

Supplemental Table and figure legends

Target	Clone	Company	Isotope	Localization
CD326 (EpCAM)	9C4	Biologend	141Pr	Cell-surface
CD19	H1B19	Biologend	142Nd	Cell-surface
HLA-DR	10.1	Biologend	143Nd	Cell-surface
CD16	B73.1	Biologend	145Nd	Cell-surface
CD64	L243	Biologend	146Nd	Cell-surface
CD11c	3.9	Biologend	147Sm	Cell-surface
CD33	WM53	Biologend	148Nd	Cell-surface
CD209	9E9A8	Biologend	149Sm	Intracellular
CD14	M5E2	Biologend	150Nd	Cell-surface
CD123 (IL-3R)	6H6	Biologend	151Eu	Cell-surface
CD21	Bu32	Biologend	152Sm	Cell-surface
CD192 (CCR2)	K036C2	Biologend	153Eu	Cell-surface
CD163	GHI/61	Biologend	154Sm	Cell-surface
CD36	5-271	Biologend	155Gd	Cell-surface
CD86	IT2.2	Biologend	156Gd	Cell-surface
CD169	7-239	Biologend	158Gd	Cell-surface
CD274 (PD-L1)	29E.2A3	Biologend	159Tb	Cell-surface
CD106	EPR5047	abcam	161Dy	Intracellular
CD3	UCHT1	Biologend	162Dy	Cell-surface
CD49a	TS2/7	Biologend	163Dy	Cell-surface
CD80	2D10	Biologend	165Ho	Cell-surface
CD1a	HI149	Biologend	167Er	Cell-surface
CX3CR1	2A9-1	Biologend	168Er	Cell-surface
CD32	FUN-2	Biologend	169Tm	Cell-surface
CD54	HA58	Biologend	170Er	Cell-surface

CD195 (CCR5)	J418F1	Biologend	171Yb	Cell-surface
CD206 (MMR)	15-2	Biologend	172Yb	Cell-surface
S100A9	A15105J	Biologend	173Yb	Intracellular
CD45RA	HI100	Biologend	174Yb	Cell-surface
CD172a (SIRPa)	15-414	Biologend	175Lu	Cell-surface
CD68	Y1/82A	Biologend	176Yb	Intracellular
CD11b (Mac-1)	ICRF44	Fluidigm	209Bi	Cell-surface
CD45	HI30	Fluidigm	89Y	Cell-surface

Supplemental table 1: cytof panel used detailing the antibody clones used, the provider and the metal association

Supplemental legends

Supplemental Figure 1:

A: viSNE illustrating lineage marker expression (from left to right: CD45, CD19, HLA-DR, CD36, CD3) supporting immune cell population discrimination. **B**: Dotplots displaying frequencies of myeloid (**left**), T cells (**middle**) and B cells (**right**) among peripheral blood mononuclear cells from HC or MS patients, blue symbols illustrate patients corresponding to MS w CD206^{hi} CD209^{hi} Mo.

Supplemental Figure 2:

A: Pie chart illustrating HC, MS patients wo CD206^{hi} CD209^{hi} Mo and MS patients w CD206^{hi} CD209^{hi} Mo myelocytic profile as defined through the identified myeloid clusters. Subsets median frequencies are represented for each donor groups **B**: Bubble plot figuring markers expression level (blue scale) and the proportion of cells expressing the related marker within the cluster (dot size).

Supplemental Figure 3:

A: Dotplot figuring cMo among myeloid blood circulating cells in HC donors and in MS patients wo CD206^{hi} CD209^{hi} Mo and MS patients w CD206^{hi} CD209^{hi} Mo. **B**: Boxplots illustrating sIL2RA, IL-15, CXCL10, CCL2, CCL20, CXCL12 plasmatic concentration in HC, MS patients with CD206^{hi} CD209^{hi} Mo and MS patients without CD206^{hi} CD209^{hi} Mo. Mann-Whitney test was done to assess significance. **C**: Graphical representation of CD206^{hi} CD209^{hi} Mo frequencies among myeloid circulating cells associated to donors age at sampling in HC (green diamonds, correlation coefficient: $r=-0.05$, $p=0,82$) and both MS groups: enriched (MS w CD206^{hi} CD209^{hi} Mo, red squares, correlation coefficient: $r=-0.09$, $p=0,76$) and unenriched (MS wo CD206^{hi} CD209^{hi} Mo, blue circles, correlation coefficient: $r=-0.07$, $p=0,64$).

Supplemental Figure 4:

Dotplot illustrating plasmatic neurofilament light chain patients' content according to their CD206^{hi} CD209^{hi} Mo cells frequency. Concentrations are in pg/mL and Mann-Whitney test was done to assess significance.

Supplemental Figure 5:

UMAPs figuring events coexpressing *DC-SIGN* (CD209) and *MRC1* (CD206) (**red dots**) in CSF and peripheral blood of each patient.