Human GDF-9
Alexa Fluor® 594-conjugated Antibody

Monoclonal Mouse IgG_{2B} Clone # 917319

Catalog Number: FAB8266T

100 µg

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human GDF-9 in direct ELISAs.
Source	Monoclonal Mouse IgG_{2B} Clone # 917319
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Human embryonic kidney cell line derived recombinant human GDF-9 Met1-Arg454 Accession # O60383
Conjugate	Alexa Fluor 594 Excitation Wavelength: 590 nm Emission Wavelength: 617 nm
Formulation	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details. *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.*

	Recommended Concentration	Sample
Flow Cytometry	0.25-1 µg/10^6 cells	OVCAR-3 human ovarian carcinoma cell line fixed with Flow Cytometry Fixation Buffer (Catalog # FC004) and permeabilized with Flow Cytometry Permeabilization/Wash Buffer I (Catalog # FC005)

PREPARATION AND STORAGE

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

Growth Differentiation Factor-9 (GDF-9) is an oocyte secreted paracrine factor in the TGF-β superfamily (1, 2). It is synthesized as a prepropeptide and is subsequently processed by proteases into the mature protein (1, 2). Mature human GDF-9 has a predicted molecular weight of 16 kDa and shares 89.6% and 91.9% amino acid sequence identity with the mouse and rat orthologs, respectively. Despite the high homology, mouse GDF-9 is secreted in an active form, while human GDF-9 is latent. A single mutation Gly391Arg increases the affinity between human GDF-9 and its signaling receptors and make it more active (3).
It forms both non-covalent homodimers and heterodimers with BMP-15, which is coordinately expressed with GDF-9 in the oocyte. (2, 4, 5). GDF-9 signals through TGF-β RI/ALK-5 and BMPR-II, while the GDF-9:BMP-15 heterodimer is believed to signal through BMPR-II, ALK 4/5/7, and BMPR-IB/ALK-6 (5-8). SMAD2 and SMAD3 are phosphorylated following activation of receptor complexes by GDF-9 (5, 6). GDF-9 functions as a paracrine factor in the development of primary follicles in the ovary. It is critical for the growth of granulosa and theca cells and for the differentiation and maturation of the oocyte (5, 9-11). GDF-9 is thought to act synergistically with BMP-15 to control development of the oocyte-cumulus cell complex (4-6). In humans, GDF-9:BMP-15 heterodimers have been shown to be more potent regulators of granulosa cell functions compared to GDF-9 homodimers (6). Aberrant GDF-9 expression and activation is associated with a multitude of common human ovarian disorders including premature ovarian failure and polycystic ovary syndrome (10, 12-14). In breast and bladder cancers, GDF-9 is believed to function as a tumor suppressor because its expression levels are inversely correlated with the aggressiveness of the cancer (15, 16). In prostate cancer, however, GDF-9 may enhance tumor progression by promoting tumor cell growth and epithelial-to-mesenchymal transition (17, 18).

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