CD (cluster of differentiation) molecules are cell surface markers useful for the identification and characterization of leukocytes. The CD nomenclature was developed and is maintained through the HLDA (Human Leukocyte Differentiation Antigens) workshop started in 1982. The goal is to provide standardization of monoclonal antibodies to human antigens across laboratories. To characterize or "workshop" the antibodies, multiple laboratories carry out blind analyses of antibodies. These results independently validate antibody specificity.

While the CD nomenclature has been developed for use with human antigens, it is applied to corresponding mouse antigens as well as antigens from other species. However, the mouse and other species antibodies are not tested by HLDA.

Human CD markers were reviewed by the HLDA. New CD markers were established at the HLDA9 meeting held in Barcelona in 2010. For additional information and CD markers please visit [www.hcdm.org](http://www.hcdm.org).

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Key Markers - Human</th>
<th>Key Markers - Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T Cell</strong></td>
<td>CD3</td>
<td>CD3</td>
</tr>
<tr>
<td></td>
<td>CD4</td>
<td>CD4</td>
</tr>
<tr>
<td></td>
<td>CD8</td>
<td>CD8</td>
</tr>
<tr>
<td><strong>B Cell</strong></td>
<td>CD19</td>
<td>CD45R/B220</td>
</tr>
<tr>
<td></td>
<td>CD20</td>
<td>CD19, CD22 (B cell activation marker)</td>
</tr>
<tr>
<td><strong>Dendritic Cell</strong></td>
<td>CD11c</td>
<td>CD11c</td>
</tr>
<tr>
<td></td>
<td>CD123</td>
<td>CD123</td>
</tr>
<tr>
<td><strong>NK Cell</strong></td>
<td>CD56</td>
<td>CD335 (NKp46)</td>
</tr>
<tr>
<td><strong>Stem Cell/Precursor</strong></td>
<td>CD34 (hematopoetic stem cell only)</td>
<td>CD34 (hematopoetic stem cell only)</td>
</tr>
<tr>
<td><strong>Macrophage/Monocyte</strong></td>
<td>CD14</td>
<td>CD11b/Mac-1, Ly-71 (F4/80)</td>
</tr>
<tr>
<td></td>
<td>CD33</td>
<td></td>
</tr>
<tr>
<td><strong>Granulocyte</strong></td>
<td>CD66b</td>
<td>CD66b, Gr-1/Ly6G, Ly6C</td>
</tr>
<tr>
<td><strong>Platelet</strong></td>
<td>CD41</td>
<td>CD41, CD61 (Integrin β3), CD62 (activated platelets)</td>
</tr>
<tr>
<td></td>
<td>CD61</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CD62</td>
<td></td>
</tr>
<tr>
<td><strong>Erythrocyte</strong></td>
<td>CD235a</td>
<td>CD235a, Ter-119</td>
</tr>
<tr>
<td><strong>Endothelial Cell</strong></td>
<td>CD146</td>
<td>CD146 MECA-32, CD106, CD31, CD62E (activated endothelial cells)</td>
</tr>
<tr>
<td><strong>Epithelial Cell</strong></td>
<td>CD236</td>
<td>CD326 (EPCAM1)</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
</tr>
<tr>
<td>------</td>
<td>-----------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>CD1a</td>
<td>R4, T6</td>
<td>β-2-Microglobulin, CD74</td>
</tr>
<tr>
<td>CD1b</td>
<td>R1, T6</td>
<td>β-2-Microglobulin</td>
</tr>
<tr>
<td>CD1c</td>
<td>M241, R7, T6</td>
<td>β-2-Microglobulin</td>
</tr>
<tr>
<td>CD1d</td>
<td>R3G1</td>
<td>β-2-Microglobulin, MHC II</td>
</tr>
<tr>
<td>CD1e</td>
<td>cr2</td>
<td>β-2-Microglobulin</td>
</tr>
<tr>
<td>CD2</td>
<td>E-rosette R, Erythrocyte R, T11, LFA-2</td>
<td>CD58, CD48, CD59, CD15, LFA-3</td>
</tr>
<tr>
<td>CD3</td>
<td>T3</td>
<td>TCR</td>
</tr>
<tr>
<td>CD3d</td>
<td>δ Polypeptide (IT3 complex)</td>
<td>TCR</td>
</tr>
<tr>
<td>CD3e</td>
<td>T3e</td>
<td>TCR</td>
</tr>
<tr>
<td>CD3g</td>
<td>T3G</td>
<td>TCR</td>
</tr>
<tr>
<td>CD4</td>
<td>L3T4, W3/25, T4</td>
<td>MHC Class II, gp120, IL-16, Lck</td>
</tr>
<tr>
<td>CD5</td>
<td>T1, Tp67, Leu-1, Ly-1</td>
<td>CD72, BCR, gp35-37, ZAP-70, TCR, CD21</td>
</tr>
<tr>
<td>CD6</td>
<td>T12, TP120</td>
<td>gp40, gp90, CD166 (ALCAM)</td>
</tr>
<tr>
<td>CD7</td>
<td>gp40, TP41</td>
<td>PI3-Kinase</td>
</tr>
<tr>
<td>CD8a</td>
<td>Leu2, T8, Lyt2, 3</td>
<td>MHC1, Lck</td>
</tr>
<tr>
<td>CD8b</td>
<td>Leu2, Lyt3</td>
<td>MHC1, Lck</td>
</tr>
<tr>
<td>CD9</td>
<td>p24, DRAP-1, MR-1</td>
<td>CD63, CD81, CD82, CD41/CD61, HLA-DR, Integlin β1, PI4-Kinase</td>
</tr>
<tr>
<td>CD10</td>
<td>CALLA, NEP, gp100, EC 3.4.24.11, MME</td>
<td>−</td>
</tr>
<tr>
<td>CD11a</td>
<td>LFA-1α, Integlin αL</td>
<td>ICAM-1, 2, 3, 4, CD18</td>
</tr>
<tr>
<td>CD11b</td>
<td>Integrin αM, CR3, Mo1, C3nIR, Mac-1</td>
<td>iC3b, Fibrinogen, ICAM-1, 2, Factor X</td>
</tr>
<tr>
<td>CD11c</td>
<td>Integlin αX, p150,95, AKB2, CR4</td>
<td>iC3b, Fibrinogen, ICAM-1, 4</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive* − Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>DC Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precur</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD11d</td>
<td>Integrin αd, ITGAD, AD82</td>
<td>ICAM3, VCAM1</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May play an important role in atherosclerotic processes such as clearing of lipoproteins.</td>
</tr>
<tr>
<td>CDw12</td>
<td>p90-120</td>
<td>-</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unknown</td>
</tr>
<tr>
<td>CD13</td>
<td>ANPEP, Aminopeptidase N, AAP, APM, LAP1, P150, PEPN, APN, gp150, EC 3.4.11.2</td>
<td>NGR, HNF1A, DNAK, NAALADL1, MEP1B, VCP, Corona virus Receptor</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>Aminopeptidase</td>
</tr>
<tr>
<td>CD14</td>
<td>LPS-Receptor</td>
<td>Endotoxin, Lipopolysaccharide (LPS), TLR4, LBP, LY96, TLR2</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mediates the innate immune response to bacterial lipopolysaccharide (LPS).</td>
</tr>
<tr>
<td>CD15</td>
<td>X-Hapten, Lewis X, SSEA-1, 3-FAL, FUT4</td>
<td>Selectins</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, granulocyte activation</td>
</tr>
<tr>
<td>CD16</td>
<td>FCRIIIα, CD16a</td>
<td>IgG Fc</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Low affinity FcR, antibody binding (IgG1 and 3) and immune response modulation, mediates phagocytosis and antibody-dependent T-cell-mediated cytotoxicity</td>
</tr>
<tr>
<td>CD16b</td>
<td>FCRIIIβ</td>
<td>IgG Fc</td>
<td>-</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Neutrophil transendothelial migration, immune response activation</td>
</tr>
<tr>
<td>CD17</td>
<td>Lactosylceramide, LacCer</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>May mediate homotypic adhesion and binds to bacteria and may function in phagocytosis, motility, proliferation, trapping and adhesion.</td>
</tr>
<tr>
<td>CD18</td>
<td>Integrin β2, CD11a, b, c β-subunit</td>
<td>CD11a, b, c</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Adhesion, cell signaling</td>
</tr>
<tr>
<td>CD19</td>
<td>B4</td>
<td>CD21, CD81, CD225, Leu-13, Lyn, Fyn, Vav, Pl3-kinase</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Assembles with the antigen receptor of B lymphocytes to decrease the threshold for antigen receptor-dependent stimulation.</td>
</tr>
<tr>
<td>CD20</td>
<td>B1, Bp35</td>
<td>Lyn, LCK, Fyn, Cell surface protein: 28-30, 180-200, 50-60 kDa</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Development and differentiation of B cells into plasma cells.</td>
</tr>
<tr>
<td>CD21</td>
<td>CR2, EBV-R, C3dR</td>
<td>C3d, CD23, CD19, CD81, Leu13</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Regulator of complement activation</td>
</tr>
<tr>
<td>CD22</td>
<td>BL-CAM, Siglec-2</td>
<td>p72kD, p53/56kD, SHP1, Pl3-kinase, CD45, PlCy1</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Mediates B-cell B-cell interactions. May be involved in the localization of B cells in lymphoid tissues. Modulates B-cell signaling.</td>
</tr>
<tr>
<td>CD23</td>
<td>FceRII, B6, BLAST-2, Leu-20</td>
<td>IgE, CD21, CD11b, CD11c</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Key molecule for B-cell activation and growth. This receptor has essential roles in the regulation of IgE production and in the differentiation of B cells.</td>
</tr>
<tr>
<td>CD24</td>
<td>BBA-1, HSA</td>
<td>CD62P (P-Selectin)</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Regulation of B-cell proliferation and maturation. Regulates binding capacity of CD49d/CD29.</td>
</tr>
<tr>
<td>CD25</td>
<td>Tac antigen, IL-2Rα, p55, TCGFR</td>
<td>IL-2</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td></td>
<td>Receptor for interleukin-2</td>
</tr>
<tr>
<td>CD26</td>
<td>DPP IV ectoenzyme, ADA binding protein, ADCP2, TP103</td>
<td>Adenosine deaminase, Collagen, CD45</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td></td>
<td>Exopeptidase</td>
</tr>
<tr>
<td>CD27</td>
<td>T14, S152, TP55, TNFRSF7</td>
<td>CD70, TRAF5, TRAF2</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td></td>
<td>Generation and long term maintenance of T-cell immunity</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Precursor</td>
<td>Macrophage/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Epithelial Function</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>--------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>----------</td>
<td>-------------</td>
<td>------------------</td>
<td>------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>CD28</td>
<td>Tp44, T44</td>
<td>CD80, CD86, PI3-kinase</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>T-cell proliferation, survival, IL-2 production, and Th2 cell development</td>
</tr>
<tr>
<td>CD29</td>
<td>Platelet GPIIa, Integrin β1, GP</td>
<td>VCAM-1, MadCAM-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD30</td>
<td>Ber-H2, Ki-1</td>
<td>CD153, TRAF1, 2, 3, 5</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>Activation of NF-κB, apoptosis, autoimmunity</td>
</tr>
<tr>
<td>CD31</td>
<td>PECAM-1, endoCAM, Platelet endothelial cell adhesion molecule, PECA1</td>
<td>CD38, Glycosaminoglycans (GAGs), Integrin αvβ3</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion, activation, and migration</td>
</tr>
<tr>
<td>CD32a</td>
<td>FCyRII, Fcγ receptor 2, FCGR2A, Low affinity immunoglobulin γ Fc receptor II</td>
<td>IgG</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Innate and adaptive immune responses</td>
</tr>
<tr>
<td>CD32b</td>
<td>FCG2, FCGR2B, IGF2</td>
<td>IgG, INPP5D/SHIP1</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Phagocytosis of immune complexes and regulation of antibody production.</td>
</tr>
<tr>
<td>CD32c</td>
<td>FCG2, FCGR2C, IGF2</td>
<td>IgG</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Low affinity receptor for Fc involved in a variety of effector and regulatory functions</td>
</tr>
<tr>
<td>CD33</td>
<td>gp67, SIGLEC-3, Sialic acid-binding Ig-like lectin 3, Myeloid cell surface antigen CD33</td>
<td>Sugar chains containing sialic acid, α2,6-linked Sialic acid</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion, cell-cell signaling, inhibitory receptor, and apoptosis</td>
</tr>
<tr>
<td>CD34</td>
<td>gp105-120, Hematopoietic progenitor cell antigen 1 (HPCA1)</td>
<td>L-Selectin, MadCAM-1, CRKL</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD35</td>
<td>CR1, C3biC4b receptor, Complement receptor 1, Immune Adherence receptor</td>
<td>C3b, C4b, iC3, iC4</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Complements cascade regulation; mediates cellular binding of particles and immune complexes that have activated complement</td>
</tr>
<tr>
<td>CD36</td>
<td>Platelet glycoprotein 4, Glycoprotein IIb (GpIIb), Glycoprotein IV (GpIV), PASIV, Fatty acid translocase (FAT), SCARB3, GP88</td>
<td>Thrombospondin, Collagen I, IV, V, Long-chain fatty acids</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion, cholesterol transport, scavenger receptor</td>
</tr>
<tr>
<td>CD37</td>
<td>gp52-40, Leukocyte antigen CD37, Tetraspanin-26, TSPAN26</td>
<td>CD53, CD81, CD82, MHC II</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Regulation of T-cell-B-cell interactions, development, activation, growth and motility.</td>
</tr>
<tr>
<td>CD38</td>
<td>ADP-ribosyl cyclase, T10, Cyclic ADP-ribose hydrolase 1</td>
<td>CD31, Hyaluronic acid, CD3/TcR complex, CD16, HLA Class II</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion and signal transduction</td>
</tr>
<tr>
<td>CD39</td>
<td>Ectonucleoside triphosphate diphospho- hydrolase 1 (ENTPD1), ATPdehydrogenase, NTPdehydrogenase-1</td>
<td>ADP/ATP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>ADP and ATP hydrolysis, neurotransmission regulation</td>
</tr>
<tr>
<td>CD40</td>
<td>Bp30, MGC9013, TNFRSF5, Tumor necrosis factor receptor superfamily member 5</td>
<td>CD154, CD40L, TRAP</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>Cell adhesion, cell proliferation, and signal transduction</td>
</tr>
<tr>
<td>CD41</td>
<td>GPIIb, Integrin αIIb, Platelet membrane glycoprotein IIb, ITG2A2B, Integrin α2b, Human Platelet Antigen-3 (HPA-3)</td>
<td>Fibrinogen, Fibronectin, von Willebrand factor (vWF)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion, platelet aggregation</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD42a</td>
<td>GPIX, GP9, Platelet glycoprotein IX</td>
<td>von Willebrand factor (vWF), Thrombin, CD42b,c,d</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Platelet adhesion</td>
</tr>
<tr>
<td>CD42b</td>
<td>GPIIbα, Platelet glycoprotein Ib α</td>
<td>von Willebrand factor (vWF), Thrombin, CD42a, c, d</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Platelet adhesion</td>
</tr>
<tr>
<td>CD42c</td>
<td>GPIIbβ, Platelet glycoprotein Ib β</td>
<td>von Willebrand factor (vWF), Thrombin, CD42a, b, d</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Platelet adhesion</td>
</tr>
<tr>
<td>CD42d</td>
<td>GPV, Platelet glycoprotein V</td>
<td>von Willebrand factor (vWF), Thrombin, CD42a, b, c</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Platelet adhesion</td>
</tr>
<tr>
<td>CD43</td>
<td>Sialophorin, Leukosialin, Galactoglycoprotein, SPN</td>
<td>Hyaluronan, EZR, Moesin</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Cell adhesion and T cell activation</td>
</tr>
<tr>
<td>CD44</td>
<td>ECMRIII, H-CAM, Pgp-1, Phagocytic glycoprotein I, Extracellular matrix receptor III, GP90 Lymphocyte homing/adhesion receptor, Hyaluronate receptor</td>
<td>Hyaluronan, Ankyrin, Fibronectin, MIP1β, Osteopontin, Collagen, Matrix metalloproteinases (MMPs)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Cell adhesion and migration</td>
</tr>
<tr>
<td>CD45</td>
<td>Leukocyte Common Antigen (LCA), T200, B220, Ly5, Protein tyrosine phosphatase receptor type C (PTPRC)</td>
<td>p56lck, p59fyn, Src kinases</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Regulator of T- and B-cell antigen receptor signaling; regulator of cell growth and differentiation</td>
</tr>
<tr>
<td>CD45RA</td>
<td>PTPRC</td>
<td>p56lck, p59fyn, Src kinases</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>CD45RB</td>
<td>PTPRC</td>
<td>p56lck, p59fyn, Src kinases</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>CD45RC</td>
<td>PTPRC</td>
<td>p56lck, p59fyn, Src kinases</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>CD45RO</td>
<td>PTPRC</td>
<td>p56lck, p59fyn, Src kinases</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
</tr>
<tr>
<td>CD46</td>
<td>Membrane Cofactor Protein (MCP), Trophoblast leucocyte common antigen, TRA2.10</td>
<td>SCR2/3/4, Serum Factor 1 protease, CD9, CD29, CD151</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Inhibitory complement receptor</td>
</tr>
<tr>
<td>CD47</td>
<td>gp42, IAP, OA3, Neurophilin, MER6</td>
<td>CD61, Thrombospondin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Cell adhesion and signal transduction</td>
</tr>
<tr>
<td>CD48</td>
<td>Blast-1, Hulym3, BCM-1, OX-45, MEM-102</td>
<td>CD2, Ick, fyn, CD229, CD244</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Lymphocyte adhesion and activation</td>
</tr>
<tr>
<td>CD49a</td>
<td>VLA-1α, Integrin α1</td>
<td>Collagen, Laminin</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD49b</td>
<td>VLA-2α, Integrin α2, gPia</td>
<td>Collagen, Laminin, MMP-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD49c</td>
<td>VLA-3α, Integrin α3, GAPB3, Galactoglycoprotein B3, MSK18, Very Common Antigen-2 (VCA-2)</td>
<td>Collagen, Laminin, CD9</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Cell adhesion</td>
</tr>
</tbody>
</table>

+ Positive* − Negative

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD   | Alternative Name | Ligands & Associated Molecules | T Cell | B Cell | DC Cell | NK Cell | Stem Cell/Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                                                  |
|------|-----------------|--------------------------------|--------|--------|---------|---------|---------------------|---------------------|-------------|---------|------------|-----------------|-----------------|-----------------|----------------------------------------------------------|
| CD49d | VLA-4c, Integrin α4 | CD106, MAdCAM, Fibronectin, Paxillin | +      | +      | +       | +       | –       | –       | +       | +       | –         | –               | +               | Cell adhesion and lymphocyte homing                      |
| CD49e | VLA-5α, Integrin α5, Fibronectin receptor | Fibronectin, Invasin, Fibrinogen | +      | +      | +       | +       | +       | +       | –       | –       | +         | +               | +               | Cell adhesion                                             |
| CD49f | VLA-6α, Integrin α6, gp1 | Laminin, Invasin | +      | +      | +       | +       | +       | +       | +       | –       | –         | +               | +               | Cell adhesion                                             |
| CD50  | ICAM-3 | LFA-1, Integrin αd/β2 | +      | +      | +       | +       | +       | +       | –       | –       | +         | +               | +               | Cell adhesion                                             |
| CD51  | Integrin αε, VNR-α, Vitronecin-Rα | Fibrinogen, Vitronecin, MMP-2, vWF, TSP | +      | +      | +       | +       | –       | –       | +       | +       | +         | +               | +               | Cell adhesion and signal transduction                     |
| CD52  | CAMPATH-1, HES, Epithelial secretory protein ES2 | | +      | +      | +       | +       | –       | –       | +       | +       | –         | +               | +               | Complement-mediated cell lysis and antibody-mediated cellular cytotoxicity |
| CD53  | MOX44, TSPAN25, Tetraspanin-25 | VLA-4, HLA-DR, Integrins | +      | +      | –       | +       | +       | +       | –       | –       | –         | +               | +               | Cell adhesion, activation, and migration                  |
| CD54  | ICAM-1 | LFA-1, Mac-1, Rhinovirus | +      | +      | +       | +       | +       | +       | –       | –       | +         | +               | +               | Cell adhesion, lymphocyte activation, and migration       |
| CD55  | Decay Accelerating Factor for Complement (DAF) | SCR, CD97, Echoviruses | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Complement cascade (C3bBb complex) regulation             |
| CD56  | Leu-19, NKH-1, Neural Cell Adhesion Molecule (NCAM) | NCAM-1, Heparin sulfate | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Cell adhesion and neural plasticity                        |
| CD57  | HNK-1, Leu-7, β1-3-glucuronosyltransferase 1, Glucuronosyltransferase P, galactosylgalactosylxylosylprotein 3-β-glucuronosyltransferase 1 | L-Selectin, P-Selectin, Laminin | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Cell adhesion                                              |
| CD58  | LFA-3 | CD2, LFA-2 | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Cell adhesion                                             |
| CD59  | 1F5Ag, H19, Protectin, MACI, MIRL, P-18 | C8-α, C9, Ick, fyn | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Complement cascade regulation                              |
| CD60a | GP IIα, Integrin β3 | Fibrinogen, PTK2, ITGB3BP, TLN1 and CIB1 | +      | +      | +       | +       | +       | +       | +       | –       | +         | +               | +               | Carbohydrate involved in co-stimulation                   |
| CD61  | GP IIIa, Integrin β3 | | +      | +      | +       | +       | +       | +       | +       | –       | +         | +               | +               | Cell adhesion                                             |
| CD62E | E-Selectin, ELAM-1, LECAM-2 | Sialyl Lewis x, a, CLA, CD162 | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Cell adhesion                                             |
| CD62L | L-Selectin, LAM-1, LECAM-1, MEL-14, Leu8, TQ1 | CD34, GlyCAM-1, MAdCAM-1 | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Cell adhesion                                             |
| CD62P | P-Selectin, GMP-140, PADGEM | CD162, CD24 | +      | +      | +       | +       | +       | +       | +       | +       | +         | +               | +               | Cell adhesion                                             |
| CD63  | LIMP, MLA1, gp55, NGA, LAMP-3, ME491, OMA81H, TSPAN30, Granulophysin, Melanoma 1 antigen | VLA-3, VLA-6, CD81, CD9, PI4-kinase, CD117, CD82 | | | | | | | | | | | | Cell growth and motility regulation; complexes with integrins |
| CD64a | FcγRI, Fc-γ Receptor 1, High affinity immunoglobulin γ Receptor 1, FcγRlα | IgG | –      | –      | +       | +       | +       | +       | +       | +       | –         | –               | –               | Innate and adaptive immune responses                      |

