical - endogenous mamma			2.17E-02	ICAM1, IL1B, NFKBIA	
GnRH analog		biologic drug	0.577		2.18E-02	ACOT7, BCL2A1, CASP3, CD40, FAS, GAB1, GSTO1, JUN, NFKBIA, PLA2G1B	
GNA12		enzyme	0.447	bias	2.19E-02	GCNA2, GSTA3, GSTP1, LAMB3, VCL	
PAX3		transcription regulator			2.21E-02	BMP4, FLT3, IGF3, IL7R, LAMB3, MSTT, PTPN14, PXDN, SFN	
FOXP3		transcription regulator	0.447	bias	2.21E-02	HLA-A, IGF3, IL1, IL1R1, IL7R, LATS2, TNFAIP3	
SRC (family)		group	1.989	bias	2.26E-02	BMP2, Ccl2, ICAM1, ID1	
RTN4		other			2.26E-02	GAP43, JUN, NQO1, Tpm1	
CCN2		growth factor	1.148	bias	2.31E-02	BCL2A1, CD44, JUN, SDC4, SERPINE1, Tpm1	
RORRA		ligand-dependent nuclear recep	0.000		2.33E-02	APOA1, CCR6, CCR2, CE2PA, CE2PD, CLMN, FABP5, FTL, HMGCS2, IL1B	
elastinrecept		biologic drug			2.37E-02	CD33, ICAM1, IL1B	
LPIN1		phosphatase			2.37E-02	CE2PA, IL1B, LPIN2	
indican		chemical - endogenous mamma			2.37E-02	GATA3, ICAM1, IL1B	
LLGL2		other			2.37E-02	CRMI1, SERPINE1, SH2D4A	
Focal adhesion kinase		group			2.37E-02	ICAM1, KLF3, KR7B	
CASP3	0.801	peptidase			2.37E-02	CAMK4, CASP3, RUNX2	
ROCK1		kinase			2.37E-02	CD44, ICAM1, LAMA2	
PRKC1		kinase			2.37E-02	CLDN4, HK1, HK2	
NG2A4		transcription regulator			2.37E-02	FABP5, JAG1, KLF3	
Isuric acid		chemical - endogenous non-mar			2.37E-02	CASP3, CSF3, IL1B	
R-WIN_55_212		chemical reagent			2.37E-02	CASP3, ICAM1, IL1B	
glyoxylic acid		chemical drug			2.37E-02	APOA1, CASP3, CD40	
barboxolone methyl		chemical drug			2.37E-02	BIRC3, Ccl2, IL1B	
fucosin		chemical reagent			2.37E-02	CASP3, CXCL12, IL1B	
CD5		transmembrane receptor	0.762	bias	2.40E-02	CCR7, CD86, ICAM1, RELB	
ADM		other	-1.067		2.40E-02	Ccl2, ICAM1, IL1B, PRKG1	
phenethyl isothiocyanate		chemical drug			2.40E-02	BUB1, CYP3A7, GSTA3, KRT20, MAPK6, PL33	
budesonide		chemical drug	1.342		2.41E-02	BTG3, Ccl2, CSF3, JUN, PDLIM1	
isocholic acid		chemical - endogenous mamma	-0.277		2.41E-02	APOA1, BME, FAS, RUNX2, SERPINE1	
FOXM1		transcription regulator	Activated	2.582	bias	2.43E-02	CCNA2, CXCL12, CXCR3, JUN, NEK2, Nes, SOD2
halofuginone		chemical drug			2.43E-02	Ccl24a, CD44, CP, HK1, PL, CB4, PTGFRN, PTK2B	
molastinostat		chemical drug			2.47E-02	CASP3, IL1B	
WP1066		chemical drug			2.47E-02	CD86, IL1B	
TCIRG1	1.150	enzyme			2.47E-02	CD44, CD86	
CLEC1B		transmembrane receptor			2.47E-02	CXCL12, LCP2	
RGS2		other			2.47E-02	CEBP2, Vmn3	
ALOX12		enzyme			2.47E-02	FOSL1, JUN	
CST3		other			2.47E-02	IL1B, NFKBIA	
PLTP		enzyme			2.47E-02	APOA1, IL1B	
DD2		other			2.47E-02	NFKBIA, SOD2	
BAP1		peptidase			2.47E-02	Ccl2, MCM3	
ETV6		transcription regulator			2.47E-02	CASP3, ID1	
NUMBL		other			2.47E-02	CASP3, KLF4	
ZBT32		transcription regulator			2.47E-02	CSF2RB, GATA3	
HSPB8		kinase			2.47E-02	BMP4, ICAM1	
RIFK3		kinase			2.47E-02	Ccl2, IL1B	
PAK4		transcription regulator			2.47E-02	ARX, Nes	
AJUBA		transcription regulator			2.47E-02	BUB1, DOCK1	
ITGA3		other			2.47E-02	SERPINE1, VCL	
CDH5		other			2.47E-02	ICAM1, TMM1	
IRF82		transduction regulator			2.47E-02	FTH1, FTL	
ELN		other			2.47E-02	CD86, IL1B	
PLCL1		enzyme			2.47E-02	ID1, RUNX2	
ACO1		enzyme			2.47E-02	FTH1, FTL	
pentylmetetrazel		chemical drug			2.47E-02	IL1B, JUN	
