

RANK

Receptor activator of nuclear factor κ B (RANK), also known as TRANCE receptor or TNFRSF11A, is a member of the tumor necrosis factor receptor (TNFR) molecular sub-family. RANK is the receptor for RANK-Ligand (RANKL) and part of the RANK/RANKL/OPG signaling pathway that regulates osteoclast differentiation and activation. It is associated with bone remodeling and repair, immune cell function, lymph node development, thermal regulation, and mammary gland development. Osteoprotegerin (OPG) is a decoy receptor for RANK, and regulates the stimulation of the RANK signaling pathway by competing for RANKL. The cytoplasmic domain of RANK binds TRAFs 1, 2, 3, 5, and 6 which transmit signals to downstream targets such as NF- κ B and JNK.

RANK is constitutively expressed in skeletal muscle, thymus, liver, colon, small intestine, adrenal gland, osteoclast, mammary gland epithelial cells, prostate, vascular cell,[5] and pancreas. Most commonly, activation of NF- κ B is mediated by RANKL, but over-expression of RANK alone is sufficient to activate the NF- κ B pathway.

RANKL (receptor activator for nuclear factor κ B ligand) is found on the surface of stromal cells, osteoblasts, and T cells.

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