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD   | Alternative Name | Ligands & Associated Molecules                                                                 | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                                                                 |
|------|-----------------|-------------------------------------------------------------------------------------------------|--------|--------|----------------|---------|--------------------|---------------------|-------------|----------|-------------|------------------|----------------|----------------------|--------------------------------------------------------------------------|
| CD65 | Ceramide-dodecasaccharide, VIM2, Fucoganglioside (Type II) | CD62E (E-Selectin)                                                                                   | –      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Cell adhesion                                                              |
| CD65s| Sialylated poly-N-acetyllactosamine, Sialylated-CD65, VIM2 | CD62E (E-Selectin)                                                                                   | –      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Cell adhesion                                                              |
| CD66a| CD66, NCA-160, BGP (Biliary glucoprotein), BGP1, BGP1, CEACAM1 | CD62E, CD66c, CD66e, Src kinases                                                                   | –      | +      | –              | +       | –                  | –                   | +           | –        | –           | –                | –              | Cell adhesion, cellular migration, pathogen binding and activation of signaling pathways |
| CD66b| CD67, CGM6, NCA-95, CEACAM8 | CD66c, e, Src kinases                                                                                      | –      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Cell adhesion, cellular migration, pathogen binding and activation of signaling pathways |
| CD66c| NCA, NCA-50/90, CEAL, CEACAM6 | CD62E, Galectins, CD66a, b, c, e, Src kinases                                                        | –      | +      | –              | +       | –                  | –                   | +           | –        | –           | –                | –              | Cell adhesion, cellular migration, pathogen binding and activation of signaling pathways |
| CD66d| CGM1, CEACAM3 |                                                                                                           | –      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Cell adhesion, cellular migration, pathogen binding and activation of signaling pathways |
| CD66e| CEA, CEACAM5 | CD66a, c, e                                                                                               | –      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Cell adhesion, cellular migration, pathogen binding and activation of signaling pathways |
| CD66f| B1G1, CD66, DHFRP2, FLJ90598, FLJ90654, PBG1, PSB1, PSGGA, SP1 SP-1, PSB1, B1G1, PBG1, PSGGA |                                                                                                           | –      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Cell adhesion, cellular migration, pathogen binding and activation of signaling pathways |
| CD68 | gp110, Macrosialin, SCARD1 | LDL                                                                                                       | +      | +      | +              | +       | +                  | –                   | –           | –        | –           | –                | –              | Macrophage homing                                                          |
| CD69 | AIM, EA 1, MLR3, gp34/28, VEA, CLEC2C, BL-AP26 |                                                                                                           | +      | +      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Lymphocyte proliferation; signal transmission in NK cells and platelets |
| CD70 | TNFSF7, CD27LG, CD27L, Ki-24 | CD27 ligand                                                                                               | +      | +      | –              | –       | –                  | –                   | –           | –        | –           | –                | –              | Induces the proliferation of costimulated T cells and aids in the generation of cytolytic T cells. |
| CD71 | TFRC, T9, Transferrin receptor, TFR, TRFR | Transferrin                                                                                               | –      | –      | –              | +       | –                  | –                   | –           | –        | –           | –                | –              | Mediates the uptake of transferrin-ion complexes                           |
| CD72 | Ly-19.2, Ly-32.2, Lyb2 | CDS                                                                                                        | +      | +      | –              | –       | –                  | –                   | –           | –        | –           | –                | –              | B-cell proliferation and differentiation                                    |
| CD73 | Ecto-5’-nucleotidase, NT5E, ESNT, NTS, NTE, eN, eNT | AMP                                                                                                       | +      | +      | +              | –       | +                  | –                   | –           | –        | –           | –                | –              | An ecto-5-prime-nucleotidase hydrolyzing extracellular nucleotides into membrane permeable nucleosides |
| CD74 | DHLAG, HLAG, li-γ, li, invariant chain | HLA-DR, CD44                                                                                               | +      | +      | +              | +       | +                  | +                   | –           | –        | –           | –                | –              | MHC class II antigen processing                                           |
| CD75 | STEGAL1, MGC48859, SIAT1, STEGALL, STEN, ST6 β-Galactosamidase α-2,6-sialyltransferase, Sialo-masked lactosamine, Carbohydrate of α2,6 sialyltransferase | CD22                                                                                                      | +      | –      | +              | –       | –                  | +                   | –           | –        | –           | –                | –              | Functional maturation of B lymphocytes                                     |

* Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
| CD    | Alternative Name                  | Ligands & Associated Molecules                                                                 | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/ Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                                                                 |
|-------|-----------------------------------|-------------------------------------------------------------------------------------------------|--------|--------|----------------|---------|----------------------|--------------------|-------------|----------|-------------|----------------|----------------|----------------|---------------------------------------------------------------------------|
| CD75S | α2,6 Sialylated lactosamine       | CD22 (proposed)                                                                                  | +      | +      |                |         |                      |                    |             |           |             |                |                | Cell differentiation and cell surface recognition                         |
| CD77  | A14GALT (α1, A-Galactosyltransferase), A4GALT1, Gb3S, Pk2, P1, PK, A4GALT, PK antigens, BLA, CTH/Gb3A4GALT1, Gb3S, Pk2, P1, PK | Shiga toxin, Verotoxin 1, CD19                                                                |        | –      |                | –       |                      | –                  |             |           |             |                |                | May play a role in apoptotic signaling                                    |
| CD79a | IGA (Immunoglobulin-associated α), MB-1 | Ig, CD5, CD19, CD22, CD79b                                                                    | –      | +      |                |         |                      |                    |             |           |             |                |                | Required for initiation of B cell signal transduction upon binding of antigen to the B-cell antigen receptor complex |
| CD79b | IGB (Immunoglobulin-associated β), B29 | Ig, CD5, CD19, CD22, CD79a                                                                     | –      | –      |                |         |                      |                    |             |           |             |                |                | Required for initiation of B cell signal transduction upon binding of antigen to the B-cell antigen receptor complex |
| CD80  | CD28LG, CD28LG1, L A87, B7, B7-1, B81 | CD28, CD152 (CTLA-4)                                                                            | +      | +      | –              | –       |                      |                    |             |           |             |                |                | Lymphocyte activation                                                     |
| CD81  | TAPA1, S5.7                       | Leu-13, CD19, CD21                                                                             |        | +      |                | +       | +                    | –                  |             |           |             |                |                | Cell adhesion                                                            |
| CD82  | 4F9, C33, IA4, KAI1, R2, S16, SAR2, GR15 | MHC-I, MHC-II, CD4, CD8, Integrin β1                                                          | +      | +      | –              | +       | +                    | +                  |             | +         |             |                |                | TCR signaling                                                             |
| CD83  | HB15, BL11                        |                                                                                                | –      | +      |                | –       |                      |                    |             |           |             |                |                | Antigen presentation and immune stimulation                                |
| CD84  | LY98, SLAMF5, p75, GR6, hly9-β    | CD84                                                                                            | +      | +      | –              | –       |                      |                    |             |           |             |                |                | Cell adhesion                                                            |
| CD85A | ILT5, LIR3, HL9, ILIRB3 (Leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 3, LIR-3, MGC138403, PIR8, Xbxbac-BCX10506.7 | HLA class I                                                                                   | +      | –      | –              |         | +                    | –                  |             |           |             |                |                | Immune regulation                                                        |
| CD85C | LILRBS (Leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 5, LIR8 |                                                                              |        | –      |                |         |                      |                    |             |           |             |                |                | Immune regulation                                                        |
| CD85D*| LILRB2 (Leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 2, LILR2, ILT4, LIR2, MIR10, MIR-10 | HLA class I                                                                                   | –      | –      | –              | +       | +                    | –                  |             |           |             |                |                | Down-regulation of immune response                                        |
| CD85E | LILRA3 (Leukocyte immunoglobulin-like receptor, subfamily A (without TM domain), member 3, HM31, HM45, ILT6, LIR-4, LIR4,e3 |                                                                                  | –      | –      | –              | –       | –                    | –                  |             |           |             |                |                | Down-regulation of immune response                                        |
| CD85F | Xbxbac-BCX403H19.2, CD85, CD85F,LIR9, ILT11, LILRB7 (Leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 7 |                                                                                  | +      | +      | –              | –       |                      |                    |             |           |             |                |                | May be involved in triggering innate immune responses                      |

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive*   – Negative
| CD  | Alternative Name | Ligands & Associated Molecules | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Preursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function |
|-----|-----------------|--------------------------------|--------|--------|----------------|---------|-------------------|-------------------|-------------|----------|------------|----------------|-----------------|-----------------|----------|
| CD85G | LILRA4 (Leukocyte immunoglobulin-like receptor, subfamily A (with TM domain), member 4, ILT7, MGC129597, MGC129598) | |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD85H | LILRA2 (Leukocyte immunoglobulin-like receptor, subfamily A (with TM domain), member 2, ILT1, LIR7, LIR-7, XXbac-BCX85G21.2, ILT-1) | |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD85I | LILRA1 (Leukocyte immunoglobulin-like receptor), subfamily A (with TM domain), member 1, LIR-6, LIR6, MGC126563 | |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD85J* | LILRB1 (Leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 1, FLJ37515, ILT2, LIR-1, LIR1, MIR-7, MIR7) | HLA class I |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD85K* | LILRB4 (Leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 4, ILT3, LIR-5, HM18, LIR5, LILRB5) | HLA class I |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD86 | B7-2/B70, CD28LG2, LA872, MGC34413 | CD28, CD152 (CTLA-4) |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD87 | Upar, PLAUR, URKR | uPA, Pro-UPA, Vitronectin |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD88 | CSR1, C5r, CSAR, CSA | C5a/C5a(desArg), Anaphylatoxin |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD89 | FCAR | IgA1, IgA2 |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD90 | Thy-1 | CD45, lck, fyn, P100 |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD91 | LRP1, c2M-R, c2MR, APOER, APR, LRP | RAP, C2M, apoE, Lactoferrin, LDLs |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD92 | SLC44A1, CTL1, CHTL1, RP11-287A8.1, p70 |        |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD93 | C1OR1, C1qRP, MXRA4, C1qR(P), D7J37e23.1, GR11 |        |       |        |                |         |                   |                   |             |        |               |                 |                |          |
| CD94 | KLKD1, Kp43 | HLA class I, KG2-2-A, p39 |       |        |                |         |                   |                   |             |        |               |                 |                |          |

+ Positive* – Negative

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
# CD Marker Handbook Human CD Markers

<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precuror</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD95</td>
<td>CD178, FASLG, APO-1, FAS, TNFRSF6, CD95L, APT1LG1, APT1, FAS1, FASTM, ALPST1A, TNFRSF6, FASL</td>
<td>CD178 (Fas ligand)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Induction of apoptosis</td>
</tr>
<tr>
<td>CD96</td>
<td>TACTILE, MGC22596</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD97</td>
<td>TM8LN1, BL-KDD/F12</td>
<td>CD55 (DAF)</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Following leukocyte activation is likely involved in cell adhesion and signaling</td>
</tr>
<tr>
<td>CD98</td>
<td>SLCO2A2, 4F2, 4F2HC, 4T2HC, MDU1, NACAE, FRP-1, RL-388</td>
<td>Actin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>Amino acid transport</td>
</tr>
<tr>
<td>CD99</td>
<td>MIC2, E2 antigen, MIC2X, MIC2Y, HBA71, MSK5X</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Transmigration of monocytes and neutrophils across endothelial cell borders; T-cell activation</td>
</tr>
<tr>
<td>CD99R</td>
<td>CD99 Mab restricted</td>
<td></td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>T-cell adhesion</td>
</tr>
<tr>
<td>CD100</td>
<td>SEMAI, coll-4, C9orf164, FLJ33485, FLJ4282, FLJ97373, FLJ46484, M-sema-G, MGC169138, MGC169141, SEMA4D, SEMAJ</td>
<td>CD45, Serine kinase</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Enhancement of B-cell and dendritic cell responses</td>
</tr>
<tr>
<td>CD101</td>
<td>IGSF2, P126, V7, BA27, BPC44, P126, V7-LSB</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Inhibition of T-cell proliferation</td>
</tr>
<tr>
<td>CD102</td>
<td>ICAM-2, Ly60</td>
<td>LFA-1, CD11b/CD18, Integrin αβ2</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>Mediates adhesive interactions important for antigen-specific immune response</td>
</tr>
<tr>
<td>CD103</td>
<td>HML-1, Integrin αE, ITGAE, OX62, HML1</td>
<td>E-Cadherin, Integrin β7</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Promoting entry and retention of antigen specific CD8 effector molecules in epithelial compartments</td>
</tr>
<tr>
<td>CD104</td>
<td>Integrin β4, TSP1180, ITGB4, TSP-180</td>
<td>Laminins (I,II,IV), CD49f, Integrin α6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Potentially involved in epidermal cell-basement membrane adhesion</td>
</tr>
<tr>
<td>CD105</td>
<td>Endoglin, HH1T, ORW, SH-2</td>
<td>TGF-β1, TGF-β3</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>May play a role in hemopoiesis and angiogenesis</td>
</tr>
<tr>
<td>CD106</td>
<td>VCAM-1, INCAM-100</td>
<td>Integrin α4β1, VLA-4</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Adhesion of lymphocytes, monocytes, eosinophils, and basophils to vascular endothelium. It also functions in leukocyte-endothelial cell signal transduction</td>
</tr>
<tr>
<td>CD107a</td>
<td>LAMP-1, LAMPA, CD107a, LGP120</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>Provides selectins with carbohydrate ligands. CD107a has also been shown to be a marker of degradation on lymphocytes such as CD8+ and NK cells.</td>
</tr>
<tr>
<td>CD107b</td>
<td>LAMP-2, LAMPB</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Provides selectins with carbohydrate ligands. It may also function in the protection, maintenance, and adhesion of the lysosome.</td>
</tr>
<tr>
<td>CD108</td>
<td>SEMAT7A, JMH blood group antigen</td>
<td>CD232, Tyrosine kinases</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>Stimulates cytokine production through monocytes and macrophages through integrin α1</td>
</tr>
<tr>
<td>CD109</td>
<td>BA3, E123 7D1, 150KD TGF-β1-binding protein, Platelet-specific Gov antigen</td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>May play a role in hemopoiesis and in cell-mediated immunity and in hemostasis</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive*   – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Myeloid Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD110</td>
<td>TPO-R, MPL, C-MPL</td>
<td>TPO, JAK2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Maintenance of hematopoietic stem cell numbers</td>
</tr>
<tr>
<td>CD111</td>
<td>PVRL1, HveC, PRR1, Nectin1, HigR, CLPED1</td>
<td>Nectin3, Afadin gD</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Plays a role in the organization of adherens junctions and tight junctions in epithelial and endothelial cells.</td>
</tr>
<tr>
<td>CD112</td>
<td>HveB, PRR2, PVRL2, Nectin2</td>
<td>PRR3, Afadin, CD112</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>A plasma membrane component of adherens junctions. Serves as an entry for certain mutant strains of herpes simplex virus and pseudorabies virus, and it is involved in cell-to-cell spreading of these viruses. Contributes to the NK-mediated lysis of both iDCs and mDCs.</td>
</tr>
<tr>
<td>CD113</td>
<td>PVRL3, Nectin3, PRR3</td>
<td>Afadin, MLLT4, PARD3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>An adhesion molecule involved in the formation between adherens junctions between epithelial cells.</td>
</tr>
<tr>
<td>CD114</td>
<td>CSF3R, G-CSFR, HG-CSFR</td>
<td>G-CSF, Jak1, Jak2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>Proliferation, differentiation, and survival of cells along the neutrophilic lineage.</td>
</tr>
<tr>
<td>CD115</td>
<td>c-fms, CSF-1R, M-CSFR, FIM2, FMS</td>
<td>CSF-1, Phosphotyrosine binding proteins</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for colony stimulating factor 1, a cytokine which controls the production, differentiation, and function of macrophages.</td>
</tr>
<tr>
<td>CD116</td>
<td>GM-CSFRα, CD116, CSF2R, CSF2RAX, CSF2RAV, CSF2RX, CSF2RC, GM-CSFR-α, GM-CSFR, GMR, MGC3848, MGC4838</td>
<td>GM-CSF, CD131</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for cytokine granulocyte-macrophage colony-stimulating factor (GM-CSF) which regulates hematopoiesis and the function of mature host defense cells.</td>
</tr>
<tr>
<td>CD117</td>
<td>c-KIT, SCFR, PBT</td>
<td>SCF, MGE, KL, PI3-kinase</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor tyrosine kinase important for mast-cell survival, proliferation, activation, and chemotaxis.</td>
</tr>
<tr>
<td>CD118</td>
<td>LIFR, gp190, JSJ2, STWS, SWS</td>
<td>IFN-α, IFN-β</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for the leukemia inhibitory factor (LIF), a cytokine involved in cell differentiation, proliferation, and survival.</td>
</tr>
<tr>
<td>CD119</td>
<td>IFNγR, IFNγRa</td>
<td>IFNγR, IFNγR1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for interferon γ, a multifunctional immunomodulator.</td>
</tr>
<tr>
<td>CD120a</td>
<td>CD120a, FPF, MGC19588, TBPI, TNF-R, TNF-R-I, TNF-R-55, TNFAR, TNFR1, TNFR55, TNFR60, p55s, p55-R, p60</td>
<td>TNF, TRADD, TRAF, RIP, LTα</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for TNF-α, which can mediate apoptosis.</td>
</tr>
<tr>
<td>CD120b</td>
<td>TNFRII, p75, TNFR p80</td>
<td>TNF, TRADD, TRAF, RIP, LTα</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for TNF-α, that recruits apoptotic suppressors antagonizing TNF-α activity.</td>
</tr>
<tr>
<td>CD121a</td>
<td>Type 1 IL-1R, CD121A, D2S1473, IL-1R-α, IL1R, IL1RA</td>
<td>IL-1α and IL-1β, IL1RA</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for IL-1α and β cytokines that induce inflammatory response.</td>
</tr>
<tr>
<td>CD121b</td>
<td>Type 2 IL-1R</td>
<td>IL-1β, IL-1α, IL1RA</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for IL-1α and β cytokines that induce inflammatory response. Also binds the IL-1 receptor antagonist protein.</td>
</tr>
<tr>
<td>CD122</td>
<td>IL2Rβ, p70-75</td>
<td>IL-2, IL-15, CD25, CD132, Syk, Lck, Jak1, Stat5</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>B subunit of the receptor for IL-2, which is involved in receptor mediated endocytosis and transduction of mitogenic signals from IL-2.</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD  | Alternative Name | Ligands & Associated Molecules | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Preursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function |
|-----|-----------------|--------------------------------|--------|--------|---------------|--------|-------------------|-------------------|-------------|---------|-----------|---------------|---------------|------------|----------|
| CD123 | CD123, IL3, IL3RAY, IL3RX, IL3RY, MGC34174, hIL-3Ra | IL-3, CD131 | - | - | + | + | - | + | + | + | + | | | | A subunit of the IL-3 receptor and plays an important role in hematopoietic progenitor cell growth and differentiation |
| CD124 | IL-4Rx | IL-4, IL-13, CD132, Jak1, Fes, Stat6, IRS-2 | + | + | - | - | + | - | - | - | + | | | | Receptor for both IL-4 and IL-13. Involved in Th2 differentiation and regulating IgE production. |
| CD125 | IL-5Rx | CDw125, HSIL5R3, IL5R, MGC26560 | - | + | - | - | + | - | - | - | - | - | | | A subunit of IL-5 receptor. |
| CD126 | IL-6Rx | IL-6, CD130 | + | + | - | - | + | - | - | - | - | | | | A subunit of the receptor for IL-6, a pleiotropic cytokine that regulates cell growth and differentiation. |
| CD127 | p90, IL-7R, IL-7Rx | IL-7, CD132, fyn, lyn, Jak1, PI3-kinase, Lck | + | - | + | + | - | - | - | - | - | | | | Receptor for IL-7 and thymic stromal lymphopoietin (TSLP). This receptor is important for V(D)J recombination during development |
| CD129 | IL-9Rx | IL-9 | | | | | | | | | | | + | | A transmembrane protein which forms one subunit of type I cytokine receptors within the IL-6 receptor family. Often referred to as the common gp130 subunit, and is important for signal transduction following cytokine engagement. |
| CD130 | gp130, IL6ST, IL6-β or CD130 | Oncostatin M, LIF, IL-6, IL-11, CNF | + | + | - | + | + | + | - | + | | | | A subunit of IL-6 receptor family. Often referred to as the common gp130 subunit, and is important for signal transduction following cytokine engagement. |
| CD131 | CSF2RB, IL3RB, IL5RB, CDw131 | CD123, CD125, CD116, JAK2, Shc, Grb2 | - | - | - | + | + | - | - | | | | | | CSF2RB is a common subunit to the following type 1 cytokine receptors: GM-CSF receptor, IL-3R, IL-5R. |
| CD132 | Common γ chain, IL-2Rγ | CD25, CD122, CD124, CD127, IL-9R, JAK3, JAK1, Syk, lck | + | + | + | + | + | + | - | - | | | | | Lymphocytes expressing the common γ chain can form functional receptors for these cytokines, which transmit signals from one cell to another and direct programs of cellular differentiation |
| CD133 | AC133, PROML1, Prominin 1, Hematopoietic stem cell antigen | - | - | - | - | - | - | - | - | - | - | + | + | Suppression of cell differentiation |
| CD134 | OX40, TNFRSF4 | OX40 ligand | + | - | - | - | | | | | | | | | Member of the TNF-receptor superfamily which may suppress apoptosis |
| CD135 | Flt3, Fik2, STK1 | FL (Flt3 ligand) | - | - | - | - | - | - | - | - | - | | | | Signaling through CD135 plays a role in cell survival, proliferation, and differentiation. CD135 is important for lymphocyte (B cell and T cell) development, but not for the development of other blood cells (myeloid development) |
| CD136 | MSP-R, RON, p158-ron | MSP, HGFI, Shc, PLC-γ | | | | | | | | | | + | | | Receptor for macrophage stimulating protein (MSP) that is a receptor tyrosine kinase |
| CD137 | 4-1BB, ILA, TNFRSF9 | 4-1BB ligand | + | + | - | + | - | | | | | | | | A member of the TNF-receptor superfamily that contributes to the clonal expansion, survival, and development of T cells |
| CD138 | Syndecan-1, Heparan sulfate proteoglycan | Collagen I, III, V, Fibronectin, TSP | - | + | - | + | - | - | - | - | | | | | Cell proliferation, cell migration, and cell-matrix interactions |
| CD139 | None | | - | + | - | + | - | | | | | | | | Unknown |

