

CD200R family members represent novel DAP12-associated activating receptors on basophils and mast cells

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Modulation by balancing activating and inhibitory receptors constitutes an important mechanism for regulating lymphocyte and myeloid cell effector responses. Using a microarray screen during parasitic helminth infection, we identified CD200 receptor-like 3 (CD200R3) as a transcript highly expressed in basophils. Novel splice variants were present that generated proteins which differed in surface expression. The second immunoglobulin-like domain, encoded by exon 4, was required for cell surface expression and recruitment of DAP12 to the cell surface. Splice variants also generated unique cytoplasmic domains, which contributed to efficient pairing with DAP12. Despite expression on basophils and mast cells, integral components of allergic immunity, the absence of DAP12 did not alter effector cell recruitment or the host response elicited by helminth infection with *Nippostrongylus brasiliensis*.