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► **To cite this version:**

Lorenzo Fabbri, Ronan Garlantezec, Karine Audouze, Mariona Bustamante, Ángel Carracedo, et al.. Childhood exposure to non-persistent endocrine disrupting chemicals and multi-omic profiles: A panel study. *Environment International*, 2023, 173, 10.1016/j.envint.2023.107856 . hal-04059072

HAL Id: hal-04059072

<https://hal.science/hal-04059072v1>

Submitted on 5 Apr 2023

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Some of these biological signatures point towards the potential biological effects of OP pesticide and phthalate metabolites on the nervous system

Childhood exposure to non-persistent endocrine disrupting chemicals and multi-omic profiles: a panel study

Lorenzo Fabbri^{a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s}
 Ronan Garlantézec^c Karine Audouze^d Mariona Bustamante^{e, a, b, f} Ángel Carracedo^{g, h} Leda Chatzi^j Juan Ramón González^{h, j, f} Regina Gražulevičienė^k Barbara Heude^l Hector Keun^m Chung-Ho E Lau^{n, o} Eduard Sabido^{e, b} Alexandros P Siskos^m Rémy Slama^p Cathrine Thomsen^q John Wright^r Wen Lun Yuan^{l, s} Maribel Casas^{a, b, f} Martine Vrijheid^{a, b, f} Léa Maitre^{a, b, f}

