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Identification of new DC progenitors with prominent pDC differentiation potential

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Abstract

DCs are originated from hematopoietic stem cells (HSCs) in the bone marrow (BM) via intermediate progenitors. The intermediate sequential progenitors are classified on the basis of their chemokine and cytokine receptor expression and *in vivo* DC differentiation ability. Fms-like tyrosine kinase receptor-3 (Flt3) has a nonredundant role in the steady-state differentiation and maintenance of pDCs and cDCs *in vivo*. Mice deficient for Flt3 or Flt3-ligand (Flt3L) are poor in cDCs and pDCs *in vivo*, and the recently identified macrophage and DC progenitors (MDPs) and common DC progenitors (CDPs) express Flt3 on their cell surface. MDPs produce macrophages, and, through CDPs, cDCs and pDCs, whereas CDPs give rise exclusively to cDCs and pDCs. Notably, both MDPs and CDPs give rise to many fewer pDCs than cDCs, implying that pDC progenitors remain to be identified. In this context, we have recently identified new DC-committed progenitors with prominent pDC differentiation potential, and our findings revise the current understanding of DC differentiation pathways.