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precurso</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD140a</td>
<td>PDGF α Receptor</td>
<td>PDGF</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Tyrosine kinase receptor which binds platelet derived growth factor (PDGF)</td>
</tr>
<tr>
<td>CD140b</td>
<td>PDGF β Receptor</td>
<td>PDGF</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Tyrosine kinase receptor which binds platelet derived growth factor (PDGF) B and D</td>
</tr>
<tr>
<td>CD141</td>
<td>Thrombomodulin, Fetomodulin</td>
<td>Thrombin, Protein C, TAFI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Receptor for thrombin that upon binding results in the activation of protein C. Activated protein C degrades clotting factors and reduces the amount of thrombin generated</td>
</tr>
<tr>
<td>CD142</td>
<td>Tissue factor, Thromboplastin, F3</td>
<td>Factor Vila, Factor Xa/TFPI</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Initiation of blood coagulation cascades</td>
</tr>
<tr>
<td>CD143</td>
<td>ACE, Peptidyl dipeptidase A, Kininase II, DCP, DCP1</td>
<td>ANG-1, Bradykinin</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Converts angiotensin I to angiotensin II resulting in vasoconstriction</td>
</tr>
<tr>
<td>CD144</td>
<td>VE-Cadherin, Caderin-5</td>
<td>β-Catenin, p120 CAS, Plakoglobin</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Calcium-dependent cell adhesion</td>
</tr>
<tr>
<td>CDw145</td>
<td>None</td>
<td></td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Unknown</td>
</tr>
<tr>
<td>CD146</td>
<td>Muc 18, S-endo, MCAM, Mel-CAM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD147</td>
<td>Basigin, EMMPRIN, M6, OX47, TCSF</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Spermatogenesis, embryo implantation, neural network formation, and tumor progression</td>
</tr>
<tr>
<td>CD148</td>
<td>HPTP-γ, p260, DEP-1, SCC1</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Protein tyrosine phosphatase that negatively regulates T-cell receptor signaling</td>
</tr>
<tr>
<td>CD150</td>
<td>SLAM, IPO-3</td>
<td>Tyrosine phosphatase CD45, CD150</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>Important for bidirectional T-cell to B-cell stimulation</td>
</tr>
<tr>
<td>CD151</td>
<td>PETA-3, SFA-1</td>
<td>Integrins α2, α6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>Cell adhesion and may regulate integrin trafficking and function</td>
</tr>
<tr>
<td>CD152</td>
<td>CTLA-4</td>
<td>CD80, CD86, PI3-kinase, PTP1D</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>T-cell inhibition</td>
</tr>
<tr>
<td>CD153</td>
<td>CD30L, TNSF8</td>
<td>CD30</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>TNF ligand family cytokine with pleiotropic activities. May inhibit modulation of Ig class switch. Induces proliferation of T cells</td>
</tr>
<tr>
<td>CD154</td>
<td>CD40L, gp39, TRAP-1, T-BAM, IMD3</td>
<td>CD40</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Mediates B cell proliferation, IgG production, and is involved in immunoglobulin class switching</td>
</tr>
<tr>
<td>CD155</td>
<td>PVR, PVS, TAGE, HVED</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell attachment to extracellular matrix proteins. Mediates NK cell adhesion and triggers NK cell effector functions</td>
</tr>
<tr>
<td>CD156a</td>
<td>CD156, ADAM8, MS2</td>
<td></td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>A Disintegrin and Metalloproteinase (ADAM). May play a role in T-cell migration.</td>
</tr>
<tr>
<td>CD156b</td>
<td>TACE, ADAM17, cSVP</td>
<td>pro-TNF, pro-TGFα, MAD2</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>A Disintegrin and Metalloproteinase (ADAM) which serves as a TNF-α converting enzyme. Also involved in the notch signaling pathway.</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD156C</td>
<td>ADAM10, MADM, kuz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A Disintegrin and Metalloproteinase (ADAM) which cleaves many proteins including TNF-α and E-cadherin.</td>
</tr>
<tr>
<td>CD157</td>
<td>Mo5, BST-1</td>
<td>NAD, Cyclic ADP-ribose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Synthesizes cyclic ADP-ribose contributing to intracellular calcium release. Facilitates pre-B cell growth.</td>
</tr>
<tr>
<td>CD158a</td>
<td>KIR2DL1, p58.1, NKAT1</td>
<td>HLA-Cw4, 2, 5, 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits the activity of natural killer cells</td>
</tr>
<tr>
<td>CD158b1</td>
<td>KIR2DL2, p58.2, NKAT6</td>
<td>HLA-Cw3, 1, 7, 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits the activity of natural killer cells</td>
</tr>
<tr>
<td>CD158b2</td>
<td>KIR2DL3, p58.3, NKAT2</td>
<td>HLA-Cw3, 1, 7, 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits the activity of natural killer cells</td>
</tr>
<tr>
<td>CD158d</td>
<td>KIR2DL4, KIR103</td>
<td>HLA-Bw4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits the activity of natural killer cells</td>
</tr>
<tr>
<td>CD158e1/e2</td>
<td>KIR3DL5/S1, p70, NKAT3, NKB1</td>
<td>HLA-Bw4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor on NK cells does not inhibit their activity</td>
</tr>
<tr>
<td>CD158f</td>
<td>KIR2DL5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits the activity of natural killer cells</td>
</tr>
<tr>
<td>CD158g</td>
<td>KIR2DS5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor on NK cells does not inhibit their activity</td>
</tr>
<tr>
<td>CD158h</td>
<td>KIR2DS1, p50.1</td>
<td>HLA-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor on NK cells does not inhibit their activity</td>
</tr>
<tr>
<td>CD158i</td>
<td>KIR2DS4, p50.3</td>
<td>HLA-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor on NK cells does not inhibit their activity</td>
</tr>
<tr>
<td>CD158j</td>
<td>KIR2DS2, p50.2</td>
<td>HLA-C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor on NK cells does not inhibit their activity</td>
</tr>
<tr>
<td>CD158k</td>
<td>KIR3DL2, p140</td>
<td>HLA-A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits the activity of natural killer cells</td>
</tr>
<tr>
<td>CD159a</td>
<td>NKG2A</td>
<td>CD94/CD159a heterodimer binds to HLA-E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor for the recognition of MHC class I HLA-E molecules by NK and some cytotoxic T cells</td>
</tr>
<tr>
<td>CD159c</td>
<td>NKG2C</td>
<td>C type Lectin superfamily member</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor for the recognition of MHC class I HLA-E molecules by NK and some cytotoxic T cells</td>
</tr>
<tr>
<td>CD160</td>
<td>BY55, NK1, NK28</td>
<td>MHC class I</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Broad specificity receptor for classical and non-classical MHC class I molecules</td>
</tr>
<tr>
<td>CD161</td>
<td>NKR, NKRPA1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits NK cell cytotoxicity. Enhances T-cell proliferation induced by anti-CD3.</td>
</tr>
<tr>
<td>CD162</td>
<td>PSGL-1</td>
<td>Selectins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mediates rapid rolling of leukocytes over vascular surfaces during inflammation</td>
</tr>
<tr>
<td>CD163</td>
<td>M130, GHI/61, RM3/1</td>
<td>Hemoglobin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clearance and endocytosis of hemoglobin/haptoglobin complexes by macrophages</td>
</tr>
<tr>
<td>CD164</td>
<td>MGC-24, MUC-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Facilitates the adhesion of CD34+ cells to the stroma and negatively regulates their proliferation</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
+ Positive* – Negative

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
## CD Marker Handbook Human CD Markers

**CD165**
- **Alternative Name**: AD2, gp37
- **Ligands & Associated Molecules**: CD6, CD166, NgCAM
- **Function**: Cell adhesion

**CD166**
- **Alternative Name**: ALCAM, KG-CAM, SC-1, BEN, DM-GRASP
- **Ligands & Associated Molecules**: CD6, CD166, NgCAM
- **Function**: Cell adhesion molecule important for intrathymic T-cell development

**CD167a**
- **Alternative Name**: DDR1, trkE, cak
- **Ligands & Associated Molecules**: ShcA, FRS2, Collagens
- **Function**: Receptor tyrosine kinase involved in cell-cell interactions

**CD168**
- **Alternative Name**: RHAMM, IHABP, HMMR
- **Ligands & Associated Molecules**: Ras, Src, Erk, Calmodulin, MAPKK, Hyaluronic acid
- **Function**: Involved in cell motility

**CD169**
- **Alternative Name**: Sialoadhesin, Siglec-1
- **Ligands & Associated Molecules**: CD227, CD206, CD43, α2, 3-Sialylated ligands
- **Function**: Macrophage-restricted cell adhesion molecule that mediates cell-cell interactions

**CD170**
- **Alternative Name**: Siglec-5
- **Ligands & Associated Molecules**: Sialylated glycans
- **Function**: Mediates protein-carbohydrate interactions

**CD171**
- **Alternative Name**: LICAM, HSAS, HSAS1, MASA, MIC5, N-CAML1, S10, SPG1, NILE
- **Ligands & Associated Molecules**: CD171, Neurocan, Phosphocan, Laminin, CD9, CD24, CD56, Axonin-1, CD51/61, CD41/61, CD49e/CD29, α-9, Ankyrins, Kinases
- **Function**: Multidomain cell adhesion molecule required for normal neurohistogenesis.

**CD172a**
- **Alternative Name**: Bit, MFR, MYD-1, P84, SHPS-1, SHPS1, SIRP, SIRPα, SIRPβ2
- **Ligands & Associated Molecules**: CD47, PTPN11
- **Function**: Negative regulation of receptor tyrosine kinase-coupled signaling processes.

**CD172b**
- **Alternative Name**: SIRPβ3
- **Ligands & Associated Molecules**: TYROBP
- **Function**: Phagocytosis

**CD172g**
- **Alternative Name**: SIRPγ, SIRP-B2, bA77C3.1
- **Ligands & Associated Molecules**: + +
- **Function**: Involved in the creation of a precursor of the H antigen, which is required for the final step in the soluble A and B antigen synthesis pathway

**CD173**
- **Alternative Name**: Blood group H type 2, FUT1
- **Ligands & Associated Molecules**: – + + +
- **Function**: Marker of early hematopoiesis

**CD174**
- **Alternative Name**: Lewis Y, FUT3, Les, FT3B
- **Ligands & Associated Molecules**: +
- **Function**: Marker of early hematopoiesis

**CD175**
- **Alternative Name**: Tn
- **Ligands & Associated Molecules**: – + + +
- **Function**: Potentially involved in cell adhesion

**CD175s**
- **Alternative Name**: Sialyl-Tn (s-Tn)
- **Ligands & Associated Molecules**: – + + +
- **Function**: Potentially involved in cell adhesion

**CD176**
- **Alternative Name**: TF Antigen
- **Ligands & Associated Molecules**: – + + +
- **Function**: Potentially involved in cell adhesion

**CD177**
- **Alternative Name**: NB1, HNA-2a, NB1gp, Neutrophil-specific antigen 1, PRV1
- **Ligands & Associated Molecules**: DcR3, CD95 (Fas), TNFRSF6B, PTPN12, FADD, TNFRSF1A
- **Function**: Neutrophil transmigration

**CD178**
- **Alternative Name**: Fas Ligand, FASL, CD95L, TNFSF6, APT1LG1
- **Ligands & Associated Molecules**: DcR3, CD95 (Fas), TNFRSF6B, PTPN12, FADD, TNFRSF1A
- **Function**: Apoptosis

**CD179a**
- **Alternative Name**: VpreB, IGVPB, VFREB1
- **Ligands & Associated Molecules**: CD179b, Ig µ heavy chain
- **Function**: May regulate Ig gene rearrangements in the early steps of B-cell differentiation

**CD179b**
- **Alternative Name**: lambda5, 14.1, IGL5, IGGL1
- **Ligands & Associated Molecules**: CD179a, Ig µ heavy chain
- **Function**: B-cell proliferation and differentiation

---

+ Positive*  – Negative

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD   | Alternative Name | Ligands & Associated Molecules | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function |
|------|-----------------|--------------------------------|--------|--------|---------------|---------|-------------------|-------------------|-------------|----------|------------|----------------|---------------|------------|----------|
| CD180 | RP105, Bgr95, Ly64, Ly78 | MD-1 | + | + | + | | | | | | | | | Controls B-cell recognition and signaling of LPS |
| CD181 | (formerly CD128a) CXCRI1, IL-8Rx | IL-8 | + | | + | + | | | | | | | | Chemotaxis |
| CD182 | (formerly CD128b) CXCRI2, IL-8Rx, CMKAR2, IL8R2 | IL-8 | + | | + | | + | | | | | | | Chemotaxis |
| CD183 | CXCRI3, GPR9, CKR-L2, CMKAR3, IP10, Mig-R, TAC | IP10, Mig, I-TAC | + | + | | + | | | | | | | | Chemotaxis, adhesion |
| CD184 | CXCRI4, NPY3R, Fusin, CMKAR4, LESTR, HM89, FB22, LCR1 | SDF-1, viral MIP-2, CXCL12 | + | + | + | + | + | | | | | | | Mediates blood cell migration in response to SDF-1 |
| CD185 | CXCRI5, BLR1, MDR15, MGC117347 | CXCL13, CCL13 | + | + | + | | | | | | | | | Homing and cell movement |
| CD186 | CXCRI6, STRL33, TYMSTR, BONZO | | | | | | | | | | | | | | |
| CD191 | CCR1, CCR1, CD191, CCR-1, HM145, CMKBR1, MIP1αR, SCYAR1 | MIP-1α, RANTES, MCP-3, MIP-5, LD78 | + | | + | + | | | | | | | | Chemotaxis, adhesion |
| CD192 | CCR2, CCR2, CCR2A, CCR2B, CCR2A, CCR2B, CMKBR2, MCP-1-R, CC-CKR-2, FLJ78302, MGC103828, MGC111760, MGC168006 | MCPs | + | + | + | + | + | | | | | | | Receptor for MCP-1, which mediates monocyte chemotaxis |
| CD193 | CCR3, CCKR3, CMKBR3, CC-CKR-3, MGC102841 | CCL11, CCL26, MCP-3 (CCL7), MCP-4 (CCL13), RANTES(CCL5) | + | | + | + | | | | | | | | Cell adhesion, cellular defense response |
| CD194 | CCR4, CC-CKR-4, CCKR4, CMKBR4, ChemR13, HGCN | MIP-1, RANTES, TARC, MCP-1 | + | | + | + | | | | | | | | Homing receptor for circulating memory lymphocytes |
| CD195 | CCR5, CMKBR5, IDDM22, CC-CKR-5, FLJ78003 | MIP-1α, 1b, MIP-2, RANTES | + | | - | + | + | + | - | - | - | - | - | Regulates lymphocyte chemotaxis activation during and transendothelial migration during inflammation |
| CD196 | CCR6, BN-1, DCR2, DRY6, CKLR3, GPR29, CCR-L3, CMKBR6, GPRCY4, STRL22, CC-CKR-6 | MIP-3α | + | + | + | | | | | | | | | B-lineage maturation and antigen-driven B-cell differentiation |
| CD197 | CCR7 (formerly Cd197), BLR2, EB11, CMKBR7 | CCL19/ECL, CCL21 | + | + | | | | | | | | | | Activates B and T lymphocytes, stimulates dendritic cell maturation |
| CDw198 | CCR8, CCR-L1, CKLR1, CMKBR8, CMKBR2, C16, GPR-CY6, TER1 | I-309, TARC, MIP-1b | + | | + | | | | | | | | | Monocyte chemotaxis and thymic cell apoptosis; preferentially expressed in the thymus |
| CDw199 | CCR9, GPR28, GPR-9-6 | CCL25 | + | | | | | | | | | | | | Chemotaxis, cellular defense response |
| CD200 | OX2, MRCl, MOX1, MOX2 | C200R1 | - | + | + | - | - | - | - | - | + | | | Co-stimulates T-cell proliferation. May regulate myeloid cell activity |

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive*   – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>DC Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD201</td>
<td>EPCR, CCCA, CCD41, MGC23024, bA4204.2, PROCR</td>
<td>Protein C</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cytoprotection</td>
</tr>
<tr>
<td>CD202b</td>
<td>TEK, Tie2, VMCM, TIE-2, VMCM1</td>
<td>Angiopoietin-1, 2, and 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Migration and signaling</td>
</tr>
<tr>
<td>CD203c</td>
<td>PDNP3, B10, PDI, E-NPP3</td>
<td>cAMP, NAD, Nucleoside phosphates</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ectoenzyme involved in the hydrolysis of extracellular nucleotides</td>
</tr>
<tr>
<td>CD204</td>
<td>MSR, SR-A, phSR1, phSR2, SCARA1, MSR1</td>
<td>LDL, B-Amyloid fibrils</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Macrophage scavenger receptor that mediates the endocytosis of modified low density lipoproteins (LDLs)</td>
</tr>
<tr>
<td>CD205</td>
<td>DEC-205, CLEC13B, GP200-MR6, LY75</td>
<td>MIR98</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Phagocytosis, endocytosis</td>
</tr>
<tr>
<td>CD206</td>
<td>Mannose receptor C type-1 (MRC1), Macrophage mannose receptor (MMR), C-type Lectin domain family 13 member D (CLEC13D)</td>
<td>Glycoforms of sialoadhesin (CD169) and CD45, Bacterial cell wall molecules, Viral glycoproteins, Yeast proteins, Chitin, Lysosomal hydrolases, Plant glycoproteins, Neoglycoproteins, Lutropin, Chondroitin sulfate</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pathogen receptor; Ag endocytosis</td>
</tr>
<tr>
<td>CD207</td>
<td>Langerin, C-type Lectin domain family 4 member K (CLEC4K)</td>
<td>Mannose-bearing glycoproteins and glycolipids on microbial pathogens, including HIV gp120</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pathogen receptor; Ag endocytosis; Birbeck granule formation</td>
</tr>
<tr>
<td>CD208</td>
<td>Lysosomal-associated membrane protein 3 (LAMP3), DC-LAMP, DCLAMP, LAMP, TSC403</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ag processing</td>
</tr>
<tr>
<td>CD209</td>
<td>Dendritic cell-specific ICAM-3-grabbing non-integrin (DC-SIGN), DC-SIGN1, CDSIGN1, C-type Lectin domain family 4 member L (CLEC4L), HIV gp120-binding protein</td>
<td>CD50 (ICAM-3), CD102 (ICAM-2), Mannose-bearing glycoproteins on several pathogens including HIV gp120</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DC migration; T-cell proliferation; pathogen receptor; HIV-1 receptor; Ag endocytosis and degradation</td>
</tr>
<tr>
<td>CD210a</td>
<td>Interleukin 10 Receptor A (IL-10RA, IL-10R1)</td>
<td>IL-10, vIL-10</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Cytokine receptor; Immunoregulation</td>
</tr>
<tr>
<td>CD210b</td>
<td>Interleukin 10 Receptor B (IL-10RB, IL-10R2)</td>
<td>IL-10 and vIL-10</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>Cytokine receptor; Immunoregulation</td>
</tr>
<tr>
<td>CD212</td>
<td>Interleukin 12 receptor β1 chain (IL-12β1), IL-12β, CD212b1</td>
<td>IL-12, IL-23, associates with IL-12Rβ2 or IL-23 to form high-affinity receptors</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td>Dimerizes with IL-12Rβ2 to form high-affinity IL-12 receptor; promoting cell-mediated and Th1 immunity. Combines with IL-23R to form IL-23 receptor; promoting Th17 immunity</td>
</tr>
<tr>
<td>CD213a1</td>
<td>Interleukin 13 receptor α1 chain (IL-13Rα1), NR4</td>
<td>IL-13, IL-4, associates with IL-4Rα to form receptors</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Associates with IL-4Rα to form the IL-13 receptor; regulating inflammation and supporting B cell activity. Also involved in the type II IL-4 receptor system.</td>
</tr>
<tr>
<td>CD213a2</td>
<td>Interleukin 13 receptor α2 chain (IL-13Rα2), interleukin-13-binding protein (IL13BP)</td>
<td>IL-13</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Reduces the biological effects of IL-13</td>
</tr>
</tbody>
</table>

