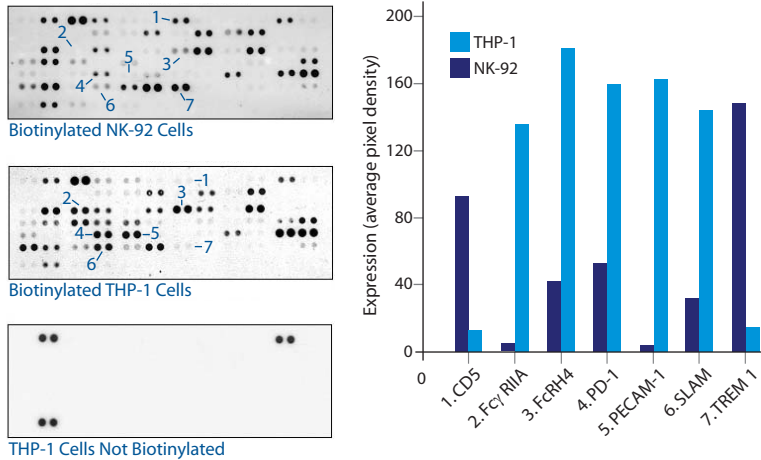


# ITIM/ITAM Immunoreceptors

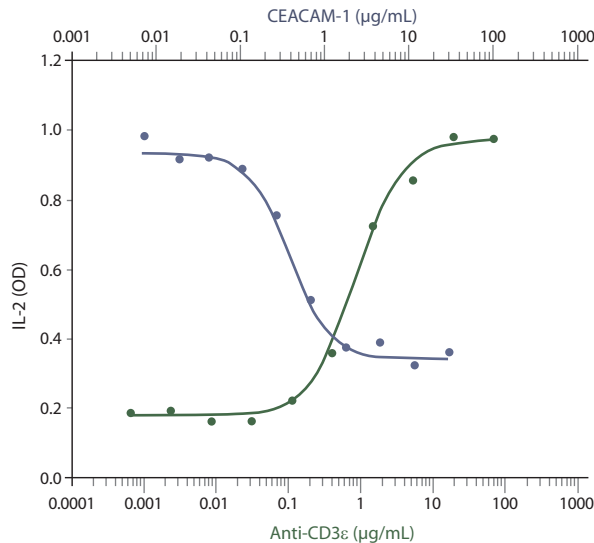
ITAMs (immunoreceptor tyrosine-based activation motif; consensus sequence YxxI/Lx<sub>6-12</sub>YxxI/L) and ITIMs (immunoreceptor tyrosine-based inhibition motif; S/I/V/LxYxxI/V/L) are phosphorylation motifs found in a large number of receptors or adaptor proteins. Phosphorylated ITAMs serve as docking sites for tandem SH2 domains of Syk family kinases, whereas phosphorylated ITIMs recruit tyrosine phosphatases. Signaling through ITAM-bearing receptors usually results in cell activation, while engagement of ITIM-bearing receptors is usually inhibitory, although exceptions have been described. The majority of these receptors are involved in tumor development and regulation of the immune system, although some also function in tissues such as bone and brain.

## Profiling of ITAM/ITIM-associated Receptors



**Figure 1.** R&D Systems Proteome Profiler™ Phospho-Immunoreceptor Array Kit (Catalog # ARY004) is a multifunctional tool to simultaneously measure the relative phosphorylation of 59 ITAM/ITIM-associated immunoreceptors, or to obtain a total immunoreceptor profile using lysates prepared from cell surface-biotinylated cells. In the experiment above, cell surface proteins were biotinylated on the cell lines NK-92 (human NK cells) and THP-1 (human monocytic cells). Arrays with capture antibodies spotted in duplicate were incubated with the lysates and the levels of bound immunoreceptors were assessed with streptavidin-HRP and chemiluminescence detection. The numbered arrows and the accompanying histogram highlight several proteins exhibiting differential expression. The bottom array was incubated with THP-1 lysates without prior cell surface protein biotinylation and only positive control spots are seen.

## CEACAM-1 Suppresses IL-2 Production



**Figure 2.** HuT-78 cells (human T cell line) were cultured in microplates coated with R&D Systems anti-human CD3ε monoclonal antibody (Catalog # MAB100), or anti-CD3ε and R&D Systems recombinant human CEACAM-1 (Catalog # 2244-CM). Anti-CD3ε alone stimulates a dose-dependent increase in the levels of IL-2 in the culture supernatant as measured using R&D Systems Quantikine Human IL-2 ELISA Kit (Catalog # D2050; green line). The stimulatory effect of anti-CD3ε (10 μg/mL) is inhibited by increasing concentrations of recombinant CEACAM-1 (purple line).

ITIM/ITAM Immunoreceptor-related Products		
MOLECULE	ANTIBODIES	PROTEINS
2B4/SLAMF4/CD224*	H M	H M
BLAME/SLAMF8*	H	
BTLA*	H M	
CD3ε*	H M	
CD5*	H M	
CD6*	H M	H M
CD28*	H M	H M
CD72	M	
CD84/SLAMF5*	H	H
CD155/PVR	H	H
CD200 R1	H M	H
CD229/SLAMF3*	H M	
CEACAM-1/CD66a*	H	H
CLEC-1*, 2	H	
CRACC/SLAMF7*	H	
CTLA-4*	H M	H M
DCAR	H	
DCIR/CLEC4A*	H M	
Dectin-1/CLEC7A*	H M	H
DNAM-1*	H	H
Fcγ Family*	Please see our website for a detailed product listing	
Fcε RII*/CD23	H	H
FcRH1*, 2*, 4*, 5*	H	
FCAR/CD89		H
ILT/LIR Family*	Please see our website for a detailed product listing	
Integrin β <sub>3</sub> /CD61*	H	
KIR/CD158	H	
KIR2DL1, KIR2DL3	H	
KIR2DL4/CD158d*	H	H
KIR2DS4	H	
KIR3DL1	H	
KIR3DL2, KIR3DS1		H
LAIR1*, LAIR2*	H	
LMIR Family*	Please see our website for a detailed product listing	
MDL-1/CLECSA*	H M	
MICL/CLEC12A	H M	
NKp30, NKp44*	H	H
NKp46/NCR1*	H M	H M
NKp80/KLRF1*	H	
NTB-A/SLAMF6*	H M	
PD-1*	H M	H M
PECAM-1/CD31*	H M	H M P
Siglec Family*	Please see our website for a detailed product listing	
SIRPβ1	H	
SLAM*	H	
TREM Family*	Please see our website for a detailed product listing	

\* ITAM/ITIM-associated receptors included in the Human Phospho-Immunoreceptor Array (Catalog # ARY004).

Key: H Human M Mouse P Porcine