Human GDF-9 Antibody

Monoclonal Mouse IgG_{2B} Clone # 917319

Catalog Number: MAB8266

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
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μm filtered solution in PBS.

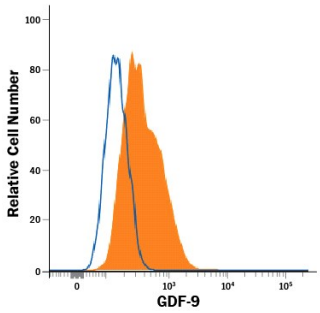
APPLICATIONS

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 µg/10^6 cells	See Below
Immunocytochemistry	8-25 µg/mL	See Below
CyTOF-ready	Ready to be labeled using established conjugation methods. No BSA or other carrier proteins that could interfere with conjugation.	

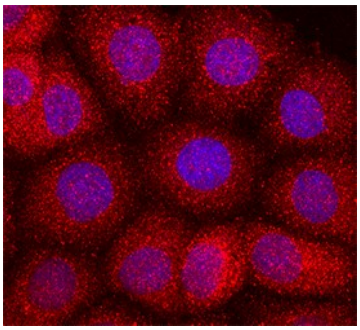
DATA

Flow Cytometry



Detection of GDF-9 in OVCAR-3 Human Cell Line by Flow Cytometry. OVCAR-3 human ovarian carcinoma cell line was stained with Mouse Anti-Human GDF-9 Monoclonal Antibody (Catalog # MAB8266, filled histogram) or isotype control antibody (Catalog # MAB0041, open histogram), followed by Allophycocyanin-conjugated Anti-Mouse IgG Secondary Antibody (Catalog # F0101B). To facilitate intracellular staining, cells were fixed with Flow Cytometry Fixation Buffer (Catalog # FC004) and permeabilized with Flow Cytometry Permeabilization/Wash Buffer I (Catalog # FC005).

Immunocytochemistry



GDF-9 in OVCAR-3 Human Cell Line. GDF-9 was detected in immersion fixed OVCAR-3 human ovarian carcinoma cell line using Mouse Anti-Human GDF-9 Monoclonal Antibody (Catalog # MAB8266) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the NorthernLights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to secreted molecule. View our protocol for Fluorescent ICC Staining of Cells on Coverslips.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
Rest of World bio-techne.com/find-us/distributors TEL +1 612 379 2956

Human GDF-9 Antibody

Monoclonal Mouse IgG_{2B} Clone # 917319

Catalog Number: MAB8266

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).

References:

1. McGrath, S. A. *et al.* (1995) Mol. Endocrinol. **9**:131.
2. Aaltonen, J. *et al.* (1999) J. Clin. Endocrinol. Metab. **84**:2744.
3. Simpson, C.M. *et al.* (2012) **153**:1301.
4. Liao, W.X. *et al.* (2003) J. Biol. Chem. **278**:3713.
5. Gilchrist, R.B. *et al.* (2008) Hum. Reprod. Update **14**:159.
6. Peng, J. *et al.* (2013) Proc. Natl. Acad. Sci. USA **110**:E776.
7. Vitt, U.A. *et al.* (2002) Biol. Reprod. **67**:473.
8. Mazerbourg, S. *et al.* (2004) Mol. Endocrinol. **18**:653.
9. Hreinsson, J.G. *et al.* (2002) J. Clin. Endocrinol. Metab. **87**:316.
10. Otsuka, F. *et al.* (2011) Mol. Reprod. Dev. **78**:9.
11. Dong, J. *et al.* (1996) Nature **383**:531.
12. Zhao, S.Y. *et al.* (2010) Fertil. Steril. **94**:261.
13. Wei, L.N. *et al.* (2011) Fertil. Steril. **96**:464.
14. Simpson, C.M. *et al.* (2014) J. Clin. Endocrinol. Metab. [Epub ahead of print].
15. Hanavadi, S. *et al.* (2007) Ann. Surg. Oncol. **14**:2159.
16. Du, P. *et al.* (2012) Int. J. Mol. Med. **29**:428.
17. Bokobza, S.M. *et al.* (2010) J. Cell. Physiol. **225**:529.
18. Bokobza, S.M. *et al.* (2011) Mol. Cell. Biochem. **349**:33.

bio-techne
bio-techne.com
Global info@bio-techne.com techsupport@bio-techne.com
North America TEL 800 343 7475 Europe | Middle East | Africa TEL +44 (0)1235 529449
China info.cn@bio-techne.com TEL +86 (21) 52380373
Rest of World bio-techne.com/find-us/distributors TEL +1 612 379 2956