

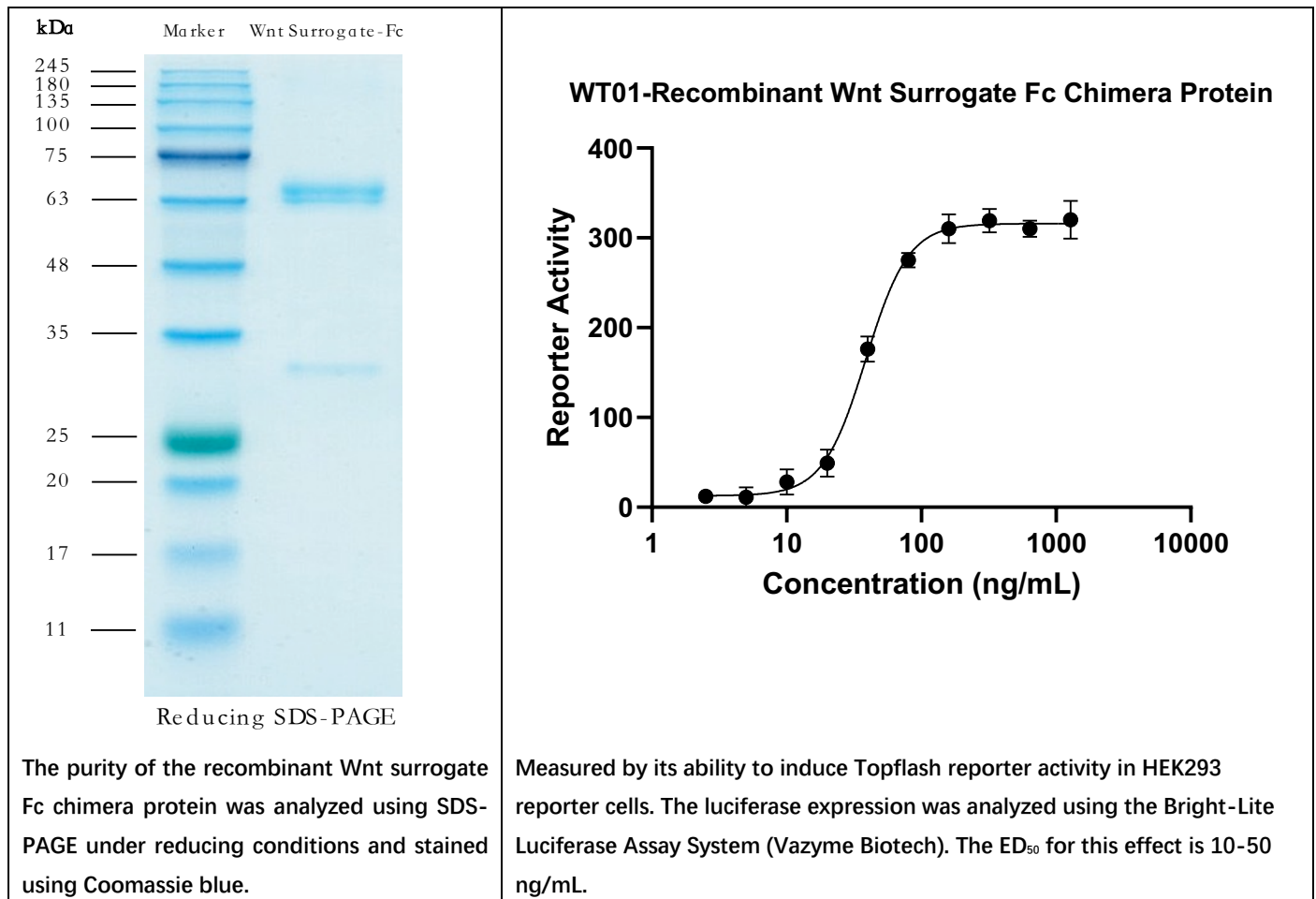
Recombinant Wnt Surrogate Fc Chimera Protein

