

## Recombinant Human Noggin

Catalog No.: RP0002

### Basic Information

#### Information

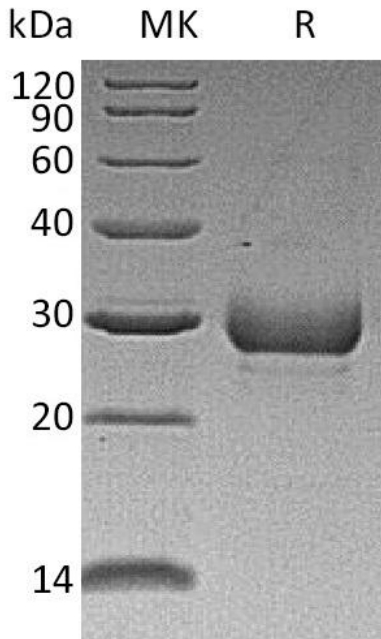
<b>Source</b>	<i>Human Cells</i>
<b>Description</b>	Recombinant Human Noggin is produced by our Mammalian expression system and the target gene encoding Gln28-Cys232 is expressed.
<b>Accession</b>	Q13253
<b>Known As</b>	Noggin; NOG
<b>Predicted Mol Mass</b>	23 KDa
<b>Apparent Mol Mass</b>	25-33 KDa, reducing conditions

#### Properties

<b>Formulation</b>	Lyophilized from a 0.2 $\mu$ m filtered solution of 20mM PB, 500mM NaCl, 2mM EDTA, pH 7.4.
<b>Storage</b>	Lyophilized protein should be stored at $\leq -20^{\circ}\text{C}$ , stable for one year after receipt. Reconstituted protein solution can be stored at $2-8^{\circ}\text{C}$ for 2-7 days. Aliquots of reconstituted samples are stable at $\leq -20^{\circ}\text{C}$ for 3 months.
<b>Endotoxin</b>	$< 0.01$ EU/ $\mu$ g as determined by LAL test.
<b>Reconstitution</b>	Always centrifuge tubes before opening. Do not mix by vortex or pipetting. It is not recommended to reconstitute to a concentration less than 100 $\mu$ g/ml. Dissolve the lyophilized protein in distilled water. Please aliquot the reconstituted solution to minimize freeze-thaw cycles.
<b>Shipping</b>	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature listed below.

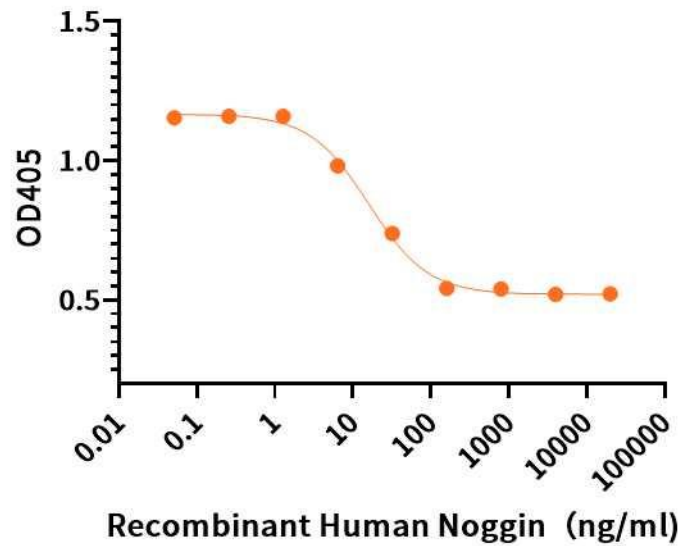
## Experimental Data

### Purity-SDS-PAGE



Greater than 95% as determined by reducing SDS-PAGE. (QC verified)

### Bioactivity-Cell Based Assay



Measured by its ability to inhibit BMP-2-induced alkaline phosphatase production by ATDC5 mouse chondrogenic cells. The ED50 for this effect is 0.2 µg/mL in the presence of 2000 ng/mL of Recombinant Human BMP-2 (QC verified).

## Background

Noggin is a secreted homodimeric glycoprotein that is an antagonist of bone morphogenetic proteins (BMPs). Mature Human Noggin contains an N-terminal acidic region, a central basic heparin-binding segment and a C-terminal cysteine-knot structure. Noggin is very highly conserved among vertebrates, such that mature human Noggin shares 99%, 99%, 98%, 97% and 89% aa sequence identity with mouse, rat, bovine, equine and chicken Noggin, respectively. Secreted Noggin probably remains close to the cell surface due to its binding of heparin-containing proteoglycans. Noggin binds some BMPs such as BMP4 with high affinity and others such as BMP7 with lower affinity. It antagonizes BMP bioactivities by blocking epitopes on BMPs that are needed for binding to both type I and type II receptors. Noggin is expressed in defined areas of the adult central nervous system and peripheral tissues such as lung, skeletal muscle and skin. During culture of human embryonic stem cells (hESC) or neural stem cells under certain conditions, addition of Noggin to antagonize BMP activity may allow stem cells to proliferate while maintaining their undifferentiated state, or alternatively, to differentiate into dopaminergic neurons.