isomifensone		chemical drug			2.47E-02	CD86, KLF3	
D-sphingosine		chemical - endogenous mamma			2.47E-02	Ccl2, SERPINE1	
KT5720		chemical - kinase inhibitor			2.47E-02	NFKBIA, PRKG1	
tin protoporphyrin IX		chemical reagent			2.47E-02	CD86, Hamp/Hamp2	
curcubidin B		chemical - endogenous non-mar			2.47E-02	CASP3, CCR2	
fatty acid		chemical - endogenous mamma	1.519	bias	2.50E-02	APOA1, Ccl2, IL1B, LPIN2, NFKBIA, SERPINE1	
TET2		enzyme	-0.378	bias	2.51E-02	Ccl2, CLEC4D, IFI16, IL1B, PLS3, RND3, ZBTB16	
NR4A1		ligand-dependent nuclear recep	-1.615	bias	2.53E-02	CE2PA, CSF1, CXCL12, FBP1, HK2, ICAM1, IL1B, JUP, KR7B, NFKBIA	
RSO20		chemical reagent	1.969	bias	2.53E-02	BIRC3, CE2PA, LAMC2, NFKBIA, ZBTB16	
CK29		kinase			2.55E-02	ALAS1, NFKBIA, STC2, TNFAIP3	
ZEB2		transcription regulator	-1.000	bias	2.55E-02	GZMA, IL7R, KRT19, Tcf7	
AKT2		kinase			2.55E-02	BUB1, Ccl2, IRAK3, NQO1	
VAV1		transcription regulator			2.59E-02	BCL2A1, JUN, RALA	
IFRD1		other			2.59E-02	CTCS, HK1, LAMA2	
THBS4		other			2.59E-02	Ccl2, CD40, ICAM1	
fluvonamine		chemical drug			2.59E-02	CCR7, HTR7, RACK1	
ERN1		kinase	1.404	bias	2.60E-02	ANG, Ccl2, CE2PD, FAS, IL1B, JUN, TINAGL1	
SPARC		other	-1.353		2.60E-02	CE2PD, CLDN4, NOTO2, PLET1, SERPINE1, SLC34A2	
GAS1		other	1.342	bias	2.65E-02	Hamp/Hamp2, JAG1, JUN, MCM3, NFKBIA	
berberine		chemical drug	0.686	bias	2.71E-02	BIRC3, CASP3, CD40, CD86, ICAM1, IL1B	
alefacept		biologic drug	-1.982	bias	2.71E-02	CD2, CD8A, CYBA, IL7R	
oblimersen		biologic drug	2.000	bias	2.71E-02	CE2PD, GADD45B, IFI16, OASL	
GAT		enzyme	1.087	bias	2.71E-02	BCL2A1, Ccl2, CLG1, SERPINE1	
PLAG1		transcription regulator	0.000	bias	2.71E-02	KRT19, LILRB3, PIR, PPIP	
mi-24		microRNA	-0.404		2.71E-02	CXCR3, GATA3, SERPINE1, Tcf7	
CLEC11A		growth factor			2.71E-02	CXCL12, IL1B, RUNX2, ZYX	
anisomycin		chemical - endogenous non-mar	1.966	bias	2.71E-02	IL1R1, JUN, SDC1, SERPINE1	
SP110	2.929	transcription regulator	-0.378		2.78E-02	BMP4, DMK, PANK1, PEP, RIFK2, TAB3, YAP1	
CARD9		other			2.81E-02	Ccl2, CSF3, IL1B	
IHH		enzyme			2.81E-02	BMP4, RUNX2, SMO	
PRKC2		kinase			2.81E-02	CASP3, JUN, NFKBIA	
BECN1		other			2.81E-02	BME, IL1B, SOD2	
CORT		other			2.81E-02	Ccl2, CCR7, IL1B	
N-3-(aminomethyl)benzylacetate		chemical reagent			2.81E-02	CASP3, FAS, RIFK2	
hymecromone		chemical drug			2.81E-02	CASP3, CD44, FAS	
IFNA1/IFNA13		cytokine	1.131	bias	2.87E-02	CD40, CD83, CD86, IL1B	
IFB3		cytokine	1.982	bias	2.87E-02	CD86, HLA-A, ICAM1, LAG3	
MDG2		other			2.88E-02	BCL2A1, FAS	
FH		enzyme			2.88E-02	LTBP2, NQO1	
CRBN		enzyme			2.88E-02	IL1B, JUN	
humaine		chemical - endogenous non-mar			2.88E-02	BMP7, RUNX2	
SOX5		transcription regulator			2.88E-02	BMP6, RUNX2	
miR-210-3p (mRNAs w/seed U)		mature microRNA			2.88E-02	FGFRL1, RAD52	
mi-127		microRNA			2.88E-02	IL1B, MRC1	
HLA-A	1.061	other			2.88E-02	HLA-A, LAG3	
XRCC5		enzyme			2.88E-02	KLF3, XDH	
CD180		other			2.88E-02	BCL2A1, CD86	
NLR4		other			2.88E-02	CD86, IL1B	
FRS2		other			2.88E-02	BMP4, CD44	
PLA2G2E		enzyme			2.88E-02	IL1B, SERPINE1	
UGCG		enzyme			2.88E-02	CASP3, ICAM1	
PON1		phosphatase			2.88E-02	CD86, ICAM1	
SDC1	1.625	enzyme			2.88E-02	Ccl2, GALNT3	
CRK1		enzyme			2.88E-02	CE2PA, IL1B	
