

Cyto2018 Highlight: Phenotyping DCs using 30 markers.



Antigen presenting cells (APC) are key players in shaping immunity. However, studies often focus on understanding the heterogeneity of adaptive immune response particularly during inflammatory responses at the expense of APCs and other innate immune cells.

Florian Mair presented his work at Cyto2018 about the utility of 30-parameter flow cytometry for tissue-specific immune phenotyping. Part of his talk briefly focused on the development of a 28-colour dendritic cells (DCs) immunophenotyping panel.

[Mair et al.](#), aimed to develop a 28-colour panel that specifically focused on understanding heterogeneity of DCs in one experiment. Researchers used 15 markers reported to be relevant for defining DCs function during inflammatory disorders. These markers include co-stimulatory molecules (CD40, CD80, CD86), low affinity FC-receptors (CD16, CD32), chemokine receptors (CCR7, CXCR3), scavenger receptor CD163, complement receptor CD11b, CD85k, BTLA*, CD26, CD38 and CD172. DCs were identified within the CD3-CD14-CD19-CD56- cell population. Plasmacytoid DCs (pDCs) were defined as CD123+ and non-pDCs referred to as classical DCs (cDCs) were CD11c+HLA-DR+. cDCs were further characterised into CD141+ (cDC1), CD1c+ (cDC2) and CD141-CD1c- (DN cDCs). Mair et al., observed

differential expression of the functional markers in the different DC subsets of interest. Notably, pDCs did not express co-stimulatory molecules (CD40, CD80), whereas cDC1, cDC2 and DN cDCs expressed variable levels of these markers. Overall expression patterns observed by cDC1 and DN cDCs were similar, when compared to cDC2s.

The article highlighted demonstrates the first 28-colour DC phenotyping panel that has been used to investigate the heterogeneity of the myeloid population using human peripheral blood samples. The data presented here is a valuable resource for future studies on the myeloid cell population, and guide others on which markers would be ideal for their experiments.

*BTLA: B and T cell attenuator

Mair et al. 2018. [OMIP-044: 28-Color Immunophenotyping of the Human Dendritic Cell Compartment](#). Cytometry Part A.

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