**For Research Use Only. Not for use in diagnostic or therapeutic procedures.**

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.*
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>NK Cell</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD215</td>
<td>Interleukin 15 receptor alpha chain (IL-15RA)</td>
<td>IL-15</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Associates with CD132 and CD122 to form the IL-15 receptor, regulating apoptosis and phagocytosis, crucial for generation and maintenance of memory CD8+ T cells</td>
</tr>
<tr>
<td>CD217</td>
<td>Interleukin 17 receptor A (IL-17RA), IL-17R, CDw217</td>
<td>IL-17A, vIL-17, IL-17F (weak binding), associates with IL-17R to form receptor for IL-17A, IL-17F, and IL-17A/F heterodimers, associates with IL-17RB to form receptor for IL-17E (IL-25)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Associates with IL-17RC to form receptor for IL-17A, IL-17E, and IL-17A/F heterodimers, promoting inflammatory responses. Associates with IL-17RB to form receptor for IL-17E (IL-25), suppressing Th17 responses and promoting Th2 responses.</td>
</tr>
<tr>
<td>CD218a</td>
<td>Interleukin 18 receptor 1 (IL-18R1), IL-18RA, IL-18Rxx, IL1 receptor-related protein (IL-1Rrp), IL-85, CDw218a</td>
<td>IL-18, associates with IL-18Rβ to form high-affinity IL-18 receptor</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>Associates with IL-18Rβ to form high-affinity IL-18 receptor, promoting inflammatory Th1 and Th2 responses</td>
</tr>
<tr>
<td>CD218b</td>
<td>Interleukin 18 receptor β (IL-18Rβ), IL-18 receptor accessory protein (IL-18RAP, IL-18RαcP), IL-1R accessory protein-like (IL-1RαcPL), IL-1R7, CDw218b</td>
<td>Associates with IL-18Rxx to form high-affinity IL-18 receptor</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>Associates with IL-18Rβ to form high-affinity IL-18 receptor, promoting inflammatory Th1 and Th2 responses</td>
</tr>
<tr>
<td>CD220</td>
<td>Insulin receptor (NSR), IR</td>
<td>Insulin, IGF-2</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>Insulin receptor. Causes internalization and degradation of insulin and stimulates glucose uptake</td>
</tr>
<tr>
<td>CD221</td>
<td>Insulin-like growth factor 1 receptor (IGF1R), IGF-1R, type I IGF receptor (IGF-IR), JTK13</td>
<td>Insulin-like growth factor 1 (IGF-I), IGF-II, Insulin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>Receptor for IGF-I and IGF-II. Mediates mitogenic and anti-apoptotic signals</td>
</tr>
<tr>
<td>CD222</td>
<td>Cation-independent mannose-6-phosphate receptor (M6P-R, CIM6PR, CIMPR, CI-MPR), Insulin-like growth factor 2 receptor (IGF2R, IGFIIr, IGF-IIR), MPRI, MPRI</td>
<td>IGF-II, TGF-β latency-associated peptide (LAP), Proliferin, Proritin, Piasminogen, Leukemia inhibitory factor (LIF), Herpes simplex virus, Thyroglobulin, Retinoic acid, Cathespin B, D, L, Mannose-6-phosphate (M6P)-containing proteins, CD87</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Receptor that internalizes various extracellular ligands and directs them to lysosomes. Associates with CD87 to activate latent TGF-β. Binding IGF-II stimulates insulin secretion. Mediates proliferin-induced angiogenesis</td>
</tr>
<tr>
<td>CD223</td>
<td>Lymphocyte activation gene 3 (LAG3, LAG-3), FDC protein</td>
<td>MHC class II, TCR-CD3 complex</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>Binds MHC class II with high affinity and regulates homeostatic expansion of T cells through association with TCR-CD3 complex. Allows activated T cells to fully activate monocytes and dendritic cells.</td>
</tr>
<tr>
<td>CD224</td>
<td>γ-Glutamyl transferase 1 (GGT1), γ-Glutamyl transpeptidase 1 (GGTP), GGT1, GTG, EC2.3.2.2</td>
<td>Glutathione, GSH, Leukotriene C4, GSNO</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>Protects cells from oxidative stress by participating in γ-glutamyl cycle</td>
</tr>
<tr>
<td>CD225</td>
<td>Interferon-induced transmembrane protein 1 (IFITM1), Interferon-induced protein 17 (IFI17), Interferon-inducible protein 9-27 (9-27), L13, fragilis2</td>
<td></td>
<td>CD21, CD19, TAPA-1, CD81</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>Myeloid/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Function</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>-------</td>
<td>---------------</td>
<td>------------------</td>
<td>-------------</td>
<td>---------</td>
<td>------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CD226</td>
<td>DNAX accessory molecule 1 (DNAM-1), Platelet and T-cell activation antigen 1 (PТA-1), T lineage-specific activation antigen 1 antigen (TLiSA1)</td>
<td>CD112, CD155, LFA-1 when phosphorylated by PKC</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Involved in platelet adhesion and activation, megakaryocyte adhesion and maturation, and adhesion of cytotoxic T and NK cells to target cells. Important for tumor immunosurveillance</td>
</tr>
<tr>
<td>CD227</td>
<td>Mucin 1 (MUC1, MUC-1), DF3 antigen, H23 antigen, Peanut-reactive urinary mucin (PUM), Polymorphic epithelial mucin (PEM), Epithelial membrane antigen (EMA), Tumor-associated mucin, Epilasin</td>
<td>CD54, CD169, Selectins, Grb2, β-Catenin, GSK-3β</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>Involved in cell-cell interactions and adhesion. May confer cell surface protection by protruding from the cell surface. Cytoplasmic tail is involved in many cell signaling pathways</td>
</tr>
<tr>
<td>CD228</td>
<td>Melanotransferrin (MT, MTF1), p97 Melanoma antigen (p97, MAP97), Mif2, gp95</td>
<td>Iron, Plasminogen, pro-UPA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>–</td>
<td>Presumed role in iron transport based on high affinity binding or iron. Influences migration of endothelial and melanoma cells</td>
</tr>
<tr>
<td>CD229</td>
<td>Lymphocyte antigen 9 (Ly9), T-lymphocyte surface antigen Ly-9, Signaling lymphocyte activation molecule family member 3 (SLAMF3), Lgp100, T100</td>
<td>CD229 (homophilic binding), SAP, Grb2</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Homophilic binding may promote T cell/B cell adhesion. Promotes Th2 polarization and T-cell activation</td>
</tr>
<tr>
<td>CD230</td>
<td>Prion protein (PrP, PRNP), Major prion protein, prP27-30, prP33-35C, PrPc</td>
<td>CD230 (homophilic binding), N-CAM (CD56)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Unknown function, but implicated in copper binding, oxidative stress homeostasis, cell survival, and signal transduction</td>
</tr>
<tr>
<td>CD231</td>
<td>Tetraspanin 7 (TSPAN7), T-cell acute lymphoblastic leukemia-associated antigen 1 (TALLA-1), Transmembrane 4 superfamily member 2 (TM4SF2), Membrane component X chromosome surface marker-1 (MKS1), A15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>–</td>
<td>Neuronal function. Marker for T-cell acute lymphoblastic leukemia (T-ALL)</td>
</tr>
<tr>
<td>CD232</td>
<td>Plexin C1 (PLXNC1), Virus-encoded semaphorin protein receptor (VESPR, VESP-R)</td>
<td>Semaphorin 7A (CD108), Poxvirus semaphorin A39R</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>May be involved in promoting DC adhesion and migration. Binding of poxvirus semaphorin A39R induces cytoskeletal rearrangement and secretion of IL-6 and IL-18</td>
</tr>
<tr>
<td>CD233</td>
<td>Solute carrier family 4 anion exchanger member 1 (SLC4A1), Band 3, Anion exchanger 1 (AE1), Diego blood group, Erthyroprotein band 3 (EPB3)</td>
<td>Glycophorin A, Ankyrin, Hemoglobin, Glycolytic enzymes</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Mediates anion exchange and bicarbonate export in erythrocytes and kidney cells. Links red cell cytoskeleton to membrane. Regulates several glycolytic enzymes.</td>
</tr>
<tr>
<td>CD234</td>
<td>Duffy antigen/chemokine receptor (DARC), Duffy blood group antigen (Dfy, FY), Fy-Glycoprotein, Glycoprotein D</td>
<td>CXCL1 (MGSa), CXCL8 (IL-8), CCL2 (MCP-1), CCL5 (RANTES), Malarial parasites Plasmodium falciparum knowlesi and P. vivax</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>Binds and internalizes several chemokines, modulating levels in blood by acting as both a sink and a reservoir. Receptor allowing malarial parasite entry into erythrocytes</td>
</tr>
<tr>
<td>CD235a</td>
<td>Glycophrin A (GYPa), Sialoglycoprotein α, Sialoglycoprotein A, MN blood group antigen, PAS-2</td>
<td>CD170, Influenza virus, Plasmodium falciparum erythrocyte binding antigen EBA-175</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>Major sialoglycoprotein of the erythrocyte membrane. Contains the MN blood group antigens. Prevents agglutination. Receptor allowing parasite entry into erythrocytes</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
# CD Marker Handbook Human CD Markers

<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precuror</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD238</td>
<td>Kell blood group glycoprotein (Kell), Kell blood group antigen, Endothelin-3-converting enzyme (ECE3)</td>
<td>Big endothelin-3 (intermediate precursor of endothelin-3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contains the Kell blood group antigens. Zinc endopeptidase that cleaves endothelin-3 to its active form.</td>
</tr>
<tr>
<td>CD239</td>
<td>Basal cell adhesion molecule (BCAM, B-CAM), Lutheran blood group glycoprotein, Lutheran blood group antigen (Lu)</td>
<td>α5 chain of Laminin 10/11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contains the Lutheran blood group antigens. Adhesion molecule with proposed roles in epithelial cell cancer and in vaso-occlusion by red blood cells in sickle cell disease.</td>
</tr>
<tr>
<td>CD240</td>
<td>Rh blood group system, CD240CE (Rh30CE, Cc &amp; Ee blood antigens), CD240D (Rh30D, D blood antigen), CD240DCE (Rh30D/CE)</td>
<td>CD241, CD242, CD47, CD235b</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Contains the Rh blood group antigens. Forms large complex through interactions with other erythrocyte membrane proteins. May help maintain erythrocyte mechanical properties by associating with cytoskeletal ankyrin-R.</td>
</tr>
<tr>
<td>CD241</td>
<td>RhAG, Rh50A, RH2</td>
<td>ANK1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May have transport or channel function in erythrocyte membranes.</td>
</tr>
<tr>
<td>CD242</td>
<td>ICAM4, LW</td>
<td>LFA-1, Mac-1, VLA-4</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ligand for the leukocyte adhesion protein LFA-1.</td>
</tr>
<tr>
<td>CD243</td>
<td>ABC20, CD243, CLCS, GP170, MDR1, P-gr, PGy1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Transports various substrates across the cell membrane.</td>
</tr>
<tr>
<td>CD244</td>
<td>2B4, NAIL, NKR2B4, Nmrk, SLAMF4</td>
<td>CD48</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Modulation of other receptor-ligand interactions to enhance leukocyte adhesion and NK-cytolytic activity.</td>
</tr>
<tr>
<td>CD245</td>
<td>p220/240</td>
<td>Lymphocyte receptor</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Unknown.</td>
</tr>
<tr>
<td>CD246</td>
<td>ALK, TFG/ALK, NBLST3</td>
<td>Pleiotrophin</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plays an important role in the development of the brain and exerts its effects on specific neurons within the nervous system.</td>
</tr>
<tr>
<td>CD247</td>
<td>CD3-ζ, CD3H, CD3Q, CD3Z, T3Z, TCR2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Couples antigen recognition to several intracellular signaling pathways.</td>
</tr>
<tr>
<td>CD248</td>
<td>TEM1, Endosialin, CD164L1, MGC119478, MGC119479</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tissue remodeling and peripheral lymph node expansion.</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Preursor</td>
<td>Macrophage/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Function</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>--------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>---------------</td>
<td>---------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>CD249</td>
<td>APA, gp160, EAP, ENPEP</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potentially involved in regulating the growth and differentiation of early B lineage cells and in the catabolic pathway of the renin-angiotensin system</td>
</tr>
<tr>
<td>CD252</td>
<td>TNFSF4, GP34, OX40L, TXGP1, CD134L, OX-40L, OX40L</td>
<td>CD134 (OX40)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Co-stimulates T-cell proliferation and cytokine production</td>
</tr>
<tr>
<td>CD253</td>
<td>TNFS10, TL2, APO2L, TRAIL, Apo-2L</td>
<td>Apo2</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Induces cell death by apoptosis</td>
</tr>
<tr>
<td>CD254</td>
<td>TRANCE, RANKL, TNFSF11, ODF, OPGL, SOdF, OPT2, HRANKL2</td>
<td>RANK</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Involved in dendritic cell maturation</td>
</tr>
<tr>
<td>CD256</td>
<td>TNFSF13, APRIL, TALL2, TRDL-1, UNQ383/PRO715</td>
<td>TNFRSF17/BCMA, TACI</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Important for B cell development</td>
</tr>
<tr>
<td>CD257</td>
<td>TNFSF13b, BAFF, BLYS, TALL1, THANK, TNFSF20, ZTNF4</td>
<td>TNFRSF13B/TACI, TNFRSF17/BCMA, TNFRSF13C/BAFFR</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A potent B cell activator. Plays an important role in the proliferation and differentiation of B cells</td>
</tr>
<tr>
<td>CD258</td>
<td>TNFSF14, LTg, TR2, HVEML, LIGHT</td>
<td>TNFRSF14/HVEML</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A costimulatory factor for the activation of lymphoid cells and as a deterrent to infection by herpesvirus.</td>
</tr>
<tr>
<td>CD261</td>
<td>TNFRSF10a, APO2, DR4, MGC9365, TRAILR1</td>
<td>TRAIL, DAP3</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Involved in cell death processes</td>
</tr>
<tr>
<td>CD262</td>
<td>TNFRSF10b, KILLER/DR5, TRAILR2, TRICK2, TRICK2A, TRICK2B, TRICK8, ZTNFR9</td>
<td>TNFRSF10, TRAIL</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Involved in cell death processes</td>
</tr>
<tr>
<td>CD263</td>
<td>TNFRSF10c, DCR1, LI, TRAILR3, TRID</td>
<td>TRAIL</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>An antagonistic receptor that protects cells from TRAIL-induced apoptosis</td>
</tr>
<tr>
<td>CD264</td>
<td>TNFRSF10d, DCR2, TRAILR4, TRUNDD</td>
<td>TRAIL</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plays an inhibitory role in TRAIL-induced cell apoptosis</td>
</tr>
<tr>
<td>CD265</td>
<td>TNFRSF11a, EO5, EFO, ODFR, OFE, PDB2, RANK, TRANCER</td>
<td>TNFRSF11, RANKL, TRANCE, OPGL</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Essential for RANKL-mediated osteoclastogenesis. Involved in the regulation of interactions between T cells and dendritic cells.</td>
</tr>
<tr>
<td>CD266</td>
<td>TNFRSF12A, FN14, TWEAKR</td>
<td>TWEAK</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Angiogenesis and cell proliferation of endothelial cells.</td>
</tr>
<tr>
<td>CD267</td>
<td>TNFRSF13B, CVID, TACI, FLJ39942, MGC39952, MGC133214, TNFRSF14B</td>
<td>TALL1, BLYS, BAFF</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Controls T-cell-independent B cell antibody responses, isotype switching, and B cell homeostasis</td>
</tr>
<tr>
<td>CD268</td>
<td>TNFRSF13C, BAFFR, CD268, BAFF-R, MGC138235</td>
<td>BAFF</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The principal receptor required for BAFF-mediated mature B-cell survival</td>
</tr>
<tr>
<td>CD269</td>
<td>TNFRSF17, BCM, BCMA</td>
<td>TNFRSF13B, TALL-1, BAFF</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Promotes B-cell survival</td>
</tr>
<tr>
<td>CD270</td>
<td>TNFRSF14, HVEM</td>
<td>CD258, CD272, CD160</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Apoptosis and activation</td>
</tr>
<tr>
<td>CD271</td>
<td>NGFR, Gp80-LNGFR, TNFRSF16, p75(NTR), p75NTR</td>
<td>NGF, BDNF, NT-3, NT-4</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Apoptosis, differentiation, neurogenesis</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD   | Alternative Name | Ligands & Associated Molecules | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                                                                 |
|------|------------------|--------------------------------|--------|--------|----------------|---------|--------------------|---------------------|--------------|----------|------------|-----------------|-----------------|----------------|--------------------------------------------------------------------------|
| CD272 | BTLA1, FL16065, MGC129743 | B7H4                                      | +      | +      | -              | +       | -                  | -                   | -            | -         | -          | -               | -               | Ligand for tumour necrosis factor (ligand) superfamily, member 14 (TNFSF14), also known as herpes virus entry mediator (HVEM). BTLA-HVEM complexes negatively regulate T-cell immune responses. |
| CD273 | B7DC, Bdc, PD1L2, CD273, PD-L2, PDCD1L2, MGC142238, MGC142240, bA574F11.2, PDCD1LG2 | PD2                                      | +      | +      | -              | +       | -                  | -                   | -            | -         | -          | -               | -               | Modulation of T-cell proliferation (positive or negative depending on binding) |
| CD274 | B7-H, B7H1, PD-L1, PD-L1, PDCD1L1, PDCD1LG1, MGC142294, MGC142296, CD274 | PD1                                      | +      | +      | +              | +       | -                  | +                   | +            | -         | -          | -               | -               | Found on activated T cells, B cells, and myeloid cells, to modulate activation or inhibition |
| CD275 | B7H2, GL50, B7-H2, B7RP1, CD275, ICOSL, LICOS, B7RP-1, ICOS-L, KIAA0653, ICOSL2 | ICOS                                     | +      | +      | -              | +       | +                  | +                   | +            | -         | -          | -               | -               | Co-stimulatory B7 molecules (e.g., B7-1, or CD80) signal through CD28 family molecules such as CD28, CTLA4, and ICOS. |
| CD276 | B7H3, B7-H3, 4Ig-B7-H3, CD276 | ICOS                                     | +      | +      | -              | -       | +                  | -                   | -            | -         | -          | -               | -               | Positive regulation of activated T-cell proliferation, T and B-cell activation. |
| CD277 | BTFS, BT3.1, CD277, MGC141880, BTN3A1 |                                      | +      | +      | +              | +       | +                  | +                   | +            | -         | -          | -               | -               | Lipid metabolic process |
| CD278 | AILIM, CD278, MGC39850, ICOS | B7-H3                                    | +      | +      | -              | -       | +                  | -                   | -            | -         | -          | -               | -               | A CD28-superfamily costimulatory molecule that is expressed on activated T cells. It is thought to be important for Th2 cells. |
| CD279 | PD1, CD279, SLEB2, HPD-1, HDP-1, PDCD1 | PDL1                                     | +      | +      | -              | -       | +                  | -                   | -            | -         | -          | -               | -               | Expressed in pro-B-cells and is thought to play a role in their differentiation |
| CD280 | CD280, UPARAP, CLEC13E, ENDO180, FLJ35911, KIAA0709, MRC2, KIAA0709 | UPARAP                                   | +      | +      | -              | -       | +                  | -                   | -            | -         | -          | -               | -               | Functions in cell motility and remodeling of the extracellular matrix by promoting cell migration and uptake of collagens for intracellular degradation |
| CD281 | TIL, CD281, rs786, KIAA0012, MGC104956, MGC126311, MGC126312, TIL, LPR55, DKF2p54710610, DKF2p5640682, TLR1 | Bacterial lipoprotein                   | +      | +      | -              | -       | +                  | -                   | -            | -         | -          | -               | -               | Plays a fundamental role in pathogen recognition and activation of innate immunity. |
| CD282 | TIL4, CD282, TLR2 | Peptidoglycan                            | +      | +      | -              | -       | -                  | -                   | -            | -         | -          | -               | -               | Plays a role in pathogen recognition and activation of innate immunity and mediates host response to Gram-positive bacteria and yeast via stimulation of NF-κB |
| CD283 | TLR3, TOLL-like receptor 3 | dsRNA                                    | +      | +      | -              | -       | -                  | -                   | -            | -         | -          | -               | -               | Recognizes dsRNA associated with viral infection, and induces the activation of NF-κB and the production of type I interferons. It may thus play a role in host defense against viruses. |
| CD284 | TOLL, CD284, hToll, ARMD10, TLR4 | LPS                                      | +      | +      | -              | -       | -                  | -                   | -            | -         | -          | -               | -               | Implicated in signal transduction events induced by lipopolysaccharide (LPS) found in most gram-negative bacteria. |
| CD286 | CD286, TLR6, TOLL-like receptor 6 | LPS                                      | +      | +      | -              | -       | -                  | -                   | -            | -         | -          | -               | -               | Receptor functionally interacts with toll-like receptor 2 to mediate cellular response to bacterial lipoproteins |