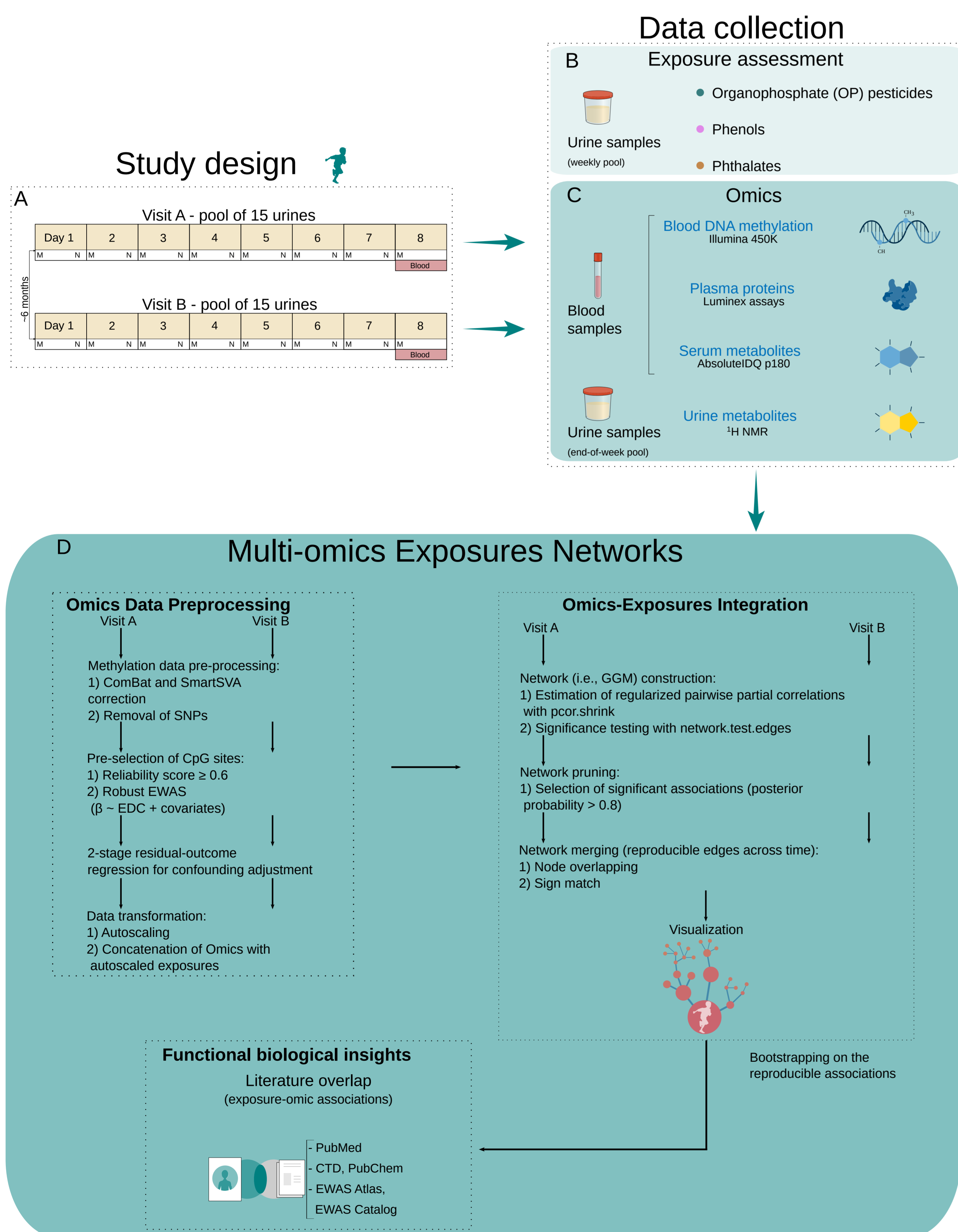
^a Barcelona Institute for Global Health (ISGlobal), Barcelona, Spain
^b Universitat Pompeu Fabra (UPF), Barcelona, Spain
^c Univ Rennes, CHU Rennes, Inserm, EHESP, Irset (Institut de recherche en santé environnement et travail), UMR_S 1085, Rennes, France
^d Université Paris Cité, T3S, INSERM UMR-S 1124, 45 rue des Saints Pères, Paris, France
^e Center for Genomic Regulation (CRG), Barcelona Institute of Science and Technology (BIST), Barcelona, Spain
^f CIBER Epidemiología y Salud Pública (CIBERESP), Madrid, Spain
^g Medicine Genomics Group, Centro de Investigación Biomédica en Red Enfermedades Raras (CIBERER), University of Santiago de Compostela, CEGEN-PRB3, Santiago de Compostela, Spain
^h Galician Foundation of Genomic Medicine, Instituto de Investigación Sanitaria de Santiago de Compostela (IDIS), Servicio Gallego de Salud (SERGAS), Santiago de Compostela, Spain
ⁱ Department of Preventive Medicine, Keck School of Medicine, University of Southern California, Los Angeles, USA
^j Department of Mathematics, Universitat Autònoma de Barcelona, Bellaterra, Spain
^k Department of Environmental Sciences, Vytautas Magnus University, Kaunas, Lithuania
^l Université de Paris, Centre for Research in Epidemiology and Statistics (CREDES), INSERM, INRAE, Paris, France
^m Cancer Metabolism & Systems Toxicology Group, Division of Cancer, Department of Surgery and Cancer & Division of Systems Medicine, Department of Metabolism, Digestion & Reproduction, Imperial College London, Hammersmith Hospital Campus, London, UK
ⁿ MRC Centre for Environment and Health, School of Public Health, Imperial College London, London, UK
^o Division of Systems Medicine, Department of Metabolism, Digestion & Reproduction, Imperial College, South Kensington, London, UK
^p Team of Environmental Epidemiology applied to Reproduction and Respiratory Health, Institute for Advanced Biosciences (IAB), Inserm, CNRS, Université Grenoble Alpes, Grenoble, France
^q Department of Environmental Health, Norwegian Institute of Public Health, Oslo, Norway
^r Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Bradford, UK
^s Singapore Institute for Clinical Sciences (SICS), Agency for Science, Technology, and Research (A*STAR), Singapore, Singapore

Background & Objectives

- Individuals are exposed to multiple environmental pollutants with endocrine disrupting activity (endocrine disruptors, EDCs)
- Few studies have integrated biomarkers of exposure to EDCs and multi-omics
- We aimed to identify multi-omic signatures associated with childhood exposure to non-persistent EDCs using a network approach

