Recombinant Human Notum

Catalog Number: 9118-NM

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived Ser81-Thr451 (Cys330Ser) with a C-terminal 6-His tag Accession # Q6P988
N-terminal Sequence Analysis	Ser81
Predicted Molecular Mass	43 kDa

SPECIFICATIONS

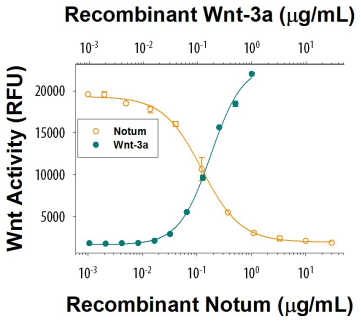
SDS-PAGE	38-45 kDa, reducing conditions
Activity	Measured by its ability to inhibit Wnt induced TCF reporter activity in HEK293 human embryonic kidney cells. The ED_{50} for this effect is 0.1-0.6 µg/mL in the presence of 0.5 µg/mL of Recombinant Human Wnt-3a (Catalog # 5036-WN).
Endotoxin Level	<0.10 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 100 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.** ● 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

Bioactivity



Recombinant Human Wnt-3a shows a dose responsive increase in Wnt reporter activity in HEK293 cells (green line). Recombinant Human Notum (Catalog # 9118-NM) inhibits a constant dose of 0.5 µg/mL Recombinant Human Wnt-3a (Catalog # 5036-WN). The ED_{50} is typically 0.1-0.6 µg/mL (orange line).

BACKGROUND

Notum is an evolutionarily conserved 60 kDa secreted deacylase that regulates Wnt activity (1, 2). It is tethered to the cell surface by binding to Glypican-like sulfated proteoglycans, and it functions as a Glypican-dependent Wnt inhibitor (1-4). Notum hydrolyzes the palmitoyl moiety from Wnt-3a, making the Wnt more hydrophilic and unable to bind to the Frizzled-8 receptor (1, 2). It also induces the release of cell surface GPI-anchored proteins such as Glypican-3, Cadherin-13, and uPAR (4). Notum regulates head regeneration in planaria (3), head formation and neural induction in Xenopus (1), and long range activity of hedgehog proteins in Drosophila (5). It is up-regulated in some human hepatocellular carcinomas and colorectal cancers (6, 7). Within amino acids 81-451, human Notum shares 92% aa sequence identity with mouse and rat Notum.

References:

1. Zhang, X. *et al.* (2015) Dev. Cell **32**:719.
2. Kakugawa, S. *et al.* (2015) Nature **519**:187.
3. Petersen, C.P. and P.W. Reddien (2011) Science **332**:852.
4. Traister, A. *et al.* (2008) Biochem. J. **410**:503.
5. Ayers, K.L. *et al.* (2010) Dev. Cell **18**:605.
6. Torisu, Y. *et al.* (2008) Cancer Sci. **99**:1139.
7. De Robertis, M. *et al.* (2015) Oncotarget **6**:41237.

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