CRK7		kinase			2.88E-02	STC2, TNFAIP3	
DUSP14		phosphatase			2.88E-02	NFKBIZ, Vmn3	
BHLHE41		transcription regulator			2.88E-02	GATA3, HK2	
HSPA1A/HSPA1B		enzyme			2.88E-02	Hspa1b, IL1B	
2'3'-cyclic guanosine monophosphate		chemical - endogenous mamma			2.88E-02	CD86, IL1B	
bisphenol A diglycidyl ether		chemical reagent			2.88E-02	ICAM1, SERPINE1	
RV 538		chemical reagent			2.88E-02	ICAM1, IL1B	
ethylene diaminetetraacetic acid		chemical drug			2.88E-02	BCL2A1, IL1B	
imbotican		chemical drug			2.88E-02	FAS, IL1B	
isatorone		chemical reagent			2.88E-02	CD40, CD86	
cyclomaltoextrin		chemical drug			2.88E-02	CSF3, IL1B	
topiramate		chemical drug			2.88E-02	CASP3, IL1B	
CNR1		G-protein coupled receptor	0.420	bias	2.88E-02	BMP2, BMP4, Ccl2, Ccl8, CORO2A, NOD2, PTK2B	
ZAP70		kinase	1.982	bias	3.04E-02	ALAS1, ANG, CCR7, CYBA	
ELK1		transcription regulator	1.951	bias	3.04E-02	BMP2, FOSL1, JUN, RUNX2	
Pin		other			3.04E-02	APOA1, RACK1, RALA, RRAS	
FBXO32		enzyme	1.109		3.04E-02	IL1B, KRT19, OAT, SOD2, Tcf7	
SMO11		chemical reagent			3.05E-02	CD40, CD83, CD86	
MALAT1		other			3.05E-02	Ccl2, FRMD8, Glyceral	
KEAP1		transcription regulator			3.05E-02	GSTP1, IL1B, NQO1	
PDPK1		kinase			3.05E-02	CCR7, IL1B, SERPINE1	
TMPP1		cytokine			3.05E-02	AGALY, CD40, CD44	
isoleucic acid		chemical - endogenous mamma			3.05E-02	CXCL12, IL1B, MRC1	
batifomycin A1		chemical drug			3.05E-02	CD40, CD8, NFKBIA	
IGFBP3		growth factor	1.709	bias	3.15E-02	ADAM19, GATA3, JUN, LTBP2, SERPINE1, SERPINE2	
Whim		chemical drug	-0.447		3.16E-02	CAMK4, CASP3, FAS, JUN, NCS1	
FBXW7		enzyme	-0.577	bias	3.21E-02	HSPB1, JUN, NQO1, SERPINE1	
POU2AF1		transcription regulator			3.21E-02	BAGALT1, CD86, IGF3, LCK	
cadmium chloride		chemical toxicant			3.21E-02	CXCL12, HSPB1, JUN, KLF3	
Secretase gamma		complex			3.29E-02	BATF, CD83, CD86	
ZEB6		transcription regulator			3.29E-02	CRMI1, UPP1, WWC1	
CHRNA7		transmembrane receptor			3.29E-02	Ccl2, ID1, IL1B	
ANXA2		other			3.29E-02	ANG-FAS, JUN	
DNASE2		enzyme			3.29E-02	CP, Hamp/Hamp2, Mef4a4b, (includes others)	
SELP		transmembrane receptor			3.29E-02	BCL2A1, BST1, IL1B	
PRMT1		enzyme			3.29E-02	FTH1, FTL, MRC1	
ZBTB7B		transcription regulator			3.29E-02	CD8A, GATA3, KLF4	
PLAT		peptidase			3.29E-02	IL1B, JUN, SERPINE1	
TYK2		kinase			3.29E-02	CSF3, Hamp/Hamp2, IL1B	
CDC42		enzyme			3.29E-02	CASP3, CD86, JUN	
MEIS1		transcription regulator			3.29E-02	CHD9, FLT3, RUNX2	

S-nitroso-N-acetylpenicillamine		chemical reagent			3.29E-02	CXCL12,FAS,PRKG1	
glycochenodeoxycholate		chemical - endogenous mamma			3.31E-02	BCL2A1,BIRC3	
MEG3		other			3.31E-02	GDF15,JUN	
Rac		group			3.31E-02	BMP2,CD9	
belnacasan		chemical drug			3.31E-02	Cd2,IL1B	
SGRP1		phosphatase			3.31E-02	IL1B,TGFB	
NFKBID		transcription regulator			3.31E-02	CD86,CD9	
TNFAIP6L2		other			3.31E-02	Cd2,IL1B	
CBS/CBSL		enzyme			3.31E-02	APOA1,CASP3	
TACA		other			3.31E-02	CD86,IL1B	
COX4I1		enzyme			3.31E-02	SLC20A3,SPAN8	
SRSF3		other			3.31E-02	CD44,JUN	
PIAS4		transcription regulator			3.31E-02	IL1B,SERPINE1	
ATXN7		other			3.31E-02	BASP1,Marcks	
CSF3R		transmembrane receptor			3.31E-02	CD14,CXCL12	
ACVR1B		kinase			3.31E-02	KLF4,SERPINE1	
