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**Defining dendritic cells by ontogeny**

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## Abstract

Mononuclear phagocytes sample the environment for signs of damage or infection. The classification of these cells as macrophages or dendritic cells (DC) has traditionally been done on the basis of differences in cell morphology, expression of specific markers or of select functional attributes. However, these attributes are not absolute and often overlap, leading to difficulties in cell type identification. To circumvent these issues, we have generated a model to define DC based on their ontogenetic descendence from a committed precursor. We show that in mice precursors of conventional DC but not other leukocytes are marked by expression of DNGR-1/CLEC9A. We generated a mouse model to genetically label Clec9a-expressing conventional DC precursors and their progeny with yellow fluorescent protein (YFP). Genetic labeling of these cells and their progeny specifically traces cells traditionally ascribed to the DC lineage and the restriction is maintained after infection. Notably, in some tissues cells previously thought monocytes/macrophages are in fact descendants from DC precursors. These studies provide the first *in vivo* model for lineage tracing of DC and allow the definition of DC based on ontogenetic rather than phenotypic, morphological or functional criteria. These studies establish DC as an independent immune lineage and distinguish them from other leukocytes, thus paving the way to unraveling the functional complexity of the mononuclear phagocyte system.

## Biography

Barbara U Schraml has completed her PhD at Washington University in St. Louis and her Post-doctoral studies in the laboratory of Caetano Reis e Sousa at the London Research Institute. She has been an independent Emmy-Noether Research group leader since 2014. Her group at the Walter-Brendel-Centre for Experimental Medicine of the Ludwig Maximilians University Munich focuses on understanding tissue specific immune responses.