

human cell expressed Noggin^{HGX}

Source A DNA sequence encoding the human noggin protein sequence (containing the signal peptide sequence, and the mature human noggin sequence) was expressed in modified human 293 cells.

Molecular Mass Symansis Noggin^{HGX} migrates as a band between 25 and 30 kDa in SDS-PAGE due to post-translation modifications, in particular glycosylation. This compares with the unmodified Noggin that has a predicted molecular mass of 23.0kDa.

pI Symansis Noggin^{HGX} separates into a number of isoforms with a pI between 4.2 and 5.3 in 2D PAGE due to post-translational modifications, in particular glycosylation. This compares with the unmodified Noggin that has a predicted pI of 9.1.

% Carbohydrate Symansis purified Noggin^{HGX} consists of 5-25% carbohydrate by weight.

Glycosylation Symansis Noggin^{HGX} has N-linked oligosaccharides.

Purity >95% as determined by SDS-PAGE and visualized by silver stain.

Formulation When reconstituted in 0.5 ml sterile phosphate-buffered saline, the solution will contain 1% human serum albumin (HSA) and 10% trehalose.

Reconstitution It is recommended that 0.5 ml of sterile phosphate-buffered saline be added to the vial.

Storage Lyophilized products should be stored at 2 to 8°C. Following reconstitution short-term storage at 4°C is recommended and longer-term storage of aliquots at -18 to -20°C. Repeated freeze thawing is not recommended.

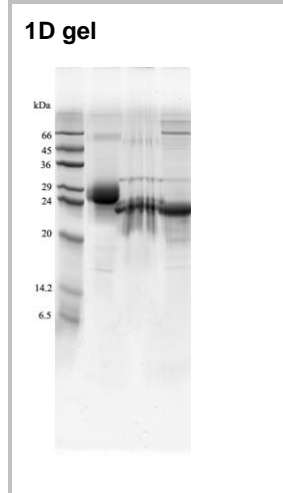
Background Information Noggin is a secreted glycoprotein predominantly expressed by the dorsal mesoderm during embryogenesis. Noggin has been shown to bind with high affinity to bone morphogenetic protein-4 (BMP-4) and with lower affinity to BMP-2 and BMP-7. Noggin specifically inhibits the action of BMP's by preventing interaction with their receptors.

BMP's have been shown to promote the differentiation of human embryonic stem cells (hES) into trophoblasts or endoderm cells. This suggests inhibitors of BMP signaling, such as noggin, may be valuable for maintaining hES cells in an undifferentiated state. It has been shown that noggin maintains hES in an undifferentiated state in culture. Additionally, noggin in combination with FGF2 can maintain undifferentiated hES growth for substantial culture periods while retaining hES karyotype and pluripotency. The role of noggin in the maintenance of undifferentiated hES suggests it is potentially a valuable component of animal free hES cultures allowing hES to be applicable for therapeutic applications.

Human noggin is a 205 amino acid glycoprotein and is secreted as a covalently linked homodimer of approximately 30 kDa with a similar structure to BMP-7.

For additional information on Noggin please refer to Wang G, et al (2005) *Biochem Biophys Res Commun.* **330**(3): 932-942.

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1D gel data

Lane 1 – MW markers; Lane 2 – Noggin^{HGX}; Lane 3 – Noggin^{HGX} treated with PNGase F to remove potential N-linked glycans; Lane 4 – Noggin^{HGX} treated with a glycosidase cocktail to remove potential N- and O-linked glycans. 10 µg protein loaded per lane; Deep Purple™ stained.

Drop in MW after treatment with PNGase F indicates presence of N-linked glycans. Faint bands in lane 3 and lane 4 are glycosidase enzymes.

Theoretical Sequenc

QHYLHIRPAPSDNLPLVDLIEHPDPI FDPKEKDLNETLLRSLLGGHYDPGFMAT
SPPEDRPGGGGGAAGGAEDLAELDQLLRQRPSGAMPSEIKGLEFSEGLAQQ
KKQRLSKLRRKLMWLWSQTFCPVLYAWNDLGSRFWPRYVKVGSCFSKR
SCSVPEGMVCKPSKSVHLTVLRWRCQRRGGQRCGWIPYIPISECKCSC