MvW: Role of DC subpopulations for Yersinia entry into the lamina propria of the small intestine and subsequent dissemination

Ye was shown to invade through M cells of the Peyer's Patches (PP), via binding to β1-integrins, and may eventually disseminate to the lymph nodes, spleen, lung, and liver(**see Figure 1**). Using mice lacking PP it was shown, that (1) villous M cells exist in the small intestine, which serve as a gateway for the sampling of *Y. pseudotuberculosis, Salmonella,* and*E.coli*and that (2) *Y. speudotuberculosis* is able to disseminate into the spleen independently of PP. This dissemination could be mediated by $CD103^+$ DCs after entry of Ye into the lamina propria via villous Mcells. Further, CX_3CR1^+ DCs in the lamina propria of the small intestine expressing tight junction protein offer another possible antigen uptake site. Thus, intestinal DCs are capable of extending dendrites to the lumen side by opening the tight junction and sample *Salmonella*. However, the exact mechanism for Ye entry and dissemination independently of PP requires further elucidation. Therefore, we want to dissect the role of DC subpopulations for Ye entry into the lamina propria of the small intestine and subsequent dissemination. This will be achieved by using a variety of transgenic and knock out mice and analysing (1) interaction and phagocytosis of Ye with/by DCs, (2) dissemination of Ye in PP, MLNs and spleen and (3) mouse survival.

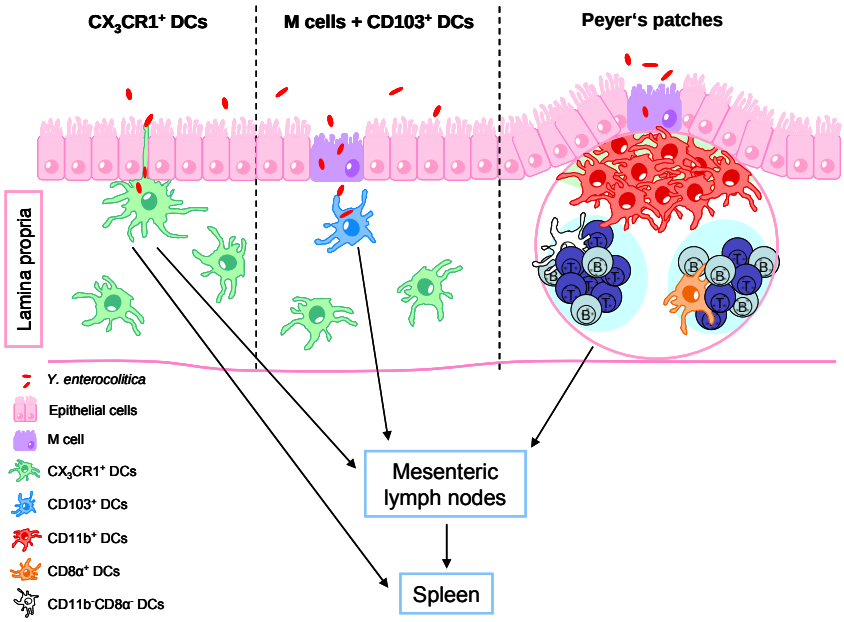

Figure. 1: Possible entry and dissemination routes for Ye.