Lectin-like transcript-1 (LLT1) is a ligand for the inhibitory human NKR-P1A receptor[1]

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Abstract

Increasingly, roles are emerging for C-type lectin-like receptors in immune regulation. One receptor whose function has remained largely enigmatic is human NKR-P1A (CD161), present on NK cells and subsets of T cells. Here we demonstrate that the Lectin-like Transcript-1 (LLT1, also named OCIL) is a physiologic ligand for NKR-P1A. LLT1-containing liposomes directly bind to NKR-P1A$^+$ cells, and binding is inhibited in the presence of anti-NKR-P1A mAb. Additionally, we show that LLT1 specifically activates NFAT-GFP reporter cells expressing a CD3ζ-NKR-P1A chimeric receptor; reciprocally, reporter cells with a CD3ζ-LLT1 chimeric receptor are stimulated by NKR-P1A. Moreover, our data indicate that LLT1 on target cells can inhibit NK cytotoxicity via interactions with NKR-P1A.