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD288</td>
<td>CD288, MGC119599, MGC119600, TLR8, TOLL-like receptor 8</td>
<td>CpG oligonucleotides, MyD88</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Participates in the innate immune response to pathogens</td>
</tr>
<tr>
<td>CD289</td>
<td>TLR9, TOLL-like receptor 9</td>
<td>CpG oligonucleotides</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor mediates the cellular response to unmethylated CpG dinucleotides in bacterial DNA to mount an innate immune response</td>
</tr>
<tr>
<td>CD290</td>
<td>TLR10, TOLL-like receptor 10</td>
<td>MyD88</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May participate in the innate immune response to pathogens</td>
</tr>
<tr>
<td>CD292</td>
<td>BIMPR1A, 10q23del, ACVRLK3, ALK3, SKR5</td>
<td>Members of TGF-β superfamily</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BIMPR1A is necessary for the extracellular matrix deposition by osteoblasts</td>
</tr>
<tr>
<td>CDw293</td>
<td>BMPR1B, ALK-6, ALK6, BMPs (members of the TGF-β superfamily)</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Involved in endochondral bone formation and embryogenesis</td>
</tr>
<tr>
<td>CD294</td>
<td>CRTH2, PGRD2, G protein-coupled receptor 44 (GPR44), DL1R, DP2</td>
<td>Prostaglandin D2</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A prostaglandin D2 receptor that mediates the pro-inflammatory chemotaxis of eosinophils, basophils, and Th2 lymphocytes generated during allergic inflammation</td>
</tr>
<tr>
<td>CD295</td>
<td>LEPR, OBR</td>
<td>Leptin</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor for leptin (an adipocyte-specific hormone that regulates body weight), and is involved in the regulation of fat metabolism, as well as in a novel hematopoietic pathway that is required for normal lymphopoiesis.</td>
</tr>
<tr>
<td>CD296</td>
<td>ART1, ADP-ribosyltransferase 1, RT6, ART2, MGC133217</td>
<td>Arginine residues in proteins</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Catalyzes the ADP-ribosylation of arginine residues in proteins</td>
</tr>
<tr>
<td>CD297</td>
<td>ART4, ADP-ribosyltransferase 4, Dombrock blood group glycoprotein, DG, DK1</td>
<td>Antigens of the Dombrock blood group system are located on the gene product, which is glycosylphosphatidylinositol-anchored to the erythrocyte membrane.</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Member of the ADP-ribosyltransferase gene family but enzymatic activity has not been demonstrated experimentally</td>
</tr>
<tr>
<td>CD298</td>
<td>ATP1B3, Na K ATPase β3 subunit, ATPB-3, FLJ29027</td>
<td>Part of the glycoprotein subunits of Na+/K+ ATPase.</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Establishing and maintaining the electrochemical gradients of Na and K ions across the plasma membrane.</td>
</tr>
<tr>
<td>CD299</td>
<td>DCSIGN-related, L-SIGN, DCSIGNR, HP10347, DC-SIGN2, DC-SIGNR, MGC47866, MGC12996, CLEC4M</td>
<td>Carbohydrate ligands on the surface of microbes and endogenous cells</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The encoded protein is involved in the innate immune system and recognizes numerous evolutionarily divergent pathogens ranging from parasites to viruses</td>
</tr>
<tr>
<td>CD300a</td>
<td>IRC1, IRC2, CLM-8, IRp60, IGSF12, CMRF35H, CMRF-35H, CMRF35-H, CMRF35H9, CMRF35-H9, IRC1/IRC2, CMRF-35H9</td>
<td>Unknown</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell function; also suppresses the effects of eotaxin, IL-5 and GM-CSF on neutrophils, and inhibits Ig-E dependent, but not Ig-E independent, activities on mast cells.</td>
</tr>
<tr>
<td>CD300e</td>
<td>CMRF-35L1, CLM2, CLM-2, IREM2, PigR2, IREM-2, PigR-2, CD300LE, CMRF35-A5</td>
<td>Unknown</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activating receptor of the immunoglobulin (Ig) superfamily that mediates activating signals by interacting with DAP12</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Preursor</td>
<td>Neutrophil/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Function</td>
</tr>
<tr>
<td>------</td>
<td>-----------------</td>
<td>-------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------</td>
<td>----------</td>
<td>-------------</td>
<td>--------------------</td>
<td>----------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>CD301</td>
<td>MGL1, CLEC10A, CLEC14A, HML</td>
<td>Terminal galactose and N-acetylglucosamine units linked to serine or threonine</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible roles in cell adhesion, glycoprotein turnover, and inflammation</td>
</tr>
<tr>
<td>CD302</td>
<td>DCL1</td>
<td>F-actin</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell adhesion, migration, endocytosis, and phagocytosis</td>
</tr>
<tr>
<td>CD303</td>
<td>BDC2A2, CLEC4C</td>
<td>TLR-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen-capture</td>
</tr>
<tr>
<td>CD304</td>
<td>Neutrophil 1</td>
<td>VEGF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Angiogenesis, axon guidance, cell survival, migration, and invasion</td>
</tr>
<tr>
<td>CD305</td>
<td>LAIR1</td>
<td>PTPN6, PTPN11</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Negative regulator of NK, B, and T cells</td>
</tr>
<tr>
<td>CD306</td>
<td>LAIR2</td>
<td>LAIR1, Collagen</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Soluble receptor that modulates LAIR1 (CD305)</td>
</tr>
<tr>
<td>CD307a</td>
<td>FCRL1, IRTA5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B cell activation and differentiation</td>
</tr>
<tr>
<td>CD307b</td>
<td>FCRL2, IRTA4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B cell activation and differentiation</td>
</tr>
<tr>
<td>CD307c</td>
<td>FCRL3, IRTA3</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B cell activation and differentiation</td>
</tr>
<tr>
<td>CD307d</td>
<td>FCRL4, IRTA1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B cell activation and differentiation</td>
</tr>
<tr>
<td>CD307e</td>
<td>FCRL5, IRTA2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B cell activation and differentiation</td>
</tr>
<tr>
<td>CD309</td>
<td>VEGFR2, KDR, Flk1</td>
<td>VEGF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Vascular development and regulation of vascular permeability</td>
</tr>
<tr>
<td>CD312</td>
<td>EMR2</td>
<td>Chondroitin sulphates</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell adhesion and migration</td>
</tr>
<tr>
<td>CD314</td>
<td>NK2GD</td>
<td>MICA, MICB, ULBP2, ULBP1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor for the recognition of MHC class I HLA-E molecules</td>
</tr>
<tr>
<td>CD315</td>
<td>PTGFRN, CD9P1</td>
<td>CD9, CD81</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell motility</td>
</tr>
<tr>
<td>CD316</td>
<td>EW2, IGSF8</td>
<td>CD82, CD81, CD9</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potentially a negative regulator of cell motility</td>
</tr>
<tr>
<td>CD317</td>
<td>BST2</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Tethering mature virions to the host cell surface preventing egress of enveloped viruses</td>
</tr>
<tr>
<td>CD318</td>
<td>CDCP1</td>
<td>N-Cadherin, P-Cadherin, Syndecan-1, Syndecan-4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell differentiation, homing and dissemination. May also have a pro-survival role</td>
</tr>
<tr>
<td>CD319</td>
<td>CRACC, SLAMF7</td>
<td>CD319</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell activation; may also be involved in lymphocyte adhesion</td>
</tr>
<tr>
<td>CD320</td>
<td>8D6</td>
<td>8D6 Antigen, FDC</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Augments the proliferation of plasma cell precursors</td>
</tr>
<tr>
<td>CD321</td>
<td>JAM1, F11 receptor</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plays a role in epithelial tight junction formation. Also involved in regulating monocyte transmigration involved in integrity of epithelial barrier. Involved in platelet activation.</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD    | Alternative Name | Ligands & Associated Molecules | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                                                                                                                                                                                                 |
|-------|------------------|--------------------------------|--------|--------|----------------|---------|---------------------|---------------------|-------------|----------|------------|----------------|----------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CD322 | JAM2             |                                 |        | +      |                |         |                     |                     |             |          |            |                 |                 | + Positive*                                                                                                                             | May play a role in the processes of lymphocyte homing to secondary lymphoid organs. |
| CD324 | E-Cadherin        |                                 |        | +      |                |         |                     |                     |             |          |            |                 |                 | + Positive*                                                                                                                             | A calcium dependent cell adhesion protein. E-Cad/CTF2 promotes non-amyloidogenic degradation of AB precursors. |
| CD325 | N-Cadherin        |                                 |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Functions during gastrulation and is required for the establishment of left-right asymmetry. |
| CD326 | Ep-CAM           |                                 |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | A homotypic calcium-independent T-cell adhesion molecule. |
| CD327 | Syllec6, CD33L    | Syllated glycans                |        | +      |                |         |                     |                     |             |           |           |                 |                 | + Positive*                                                                                                                             | Putative adhesion molecule that mediates sialic-acid dependent binding to cells. |
| CD328 | Syllec7           | Syllated glycans                |        |        | +             | +       |                     |                     |             |           |           |                 |                 | + Positive*                                                                                                                             | Putative adhesion molecule that mediates sialic-acid dependent binding to cells. Mediates inhibition of natural killer cell cytotoxicity. May play a role in hematopoiesis. Inhibits differentiation of CD34+ cell precursors towards myelomonocytic cell lineage and proliferation of leukemic myeloid cells (in vitro). |
| CD329 | Siglec9           | Syllated glycans, sMUC16        |        |        | –             | –       |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Putative adhesion molecule that mediates sialic-acid dependent binding to cells. |
| CD331 | FGFR1            | FGF                             |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Receptor for basic fibroblast growth factor. |
| CD332 | FGFR2            | FGF                             |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Receptor for acidic and basic fibroblast growth factors. |
| CD333 | FGFR3            | FGF                             |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Receptor for acidic and basic fibroblast growth factors that referentially bind FGF1. |
| CD334 | FGFR4            | Acidic FGF                      |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Receptor for acidic fibroblast growth factor. Does not bind to basic fibroblast growth factor. |
| CD335 | Nkp46, NCR1, Ly94 | HA, CD3z, FCERIG               |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Cytotoxicity-activating receptor that may contribute to the increased efficiency of activated natural killer (NK) cells to mediate tumor cell lysis. |
| CD336 | Nkp44, NCR2, Ly95 | DAP12                           |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Cytotoxicity-activating receptor that may contribute to the increased efficiency of activated natural killer (NK) cells to mediate tumor cell lysis. |
| CD337 | Nkp30, NCR3      | Viral proteins, CD3z            |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Cytotoxicity-activating receptor that may contribute to the increased efficiency of activated natural killer (NK) cells to mediate tumor cell lysis. |
| CD338 | ABCG2            |                                 |        |        | –             | +       |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Xenobiotic transporter that may play an important role in the exclusion of xenobiotics from the brain and cancer cells. |
| CD339 | Jagged-1, JAG1    | Notch 1, 2, 3                   |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Ligand for multiple Notch receptors and involved in the mediation of Notch signaling. May be involved in cell-fate decisions during hematopoiesis. |
| CD340 | ERBB-2, Neu, Her-2 | EGFR                             |        |        |                |         |                     |                     |             | +         |           |                 |                 | + Positive*                                                                                                                             | Binds tightly to other ligand-bound EGF receptor family members to form a heterodimer, stabilizing ligand binding and enhancing kinase-mediated activation of downstream signaling pathways. |

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD344</td>
<td>FZD4, Frizzled homolog 4</td>
<td>MAGI3, Norrin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>A receptor for Wnt proteins that plays an important role in retinal vascularization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD349</td>
<td>FZD9, Frizzled homolog 9</td>
<td>Wnt-2</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>A receptor for Wnt proteins that may play a role in B cell development.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD350</td>
<td>FZD10, Frizzled homolog 10</td>
<td>Wnt-7</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>A receptor for Wnt proteins that may play a role in lung and neural development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD351</td>
<td>FCAMR, Fc receptor, IgA, IgM, high affinity</td>
<td>IgA, IgM</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>A high affinity receptor for Fc fragments IgA and IgM and mediates their endocytosis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD352</td>
<td>SLAMF6, Ly108, NTB-A</td>
<td>CD352, SH2D1A, SAPPTN6, PTN11</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Triggers cytolytic activity only on NK cells expressing high surface densities of natural cytotoxicity receptors.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD353</td>
<td>SLAMF8, BLAME</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Regulates macrophage function; may play a role in B cell lineage commitment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD354</td>
<td>TREM1</td>
<td>TYROBP/DAP12</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Stimulates neutrophil and monocyte-mediated inflammatory responses. Triggers release of pro-inflammatory chemokines and cytokines, as well as increased surface expression of cell activation markers. Amplifier of inflammatory responses that are triggered by bacterial and fungal infections and is a crucial mediator of septic shock.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD355</td>
<td>CRTAM, Cytotoxic and regulatory T-cell molecule</td>
<td>CADM1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Interaction with CADM1 promotes natural killer (NK) cell cytotoxicity and interferon-γ (IFN-γ) secretion by CD8+ cells in vitro as well as NK cell-mediated rejection of tumors expressing CADM3 in vivo.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD357</td>
<td>TNFRSF18, Tumor necrosis factor receptor superfamily, member 18, GITR</td>
<td>TRAF1, TRAF2, TRAF3, SIVA1/SIVA, GITRL</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>GITR signaling on conventional T cells is believed to be an activator. In contrast, activation of GITR on Tregs results in functional inactivation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD358</td>
<td>TNFRSF21, Tumor necrosis factor receptor superfamily, member 21, DR6</td>
<td>TRADD, N-APP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Involved in the activation of apoptosis.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD359</td>
<td>PI16</td>
<td>MSMB</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Serine protease inhibitor; potential suppressive activity. Initially identified as a serum binding partner of prostate secretory protein 94.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD360</td>
<td>IL21R</td>
<td>IL-21, common γ subunit, JAK1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Upon binding to IL-21, IL-21R has pleiotropic actions such as increasing the proliferation of T cells, driving B cells into memory cells, terminally differentiating plasma cells and augmenting the activity of natural killer cells.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD361</td>
<td>EVI2B (ectoptoc viral integration site 2B)</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>A cell surface heparan sulfate proteoglycan that functions as a cell surface receptor in the regulation of adhesion-dependent signaling during cell adhesion and migration.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD362</td>
<td>Syndecan-2</td>
<td>CD267 (TACI), FGF2, GM-CSF, TGFβ</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Involved in the egress of newly formed T cells from the thymus and the exit of mature T and B cells from secondary lymphoid organs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD363</td>
<td>S1PR1, Sphingosine-1-phosphate receptor 1, EDG-1</td>
<td>SIP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Involved in the egress of newly formed T cells from the thymus and the exit of mature T and B cells from secondary lymphoid organs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
### Key Markers - Human

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Key Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>T Cell</td>
<td>CD3, CD4, CD8</td>
</tr>
<tr>
<td>B Cell</td>
<td>CD19, CD20</td>
</tr>
<tr>
<td>Dendritic Cell</td>
<td>CD11c, CD123</td>
</tr>
<tr>
<td>NK Cell</td>
<td>CD56</td>
</tr>
<tr>
<td>Stem Cell/Precursor</td>
<td>CD34, hematopoietic stem cell only</td>
</tr>
<tr>
<td>Macrophage/Monocyte</td>
<td>CD14, CD33</td>
</tr>
<tr>
<td>Granulocyte</td>
<td>CD66b, Gr-1/Ly6G, Ly6C</td>
</tr>
<tr>
<td>Platelet</td>
<td>CD41, CD61, CD62</td>
</tr>
<tr>
<td>Erythrocyte</td>
<td>CD235a, Ter-119</td>
</tr>
<tr>
<td>Endothelial Cell</td>
<td>CD146, CD146 MECA-32, CD106, CD31, CD62E (activated endothelial cells)</td>
</tr>
<tr>
<td>Epithelial Cell</td>
<td>CD236, CD326 (EPCAM1)</td>
</tr>
</tbody>
</table>

