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https://doi.org/10.2218/gtopdb/F324/2025.3

Type IV RTKs: VEGF (vascular endothelial growth factor) receptor family in GtoPdb v.2025.3

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Abstract

VEGF receptors are homo- and heterodimeric proteins, which are characterized by seven Ig-like loops in their extracellular domains and a split kinase domain in the cytoplasmic region. They are key regulators of angiogenesis and lymphangiogenesis; as such, they have been the focus of drug discovery for conditions such as metastatic cancer. Splice variants of VEGFR1 and VEGFR2 generate truncated proteins limited to the extracellular domains, capable of homodimerisation and binding VEGF ligands as a soluble, non-signalling entity. Ligands at VEGF receptors are typically homodimeric. VEGFA is able to activate VEGFR1 and VEGFR2 homodimers, VEGFR1/2 heterodimers and VEGFR2/3 heterodimers. VEGFB and placental growth factor activate VEGFR1 homodimers, while VEGFC and VEGFD activate VEGFR2/3 heterodimers and VEGFR3 homodimers, and, following proteolysis, VEGFR2 homodimers.

Contents

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Database links

Type IV RTKs: VEGF (vascular endothelial growth factor) receptor family
https://www.guidetopharmacology.org/GRAC/FamilyDisplayForward?familyId=324

Receptors

- VEGFR-1(fms related receptor tyrosine kinase 1)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1812
- VEGFR-2(kinase insert domain receptor)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1813
- VEGFR-3(fms related receptor tyrosine kinase 4)
  https://www.guidetopharmacology.org/GRAC/ObjectDisplayForward?objectId=1814

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