

**P041** The Type I Interferon and Cytokine response of plasmacytoid and myeloid dendritic cells in response to resiquimod.  
**Charlatis N.<sup>1,2</sup>, Morley P.<sup>1</sup>, Fearon D.<sup>2</sup> and Schoenemeyer A.<sup>1</sup>**

*<sup>1</sup>GlaxoSmithKline, Department of Virology, Gunnels Wood Road, SG1 2NY <sup>2</sup>Professor of Immunology, University of Cambridge, Hills Road, Cambridge CB2 2QH*

Engagement of TLR7 with its ligand, initiates a signalling cascade that ultimately results in the activation of the transcription factors NF $\kappa$ B and interferon regulatory factors (IRFs) 5 and 7 that mediate the activation of many cytokines including type I Interferons (IFNs). Type I IFNs comprise 13 different subsets of IFN- $\alpha$  and IFN- $\beta$ . Plasmacytoid dendritic cells (pDCs) that specifically express TLR7 are the main source of type I IFNs in human blood. Here, we precisely characterised the IFN response in pDCs and in myeloid DCs (mDCs). We showed by real time PCR that pDCs following TLR7 activation induce all the IFNA subtypes and IFNB whereas mDCs induce only some IFNA genes and IFNB at very low levels. Subsequently, IFN- $\alpha$  and IFN- $\beta$  were only detected in the cell culture supernatant of pDCs but not mDCs. The analysis of 23 further cytokines by Luminex technology revealed that both pDCs and mDCs induce IL-1RA, IL-1b, IL-2R, IL-6, IL-12, MIP-1 $\alpha$ , MIP-1 $\beta$ , TNF- $\alpha$ , and MCP1 but mDCs induce these cytokines at much higher levels. In addition, mDCs but not pDCs can induce IL-10, MIG and Rantes. IP-10 can only be produced by pDCs.