CSAR2		G-protein coupled receptor			3.31E-02	Cd2,CSF3	
NFFF		other			3.31E-02	CEBPA,IDX3	
ST14		peptidase			3.31E-02	ICAM1,IL1B	
eselen		chemical drug			3.31E-02	ICAM1,IL1B	
dlsto-lactacystin beta-lactone		chemical - protease inhibitor			3.31E-02	GSTP1,MAPK6	
N-(3-oxododecanoyl)-homoserine		chemical reagent			3.31E-02	CSF1,IL1B	
dimethyl fumarate		chemical drug			3.31E-02	ICR7,JUN	
polyamines		chemical - other			3.31E-02	CD4,CEBPA	
nickel chloride		chemical toxicant			3.31E-02	IL1B,JUN	
spemine		chemical - endogenous mamma			3.31E-02	IL1B,RUNX2	
anti-benzo(a)pyrene-diol-epoxide		chemical toxicant			3.31E-02	GADD45B,JUN	
bochhanin A		chemical toxicant			3.31E-02	CD86,RUNX2	
nosipagin		chemical drug			3.31E-02	BIRC3,ICAM1	
cyproterone acetate		chemical drug			3.31E-02	GAP43,KLK3	
MAPK3	0,000	kinase	3,32E-02	bias	3,32E-02	B4GAL11,BMP4,CD86,FOSL1,JUN	
HNRNPA2B1		other	3,38E-02		3,38E-02	GP,GDF15,JUP,MEIS1,PLCB4,SEMA3B,SYT1	
5-hydroxytryptamine		chemical - endogenous mamma	1,954	bias	3,39E-02	APBB1P,CAM1,IL1B,PLIN3,RUNX2,SERPINE1	
oxalalatin		chemical drug			3,39E-02	CASP3,FAS,GAP43,GDF15	
ISL1		transcription regulator	1,387		3,47E-02	BMP4,CKKAR,IL1B,LILRB3,PIRT	
NFYA		transcription regulator	2,000	bias	3,47E-02	CCNA2,FTH1,GADD45B,ICAM1,JUN	
MAPK1		kinase	-0,163		3,48E-02	BCL11A,Ce1m4Om7094,GATA3,IFIH1,IL1B,JUN,LAG3,OASL,PRKG1,PTRPK	
USP22		peptidase			3,55E-02	BCL2A1,CSF2RB,MRG1	
SETD2		enzyme			3,55E-02	ANG,JUN,SERPINE1	
ABCG1		transporter			3,55E-02	Cd2,CSF3,IL1B	
PRKCO		kinase			3,55E-02	CDM4,FOSL1,GATA3	
formaldehyde		chemical - endogenous mamma			3,55E-02	FOSL1,IL1B,JUN	
methylvinylsulfonamide		chemical toxicant			3,55E-02	GSTP1,IDI,JUN	
phorbol 12,13-dibutyrate		chemical - endogenous non-mar			3,55E-02	APOA1,Cd2,SERPINE1	
AIRE		transcription regulator			3,58E-02	AKR1B10,BMP2,BMP4,KLK3	
ursolic acid		chemical drug			3,58E-02	CASP3,GDF15,IL1B,SOD2	
SRB5		other			3,62E-02	GADD45B,GAP43,IDI1,IFIH1,ZNRF1	
MAPT		other			3,62E-02	ANXA6,BASP1,C1R,CASP3,GSTP1,HK1,IL1B,JUN,Ptss1 (includes others),SERPINE1	
MAPK4		kinase	Inhibited	-2,449	bias	3,64E-02	ALDH3B1,CEBPA,H6PD,MGLL,PLCB4,ST3GAL4
BDNF		growth factor	1,779	bias	3,64E-02	AC017,BMP2,CASP3,CAV2,GP,FTL,GAP43,JUN,SEMA3E,SOD2	
STAT5B		transcription regulator	0,302		3,70E-02	CD86,CD88,CD95,CD137,CD137L,CD138,CD139,CD139L,CD139L2,CD139L3,CD139L4,CD139L5,CD139L6,CD139L7,CD139L8,CD139L9,CD139L10,CD139L11,CD139L12,CD139L13,CD139L14,CD139L15,CD139L16,CD139L17,CD139L18,CD139L19,CD139L20,CD139L21,CD139L22,CD139L23,CD139L24,CD139L25,CD139L26,CD139L27,CD139L28,CD139L29,CD139L30,CD139L31,CD139L32,CD139L33,CD139L34,CD139L35,CD139L36,CD139L37,CD139L38,CD139L39,CD139L40,CD139L41,CD139L42,CD139L43,CD139L44,CD139L45,CD139L46,CD139L47,CD139L48,CD139L49,CD139L50,CD139L51,CD139L52,CD139L53,CD139L54,CD139L55,CD139L56,CD139L57,CD139L58,CD139L59,CD139L60,CD139L61,CD139L62,CD139L63,CD139L64,CD139L65,CD139L66,CD139L67,CD139L68,CD139L69,CD139L70,CD139L71,CD139L72,CD139L73,CD139L74,CD139L75,CD139L76,CD139L77,CD139L78,CD139L79,CD139L80,CD139L81,CD139L82,CD139L83,CD139L84,CD139L85,CD139L86,CD139L87,CD139L88,CD139L89,CD139L90,CD139L91,CD139L92,CD139L93,CD139L94,CD139L95,CD139L96,CD139L97,CD139L