

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human GDF-3 in direct ELISAs. In direct ELISAs, no cross-reactivity with recombinant human (rh) GDF-1, rhBMP-2, or rhBMP-6 is observed and approximately 5% cross-reactivity with recombinant mouse GDF-3 homodimer is observed.
Source	Monoclonal Mouse IgG ₁ Clone # 741614
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Chinese hamster ovary cell line CHO-derived recombinant human GDF-3 Ala251-Gly364 Accession # Q9NR23
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.

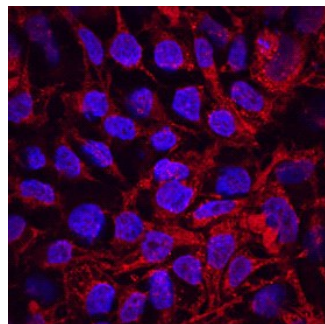
APPLICATIONS

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
Immunocytochemistry	8-25 µg/mL	See Below

DATA

Immunocytochemistry



GDF-3 in BG01V Human Embryonic Stem Cells. GDF-3 was detected in immersion fixed BG01V human embryonic stem cells using Mouse Anti-Human GDF-3 Monoclonal Antibody (Catalog # MAB5754) at 10 µg/mL for 3 hours at room temperature. Cells were stained using the Northern-Lights™ 557-conjugated Anti-Mouse IgG Secondary Antibody (red; Catalog # NL007) and counterstained with DAPI (blue). Specific staining was localized to cytoplasm. View our protocol for [Fluorescent ICC Staining of Cells on Coverslips](#).

PREPARATION AND STORAGE

Reconstitution	Sterile PBS to a final concentration of 0.5 mg/mL.
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. <ul style="list-style-type: none"> ● 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.

BACKGROUND

GDF-3 (previously called Vgr-2) is a TGF- β superfamily member belonging to the growth/differentiation factor family (1, 2). GDF-3 is expressed in undifferentiated embryonic stem (ES) cells, white adipose tissue and the brain (2-4). The 364 amino acid (aa) human GDF-3 contains a 21 aa signal sequence, a 229 aa propeptide and a 114 aa mature region that contains one potential N-glycosylation site. The mature region contains a cysteine-knot structure that is conserved throughout family members. However, it lacks the fourth cysteine which is responsible for the formation of an inter-molecular disulfide bond, so GDF-3 may exist as a non-covalent homodimer (2, 5). Mature human GDF-3 shares 83%, 83%, 91%, 92% and 93% aa identity with mouse, rat, bovine, canine and equine GDF-3, respectively. Most of GDF-3 is present as the uncleaved prepro form (6). The uncleaved and the mature forms both appear to have activity, but that activity may differ (5-8). All forms can oppose BMPs. In human ES cells, inhibition of BMP-2 signaling by GDF-3 maintains pluripotency (5, 7). GDF-3 also influences early cell fate decisions; for example, deletion of mouse GDF-3 produces defects in the anterior visceral endoderm of the pre-gastrulation embryo (6-8). GDF-3 cooperates with GDF-1 in embryogenesis, and the mature protein has nodal-like activity (8, 9). Although GDF family members signal through BMP receptors (ALK-1, -2, -3 and -6), which activate Smads 1, 5 and 8, GDF-3 signaling through ALK-4 and ALK-7, which activate Smads 2 and 3, has also been reported (9, 10). In adipocytes, GDF-3 is induced by a high fat diet, promoting adipogenesis and obesity (3, 10, 11).

References:

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