Comparative transcriptional and functional profiling defines conserved programs of intestinal DC differentiation in humans and mice - DTU Orbit (08/04/2018)

Comparative transcriptional and functional profiling defines conserved programs of intestinal DC differentiation in humans and mice

Dendritic cells (DCs) that orchestrate mucosal immunity have been studied in mice. Here we characterized human gut DC populations and defined their relationship to previously studied human and mouse DCs. CD103(+)Sirp alpha(-) DCs were related to human blood CD141(+) DCs and to mouse intestinal CD103(+)/CD11b(-) DCs and expressed markers of cross-presenting DCs. CD103(+)Sirp alpha(+) DCs aligned with human blood CD1c(+) DCs and mouse intestinal CD103(+)/CD11b(+) DCs and supported the induction of regulatory T cells. Both CD103(+) DC subsets induced the T(H)17 subset of helper T cells, while CD103-Sirp alpha(+) DCs induced the T(H)17 subset of helper T cells. Comparative analysis of transcriptomes revealed conserved transcriptional programs among CD103(+) DC subsets and identified a selective role for the transcriptional repressors Bcl-6 and Blimp-1 in the specification of CD103(+)/CD11b(-) DCs and intestinal CD103(+)/CD11b(+)) DCs, respectively. Our results highlight evolutionarily conserved and divergent programming of intestinal DCs.

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