98,CD139L99,CD139L100,CD139L101,CD139L102,CD139L103,CD139L104,CD139L105,CD139L106,CD139L107,CD139L108,CD139L109,CD139L110,CD139L111,CD139L112,CD139L113,CD139L114,CD139L115,CD139L116,CD139L117,CD139L118,CD139L119,CD139L120,CD139L121,CD139L122,CD139L123,CD139L124,CD139L125,CD139L126,CD139L127,CD139L128,CD139L129,CD139L130,CD139L131,CD139L132,CD139L133,CD139L134,CD139L135,CD139L136,CD139L137,CD139L138,CD139L139,CD139L140,CD139L141,CD139L142,CD139L143,CD139L144,CD139L145,CD139L146,CD139L147,CD139L148,CD139L149,CD139L150,CD139L151,CD139L152,CD139L153,CD139L154,CD139L155,CD139L156,CD139L157,CD139L158,CD139L159,CD139L160,CD139L161,CD139L162,CD139L163,CD139L164,CD139L165,CD139L166,CD139L167,CD139L168,CD139L169,CD139L170,CD139L171,CD139L172,CD139L173,CD139L174,CD139L175,CD139L176,CD139L177,CD139L178,CD139L179,CD139L180,CD139L181,CD139L182,CD139L183,CD139L184,CD139L185,CD139L186,CD139L187,CD139L188,CD139L189,CD139L190,CD139L191,CD139L192,CD139L193,CD139L194,CD139L195,CD139L196,CD139L197,CD139L198,CD139L199,CD139L200,CD139L201,CD139L202,CD139L203,CD139L204,CD139L205,CD139L206,CD139L207,CD139L208,CD139L209,CD139L210,CD139L211,CD139L212,CD139L213,CD139L214,CD139L215,CD139L216,CD139L217,CD139L218,CD139L219,CD139L220,CD139L221,CD139L222,CD139L223,CD139L224,CD139L225,CD139L226,CD139L227,CD139L228,CD139L229,CD139L230,CD139L231,CD139L232,CD139L233,CD139L234,CD139L235,CD139L236,CD139L237,CD139L238,CD139L239,CD139L240,CD139L241,CD139L242,CD139L243,CD139L244,CD139L245,CD139L246,CD139L247,CD139L248,CD139L249,CD139L250,CD139L251,CD139L252,CD139L253,CD139L254,CD139L255,CD139L256,CD139L257,CD139L258,CD139L259,CD139L260,CD139L261,CD139L262,CD139L263,CD139L264,CD139L265,CD139L266,CD139L267,CD139L268,CD139L269,CD139L270,CD139L271,CD139L272,CD139L273,CD139L274,CD139L275,CD139L276,CD139L277,CD139L278,CD139L279,CD139L280,CD139L281,CD139L282,CD139L283,CD139L284,CD139L285,CD139L286,CD139L287,CD139L288,CD139L289,CD139L290,CD139L291,CD139L292,CD139L293,CD139L294,CD139L295,CD139L296,CD139L297,CD139L298,CD139L299,CD139L300,CD139L301,CD139L302,CD139L303,CD139L304,CD139L305,CD139L306,CD139L307,CD139L308,CD139L309,CD139L310,CD139L311,CD139L312,CD139L313,CD139L314,CD139L315,CD139L316,CD139L317,CD139L318,CD139L319,CD139L320,CD139L321,CD139L322,CD139L323,CD139L324,CD139L325,CD139L326,CD139L327,CD139L328,CD139L329,CD139L330,CD139L331,CD139L332,CD139L333,CD139L334,CD139L335,CD139L336,CD139L337,CD139L338,CD139L339,CD139L340,CD139L341,CD139L342,CD139L343,CD139L344,CD139L345,CD139L346,CD139L347,CD139L348,CD139L349,CD139L350,CD139L351,CD139L352,CD139L353,CD139L354,CD139L355,CD139L356,CD139L357,CD139L358,CD139L359,CD139L360,CD139L361,CD139L362,CD139L363,CD139L364,CD139L365,CD139L366,CD139L367,CD139L368,CD139L369,CD139L370,CD139L371,CD139L372,CD139L373,CD139L374,CD139L375,CD139L376,CD139L377,CD139L378,CD139L379,CD139L380,CD139L381,CD139L382,CD139L383,CD139L384,CD139L385,CD139L386,CD139L387,CD139L388,CD139L389,CD139L390,CD139L391,CD139L392,CD139L393,CD139L394,CD139L395,CD139L396,CD139L397,CD139L398,CD139L399,CD139L400,CD139L401,CD139L402,CD139L403,CD139L404,CD139L405,CD139L406,CD139L407,CD139L408,CD139L409,CD139L410,CD139L411,CD139L412,CD139L413,CD139L414,CD139