GP2 is selectively expressed by small intestinal CD103⁺CD11b⁺ cDC

The functionality of tissue cDC is regulated, at least in part, by the signals these cells receive within their local environment. For example, we and others, have demonstrated that murine small intestinal but not colonic cDC are imprinted with an ability to generate the Vitamin A metabolite, retinoic acid, and thus an enhanced capacity to drive the generation of small intestinal homing T cells. Here we demonstrate that Glycoprotein 2 (GP2), a GPI-anchored protein previously shown to be selectively expressed by M-cells and to act as a receptor for type 1 fimbriated bacteria, is expressed by a large proportion of IRF4-dependent cDC in the small intestine but not in other tissues. While surface expression of GP2 by small intestinal CD103⁺CD11b⁺ cDC was independent of lymphocytes and MyD88 signaling, administration of broad spectrum antibiotics increased the proportion of GP2⁺CD103⁺CD11b⁺ cDC in the small intestine. Moreover, GP2 expressing cDC in the small intestine were dramatically reduced in the setting of intestinal inflammation. We have previously shown that mice with an IRF4 deletion in CD11c⁺ cells (Cd11c-cre.Irf4⁻/⁻ mice) have reduced numbers of small intestinal CD103⁺CD11b⁺ cDC. Interestingly, we found that GP2⁺CD103⁺CD11b⁺ cDC were dramatically reduced in these mice. Finally, to address the in vivo role of GP2 expression by cDC, we have generated mice with a selective deletion of GP2 in CD103⁺CD11b⁺ cDC (huLangerin-cre.gp2⁻/⁻ mice). Results from these ongoing studies will be presented.