

Assessing the role of serial engagement in mast cell signaling

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A single multivalent ligand bound to a cell surface can serially engage multiple receptors before dissociating. We present results that allow us to estimate the number of receptors such a ligand can serially engage and the rate at which this engagement occurs. We then use a detailed model of the early events triggered by bivalent ligands that aggregate receptors (FcεRI) on mast cells to simulate signaling induced by ligands that serially engage receptors at different rates. We use the results of the simulations to assess the role of serial engagement in mast cell signaling.