L415,CD139L416,CD139L417,CD139L418,CD139L419,CD139L420,CD139L421,CD139L422,CD139L423,CD139L424,CD139L425,CD139L426,CD139L427,CD139L428,CD139L429,CD139L430,CD139L431,CD139L432,CD139L433,CD139L434,CD139L435,CD139L436,CD139L437,CD139L438,CD139L439,CD139L440,CD139L441,CD139L442,CD139L443,CD139L444,CD139L445,CD139L446,CD139L447,CD139L448,CD139L449,CD139L450,CD139L451,CD139L452,CD139L453,CD139L454,CD139L455,CD139L456,CD139L457,CD139L458,CD139L459,CD139L460,CD139L461,CD139L462,CD139L463,CD139L464,CD139L465,CD139L466,CD139L467,CD139L468,CD139L469,CD139L470,CD139L471,CD139L472,CD139L473,CD139L474,CD139L475,CD139L476,CD139L477,CD139L478,CD139L479,CD139L480,CD139L481,CD139L482,CD139L483,CD139L484,CD139L485,CD139L486,CD139L487,CD139L488,CD139L489,CD139L490,CD139L491,CD139L492,CD139L493,CD139L494,CD139L495,CD139L496,CD139L497,CD139L498,CD139L499,CD139L500,CD139L501,CD139L502,CD139L503,CD139L504,CD1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N-acetylcysteine		chemical - endogenous mamma		4,10E-02	IL1B
BORCS-MEF2B		transcription regulator		4,10E-02	JUN
STK38L		kinase		4,10E-02	YAP1
NBR1		other		4,10E-02	GATA3
abiraterone		chemical drug		4,10E-02	KLK3
NOXO1		other		4,10E-02	SOD2
IFI30		enzyme		4,10E-02	HLA-A
SIGLEC11		other		4,10E-02	IL1B
OSTF1		transcription regulator		4,10E-02	RUNX2
FSB		other		4,10E-02	ICAM1
poly-L-glutamic acid-peptoid 1		chemical reagent		4,10E-02	Cd2
cyclo(iso-Asp-GR)-L-LI(LAKLA)		chemical reagent		4,10E-02	CASP3
SLC7A11		transporter		4,10E-02	IL1B
VANGL1		other		4,10E-02	JUN
PLEKHA1		other		4,10E-02	CD86
ING2		transcription regulator		4,10E-02	SERPINE1
RBM3		other		4,10E-02	CD44
MYBPC1		other		4,10E-02	Cd2
CD86		other		4,10E-02	IL1B
PLEKHA2		other		4,10E-02	CD86
PATZ1		transcription regulator		4,10E-02	KLK3
ENC1		peptidase		4,10E-02	NOO1
FOXL1		transcription regulator		4,10E-02	SDC1
DRP2		other		4,10E-02	DM3
FGF5		growth factor		4,10E-02	CSF3
SMC1A		transporter		4,10E-02	POLE4
FRAT1		other		4,10E-02	JUN
14,15-epoxyicososa-5(Z)-enoic a		chemical reagent		4,10E-02	Cd2
IP2B		transporter		4,10E-02	PTK2B
nitrosonifedipine		chemical reagent		4,10E-02	ICAM1
CRTAP		other		4,10E-02	SERPINE1
Acps		phosphatase		4,10E-02	IL1B
SI1		other		4,10E-02	Cd2
APOC1		transporter		4,10E-02	CASP3
CDK11B		kinase		4,10E-02	KLK3
NLRP1		other		4,10E-02	IL1B
RNF11		enzyme		4,10E-02	SERPINE1
CLEC2D		transmembrane receptor		4,10E-02	CD3
COP56		other		4,10E-02	SFN
ZFYVE16		transporter		4,10E-02	SERPINE1
N-acetylcystyllysylcysteine-am		chemical reagent		4,10E-02	XDH
ATB-348		chemical drug		4,10E-02	IL1B
E-c-HMAPP		chemical reagent		4,10E-02	BCL2A1
verticillin A		chemical reagent		4,10E-02	FAS
hydroxyl radical		chemical toxicant		4,10E-02	KLK4
trimellitic anhydride		chemical toxicant		4,10E-02	IL1B
emarsone		chemical drug		4,10E-02	JUN
sarpogrelate		chemical drug		4,10E-02	SERPINE1
meliothepin		chemical drug		4,10E-02	SERPINE1
albutamne		chemical drug		4,10E-02	SERPINE1
2,5-hexamidone		chemical toxicant		4,10E-02	FAS
hexacarpinine-neomycin B conju		chemical reagent		4,10E-02	CD8A
oxazepam		chemical drug		4,10E-02	GADD45B
3,3'-aminodipropionitrile		chemical toxicant		4,10E-02	Cd2
gliclazide		chemical drug		4,10E-02	SLC2A3
