# Recombinant Mouse Angiopoietin-2

Catalog Number: 7186-AN

## DESCRIPTION

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| **Source** | Chinese Hamster Ovary cell line, CHO-derived<br>Met1-Phe496, with a C-terminal 6-His tag<br>Accession # NP_031452 |
| **N-terminal Sequence Analysis** | Asp68 |
| **Predicted Molecular Mass** | 49.7 kDa |

## SPECIFICATIONS

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| **SDS-PAGE** | 60-66 kDa, reducing conditions |
| **Activity** | Measured by its ability to activate Tie-2 in C6 rat glial cells transfected with human Tie-2.<br>1 µg/mL of Recombinant Mouse Angiopoietin-2 significantly induces phosphorylation of human Tie-2 in the presence of a cross-linking antibody, Mouse Anti-polyHistidine Monoclonal Antibody (Catalog # MAB050). |
| **Endotoxin Level** | <0.10 EU per 1 µg of the protein by the LAL method. |
| **Purity** | >95%, by SDS-PAGE under reducing conditions and visualized by silver stain. |
| **Formulation** | Lyophilized from a 0.2 µm filtered solution in HEPES, NaCl and CHAPS with BSA as a carrier protein. See Certificate of Analysis for details. |

## PREPARATION AND STORAGE

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| **Reconstitution** | Reconstitute at 100 µg/mL in sterile, deionized water. |
| **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.**<br>● 12 months from date of receipt, -20 to -70 °C as supplied.<br>● 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>● 3 months, -20 to -70 °C under sterile conditions after reconstitution. |

## BACKGROUND

Angiopoietin-2 (Ang-2; also ANGPT2) is a secreted glycoprotein that plays a complex role in angiogenesis and inflammation (1, 2). Mature mouse Ang-2 is 478 amino acids (aa) in length. It contains one coiled-coil domain (aa 159-256) that mediates multimerization, and a C-terminal fibrinogen-like domain (aa 275-495) that mediates receptor binding. Under reducing conditions, secreted monomeric Ang-2 is 65-66 kDa in size. Under non-reducing conditions, both natural and recombinant Ang-2 form 140 kDa dimers, 200 kDa trimers, and 250-300 kDa tetramers and pentamers (3-5). Mature mouse Ang-2 shares 87% and 96% aa sequence identity with human and rat Ang-2, respectively. Ang-2 is widely expressed during development, but it is restricted postnatally to highly angiogenic tissues such as the placenta, ovaries, and uterus (3). It is particularly abundant in vascular endothelial cells (EC) where it is stored in intracellular Weibel-Palade bodies (1  3, 6). Both Ang-2 and the related Angiopoietin-1 (Ang-1) are ligands for the receptor tyrosine kinase Tie-2 (2). While Ang-1 is a potent Tie-2 agonist, Ang-2 may act as either a Tie-2 antagonist or agonist, depending upon its state of multimerization. The higher the order of oligomer, the more effective Ang-2 becomes as a Tie-2 agonist (3, 7-10). Ang-2 functions as a pro-angiogenic factor, although it can also induce EC death and vessel regression (11, 12). Upon its release from quiescent EC, it regulates vascular remodeling by promoting EC survival, proliferation, and migration and destabilizing the interaction between EC and perivascular cells (7, 12, 13). Ang-2 is required for postnatal vascular remodeling, and it cooperates with Ang-1 during lymphatic vessel development (6, 14). It mediates the up-regulation of ICAM-1 and VCAM-1 on EC, which facilitates the adhesion of leukocytes during inflammation (15). Ang-2 is up-regulated in both the endothelium and tumor cells of several cancers as well as in ischemic tissue (16-19). Its direct interaction with Integrins promotes tumor cell invasion (20, 21). Ang-2 also promotes the neuronal differentiation and migration of subventricular zone progenitor cells (19).

**References:**


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