

Analysis of Toll-Like Receptor Expression in *Xenopus laevis* Macrophage Subsets

Docter-Loeb, Hannah

Macrophages (Mφs) of the amphibian *Xenopus laevis* are morphologically and functionally distinct; depending on whether they are differentiated by the colony stimulating-factor-1 (CSF-1) or interleukin-34 (IL-34) growth factors. Notably, while CSF-1 Mφs are highly susceptible to the Frog Virus 3 (FV3) ranavirus (etiological contributor to the amphibian declines), IL-34 macrophages exhibit potent anti-FV3 capacities. We hypothesized that these Mφs-FV3 susceptibility differences could be due to a difference in the gene expression of toll-like receptors (TLRs), a family of pathogenic pattern recognition receptors. Accordingly, we isolated RNA from control and FV3-challenged CSF-1 and IL-34 Mφs, converted this RNA into cDNA and, using quantitative polymerase chain reaction (qPCR) examined the gene expression of TLRs 2, 3, 4, and 7 in these cells. Our results indicated that IL-34 Mφs express higher levels of all examined TLRs compared to CSF-1 Mφs. More importantly, the IL-34 Mφs specifically increased their expression of antiviral TLRs (3 & 7) in response to FV3.