# Human Wnt-7a Alexa Fluor® 488-conjugated Antibody

Monoclonal Mouse $IgG_{2B}$ Clone # 946730

Catalog Number: FAB3008G

100 µg

## DESCRIPTION

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| **Species Reactivity** | Human |
| **Specificity** | Detects human Wnt-7a in direct ELISAs. Cross-reactivity with Wnt-7b has not been determined. |
| **Source** | Monoclonal Mouse $IgG_{2B}$ Clone # 946730 |
| **Purification** | Protein A or G purified from hybridoma culture supernatant |
| **Immunogen** | Chinese hamster ovary cell line CHO-derived recombinant human Wnt-7a<br>Met1-Lys349<br>Accession # O00755 |
| **Conjugate** | Alexa Fluor 488<br>Excitation Wavelength: 488 nm<br>Emission Wavelength: 515-545 nm |
| **Formulation** | Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide<br><br>*Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions. |

## APPLICATIONS

**Please Note:** *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

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| **Immunocytochemistry** | Optimal dilution of this antibody should be experimentally determined. |

## PREPARATION AND STORAGE

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| **Shipping** | The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below. |
| **Stability & Storage** | Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied |

## BACKGROUND

Human Wnt-7a is one of about 19 vertebrate members of the Wingless-type MMTV integration site (Wnt) family of highly conserved cysteine-rich secreted glycoproteins important for normal developmental processes (1). Wnts bind to receptors of the Frizzled family in conjunction with low-density lipoprotein receptor-related proteins (LRPs). Downstream effects of Wnt signaling occur through activation of one of three different intracellular pathways: the canonical Wnt pathway, Wnt/$Ca^{2+}$ pathway, and planar cell polarity. The highly transforming Wnts, including Wnt-1, -3, -3a, -7a and -8 activate the canonical pathway, which regulates β-catenin-mediated gene expression (1, 2). Human Wnt-7a is a 48 kDa secreted glycoprotein containing 24 cysteine residues that is expressed by epithelial and epithelially-derived cells of the placenta, kidney, testis, uterus, fetal lung, and fetal and adult brain (3, 4). Palmitate modification of a cysteine residue has been shown for Wnt-3a; this site is conserved on all Wnts and is Cys73 on Wnt-7a (5). When modified, increased hydrophobicity and activity is expected. Human Wnt-7a shows 97% aa identity with mouse, rat, and dog Wnt-7a and 92% aa identity with chicken Wnt-7a. During development, Wnt-7a is expressed by the dorsal ectoderm and drives expression of homeodomain transcription factors that control effectors important in patterning and cell fates in adjacent mesenchyme (6-10). When Wnt-7a is deleted, mice show disruption of dorsalization and anterior/posterior patterning during limb development and abnormalities in the reproductive tract (6-10). Wnt-7a is frequently downregulated in leukemia and lung cancers, potentially affecting homeobox (HOX) gene expression, differentiation state and growth control (11, 12). Roles for Wnt-7a have also been shown during formation of neural synapses, response of the uterus to estrogen and inflammatory cartilage destruction (10, 13, 14). Wnt-7b is a 46 kDa, secreted glycosylated protein that belongs to the Wnt family. Wnt proteins can be lipid-modified and are ligands for members of the frizzled family of receptors, which mediates cell-cell communication during development. Human Wnt-7b is synthesized as a 349 amino acid (aa) precursor that contains a 318 aa mature region. The mature region contains 24 cysteines and three potential N-linked glycosylation sites. Wnt-7b is a ligand for members of the frizzled family of seven transmembrane receptors. Probable developmental protein. May be a signaling molecule which affects the development of discrete regions of tissues. Is likely to signal over only few cell diameters. Mature human Wnt-7b shares 99% aa sequence identity with mature mouse and rat Wnt-7b. Wnt-7b also shares 80% aa sequence identity with Wnt-7a.

## PRODUCT SPECIFIC NOTICES

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