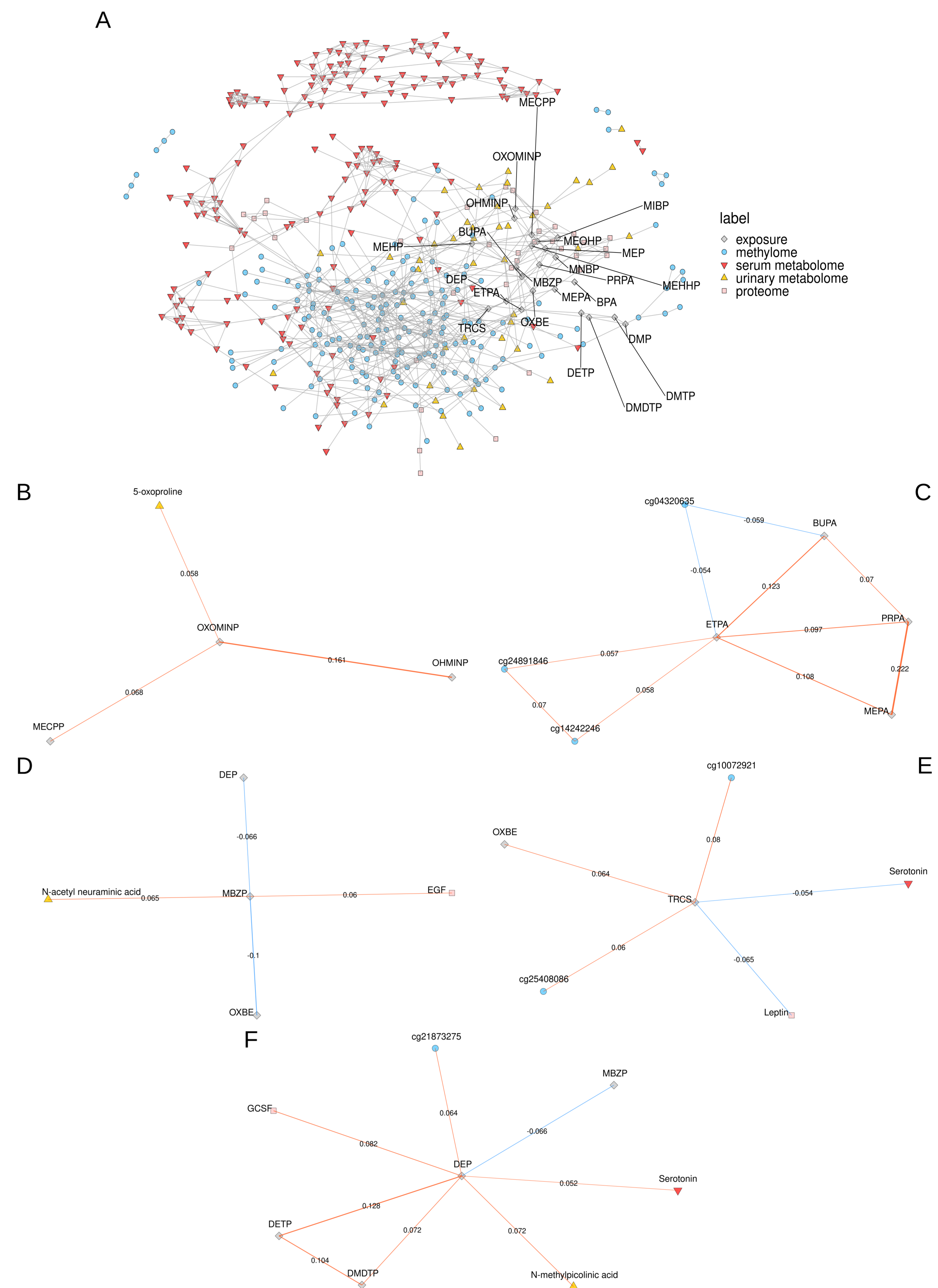
Methods

- Data: HELIX (Human Early-Life Exposome) Child Panel Study ($N_A = 140$, $N_B = 143$)



Results

Merged network: reproducible associations across visits



- The process of network merging led to the exclusion of a significant number of edges, maintaining 950 edges compared to 4,083 and 4,908 in networks A and B, respectively

Chemical class	Compound	Omic layer	Omic feature	Median pcor	Literature review
OP pesticides	DEP	Serum metabolome	Serotonin	0.052	Exposure to pesticides and changes in the serotonergic system ^[1-3]
Phenols	TRCS	Serum metabolome	Serotonin	-0.055	Association between personal care products and serotonin ^[4]
Phthalates	oh-MiNP	Serum metabolome	Kynurenine	-0.056	Mediating effect of quinolic acid on exposure to phthalates and neurological disorders ^[5]
Phenols	TRCS	Proteome	Leptin	-0.066	Effect of mixtures of phenols and parabens ^[6]

Conclusions

- We employed an integrative method to investigate reproducible associations between non-persistent EDCs and multi-omic profiles in a child cohort
- Strengths: repeated pooled samples of urines; quantifiable measurements of the metabolome
- Limitations: relatively small sample size; residual confounding
- Some of these biological signatures point towards the potential biological effects of OP pesticides and phthalates on the nervous system

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