

DESCRIPTION

Source	Mouse myeloma cell line, NS0-derived rat Tie-2 protein Ala23-Leu743, with a C-terminal 6-His tag Accession # NP_001099207.1
N-terminal Sequence Analysis	Ala23 & Met24
Predicted Molecular Mass	82 kDa

SPECIFICATIONS

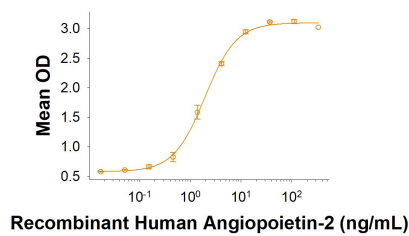
SDS-PAGE	95-108 kDa, under reducing conditions
Activity	Measured by its binding ability in a functional ELISA. When Recombinant Rat Tie-2 His-tag (Catalog # 10458-T2) is immobilized at 0.5 µg/mL (100 µL/well), Recombinant Human Angiotensin-2 His-tag (Catalog # 623-AN) binds with an ED ₅₀ of 0.4-3.6 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles. <ul style="list-style-type: none"> • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

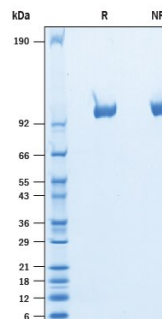
DATA

Binding Activity



When Recombinant Rat Tie-2 His-tag (Catalog # 10458-T2) is immobilized at 0.5 µg/mL (100 µL/well), Recombinant Human Angiotensin-2 (Catalog # 623-AN) binds with an ED₅₀ of 0.4-3.6 ng/mL.

SDS-PAGE



2 µg/lane of Recombinant Rat Tie-2 His-tag Protein (Catalog # 10458-T2) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 95-108 kDa.

BACKGROUND

Tie-2, also known as Tek, is a 145 kDa, type I transmembrane glycoprotein receptor tyrosine kinase that is a receptor for angiopoietins (1). The 1120 amino acid (aa) rat Tie-2 precursor contains an 18 aa signal sequence, a 723 aa extracellular domain (ECD), a 25 aa transmembrane segment, and a 354 aa cytoplasmic tail (2). The ECD contains two C2 Ig-like domains, three EGF-like motifs, and three fibronectin type III repeats. The cytoplasmic region has a split tyrosine kinase domain and presumably autophosphorylates as a ligand-induced homodimer (3). Rat Tie-2 ECD shares 96%, 90% and 89% aa identity with mouse, human and bovine Tie-2, respectively, and 47% aa identity with rat Tie-1 ECD. Cells known to express Tie-2 include embryonic and adult endothelial cells, hematopoietic stem cells and a circulating population of proangiogenic Tie-2 expressing monocytes (TEM) (4-7). A soluble form of Tie-2, most likely the result of proteolytic cleavage, is found in serum (8). The four angiopoietins are ligands of Tie-2. Ang-1 and Ang-4 are Tie-2 activators, while Ang-2 and Ang-3 can be activators or inhibitors, depending on context (1, 9). Tie-2 is said to be important for maintaining vascular integrity. It mediates endothelial cell-smooth muscle cell communication, and inhibits endothelial cell apoptosis, thus maintaining endothelial cell survival (10-12). It is also absolutely required for embryonic development of the endocardium (3, 10, 13). While not essential for embryonic hematopoiesis, Ang-1 production by osteoblasts promotes quiescence of Tie-2-expressing bone marrow stem cells. This quiescence is critical for maintaining an ongoing hematopoietic capability (12, 14, 15).

References:

1. Eklund, L. and B. R. Olsen (2006) *Exp. Cell Res.* **312**:630.
2. Maisonpierre, P.C. *et al.* (1993) *Oncogene* **8**:1631.
3. Vikkula, M. *et al.* (1996) *Cell* **87**:1181.
4. Asahara, T. *et al.* (1997) *Science* **275**:964.
5. Dallabrida, S.M. *et al.* (2003) *Biochem. Biophys. Res. Commun.* **311**:563.
6. Takakura, N. *et al.* (1998) *Immunity* **9**:677.
7. DePalma, M. *et al.* (2005) *Cancer Cell* **8**:211.
8. Reusch, P. *et al.* (2001) *Angiogenesis* **4**:123.
9. Lee, H.J. *et al.* (2004) *FASEB J.* **18**:1200.
10. Jones, N. *et al.* (2001) *EMBO Rep.* **2**:438.
11. Wong, A. L. *et al.* (1997) *Circ. Res.* **81**:567.
12. Hamaguchi, I. *et al.* (2006) *Blood* **107**:1207.
13. Puri, M.C. *et al.* (1999) *Development* **126**:4569.
14. Puri, M.C. and A. Bernstein (2003) *Proc. Natl. Acad. Sci. USA* **100**:12753.
15. Arai, F. *et al.* (2004) *Cell* **118**:149.