chalcone-24		chemical reagent		4,10E-02	BIRC3
trichosanthin		chemical drug		4,10E-02	JAG1
terpenoid		chemical - endogenous mamma		4,10E-02	LRP1
unushiol		chemical - endogenous non-mar		4,10E-02	IL1B
phenol		chemical - endogenous mamma		4,10E-02	IL1B
sodium fluoride		chemical drug		4,10E-02	ICAM1
cation		chemical - other		4,10E-02	GSTP1
echium oil		chemical drug		4,10E-02	IL1B
proscotrol		chemical drug		4,10E-02	ICAM1
ZYYAD-FMK		chemical reagent		4,10E-02	IL1B
verteporfin		chemical drug		4,10E-02	YAP1
KT 5926		chemical - kinase inhibitor		4,10E-02	CD14
aluminum		chemical drug		4,10E-02	RUNX2
typhostin B56		chemical - kinase inhibitor		4,10E-02	ICAM1
ibolone		chemical drug		4,10E-02	SERPINE1
flunisolide		chemical drug		4,10E-02	ICAM1
fluorocitric acid		chemical reagent		4,10E-02	IL1B
1-phenylazocarboxylic acid		chemical - endogenous non-mar		4,10E-02	ICAM1
HXXD10	0,000	transcription regulator		4,17E-02	CD4,ICAM1,NC31,SERPINE1
rotenone	0,832	chemical toxicant		4,17E-02	BIRC3,CASP3,IL1B,SOD2
interferon beta-1a		biologic drug		4,17E-02	GADD45B,GSTP1,LILRB3,MAL,NFKBIA,SERPINE1
CREM	1,131	transcription regulator		4,18E-02	CAMK4,CD86,CD8A,GADD45B,Marcks,ME3T,1pm1
aldosterone	2,578	chemical - endogenous mamma	Activated	4,18E-02	BMP2,Cd2,CYBA,ICAM1,NFKBIA,SERPINE1,ZBTB16
sepolithone B		chemical drug		4,25E-02	FAS,SFN
selumetinib		chemical drug		4,25E-02	JUN,RUNX2
DPH5		enzyme		4,25E-02	IL1B,NFKBIA
NKX		growth factor		4,25E-02	Cd61,Cd2
NUP52		transporter		4,25E-02	PERP,WWC1
LY96		transmembrane receptor		4,25E-02	CD40,CD86
mi-204		microRNA		4,25E-02	IL1B,RUNX2
FCGR1A		transmembrane receptor		4,25E-02	CSF3,IL1B
HDA3		transcription regulator		4,25E-02	CEBPA,JUN
STIM1		ion channel		4,25E-02	GSTO1,NOO1
10-nitrooleate		chemical - endogenous mamma		4,25E-02	Cd2,ICAM1
CR2		transmembrane receptor		4,25E-02	FAS,IL1B
BCL10		transcription regulator		4,25E-02	CD44,TNFAIP3
CNR2		G-protein coupled receptor		4,25E-02	Cd2,IL1B
Cux1		transcription regulator		4,25E-02	Cd8,CD8A
101.10 peptide		chemical reagent		4,25E-02	Cd2,IL1B
3-aminobenzamide		chemical toxicant		4,25E-02	ICAM1,IL1B
2-acetylaminofluorene		chemical toxicant		4,25E-02	JAG1,NOTCH2
allyl sulfide		chemical drug		4,25E-02	CASP3,GSTA3
concanamycin A		chemical drug		4,25E-02	ICAM1,NFKBIA
mevastatin		chemical drug		4,25E-02	BMP4,KLF4
indole		chemical - endogenous mamma		4,25E-02	CGN,TJF3
bismethyl pyrophosphate		chemical - endogenous mamma		4,25E-02	ICAM1,SERPINE1
tetrandrine		chemical drug		4,25E-02	CASP3,JUN
REST		transcription regulator	-1,400 bias	4,30E-02	B3GAT1,CEBPA,CXCL12,GAP43,Nes,OAT,SYT1
arsenic trioxide		chemical drug	1,672	4,34E-02	BCL2A1,CD44,FAS,FTTH,MAPK4,MAPK6,MC3M,NFKBIA,NOO1,PIR
CDX4A		kinase	-0,116 bias	4,37E-02	BMP2,CASP3,CNN2,FAS,IL1B,JAG1,MC3M,SERPINE1,SOD2
fasagiline		chemical drug		4,37E-02	FAS,Marcks,RACK1
NSD2	0,462	enzyme		4,37E-02	ITGB7,JUN,RRAS
KRT14		other		4,37E-02	CXCL14,GJB2,KRT8
APR-246		chemical drug		4,37E-02	CD81,GADD45B,VCL
GDEC		other		4,37E-02	Cd2,SDC1,SERPINE1
ethylene glycol tetraacetic acid		chemical reagent		4,37E-02	BIRC3,CD3,CD86
NR4A3		ligand-dependent nuclear recept		4,37E-02	BIRC3,CEBPA,FBP1,NOO1
PLN		transporter		4,37E-02	APOA1,RACK1,RALA,RRAS