### Key Markers - Mouse

<table>
<thead>
<tr>
<th>Cell Type</th>
<th>Key Markers</th>
</tr>
</thead>
<tbody>
<tr>
<td>T Cell</td>
<td>CD3, CD4, CD8</td>
</tr>
<tr>
<td>B Cell</td>
<td>CD45R/B220, CD19, CD22 (B cell activation marker)</td>
</tr>
<tr>
<td>Dendritic Cell</td>
<td>CD11c, CD123</td>
</tr>
<tr>
<td>NK Cell</td>
<td>CD335 (NKp46)</td>
</tr>
<tr>
<td>Stem Cell/Precursor</td>
<td>CD34, hematopoietic stem cell only</td>
</tr>
<tr>
<td>Macrophage/Monocyte</td>
<td>CD11b/ Mac-1, Ly-71 (F4/80)</td>
</tr>
<tr>
<td>Granulocyte</td>
<td>CD66b, Gr-1/Ly6G, Ly6C</td>
</tr>
<tr>
<td>Platelet</td>
<td>CD41, CD61, CD62</td>
</tr>
<tr>
<td>Erythrocyte</td>
<td>CD235a, Ter-119</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD1d</td>
<td>CD1.1, CD1.2, Ly-38</td>
<td>Lipid, Glycolipid Ag</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen presentation</td>
</tr>
<tr>
<td>CD2</td>
<td>LFA-2, Ly-37, Ly37</td>
<td>CD48, CD58, CD59, CD15</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, adhesion</td>
</tr>
<tr>
<td>CD3γ</td>
<td>CD3γ, CD3 γ chain, T3γ</td>
<td>TCR complex</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD3δ</td>
<td>CD3b, CD3 δ chain, T3δ</td>
<td>TCR complex</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD3ε</td>
<td>CD3e, CD3 ε chain, CD3, T3e</td>
<td>TCR complex</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD4</td>
<td>L374, Ly-4</td>
<td>MHC class II, HIV gp120, IL-16</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, receptor/coreceptor</td>
</tr>
<tr>
<td>CD5</td>
<td>Ly-1, Lyt-1, Ly-12, Ly-A</td>
<td>CD72</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, regulates T-B lymphocyte interaction</td>
</tr>
<tr>
<td>CD5.1</td>
<td>Ly-1.1</td>
<td>CD72</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Regulates T-B lymphocyte interaction</td>
</tr>
<tr>
<td>CD6</td>
<td>T12</td>
<td>CD166 (ALCAM), 3A11</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, adhesion, differentiation/development</td>
</tr>
<tr>
<td>CD7</td>
<td>gp40</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Immunoregulation, T costimulation</td>
</tr>
<tr>
<td>CD8a</td>
<td>Ly-2, Lyt-2, Ly-B, Ly-35</td>
<td>MHC class I</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, receptor/coreceptor for MHC class I molecules</td>
</tr>
<tr>
<td>CD8b</td>
<td>Ly-3, Lyt-3, Ly-C, CD8b1</td>
<td>MHC class I</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, receptor/coreceptor for MHC class I molecules</td>
</tr>
<tr>
<td>CD8b.2</td>
<td>Ly-3.2, Ly-3.2</td>
<td>MHC class I</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, receptor/coreceptor for MHC class I molecules</td>
</tr>
<tr>
<td>CD9</td>
<td>Tspan29</td>
<td>CD63, CD81, CD82, CD315, CD316</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion and migration, platelet activation/costimulation, signal transduction</td>
</tr>
<tr>
<td>CD10</td>
<td>CALLA, MME, NEP</td>
<td>Peptides</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enzymatic activity, differentiation/development: regulates B cell growth</td>
</tr>
<tr>
<td>CD11a</td>
<td>Ly-15, Ly-21, Integrin αL</td>
<td>CD54, CD102, CD50</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, differentiation/development</td>
</tr>
<tr>
<td>CD11b</td>
<td>Integrin αM, Ly-40, CR3, CR3A, MAC1</td>
<td>CD54, iC3b, Fibronectin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, chemotaxis, apoptosis</td>
</tr>
<tr>
<td>CD11c</td>
<td>ITGAX [Integrin αX], CR4 [complement receptor-4], IC3b receptor, Leu M5, p150,95, CD18/CD11c</td>
<td>iC3b, Fibronectin, ICAM-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, cell migration, survival, and proliferation</td>
</tr>
<tr>
<td>CD13</td>
<td>Aminopeptidase N, gp150</td>
<td>L-Leucyl-β-naphthylamine</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enzymatic activity</td>
</tr>
<tr>
<td>CD14</td>
<td>Mo2, LPS Receptor</td>
<td>LPS/LPB complex, TLR2, TLR4</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor/coreceptor for LPS and LBP complex</td>
</tr>
<tr>
<td>CD15</td>
<td>SSEA-1, FAL, Lewis x</td>
<td>CD62</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, differentiation</td>
</tr>
<tr>
<td>CD16</td>
<td>FcgRIII, Fc γfIIa, Ly-17, FCGR3, IGF3R3</td>
<td>IgG Fc</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Low affinity IgG Fc receptor III</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Precursor</td>
<td>Macrophage/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Function</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------</td>
<td>----------------</td>
<td>---------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>-----------</td>
<td>-------------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CD18</td>
<td>Integrin β2</td>
<td>CD11a, b, c</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Signal transduction, adhesion</td>
</tr>
<tr>
<td>CD19</td>
<td>B4</td>
<td>CD21, CD81</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Signal transduction, receptor/coreceptor</td>
</tr>
<tr>
<td>CD20</td>
<td>Ly-44, B1</td>
<td></td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>B cell activation/costimulation, differentiation/development</td>
</tr>
<tr>
<td>CD21</td>
<td>CR2/CRI1</td>
<td>C3d, EBV, CD23, CD19, CD81</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD22.2</td>
<td>Lyb-8.2, Siglec-2</td>
<td>N-Glycolyl neuraminic acid</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>B cell adhesion, immunoregulation, receptor/coreceptor, signal transduction</td>
</tr>
<tr>
<td>CD23</td>
<td>FcεRII, Ly-42</td>
<td>IgE, CD21, CD11b, CD11c</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Regulates B cell activation</td>
</tr>
<tr>
<td>CD24</td>
<td>Heat Stable Antigen, Ly-52, Nectadrin</td>
<td>CD62P (P-Selectin)</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>T and B lymphocyte activation and differentiation, adhesion</td>
</tr>
<tr>
<td>CD25</td>
<td>Ly-43, IL-2 Receptor α chain, p55</td>
<td>IL-2 Receptor α</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Activation/costimulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD26</td>
<td>Dipeptidyl peptidase, DPP IV, THAM</td>
<td>Polypeptides</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Activation/costimulation, adhesion, enzymic activity</td>
</tr>
<tr>
<td>CD27</td>
<td>T14, s152, trns7, Tp55</td>
<td>CD70, TRAF2, TRAF5</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Activation/costimulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD28</td>
<td>T90/44 antigen or Tp44</td>
<td>CD80 (B7-1), CD86 (B7-2)</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>T cell costimulation leading to proliferation, cytokine production and T cell activation</td>
</tr>
<tr>
<td>CD29</td>
<td>Integrin β1, VLAb, gpilia</td>
<td>VCAM-1, MadCAM-1, ECM</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Signal transduction, adhesion, differentiation/development</td>
</tr>
<tr>
<td>CD30</td>
<td>Ki-1</td>
<td>CD153</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Immunoregulation, receptor/coreceptor, cytotoxicity</td>
</tr>
<tr>
<td>CD31</td>
<td>PECAM-1, gpilia, endoCAM, platelet endothelial cell adhesion molecule, PECAM1</td>
<td>CD38, Vitronecin receptor</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion, activation and migration</td>
</tr>
<tr>
<td>CD32</td>
<td>FcγRIII, Ly-17, Ly-m20, Fc-γ receptor 2, Low affinity immunoglobulin γ Fc receptor II</td>
<td>IgG</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Clearance of immune complexes by macrophages, B-cell antibody regulation</td>
</tr>
<tr>
<td>CD33</td>
<td>gp67; SIGLEC-3; Sialic acid-binding Ig-like lectin 3, myeloid cell surface antigen CD33</td>
<td>Sialylated glycoproteins; Sugar chains containing sialic acid; α-2,6-linked sialic acid</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD34</td>
<td>Mucosialin</td>
<td>CD62L (L-Selectin)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD35</td>
<td>CR1, C3b receptor</td>
<td>C3b, C4b, IC3, IC4</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Complement cascade regulation, mediates cellular binding of particles and immune complexes that have activated complement.</td>
</tr>
<tr>
<td>CD36</td>
<td>Scavenger receptor, FAT, GPIV, Scarb3</td>
<td>Oxidized LDL, Thrombospondin, Collagen</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Adhesion, receptor/coreceptor, phagocytosis, cholesterol transport, scavenger receptor</td>
</tr>
<tr>
<td>CD37</td>
<td>gp52-40, Leukocyte antigen CD37, Tetraspanin-26, TSPAN26</td>
<td>CD53, CD81, CD82, MHC class II</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Regulation of T cell/B cell interactions, development, activation, growth and motility.</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Preursor</td>
<td>Macrophage/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Function</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>---------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>----------</td>
<td>-------------</td>
<td>------------------</td>
<td>-----------------</td>
<td>-------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>CD38</td>
<td>ADP-ribosyl cyclase, T10, Cyclic ADP-ribose hydrolase 1</td>
<td>CD31, Hyaularonic acid, CD3/TcR complex, CD16, HLA Class II</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion and signal transduction</td>
<td></td>
</tr>
<tr>
<td>CD39</td>
<td>NTPDase-1; Ectonucleoside triphosphate diphosphohydrolase 1 (ENTPD1), ATP/ADP dehydrogenase, NTP/ADP dehydrogenase-1</td>
<td>ATP, ADP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>ADP and ATP hydrolysis, neurotransmission regulation</td>
<td></td>
</tr>
<tr>
<td>CD40</td>
<td>gp39 receptor, Bp50, MGC9013, TNFRSF5, Tumor necrosis factor receptor superfamily member 5</td>
<td>CD154</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Cell adhesion, cell proliferation and signal transduction</td>
<td></td>
</tr>
<tr>
<td>CD41</td>
<td>GPIb, Integrin cllB, Platelet membrane glycoprotein llB, ITGA2B, Integrin α2B, Human Platelet Antigen-3 (HPA-3)</td>
<td>Fibronectin, Fibrinogen, von Willebrand factor, Thrombospondin</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Cell adhesion, platelet aggregation</td>
<td></td>
</tr>
<tr>
<td>CD42a</td>
<td>GPX, GP9, Platelet glycoprotein IX</td>
<td>von Willebrand factor</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Platelet adhesion</td>
<td></td>
</tr>
<tr>
<td>CD42b</td>
<td>GPibα, Platelet glycoprotein Ib α</td>
<td>von Willebrand factor</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Platelet adhesion</td>
<td></td>
</tr>
<tr>
<td>CD42c</td>
<td>GPibβ, Platelet glycoprotein Ib β</td>
<td>von Willebrand factor</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Platelet adhesion</td>
<td></td>
</tr>
<tr>
<td>CD42d</td>
<td>GPV, Platelet glycoprotein V</td>
<td>von Willebrand factor</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Platelet adhesion</td>
<td></td>
</tr>
<tr>
<td>CD43</td>
<td>Ly-48, Sialophorin, Leukosialin, Galactoglycoprotein, SPN</td>
<td>CD54</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Cell adhesion and T-cell activation</td>
<td></td>
</tr>
<tr>
<td>CD44</td>
<td>Ly-24, ECMRII, H-CAM, Pgp-1, Phagocytic glycoprotein I, Extracellular matrix receptor I, GP90 lymphocyte homing/adhesion receptor, Hyaularonate receptor</td>
<td>Hyaluronate, Collagen, Fibrinectin, Laminin, Osteopontin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Cell adhesion and migration</td>
<td></td>
</tr>
<tr>
<td>CD45</td>
<td>Leukocyte Common Antigen (LCA)</td>
<td>CD150, Galectin-1, CD2, CD3, CD4, CD45AP, p56lck, p59fyn, Src kinases</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Regulator of T- and B-cell antigen receptor signaling, regulator of cell growth and differentiation</td>
<td></td>
</tr>
<tr>
<td>CD45.1</td>
<td>Ly-5.1, Ly-5a, PTPRCa</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Regulator of T- and B-cell antigen receptor signaling, regulator of cell growth and differentiation</td>
<td></td>
</tr>
<tr>
<td>CD45.2</td>
<td>Ly-5.2, Ly-5b, PTPRCb</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Regulator of T- and B-cell antigen receptor signaling, regulator of cell growth and differentiation</td>
<td></td>
</tr>
<tr>
<td>CD45R</td>
<td>B220, Ly-5, Lyt-4, T200, Protein tyrosine phosphatase receptor type C (PTPRC)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Regulator of T- and B-cell antigen receptor signaling, regulator of cell growth and differentiation</td>
<td></td>
</tr>
<tr>
<td>CD45RA</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>-</td>
<td>Regulator of T- and B-cell antigen receptor signaling, regulator of cell growth and differentiation</td>
<td></td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive* – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monoypocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD45RB</td>
<td>Protein tyrosine phosphatase receptor type C (PTPRC)</td>
<td>C3b, C4b, Measles virus</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Inhibitory complement receptor</td>
</tr>
<tr>
<td>CD45RC</td>
<td>Protein tyrosine phosphatase receptor type C (PTPRC)</td>
<td>SIRP (CD172), CD61, Thrombospondin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion and signal transduction</td>
</tr>
<tr>
<td>CD45RO</td>
<td>Protein tyrosine phosphatase receptor type C (PTPRC)</td>
<td>CD2, Ick, Fyn, CD229, CD244</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Lymphocyte adhesion and activation</td>
</tr>
<tr>
<td>CD46</td>
<td>Membrane Cofactor Protein (MCP), Trophoblast leukocyte common antigen, TRA2, 10</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD47</td>
<td>Integrin-associated protein (IAP), OA3, Neurophilin, MER6, gp42</td>
<td>CD106 (VCAM1), MAdCAM, Fibronectin, Paxillin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion and lymphocyte homing</td>
</tr>
<tr>
<td>CD48</td>
<td>Blast-1, Hulym3, BCM-1, OX-45, MEM-102</td>
<td>CD11a/CD18, CD11b/CD18, Rhinovirus, CD227</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Complement mediated cell lysis and antibody mediated cellular cytotoxicity</td>
</tr>
<tr>
<td>CD49a</td>
<td>VLA-1α, Integrin α1</td>
<td>Collagen, Laminin</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD49b</td>
<td>VLA-2α, Integrin α2, gPla</td>
<td>Collagen, Laminin, MMP-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD49c</td>
<td>VLA-3α, Integrin α3, GAPB3, Galactoprotein B3, Very Common Antigen-2 (VCA-2)</td>
<td>Fibrinectin, laminin, collagen</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD49d</td>
<td>VLA-4α, Integrin α4</td>
<td>CD11a/CD18, CD11b/CD18, Rhinovirus, CD227</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>Cell adhesion and lymphocyte activation</td>
</tr>
<tr>
<td>CD49e</td>
<td>VLA-5α, Integrin α5, Fibronecin receptor</td>
<td>Fibrinectin, Invasive, Fibrinogen</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD49f</td>
<td>VLA-6α, Integrin α6, gpl</td>
<td>Laminin, Invasive</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD51</td>
<td>Integrin αv, VNR-α, Vitronecin-Rα</td>
<td>Vitronecin, Fibronecin, fibrinogen, thrombospondin, von Willebrand factor, CD 31</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Cell adhesion and signal transduction</td>
</tr>
<tr>
<td>CD52</td>
<td>CAMPATH-1, HE5, Epidermal secretory protein E52, CLS1, MB7, 87</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>Complement mediated cell lysis and antibody mediated cellular cytotoxicity</td>
</tr>
<tr>
<td>CD53</td>
<td>MOX44, TSPAN25, Tetraspanin-25</td>
<td>VLA-4, Integrins</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion, activation and migration</td>
</tr>
<tr>
<td>CD54</td>
<td>ICAM-1, Ly-47, MALA-2</td>
<td>LFA-1, Mac-1, CD43, CD11a/CD18, CD11b/CD18, Rhinovirus, CD227</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion, lymphocyte activation and migration</td>
</tr>
<tr>
<td>CD55</td>
<td>Decay accelerating factor (DAF), complement-glycosylphosphatidylinositol, Crime blood group, Daf-GP, Daf1, GPI-DAF</td>
<td>CD3b, CD4b, CD97, Echovirus</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Complement cascade (C3bBb complex) regulation</td>
</tr>
<tr>
<td>CD56</td>
<td>Leu-19, NKH-1, Neural Cell Adhesion Molecule (NCAM)</td>
<td>NCAM-1, Heparin sulfate</td>
<td>+</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>Cell adhesion and neural plasticity</td>
</tr>
</tbody>
</table>

+ Positive*  - Negative

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/precursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD59</td>
<td>1F5Ag, H19, protectin, MACIF, MIRL, P-18</td>
<td>CD8-α, C9, Ick, fyn</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Complement cascade regulation</td>
</tr>
<tr>
<td>CD61</td>
<td>GP IIIa, Integrin β3</td>
<td>Fibrinogen, PTK2, ITGB3BP, TLN1 and CIB1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD62E</td>
<td>E-Selectin, ELAM-1, LECAM-2</td>
<td>Sialyl Lewis x,a,CLA,CD162</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD62L</td>
<td>L-Selectin, LECAM-1, Lnht, Ly-22, Ly-m22, Lyam-1, Lyam1</td>
<td>CD34,GlyCAM-1, MadCAM-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD62P</td>
<td>P-Selectin, GMP-140, PADGEM</td>
<td>CD162, CD24</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD63</td>
<td>LIMP, MLA1, gp55, NGA, LAMP-3, ME491, OMA81H, TSPAN30, granulophysin, melanoma 1 antigen</td>
<td>VLA-3, VLA-6, CD81, CD9, PI4-kinase, CD117, CD82</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Cell growth and motility regulation, complexes with integrins</td>
</tr>
<tr>
<td>CD64</td>
<td>FcRI, Fc-γ receptor 1, High affinity immunoglobulin γ Fc receptor 1, FcRRIIA</td>
<td>IgG</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Ig Fc receptor</td>
</tr>
<tr>
<td>CD66a</td>
<td>BGP, CEA-1</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Signal transduction, adhesion, angiogenesis</td>
</tr>
<tr>
<td>CD66b</td>
<td>CGM6, CEA-3</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Adhesion, neutrophil activation</td>
</tr>
<tr>
<td>CD68</td>
<td>Macrosialyl lysosomal glycoprotein 110</td>
<td>LDL</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Phagocytosis</td>
</tr>
<tr>
<td>CD69</td>
<td>Very Early Activation Antigen</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Activation/costimulation, differentiation/development</td>
</tr>
<tr>
<td>CD70</td>
<td>CD27 Ligand</td>
<td>CD27</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Activation/costimulation</td>
</tr>
<tr>
<td>CD71</td>
<td>Transferrin Receptor</td>
<td>Transferrin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Activation/costimulation, metabolism</td>
</tr>
<tr>
<td>CD72</td>
<td>Lyb-2, Ly-m19</td>
<td>CD5, CD100</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Activation/costimulation, differentiation/development</td>
</tr>
<tr>
<td>CD73</td>
<td>NT, Ecto-5'-nucleotidase</td>
<td>NMP</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Enzymatic activity</td>
</tr>
<tr>
<td>CD74</td>
<td>Ia-associated invariant chain (ii)</td>
<td>CD44, MHC class II</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Antigen presentation, differentiation/development</td>
</tr>
<tr>
<td>CD77</td>
<td>Pk blood group antigen; BLA; CTH; Gb3, α-1,4-Galactosyltransferase, Gb3 synthase, AvGalT</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Antigen presentation, differentiation/development</td>
</tr>
<tr>
<td>CD79a</td>
<td>Igα, mb-1, Ly-54</td>
<td>Ig, CD5, CD19, CD22, CD79b</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Signal transduction, cell surface expression</td>
</tr>
<tr>
<td>CD79b</td>
<td>Igβ, B29</td>
<td>Ig, CD5, CD19, CD22, CD29a</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Signal transduction, cell surface expression, differentiation/development</td>
</tr>
<tr>
<td>CD80</td>
<td>B7/B81, B7-1, Ly-53</td>
<td>CD28, CD152</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Activation/costimulation, immunoregulation</td>
</tr>
<tr>
<td>CD81</td>
<td>TAPA-1</td>
<td>CD9, CD19, CD21, CD225, CD315, CD316</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>Activation/costimulation, adhesion, differentiation/development</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