Cat. No.: WT01-100 Size: 100µg
 Cat. No.: WT01-1000 Size: 1mg

Product Specifications

Source:	<table border="1" style="width: 100%; text-align: center;"> <tr> <td style="width: 33%;">Wnt Surrogate (confidential protein sequence)</td> <td style="width: 33%;">EFGGGS</td> <td style="width: 33%;">Human IgG1 (Pro100-Lys330)</td> </tr> <tr> <td>N-terminus</td> <td></td> <td>C-terminus</td> </tr> </table> <p>Human HEK293 cell line, HEK293-derived Wnt Surrogate Fc Chimera Protein</p>	Wnt Surrogate (confidential protein sequence)	EFGGGS	Human IgG1 (Pro100-Lys330)	N-terminus		C-terminus
Wnt Surrogate (confidential protein sequence)	EFGGGS	Human IgG1 (Pro100-Lys330)					
N-terminus		C-terminus					
Accession:	N/A						
Purity:	>90%, by SDS-PAGE under reducing conditions.						
Endotoxin Level:	<0.10 EU/µg of the protein by the LAL method.						
Activity:	Measured by its ability to induce Topflash reporter activity in HEK293 reporter cells. The ED ₅₀ for this effect is 10-50 ng/mL.						
Organoids Culture Test:	Pass						
Structure:	Disulfide-linked homodimer.						
Predicted Molecular Weight	59.2 kDa (monomer).						
SDS-PAGE	63-70 kDa, reducing conditions.						
Sterile:	0.22µm sterile filtration.						
Product Form:	Lyophilized powder.						
Shipping & Storage:	<p>The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below:</p> <ul style="list-style-type: none"> ➤ To the date of expiration, -20°C to -80°C as supplied. ➤ 3 months, -20°C to -80°C under sterile conditions after reconstitution. ➤ 1 month, 2 to 8 °C under sterile conditions after reconstitution. <p>Avoid repeated freeze-thaw cycles.</p>						

Scientific Data



Product Background:

Wnt-3a, a member of the Wingless-type MMTV integration site (Wnt) family, plays a crucial role in various developmental processes. Wnt proteins, including Wnt-3a, bind to Frizzled family receptors on the cell surface, along with low-density lipoprotein receptor-related protein family receptors (LRP5 or 6), leading to the stabilization of intracellular beta-catenin levels. Increased intracellular beta-catenin levels result in the binding of beta-catenin to TCF/LEF transcription factors, which in turn induces the expression of Wnt target genes.

Wnt-3a is a hydrophobic glycoprotein with a molecular weight of 44 kDa and contains a conserved pattern of 24 cysteine residues. It possesses two N-linked glycosylation sites (Asn 87, Asn 298), and the modification of Ser 209 with palmitoleic acid is crucial for its biological activity. Glycosylation and acylation are essential for efficient Wnt secretion and biological function, respectively. Human Wnt-3a shares a high degree of amino acid sequence identity (96%) with its counterparts in mice, bovines, and canines, as well as 89%, 86%, and 84% identity with chicken, Xenopus, and zebrafish Wnt-3a, respectively. It also shares 87% amino acid identity with Wnt3.

Wnt-3a also plays a significant role in organoid culture systems. Organoids are three-dimensional structures derived from stem cells that mimic the architecture and functionality of specific organs. In this context, Wnt-3a has been shown to have diverse effects on the development and maintenance of various types of organoids.

The addition of Wnt-3a to intestinal organoid cultures enhances their self-renewal and promotes the formation of crypt-like structures, which are essential for intestinal epithelial cell homeostasis. It has also been

demonstrated that Wnt-3a supplementation promotes the proliferation and differentiation of hepatic progenitor cells, contributing to the generation and expansion of liver organoids.

Furthermore, in brain organoids, Wnt-3a is crucial for the proper development of the hippocampus, a region involved in learning and memory. Its presence during the early stages of brain organoid formation leads to the generation of well-organized hippocampal structures. Wnt-3a signaling has also been implicated in the patterning and regionalization of other brain regions within organoids, such as the cerebral cortex and midbrain.

Additionally, Wnt-3a has been found to play a role in promoting the self-renewal and differentiation of neural progenitor cells within neural organoids. This signaling pathway is involved in regulating the balance between neural stem cell proliferation and differentiation, thereby influencing the development and maturation of neural tissue within organoids.

Overall, the incorporation of Wnt-3a in organoid culture systems provides a valuable tool for directing and modulating the development, self-renewal, and differentiation of various types of organoids, enabling researchers to study organogenesis, disease modeling, and drug screening.

References:

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RUO Statement:

Recombinant Wnt Surrogate Fc Chimera Protein for Research Use Only. It is not intended for diagnostic, therapeutic, or any other clinical applications.

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