Integrin

Integrins are transmembrane receptors that facilitate cell-cell and cell-extracellular matrix (ECM) adhesion

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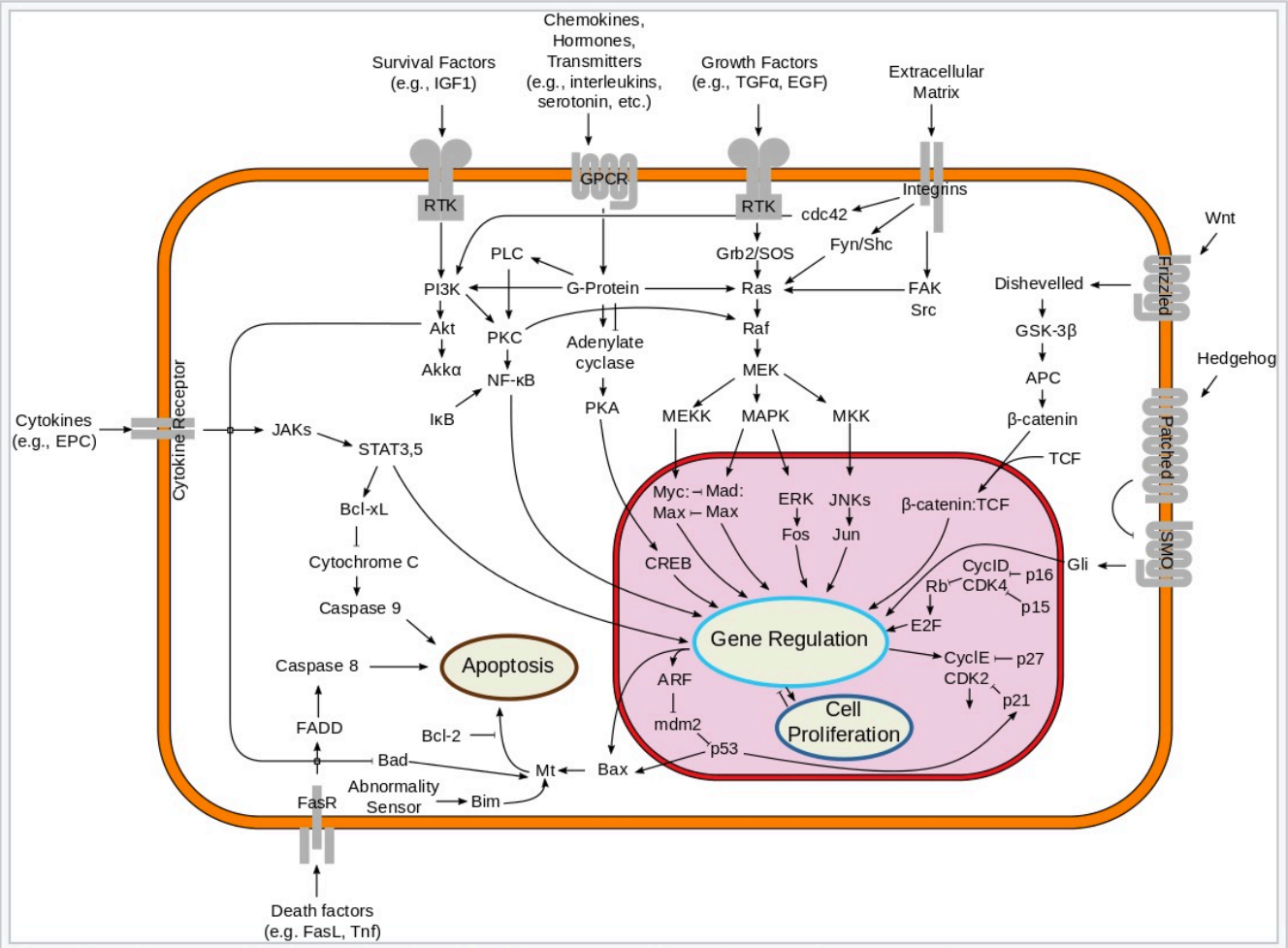
In medicine, glycoprotein IIbIIIa (GPIIb/IIIa, also known as integrin αIIbβ3) is an integrin complex found on platelets.

Integrins remain a potential treatment target for glioblastoma [1)].

Integrins are transmembrane receptors that are the bridges for cell-cell and cell-extracellular matrix (ECM) interactions. When triggered, integrins trigger chemical pathways to the interior (signal transduction), such as the chemical composition and mechanical status of the ECM. This results in a response (activation of transcription) like the regulation of the cell cycle, cell shape, and/or motility; or adding new receptors to the cell membrane. This allows rapid and flexible responses to events at the cell surface, for example to signal platelets to initiate an interaction with coagulation factors.



Simplified representation of major signal transduction pathways in mammals.

Integrins come in several types. One cell may have several types on its surface. Integrins are found in all animals.

Integrins work alongside other receptors such as cadherins, the immunoglobulin superfamily cell adhesion molecules, selectins and syndecans to mediate cell–cell and cell–matrix interaction. Ligands for integrins include fibronectin, vitronectin, collagen and laminin.

Integrin beta 1

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Alpha-5 beta-1 (α5β1), also known as the fibronectin receptor, is an integrin that binds to matrix macromolecules and proteinases and thereby stimulates angiogenesis.

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Stupp R, Hegi ME, Gorlia T, Erridge SC, Perry J, Hong YK, Aldape KD, Lhermitte B, Pietsch T, Grujicic D, Steinbach JP, Wick W, Tarnawski R, Nam DH, Hau P, Weyerbrock A, Taphoorn MJ, Shen CC, Rao N, Thurzo L, Herrlinger U, Gupta T, Kortmann RD, Adamska K, McBain C, Brandes AA, Tonn JC, Schnell O, Wiegel T, Kim CY, Nabors LB, Reardon DA, van den Bent MJ, Hicking C, Markivskyy A, Picard M, Weller M; European Organisation for Research and Treatment of Cancer (EORTC).; Canadian Brain Tumor Consortium.; CENTRIC study team.. Cilengitide combined with standard treatment for patients with newly diagnosed glioblastoma with methylated MGMT promoter (CENTRIC EORTC 26071-22072 study): a multicentre, randomised, open-label, phase 3 trial. Lancet Oncol. 2014 Sep;15(10):1100-8. doi: 10.1016/S1470-2045(14)70379-1. Epub 2014 Aug 19. PubMed PMID: 25163906.