+ Positive*  – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD82</td>
<td>C33 Ag, KAI1</td>
<td>MHC molecules, CD4, CD8, CD20, CD37, CD81, Integrins</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation</td>
</tr>
<tr>
<td>CD83</td>
<td>HB15</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation</td>
</tr>
<tr>
<td>CD84</td>
<td>GR6</td>
<td>TLR4</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Leukocyte activation</td>
</tr>
<tr>
<td>CD86</td>
<td>B7-2, B70, Ly-58</td>
<td>CD28, CD152</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, immunoregulation</td>
</tr>
<tr>
<td>CD87</td>
<td>uPA Receptor</td>
<td>uPA, Vitronecin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, receptor/coreceptor</td>
</tr>
<tr>
<td>CD88</td>
<td>C5a Ligand, C5aR</td>
<td>C5a</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, complement pathways</td>
</tr>
<tr>
<td>CD90</td>
<td>Thy-1, q, T25</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, activation/costimulation, adhesion, differentiation/development</td>
</tr>
<tr>
<td>CD90.1</td>
<td>Thy-1.1, q-AKR</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, activation/costimulation, adhesion, differentiation/development</td>
</tr>
<tr>
<td>CD90.2</td>
<td>Thy-1.2, q-C3H</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, activation/costimulation, adhesion, differentiation/development</td>
</tr>
<tr>
<td>CD90.2</td>
<td>LRP, A2MR, A2Macroglobulin receptor</td>
<td>LDL, LRPAP1, α2M</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen presentation, hemostasis, metabolism</td>
</tr>
<tr>
<td>CD93</td>
<td>AA4.1, C1qRp</td>
<td>CCL21</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potentially involved in angiogenesis, endothelial cell migration, and clearance of dying cells</td>
</tr>
<tr>
<td>CD94</td>
<td>KP43, krd1</td>
<td>Qa-1/Qd1</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen recognition, immunoregulation</td>
</tr>
<tr>
<td>CD95</td>
<td>Fas, APO-1</td>
<td>CD178 (Fas Ligand)</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Apoptosis</td>
</tr>
<tr>
<td>CD96</td>
<td>Tactile</td>
<td>CD155, Nectin-1</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Promotes NK cell adhesion to target cells</td>
</tr>
<tr>
<td>CD97</td>
<td>TM7LN1, TM7S</td>
<td>CD55</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Neutrophil migration</td>
</tr>
<tr>
<td>CD98</td>
<td>4F2, Ly-10, RL-388</td>
<td>CD29, CD147, Tropomyosin, Actin</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, immunoregulation</td>
</tr>
<tr>
<td>CD99</td>
<td>Paired immunoglobulin-like type 2 receptor-ligand</td>
<td>PilRB</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td>T-cell recruitment to inflammed skin</td>
</tr>
<tr>
<td>CD100</td>
<td>Semaphorin H, colli, Semaphorin 4D, Sema 4D</td>
<td>CD72, Plexin-B1, CD45</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Immunoregulation</td>
</tr>
<tr>
<td>CD101</td>
<td>IGSF2, V7</td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May be involved in Treg function</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Precur</td>
<td>Macrophage/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------</td>
<td>--------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>-----------------</td>
<td>---------------------</td>
<td>-------------</td>
<td>----------</td>
<td>------------</td>
<td>-----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>CD102</td>
<td>ICAM-2, Ly-60</td>
<td>LFA-1, Mac-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD103</td>
<td>Integrin aEL</td>
<td>E-Cadherin</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD104</td>
<td>Integrin β4</td>
<td>Laminin, Plectin</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD105</td>
<td>Endoglin</td>
<td>TGF-β</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD106</td>
<td>VCAM-1</td>
<td>VLA-4</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD107a</td>
<td>LAMP-1</td>
<td>Collagen, Laminin, Fibronectin</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD107b</td>
<td>LAMP-2, LGP-96, LAMP-B</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD108</td>
<td>Sema7a</td>
<td>Tyrosine kinases</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD110</td>
<td>Thrombopoietin, Receptor, c-mpl</td>
<td>JAK2, Thrombopoietin</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD111</td>
<td>PRR1, Nectin-1, CD111, CLPED1, ED4, HlgR, HVEC, MGC142031, MGC16207, OFC7, PRR, PVRR, PVRR1, SK-12</td>
<td>a-Herpesvirus, Nectin-3, Afadin,</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD112</td>
<td>PRR2, Nectin-2, PVRL2, HVEB, MPH, Pvr, Pvs, CD112, AI325026, AI987993, Nectin-2, Pvr12</td>
<td>CD226, PRR3, afadin</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD113</td>
<td>PVRL3, Nectin-3</td>
<td>Nectin-1, Nectin-2, PVR</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD114</td>
<td>G-CSF Receptor, CSF3R, HG-CSFR, Granulocyte colony-stimulating factor receptor, G-CSFR</td>
<td>G-CSF, JAK1, JAK2</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD115</td>
<td>M-CSF Receptor, CSF-1R, c-fms, Fim-2</td>
<td>M-CSF</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD116</td>
<td>GM-CSF Receptor α chain</td>
<td>GM-CSF</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD117</td>
<td>c-kit, Steel factor receptor, Dominant white spotting</td>
<td>c-Kit Ligand (Steel, stem-cell, or mast-cell growth factor)</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD118</td>
<td>IFN-α/β Receptor, Type I IFN-R, IFN-α Receptor</td>
<td>IFN-α, IFN-β</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD119</td>
<td>IFN-γ Receptor α chain</td>
<td>IFN-γ</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD120a</td>
<td>TNFR1, TNF-R55</td>
<td>TNF, Lymphotoxin A (TNF-β)</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preceptor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD120b</td>
<td>TNFR2, TNF-R75</td>
<td>TNF, Lymphotoxin A (TNF-β)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, apoptosis, necrosis, receptor/coreceptor</td>
</tr>
<tr>
<td>CD121a</td>
<td>IL-1 Receptor, Type I</td>
<td>IL-1α, IL-1β</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, activation/costimulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD121b</td>
<td>IL-1 Receptor, Type II</td>
<td>IL-1α, IL-1β</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Immunoregulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD122</td>
<td>IL-2 and IL-15 Receptor b chain</td>
<td>IL-2, IL-15</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, immunoregulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD123</td>
<td>IL-3 Receptor α chain</td>
<td>IL-3</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IL-3 receptor/coreceptor</td>
<td></td>
<td>Signal transduction, receptor/coreceptor</td>
</tr>
<tr>
<td>CD124</td>
<td>IL-4 Receptor α chain</td>
<td>IL-4, IL-13</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, receptor/coreceptor</td>
</tr>
<tr>
<td>CD125</td>
<td>IL-5 Receptor α chain</td>
<td>IL-5</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, immunoregulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD126</td>
<td>IL-6 Receptor α chain</td>
<td>IL-6</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Differentiation/development, immunoregulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD127</td>
<td>IL-7 Receptor α chain</td>
<td>IL-7</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, differentiation/development, receptor/coreceptor</td>
</tr>
<tr>
<td>CD130</td>
<td>gp130, Common β chain</td>
<td>CD126, IL-11R, LIF-R</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD131</td>
<td>AIC2A and AIC2B, bIL-2 and bc</td>
<td>IL-3 (AIC2A), CD123, CD125, CD116</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, receptor/coreceptor</td>
</tr>
<tr>
<td>CD132</td>
<td>Common-γ chain</td>
<td>Subunit of IL-2, IL-4, IL-7, IL-9, IL-15, IL-21 receptors</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD133</td>
<td>AC133, Prominin-1 (PROM1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Stem cell marker</td>
</tr>
<tr>
<td>CD134</td>
<td>Ly-70, OX-40 antigen, ACT35 antigen</td>
<td>OX-40 Ligand</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation</td>
</tr>
<tr>
<td>CD135</td>
<td>Flik-2, Fli3, Ly-72</td>
<td>Fli3 Ligand</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Differentiation/development, receptor/coreceptor</td>
</tr>
<tr>
<td>CD136</td>
<td>STK, Mst1r, RON, MSP Receptor</td>
<td>MSP, HGFI</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Proliferation, anti-apoptosis</td>
</tr>
<tr>
<td>CD137</td>
<td>4-1BB, Ly-63, Tnfrsf9</td>
<td>4-1BB, Fibronectin, Laminin, Vitronecint, Collagen VI</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen presentation, signal transduction, activation/costimulation, adhesion</td>
</tr>
<tr>
<td>CD138</td>
<td>Syndecan-1, Sdc1</td>
<td>Interstitial matrix proteins</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD140a</td>
<td>PDGF Receptor α chain, PDGFR-α chain</td>
<td>PDGF-A, PDGF-B, PDGF-C</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, differentiation/development, receptor/coreceptor</td>
</tr>
<tr>
<td>CD140b</td>
<td>PDGF Receptor β chain, PDGFR-β chain</td>
<td>PDGF-B, PDGF-D</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, differentiation/development, receptor/coreceptor</td>
</tr>
<tr>
<td>CD141</td>
<td>Thrombomodulin, TM</td>
<td>Thrombin</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Hemostasis</td>
</tr>
<tr>
<td>CD142</td>
<td>Tissue Factor, Coagulation Factor III</td>
<td>Plasma Factor VII/Villa (FVII)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Differentiation/development, hemostasis, angiogenesis</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precur</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD143</td>
<td>Angiotensin converting enzyme, Dipeptidyl peptidase, ACE</td>
<td>Angiotensin I, Bradykinin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enzymatic activity</td>
</tr>
<tr>
<td>CD144</td>
<td>VE-Cadherin, Cdh5, 784, VECD</td>
<td>CD144, β Catenin一时</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, angiogenesis</td>
</tr>
<tr>
<td>CD146</td>
<td>MUC18, S-endo, Mcam</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD147</td>
<td>Basigin, HT7, Neurothelin, gp42, Neurothelin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD148</td>
<td>PTPβ2, ByP, Sc-1, RPTPj</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD150</td>
<td>IPO-3, ESTM51, Slam</td>
<td>Measles virus, CD45</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD151</td>
<td>SFA-1, PETA-3, Tspan24</td>
<td>Integrin β1</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD152</td>
<td>CTLA-4, Ly-56</td>
<td>CD80, CD86</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Immunoregulation</td>
</tr>
<tr>
<td>CD153</td>
<td>CD30 Ligand</td>
<td>CD30</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, immunoregulation</td>
</tr>
<tr>
<td>CD154</td>
<td>gp39, CD40 Ligand, Ly-62, HIGM1, IMD3, F-BAM, Nkdf5</td>
<td>CD40</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation</td>
</tr>
<tr>
<td>CD155</td>
<td>Polio virus receptor (pvr), Tage4</td>
<td>CD96, CD226, Nectin-3</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD156a</td>
<td>MS2, ADAM 8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, enzymatic activity</td>
</tr>
<tr>
<td>CD156b</td>
<td>TACE, ADAM17</td>
<td>TNF-α, APP, CD62L</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, enzymatic activity, receptor/coreceptor</td>
</tr>
<tr>
<td>CD156c</td>
<td>ADAM10, Kuz, Kubanian, Madm</td>
<td>pro-TNF-α, APP, Notch</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, proliferation</td>
</tr>
<tr>
<td>CD157</td>
<td>Ly-65, BP-3; BST-1</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Pre-B-cell growth</td>
</tr>
<tr>
<td>CD159a</td>
<td>NKG2A, NKG2B</td>
<td>Qa-1/Odm, HLA-E</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen recognition, signal transduction</td>
</tr>
<tr>
<td>CD159c</td>
<td>NKG2C, KLRC2</td>
<td>HLA-E, CD94</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell activation</td>
</tr>
<tr>
<td>CD160</td>
<td>BY55</td>
<td>HLA-C</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Costimulation</td>
</tr>
<tr>
<td>CD161a</td>
<td>NKR-P1A, Ly55a</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell-mediated cytotoxicity, proliferation</td>
</tr>
<tr>
<td>CD161b</td>
<td>NKR-P1B, Ly55b, Ly55d</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell-mediated cytotoxicity, proliferation</td>
</tr>
<tr>
<td>CD161c</td>
<td>NKR-P1C, NK-1.1, Ly-55c, Ly-59</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell-mediated cytotoxicity, proliferation</td>
</tr>
<tr>
<td>CD162</td>
<td>P-Selectin glycoprotein ligand (PSGL-1), P-Selectin-IgG fusion protein</td>
<td>CD62P, CD62L</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive* – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precur</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD163</td>
<td>Scavenger receptor cysteine-rich type 1 protein M130</td>
<td>CSNK2B</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Clearance of hemoglobin/haptoglobin complexes</td>
</tr>
<tr>
<td>CD164</td>
<td>MGC-24, A115, A24</td>
<td>CXCR4</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, proliferation, and differentiation of hematopoietic stem and progenitor cells</td>
</tr>
<tr>
<td>CD166</td>
<td>ALCAM, BEN, DM-Grasp, MuSc, SC1</td>
<td>CD6</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, adhesion</td>
</tr>
<tr>
<td>CD167a</td>
<td>Cak, Nep, Ddr1</td>
<td>Collagen</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD168</td>
<td>RHAMM, Hmmr</td>
<td>CD44</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD169</td>
<td>Sialoadhesin, Siglec-1, Sna</td>
<td>CD43, CD162, CD227, CD206</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD170</td>
<td>Siglec-5, Siglec, Siglec9</td>
<td>Ganglioside</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD171</td>
<td>L1, L1-NCAM, NCAM-L1, L1cam</td>
<td>L1, CD56, CD24</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD172a</td>
<td>SIRPa, SHPS-1, B1, P84 Antigen, SIRP, SHP-1, Ptns1, AIB35480</td>
<td>CD47, PTPN11, CD22, PTPN6</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, adhesion</td>
</tr>
<tr>
<td>CD172b</td>
<td>SIRPb1, 9930027N05Rik, Sirpb1a</td>
<td>DAPI2</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell activation, phagocytosis</td>
</tr>
<tr>
<td>CD176</td>
<td>Tf, Hp, Tfn, hpx, AI266983, MGC102653, Trf</td>
<td>TFRC, Transferrin receptor</td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Iron transport</td>
</tr>
<tr>
<td>CD177</td>
<td>NB1, Pdp3, 1190003K14Rik</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possible role as a hematopoietic receptor molecule</td>
</tr>
<tr>
<td>CD178</td>
<td>CD95L, Fas Ligand, Trnsf6s; APT1LG1</td>
<td>CD95</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, activation/costimulation, differentiation/development, apoptosis inducer</td>
</tr>
<tr>
<td>CD178.1</td>
<td>mFasL.1</td>
<td>CD95</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction, activation/costimulation, differentiation/development, apoptosis inducer</td>
</tr>
<tr>
<td>CD179a</td>
<td>VpreB, MGC151428, Vpreb1</td>
<td>IGLL1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Differentiation/development</td>
</tr>
<tr>
<td>CD179b</td>
<td>IS</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Differentiation/development</td>
</tr>
<tr>
<td>CD180</td>
<td>RP105, Ly-78, F630107B15</td>
<td>LPS, LY86</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD181</td>
<td>CXCR1, IL8Ra</td>
<td>MIP2, KC, (human IL-8)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD182</td>
<td>CXCR2, IL8Rb, Cd1218, Cmkar2, Gpcr16</td>
<td>CXCL2, CXCL3, CXCL5, CXCL6, MIP2, KC, (human IL-8), GCP-2, Llk</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Activation/costimulation, receptor/coreceptor</td>
</tr>
<tr>
<td>CD183</td>
<td>CXCR3, Cmkar3, gpr9</td>
<td>CXCL9, CXCL10, CXCL11, IP-10, CRG-2, 6ckine, Mig, I-TAC</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor/coreceptor, chemotaxis</td>
</tr>
<tr>
<td>CD</td>
<td>Alternative Name</td>
<td>Ligands &amp; Associated Molecules</td>
<td>T Cell</td>
<td>B Cell</td>
<td>Dendritic Cell</td>
<td>NK Cell</td>
<td>Stem Cell/Precursor</td>
<td>Macrophage/Monocyte</td>
<td>Granulocyte</td>
<td>Platelet</td>
<td>Erythrocyte</td>
<td>Endothelial Cell</td>
<td>Epithelial Cell</td>
<td>Function</td>
</tr>
<tr>
<td>-----</td>
<td>------------------</td>
<td>-------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>----------------</td>
<td>---------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>--------------</td>
<td>----------</td>
<td>-------------</td>
<td>----------------</td>
<td>---------------</td>
<td>----------------</td>
</tr>
<tr>
<td>CD184</td>
<td>CXC4, Cmkar4, Fusin/LESTR</td>
<td>CXCL12, SDF-1, PSF, HIV-1</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD185</td>
<td>CXC5, BLR1, Gprc6</td>
<td>CXCL13, BLC</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD186</td>
<td>CXC6, BONZO, STRL33, BB217514</td>
<td>CXCL16, HIV-1, SIV</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD191</td>
<td>CCR1, MIP-1aR, Cmkbr1</td>
<td>CCL3, 5, 7, 8, 14, 15, 23, MIP-1a, RANTES, MRP2, CCF18, MIP-1g</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>CD192</td>
<td>CCR2, Ckr2, Ccr2a, Ccr2b, mJe-r, Cmkbr2, Cc-ckr-2</td>
<td>CCL2, 7, 8, 12, 13, 16, HIV-1, MCP-5</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD193</td>
<td>CCR3, MIP-1aL2, CCR3, Cmkbr3, CC-CKR3, Cmkbr112, MGC 124 265, MGC 124266, Ccr3</td>
<td>CCL3, 5, 7, 8, 11, 14, 15, 24, 26, HIV-1</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD195</td>
<td>CCR5, Cmkbr5, AM4-7</td>
<td>MIP-1a, MIP-1b, RANTES, MCP-1, HIV-1</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD196</td>
<td>CCR6, KY411, Cmkbr6, CC-CKR-6</td>
<td>CCL20, CCL19, b-Defensin, MIP-3a, LARC, Exodus-1</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD197</td>
<td>CCR7, EBI-1, BLR2, CMKBR7</td>
<td>CCL21, CCL19, SLC</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDw198</td>
<td>CCR8, TER1, CC-CKR-8, CKRL1, CMKBR8, CMKBR2L2, CY6, GPRC6, MGC 129966, MGC 129973</td>
<td>CCL1, vCCL1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CDw199</td>
<td>CCR9, CMKBR10, GPR-9-6; A130091K22Rik</td>
<td>CCL25, TECK</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD200</td>
<td>OX-2, Mox2</td>
<td>CD200 receptor (OX-2R)</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD201</td>
<td>CDD41, EPCR, Protein C Receptor, Ccca, A1325044, Procr</td>
<td>Protein C</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD202</td>
<td>Endothelial-specific receptor tyrosine kinase, Tie2, Tek, Hyk, CD202b, RP23-345A23.1, AAS17024</td>
<td>Angiopoietin</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD203c</td>
<td>Ly-41, PC-1, E-NPP1, Pca, ttw, twy, M651, NPP1, Nppl</td>
<td>Extracellular nucleotides</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD204</td>
<td>Macrophage scavenger receptor, MSR1, Scv, SR-AII, Scara1</td>
<td>LPS, collagen, LDL, lipoproteins</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD205</td>
<td>DEC-205, ly-75</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Antigen presentation</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>DC/Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Precursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD206</td>
<td>Mannose receptor C type-1 (MRC1), MMR, CLEC13D</td>
<td>CD169, CD45, Bacterial cell wall molecules, Viral glycoproteins, Yeast proteins, Chitin, Lyso- somal hydrolases, Plant glycoproteins, Neoglycoproteins, Lutropin, Chondroitin sulfate</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Binds glycoproteins containing mannose, fucose, or N-acetylgalactosamine, allowing endocytosis by macrophages. Promotes phagocytosis of viruses, bacteria, and fungi bearing mannose-containing glycoproteins.</td>
</tr>
<tr>
<td>CD207</td>
<td>Langerin, C-type lectin domain family 4 member K (CLEC4K)</td>
<td>Mannose-bearing glycoproteins, Glycolipids on microbial pathogens</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Endocytic receptor that internalizes glycoprotein ligands into Birbeck granules. Required for Birbeck granule formation.</td>
</tr>
<tr>
<td>CD208</td>
<td>LAMP3, DC-LAMP, LAMP, TSC403, 1200002D17Rik</td>
<td>CD50 (ICAM-3), CD102 (ICAM-2), Mannose-bearing glycoproteins on several pathogens including HIV gp120</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Transiently expressed in MHC class II-containing intracellular compartments within activated DC, suggesting a role in antigen processing.</td>
</tr>
<tr>
<td>CD209a</td>
<td>DC-SIGN, CDSIGN, CIRE, CD209 antigen-like protein A (CD209a), CLEC4L</td>
<td>CD50 (ICAM-3), CD102 (ICAM-2), Mannose-bearing glycoproteins on several pathogens including HIV gp120</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Receptor for HIV-1 and other pathogens, promotes pathogen endocytosis and degradation. Interaction with CD102 enables DC migration into tissues. Interaction with CD50 promotes T cell proliferation.</td>
</tr>
<tr>
<td>CDw210a</td>
<td>IL-10RA, IL-10R1</td>
<td>IL-10, CDw210b</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signals through CDw210 are associated with immunosuppression and myeloid progenitor survival.</td>
</tr>
<tr>
<td>CDw210b</td>
<td>IL-10RB, IL-10R2</td>
<td>IL-22, IL-28, IL-29, CDw210a, IL-22RA1, IL-28R1, IL-29R1</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signals through CDw210 are associated with immunosuppression and myeloid progenitor survival.</td>
</tr>
<tr>
<td>CD212</td>
<td>IL-12β1, IL-12β, CD212b1</td>
<td>IL-12, IL-23, IL-12RD2, IL-23R</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Dimerizes with IL-12RD2 to form high-affinity IL-12 receptor, promoting cell-mediated and Th1 immunity. Combines with IL-23R to form IL-23 receptor, promoting Th17 immunity.</td>
</tr>
<tr>
<td>CD213a1</td>
<td>IL-13Rα1, NR4</td>
<td>IL-13, IL-4, IL-4Rε</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Associates with IL-4Rε to form the IL-13 receptor, regulating inflammation and supporting B cell activity. Also involved in the type II IL-4 receptor system.</td>
</tr>
<tr>
<td>CD213a2</td>
<td>IL-13Rα2, Interleukin-13-binding protein (IL13BP)</td>
<td>IL-13</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Functions as a decoy receptor for IL-13, binding with high affinity but unable to induce a signal. Reduces the biological effects of IL-13.</td>
</tr>
<tr>
<td>CD217</td>
<td>Interleukin 17 receptor A (IL-17RA), IL-17R, CDw217</td>
<td>IL-17A, IL-17F, IL-17RC, IL-17RB</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Associates with IL-17RC to form receptors for IL-17A, IL-17F, and IL-17A/F heterodimers, promoting inflammatory responses. Associates with IL-17RB to form the receptor for IL-17E (IL-25), suppressing Th17 responses and promoting Th2 responses.</td>
</tr>
<tr>
<td>CD218a</td>
<td>IL-18R1) IL-18RA, IL-18Rα, IL-1 receptor-related protein (IL-1Rrp), IL-5</td>
<td>IL-18, IL-18Rβ</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Associates with IL-18Rβ to form high-affinity IL-18 receptor, promoting inflammatory Th1 and Th2 responses.</td>
</tr>
<tr>
<td>CD218b</td>
<td>IL-18Rα, IL-18 receptor accessory protein (IL-18RAP), IL-18RAαP, IL-1R accessory protein-like (IL-1RαPL), IL-1R7, CDw218b</td>
<td>Associates with IL-18Rα to form high-affinity IL-18 receptor</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Associates with IL-18Rα to form high-affinity IL-18 receptor, promoting inflammatory Th1 and Th2 responses.</td>
</tr>
<tr>
<td>CD220</td>
<td>Insulin receptor (INSR), IR</td>
<td>Insulin, IGF-2</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Insulin receptor. Causes internalization and degradation of insulin and stimulates glucose uptake.</td>
</tr>
</tbody>
</table>
### CD Marker Handbook Mouse CD Markers