25-hydroxycholesterol		chemical reagent	1,000	4,37E-02	FOSL1,IL1B,JUN,NFKBIA
ATF2		transcription regulator	1,969 bias	4,42E-02	BCL2A1,CNN2,IL1RL1,JUN,SOD2
LIFE		enzyme		4,46E-02	CEBPA,CP,IL1RL1,JUP,RUNX2,SDC4
BMI1		transcription regulator		4,59E-02	FAS,HK2,MC3M,SFN
FOLR1		transporter		4,59E-02	BASP1,BIRC3,CD3,CLCA1,ST3GAL4
KLF3		transcription regulator	-1,155 bias	4,59E-02	ALDH3B1,ANKK6,ARHGEP3,GSTP1,ITGB7,LILRB3,NEURL3,PARP3,PDLIM1,PTP4A2
pegphenolone carbonitrile		chemical drug		4,67E-02	ALAS1,HMGCS2,UGT1A7 (includes others)
INPP5D		phosphatase		4,67E-02	CD86,FAS,IRAK3
ATP7B		transporter		4,67E-02	CP,FABP5,TRIP13
SERPINE2	1,374	other		4,67E-02	Cd2,Cd8,IL1B
JAG2		growth factor		4,67E-02	BMP2,IL1B,JAG1
cyclopamine		chemical reagent		4,67E-02	CD14,FAS,SMO
RORC		ligand-dependent nuclear recept		4,69E-02	CD28,GADD45B,GSTP1,IL1B,LPIN2,SLC2A3,ZBTB16
3-deoxy-2-octulosonic acid(2)4		chemical - endogenous non-mar		4,75E-02	Cd2,IL1B
p27 ^{cAMP}		chemical - kinase inhibitor		4,75E-02	JUN,PRK1
Sod		group		4,75E-02	Cd2,ICAM1
trilosan		chemical drug		4,75E-02	JUN,NOO1
Angiotensin II receptor type 1		group		4,75E-02	GAP43,SERPINE1
ZC3H4		other		4,75E-02	BATF,Vmn3
PPP1R1B		phosphatase		4,75E-02	CASP3,CD44
SMYD3		enzyme		4,75E-02	CEBPD,NEURL1
HSPB1	1,504	other		4,75E-02	Cd2,IL1B
UCP2		transporter		4,75E-02	HK2,IL1B
TNFRSF21		transmembrane receptor		4,75E-02	CASP3,CD28
INHBB		growth factor		4,75E-02	Hamp/Hamp2,SERPINE1
PHB2		transcription regulator		4,75E-02	BMP2,IL6ST
IL-17I dimer		complex		4,75E-02	CSF3,IL1B
PAH1P1		enzyme		4,75E-02	CEBPD,Vmn3
PSMB8		peptidase		4,75E-02	NFKBIA,TNFAIP3
LBP		transporter		4,75E-02	CD14,IL1B
mi-515		microRNA		4,75E-02	CD44,SERPINE1
mi-7		microRNA		4,75E-02	KLF4,SLC2A3
LAMA5		other		4,75E-02	Cd2,CSF3
KLF10		transcription regulator		4,75E-02	GATA3,SERPINE1
DDX17		enzyme		4,75E-02	FOSL1,JUN
Mir200		group		4,75E-02	JUN,LRP1
CCAT2		other		4,75E-02	CASP3,LATS2

GAB1	1.515	other				4.75E-02	CASP3,IL1B
C5		other				4.75E-02	Cd2,IL1B
batimastat		chemical - protease inhibitor				4.75E-02	ANG,SDC4
cefenine		chemical drug				4.75E-02	Cd2,IL1B
pyruvaldehyde		chemical - endogenous mamma				4.75E-02	ICAM1,NQO1
Bombesin		chemical - endogenous mamma				4.75E-02	KLK3,ZB1B16
SMAD2		transcription regulator		-0.317	bias	4.77E-02	CRISPLD2,GADD45B,Hamp/Hamp2,RUNX2,SERPINE1
CD3E		transmembrane receptor				4.81E-02	FAS,JUN,LCP2,NFKBIA
SGK1		kinase	Activated	2.000	bias	4.81E-02	CEBPA,SLC2A3,SLC34A2,SMO
sildenafil		chemical drug				4.81E-02	CCNA2,IL1B,NQO1,SERPINE1
INS		other		1.432		4.82E-02	APQA1,Cc2,FADS3,FAS,FOSL1,ICAM1,JUN
cocaine		chemical drug	Activated	2.415	bias	4.85E-02	Cc2,FOSL1,GADD45B,ICAM1,JUN,LAMC2,MEST,Tpm1
PXR ligand-PXR-Retinoic acid-4		complex				4.97E-02	ALAS1,CYP3A7,UGT1A7 (includes others)
FOXO1		transcription regulator				4.97E-02	DML,GAP43,JUN
progesterol		chemical drug				4.97E-02	HK2,ICAM1,NFKBIA
miR-124-3p (and other mRNAs)		mature microRNA	Inhibited	-2.978	bias	5.00E-02	B4GALT1,BTG3,Cc2,CDC47,CEBPA,F11R,JAG1,LITAF,TSC22D4
NR3C2		ligand-dependent nuclear recep		1.954		5.89E-02	BCL2A1,BMP4,Cc2,ICAM1,IL1B,SERPINE1
DNMT3A		enzyme	Inhibited	-2.000		2.09E-01	BLNK,IRF5,PLCB4,SDC4,Tcf7