<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>Stem Cell/Precursor</th>
<th>Macrophage/Monocyte</th>
<th>Erythrocyte</th>
<th>Platelet</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD221</td>
<td>Insulin-like growth factor 1 receptor (IGF1R), IGF-1R, type 1 IGF receptor (IGF-IR), JTK13</td>
<td>Insulin-like growth factor 1 (IGF-I), IGF-II, Insulin</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>CD222</td>
<td>Cation-independent mannose-6-phosphate receptor (M6P-R, C1M6PR, AIMPR, CI-MPR), Insulin-like growth factor 2 receptor (IGF2R), IGFIR, IGF-IR, MPRI</td>
<td>IGF-II, TGF-β latency-associated peptide (LAP), Proliferin, Proserin, Plasminogen, Leukemia inhibitory factor (LIF), Herpes simplex virus, Thyroglobulin, Retinoic acid, Cathespin B, D, L, CD87</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>CD223</td>
<td>Lymphocyte activation gene 3 (LAG3, LAG-3), FDC protein, Ly-66</td>
<td>MHC class II, TCR-CD3 complex</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD224</td>
<td>γ-glutamyltransferase 1 (GGT1), γ-glutamyl transpeptidase 1 (GGTP), GGT, GTG, EC2.3.2.2</td>
<td>Glutathione, GSH, Leukotriene C4, GSNO</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD225</td>
<td>Interferon-induced transmembrane protein 1 (IFITM1), IFI17, Interferon-inducible protein 9-27 (IFI17), Leu13, Fragilis2</td>
<td>CD21, CD19, TAPA-1, CD81</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>CD226</td>
<td>DNAX accessory molecule 1 (DNAM-1), Platelet and T cell activation antigen 1 (PTA-1), T lineage-specific activation antigen 1 antigen (TLA1)</td>
<td>CD112, CD155, LFA-1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>CD227</td>
<td>Mucin 1 (MUC1, MUC-1), DF3 antigen, H32 antigen, PUM, PEM, EMA, Tumor-associated mucin, Episialin</td>
<td>CD54, CD169, Selectins; Grb2, B-Catenin, GSK-3β</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>CD228</td>
<td>Melanotransferrin (MT, MTF1), p97 Melanoma antigen (p97, MAP97), MiI2, gp95</td>
<td>Iron, Plasminogen, pro-UPA</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>CD229</td>
<td>Lymphocyte antigen 9 (Ly9), T-Lymphocyte surface antigen Ly-9, SLAMF3, Lgp100, M100</td>
<td>CD229, SAP, Grb2</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>–</td>
<td>–</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>–</td>
</tr>
<tr>
<td>CD229.1</td>
<td>Lgp-100, Ly-9.1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CD230</td>
<td>Prion Protein (PrP, PRNP), Major prion protein, prP27-30, prP33-35C, PrPC</td>
<td>CD230 (homophilic binding); N-CAM (CD56)</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
<tr>
<td>CD231</td>
<td>Tetraspanin 7 (TSPAN7), T-cell acute lymphoblastic leukemia-associated antigen 1 (TALLA-1), TM4SF2, Membrane component X chromosome surface marker-1 (MX51), A15</td>
<td>T-ALL</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive*   – Negative
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Mammoth/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD232</td>
<td>Plexin C1 (PLXNC1), Virus-encoded semaphorin protein receptor (VESPR, VESP-R)</td>
<td>Semaphorin 7A (CD108), poxvirus semaphorin A39R</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May be involved in promoting DC adhesion and migration. Cytoskeletal rearrangement and secretion of IL-6 and IL-18.</td>
</tr>
<tr>
<td>CD233</td>
<td>Solute carrier family 4 anion exchanger member 1 (SLC4A1), Band 3, Anion exchanger 1 (AE1), Diego blood group, EPB3</td>
<td>Glycoporin A, Ankyrin, Hemoglobin, Multiple glycolytic enzymes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Mediates anion exchange and bicarbonate export in erythrocytes and kidney cells. Links red cell cytoskeleton to membrane.</td>
</tr>
<tr>
<td>CD234</td>
<td>Duffy antigen/chemokine receptor (DARC), Dfy, FY, Fy-glycoprotein, Glycoprotein D</td>
<td>CXCL1 (MGSA), CXCL8 (IL-8), CCL2 (MCP-1), CCL5 (RANTES), Malarial parasites Plasmodium knowlesi and P. vivax</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Binds and internalizes several chemokines, modulating levels in blood by acting as both a sink and a reservoir. Receptor allowing malarial parasite entry into erythrocytes.</td>
</tr>
<tr>
<td>CD235a</td>
<td>Glycophorin A (GYPA), Sialoglycoprotein α, Sialoglycoprotein A, MNS blood group antigen, PAS-2</td>
<td>CD170, Influenza virus, Plasmodium falciparum erythrocyte binding antigen EBA-175</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Major sialoglycoprotein of the erythrocyte membrane. Contains the M/N blood group antigens. Prevents agglutination. Receptor allowing parasite entry into erythrocytes.</td>
</tr>
<tr>
<td>CD236R</td>
<td>Glycophorin C (GYPY), Gerbich blood group antigen</td>
<td>Plasmodium falciparum erythrocyte binding protein 2 (MEPB-2), p55, 4.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Interacts with p55 and band 4.1 to maintain mechanical stability and deformability in erythrocytes. Receptor allowing parasite entry into erythrocytes.</td>
</tr>
<tr>
<td>CD238</td>
<td>Kell blood group glycoprotein (Kell), endothelin-3-converting enzyme (ECE3)</td>
<td>Big Endothelin-3 (intermediate precursor of endothelin-3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Zinc endopeptidase that cleaves endothelin-3 to its active form.</td>
</tr>
<tr>
<td>CD239</td>
<td>Basal cell adhesion molecule (BCAM, B-CAM), Lutheran blood group glycoprotein, Lu</td>
<td>α5 chain of Laminin 10/11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Potentially involved in epithelial cell cancer and in vaso-occlusion by red blood cells in sickle cell disease.</td>
</tr>
<tr>
<td>CD240</td>
<td>Rh blood group system, CD240D (Rh30D, D blood antigen)</td>
<td>CD241, CD242, CD47, CD235b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May help maintain erythrocyte mechanical properties by associating with cytoskeletal ankyrin-R.</td>
</tr>
<tr>
<td>CD241</td>
<td>RHAG, Rh50, Rh-associated glycoprotein</td>
<td>ANK1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Metabolism</td>
</tr>
<tr>
<td>CD242</td>
<td>ICAM-4, LW blood group</td>
<td>CD11a, b, CD18, CD49b, d, e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion</td>
</tr>
<tr>
<td>CD243</td>
<td>P-gp, Pgly1, Mrd1, Abcb1</td>
<td>Cancer drugs, Xenobiotics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Involved in multidrug resistance as well as antigen presentation</td>
</tr>
<tr>
<td>CD244</td>
<td>2B4, C9.1, Ly90, NAIL, Nmrk, NKR2B4, SLAMF4</td>
<td>CD48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Signal transduction</td>
</tr>
<tr>
<td>CD246</td>
<td>Alk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plays an important role in the development of the brain and exerts its effects on specific neurons in the nervous system</td>
</tr>
<tr>
<td>CD247</td>
<td>CD3ζ, CD3 ζ chain</td>
<td>Janus kinase 3, Protein unc-119 homolog</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Plays an important role in coupling antigen recognition to several intracellular signal-transduction pathways.</td>
</tr>
<tr>
<td>CD248</td>
<td>TEM1, Endosialin</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Angiogenesis</td>
</tr>
<tr>
<td>CD249</td>
<td>APA, Bp-1/6C3, Ly-51, Ly51</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May be involved in B cell proliferation</td>
</tr>
</tbody>
</table>

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
| CD   | Alternative Name | Ligands & Associated Molecules                       | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Precurso | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                  |
|------|------------------|-----------------------------------------------------|--------|--------|----------------|---------|-------------------|---------------------|-------------|----------|-------------|----------------|----------------|-------------------------|-------------------------|
| CD252 | OX-40 Ligand, gp34, TNFSF4 | OX-40, CD134 | +      | +      |                |         |                   |                     |             |          |             |                |                 | Costimulation            |
| CD253 | TRAIL, APO-2L, TL2, Ly81, Trail, APO-2L, TNf510 | TNFRSF10B |                |         |                |         |                   |                     |             |          |             |                |                 | Apoptosis               |
| CD254 | ODF, OPG, OPLG, RANKL, Trance, Tnfsf11 | RANK, OPG |                |             |                |         |                   |                     |             |          |             |                |                 | Bone development; T cell, B cell, and dendritic cell interactions |
| CD256 | APRIL, TALL1, TNfsf13 | TACI, BCMA |                |             |                |         |                   |                     |             |          |             |                |                 | B cell development       |
| CD257 | BlyS, BAFF, TALL-1, TNFSF13B, TNFSF20 | TACI, BAAM, BAFF-R |                |             |                |         |                   |                     |             |          |             |                |                 | A potent B cell activator which also play an important role in proliferation and differentiation of B cells |
| CD258 | LTg, HVEML, LIGHT, TR2, HVEM-L, Tnfsf14 | HVEM, LTBR, Tnrsfs14 |                |             |                |         |                   |                     |             |          |             |                |                 | A costimulatory factor for the activation of lymphoid cells and acts as a deterrent to infection by herpesvirus |
| CD261 | APO2, CD261, DR4, MGC9365, TRAILR-1, TRAILR1Tnfsf10a | DAP3 |                |             |                |         |                   |                     |             |          |             |                |                 | Transduces cell death signals and induces cell apoptosis |
| CD262 | TRAIL-R2, Apo2, DRS, TRICK2, KILLER | CD253 |                |             |                |         |                   |                     |             |          |             |                |                 | Apoptosis inducer         |
| CD265 | RANK, TRANCE-R, ODFR, Tnfsf11a | RANK ligand, OPLG, CD254 |                |             |                |         |                   |                     |             |          |             |                |                 | Osteoclastogenesis and T cell/dendritic cell interactions |
| CD266 | TWEAK Receptor, Fn14, Tnfsf12a | TWEAK (CD255) |                |             |                |         |                   |                     |             |          |             |                |                 | Cell death and proliferation, angiogenesis and inflammation |
| CD267 | TACI, Tnfsf13b | BAFF, APRIL |                |             |                |         |                   |                     |             |          |             |                |                 | Controls T cell-independent B cell antibody responses, isotype switching, and B cell homeostasis |
| CD268 | BAFFR, Tnfsf13c | BAFF |                |             |                |         |                   |                     |             |          |             |                |                 | The principal receptor required for BAFF-mediated mature B-cell survival |
| CD269 | BCMA, BCM, Tnfsf17 | TNFSF13B/TALL-1/BAFF |                |             |                |         |                   |                     |             |          |             |                |                 | B cell development and autoimmune responses |
| CD271 | NGFR, Bax3, Nrgfap1p75, LNGFR, p7SNFR, p7SNFGR, Tnfsf16 | NGF, BDNF, NT-3 |                |             |                |         |                   |                     |             |          |             |                |                 | Apoptosis, receptor for NGF |
| CD272 | BTLA, B- and T Lymphocytes, MGC124217, MGC124218, A630002H24 | HVEM |                |             |                |         |                   |                     |             |          |             |                |                 | T and NK cell inhibition |
| CD273 | B7DC, PD-L2, Bdc, PD-L2, MGC124039, MGC124040, F730015022Rik, Pdcd11g2 | PD1 (CD279) |                |             |                |         |                   |                     |             |          |             |                |                 | Costimulation, inhibition |
| CD274 | B7-H1, PD-L1, Pdcd111, Pdcd11g1, A530045L-16Rik | CD279 |                |             |                |         |                   |                     |             |          |             |                |                 | Costimulation, inhibition |

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

+ Positive* – Negative
| CD   | Alternative Name | Ligands & Associated Molecules                                                                 | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Precursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                          |
|------|------------------|------------------------------------------------------------------------------------------------|--------|--------|----------------|---------|---------------------|---------------------|-------------|----------|------------|----------------|----------------|----------------|-------------------|
| CD275| B7-H2, GL50, B7RP-1, B7h, G&50, LICOS, B7RP-1, GL50, 8, ICOS-L, Icoslg, LY151, AU544799, BG071784, KIAA0653, mKIAA0653, Icosl | CD278  | +      | +      | +              | +       |                     |                     |             |          |            |                |                | Costimulation            |
| CD276| B7h3, B7RP-2, AU016588, 6030411F23Rik | CD26, CD152, TL1-2 | +      | +      | +              | +       |                     |                     |             |          |            |                |                | Possibly costimulation or inhibition |
| CD278| ICOS, Ly115, H4, AILIM | CD275  | +      |        |               |          |                     |                     |             |          |            |                |                | T cell development      |
| CD279| PD-1, Programmed death-1, Pdc1, Ly101 | CD274, CD273 | +      | +      |               |          |                     |                     |             |          |            |                |                | T cell tolerance        |
| CD280| ENDO180, MRC2, UPARAP, MGC141530, mKIAA0709 | Collagen, uPAR | +      |        |               |          |                     |                     |             |          |            |                |                | Cellular matrix degradation |
| CD281| TLR1 | Lipoproteins, TLR2 | +      | +      |               |          |                     |                     |             |          |            |                |                | TLR2 regulator          |
| CD282| TLR2, Ly105 | Lipoproteins, Glycans, TLR1, TLR6 | +      | +      | +              | +       |                     |                     |             |          |            |                |                | Immune response to gram-positive bacteria and mycobacteria |
| CD283| TLR3, A957183 | dsRNA | +      | +      |               |          |                     |                     |             |          |            |                |                | Immune response to ds RNA from viral pathogens |
| CD284| TLR4, Ly87, Ran/M1, Ras12-8 | Lipopolysaccharides, MD2, CD14 | +      | +      |               |          |                     |                     |             |          |            |                |                | Immune response to gram-negative bacteria |
| CD286| TLR6 | MyD88, TRAF6 | +      | +      | +              |          |                     |                     |             |          |            |                |                | Immune response to gram-positive bacteria and fungi |
| CD288| TLR8 | MyD88, UNC93B1, poly(A)/T rich DNA | +      | +      | +              |          |                     |                     |             |          |            |                |                | Regulation of TLR7 and prevention of spontaneous autoimmunity |
| CD289| TLR9 | CpG DNA | +      | +      |               |          |                     |                     |             |          |            |                |                | Immune response to bacteria or virus |
| CD292| BMPR1A, ALK3, SKR5, ALK3, Bmpc, AU045487, 1110037122Rik | BMP2, 4, 7, GDF-5 | +      | +      |               |          |                     |                     |             |          |            |                |                | Embryogenesis, kinase, regulates hair morphogenesis |
| CDw293| BMPR1B, ALK6, SKR6, Avcrik6, Cux-43a, A1358617, AV3552 | BMP2, 4, 7, GDF-5 | +      | +      |               |          |                     |                     |             |          |            |                |                | Regulates cartilage formation, kinase |
| CD294| CRTH2, GPR44, Grp45, MGC130436 | PGD2 | +      |        |               |          |                     |                     |             |          |            |                |                | Th2 cell inducer, regulates immune and inflammatory response |
| CD295| LeptinR, LEPR, db, Ob1, obl, Mobd1, LEPROT, OB-RGIR, MGC105189, obese-like | Leptin | +      |        |               |          |                     |                     |             |          |            |                |                | Anti-apoptosis, regulates fat metabolism, proliferation |
| CD296| ART1, R16, ART2, ADPRT, Yac-1 | PDGFb, Integrins, Defensin | +      | +      |               |          |                     |                     |             |          |            |                |                | Cell metabolism regulator |
| CD297| ART4, Dombrock blood group, DO, DOK1, 4432404K01Rik | PDGFb | +      | +      |               |          |                     |                     |             |          |            |                |                | Cell metabolism regulator |
| CD298| Na+/K+-ATPase b3 subunit, AA409958, A1664000, AW212096, Atp1b3 | +      | +      | +              |          |                     |                     |             |          |            |                |                | Ion transport |

For Research Use Only. Not for use in diagnostic or therapeutic procedures.

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.
<table>
<thead>
<tr>
<th>CD</th>
<th>Alternative Name</th>
<th>Ligands &amp; Associated Molecules</th>
<th>T Cell</th>
<th>B Cell</th>
<th>Dendritic Cell</th>
<th>NK Cell</th>
<th>Stem Cell/Preursor</th>
<th>Macrophage/Monocyte</th>
<th>Granulocyte</th>
<th>Platelet</th>
<th>Erythrocyte</th>
<th>Endothelial Cell</th>
<th>Epithelial Cell</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD301a</td>
<td>Clec10a, Mgl, Mgl1</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Binds and internalizes molecules with terminal nonsialylated GalNAc carbohydrates</td>
</tr>
<tr>
<td>CD302</td>
<td>Clec13A, DCL-1</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell adhesion and migration, apoptosis and phagocytosis</td>
</tr>
<tr>
<td>CD304</td>
<td>BDCA4, Neuropilin 1, NP-1</td>
<td>VEGF165, SEMA3A</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Angiogenesis, dendritic cell and T cell interactions</td>
</tr>
<tr>
<td>CD305</td>
<td>LAIR1</td>
<td>Ep-CAM, CD326</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inhibits cellular activation and inflammation</td>
</tr>
<tr>
<td>CD307</td>
<td>FcR15 Fc receptor-like 5, FcR3, mBXMH2, FcR5</td>
<td></td>
<td></td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May inhibit BCR mediated signaling</td>
</tr>
<tr>
<td>CD309</td>
<td>VEGFR2, Fik-1, KDR</td>
<td>VEGF-A, C, D, E</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Angiogenesis</td>
</tr>
<tr>
<td>CD314</td>
<td>NKG2D, KLRK1</td>
<td>MICA, MICB, H60, ULBP5</td>
<td>+</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell activation</td>
</tr>
<tr>
<td>CD315</td>
<td>CD9P1</td>
<td>CD9, CD81</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May play a role in cell migration</td>
</tr>
<tr>
<td>CD316</td>
<td>EWI2, PGRL, KASP</td>
<td>CD9, CD81</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell migration</td>
</tr>
<tr>
<td>CD317</td>
<td>BST2</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Possibly plays a role in pre-B cell growth</td>
</tr>
<tr>
<td>CD318</td>
<td>CDCP1</td>
<td>CDH2/N-Cadherin, CDH3/P-Cadherin, SDC1/Syndecan-1, SDC4/Syndecan-4, ST14/MT-SP1</td>
<td></td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>May modulated cell adhesion</td>
</tr>
<tr>
<td>CD319</td>
<td>CRACC, SLAMF7</td>
<td>CS1</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NK cell cytotoxicity</td>
</tr>
<tr>
<td>CD320</td>
<td>Transcobalamin receptor</td>
<td></td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Supports B cell proliferation and plasma cell differentiation</td>
</tr>
<tr>
<td>CD321</td>
<td>JAM1, F11 receptor, KAR</td>
<td>PAR3, LFA-1, Reovirus</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Platelet aggregation</td>
</tr>
<tr>
<td>CD322</td>
<td>JAM2, VE-JAM</td>
<td>PAR3, JAM3</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Lymphocyte migration</td>
</tr>
<tr>
<td>CD323</td>
<td>E-Cadherin, Uvomorulin</td>
<td>CD103, Catenins, PS1, Internalin</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Adhesion, tumor suppression, cell growth and differentiation</td>
</tr>
<tr>
<td>CD324</td>
<td>N-Cadherin, Cadherin-2</td>
<td>Catenins, FGFR, PS1</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD325</td>
<td>Ep-CAM, Ly-74</td>
<td>LAIR-1, LAIR-2</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Cell adhesion</td>
</tr>
<tr>
<td>CD326</td>
<td>siglec9</td>
<td>GD1a, LSTc</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Regulator of immune response</td>
</tr>
<tr>
<td>CD327</td>
<td>FGF1, FLT2, N-SAM</td>
<td>aFGF, bFGF, K-FGF, SHB, KLB, GRB10</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limb induction, chondrochondral</td>
</tr>
<tr>
<td>CD328</td>
<td>FGF2, KGFR, KSM</td>
<td>aFGF, bFGF, K-FGF, FGF-6</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Limb induction, chondrochondral</td>
</tr>
<tr>
<td>CD329</td>
<td>FGF3, ACH, CEK2</td>
<td>aFGF</td>
<td>+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Bone development and maintenance</td>
</tr>
</tbody>
</table>

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.

+ Positive*  – Negative
| CD     | Alternative Name   | Ligands & Associated Molecules                                                                 | T Cell | B Cell | Dendritic Cell | NK Cell | Stem Cell/Preursor | Macrophage/Monocyte | Granulocyte | Platelet | Erythrocyte | Endothelial Cell | Epithelial Cell | Function                                                                 |
|--------|--------------------|------------------------------------------------------------------------------------------------|--------|--------|----------------|---------|-------------------|---------------------|-------------|----------|-------------|----------------|----------------|----------------|--------------------------------------------------------------------------|
| CD334  | FGFR4, TKF         | aFGF, FGF20                                                                                     | +      | +      |                |         |                   |                     |             |          |             |                |                 | Cancer, muscle development                                              |
| CD335  | NKp46, Ly-94       | Viral hemagglutinins, Heparan sulfate proteoglycans                                                | +      |        |                |         |                   |                     |             |          |             |                |                 | NK cell activation                                                      |
| CD338  | ABCG2, Mxr, ABC15, BCRP1 | Xenobiotics                                                                                     | +      | +      |                |         |                   |                     |             |          |             |                |                 | Xenobiotic transporter, may play a role in multi-drug resistance         |
| CD339  | Jagged-1, Serrate1 | Notch 1, 2, 3                                                                                   | +      |        |                |         |                   |                     |             |          |             |                |                 | Hematopoiesis, cardiovascular development                                |
| CD340  | c-erbB2, HER2, Neu | PRKCABP, PLXNB1, EGFR, PIK3C2A, MUC1                                                          | +      |        |                |         |                   |                     |             |          |             |                |                 | Enhancing kinase-mediated activation of EGFR downstream signaling pathways. |
| CD344  | FZD4, Frizzled homolog 4 | MAGI3, NDP                                                                                      | +      | +      |                |         |                   |                     |             |          |             |                |                 | Receptor for Wnt proteins                                                |
| CD345  | FZD9, Frizzled homolog 9 |                                                                                           | +      |        |                |         |                   |                     |             |          |             |                |                 | Receptor for Wnt proteins                                                |
| CD350  | FZD10, Frizzled homolog 10 |                                                                                                   | +      |        |                |         |                   |                     |             |          |             |                |                 | Receptor for Wnt proteins                                                |
| CD351  | FCAMR, Fc receptor, IgA, IgM, high affinity |                                                                                               | +      | +      |                |         |                   |                     |             |          |             |                |                 | Potentially involved in suppression of humoral responses against T-independent antigens |
| CD352  | Ly-108, SLAMF6     | PTN6, PTN11, SH2D1A/SAP                                                                      | +      | +      |                |         |                   |                     |             |          |             |                |                 | Expansion and differentiation of NKT lineage                              |
| CD353  | SLAMF8, BLAME      |                                                                                               | +      | +      |                |         |                   |                     |             |          |             |                |                 | May be important for B-cell lineage commitment and BCR signaling         |
| CD354  | TLR                |                                                                                               | +      | +      |                |         |                   |                     |             |          |             |                |                 | Synergizes with effects of TLR ligands to amplify the synthesis of inflammatory cytokines |
| CD355  | TLR                |                                                                                               | +      | +      |                |         |                   |                     |             |          |             |                |                 | Proposed to regulate retention of CD8+ T cells within the lymph node    |
| CD357  | TLR                |                                                                                               | +      | +      |                |         |                   |                     |             |          |             |                |                 | Important for regulatory T cell function                                 |
| CD358  | TLR                |                                                                                               | +      | +      |                |         |                   |                     |             |          |             |                |                 | Regulation of T-cell mediated immune response                             |
| CD359  | IL21R              | Common γ-chain, IL-21, Jak-1, Jak-3, STAT1, STAT3, STAT5                                     | +      | +      |                |         |                   |                     |             |          |             |                |                 | NK cell expansion                                                        |
| CD360  | EVI2B (ectopic viral integration site 2B) |                                                                                                 | +      | +      |                |         |                   |                     |             |          |             |                |                 | Cell adhesion                                                            |
| CD361  | Syndecan-2, Hspg1, Synd2 |                                                                                                   | +      | +      |                |         |                   |                     |             |          |             |                |                 | Cell adhesion                                                            |
| CD362  | S1PR1, Sphingosine-1-phosphate receptor 1, EDG-1 |                                                                                                   | +      | +      |                |         |                   |                     |             |          |             |                |                 | Regulation of cell migration and possible endothelial cell differentiation |

+ Positive* – Negative

*Positive refers to any expression of this CD marker either in all cells, a subset, or upon activation.