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ProductInformation

Anti-Fibroblast Growth Factor-Basic (bFGF)
Developed in Rabbit, IgG Fraction of Antiserum

Product Number **F 5537**

Product Description

Anti-Human Fibroblast Growth Factor Basic (bFGF) is developed in rabbit using purified recombinant human bFGF as the immunogen. Whole antiserum is fractionated and then further purified by ion exchange chromatography to provide the IgG fraction of antiserum. This fraction is essentially free of other rabbit serum proteins.

Anti-Human FGF-Basic specifically detects recombinant human bFGF by dot blot immunoassay and radioimmunoassay. The antibody is negative against recombinant mouse and human IL-6, recombinant human IL-1α and IL-1β, recombinant human TNFα, recombinant human IL-3, and recombinant human FGF-acidic when used in both of the above assays.

Fibroblast growth factor-basic (bFGF) is a potent mitogenic agent for a wide variety of mesoderm-derived cells including BALB/c 3T3 fibroblasts, capillary and endocardial endothelial cells, myoblasts, vascular smooth muscle cells, mesothelial cells, glial and astroglial cells, and adrenal cortex cells.[1, 2] bFGF and Fibroblast growth factor-acidic (aFGF) share a 55% homology in amino acid sequence,[3] and act upon the same cellular receptors with differing specific activities, depending on the cell type.[4] These two mitogens may play important roles *in vivo* in cell proliferation and differentiation associated with embryogenesis, tissue regeneration, CNS development, wound healing, angiogenesis, and tumor progression.[2] bFGF is found in a variety of organs. It acts on a wide range of cell types and has multifunctional actions. bFGF has numerous synonyms, including heparin-binding growth factor (class II or β), eye-derived growth factor I, cartilage-derived growth factor, and astroglial growth factor II.[5] Purified bovine and human bFGF differ by only 3 amino acids in sequence[6] and are biologically and immunologically cross-reactive. Recombinant human FGF is expressed by *E. coli* as a polypeptide with 147 amino acid sequence derived from the clone described by Abraham, et al.[7]

Reagent

The antibody is supplied as a solution in phosphate buffered saline, 0.2 µm filtered.

RIA System

RIA Characterization

The antiserum is characterized utilizing a second antibody-polyethylene glycol (PEG) RIA protocol, where 0.1 ml of a minimum 1:10,000 dilution of antiserum has been found to bind at least 40% of 100 picograms of iodinated recombinant human bFGF.

It is recommended that the antiserum be evaluated in the particular assay system chosen because of differences in systems and procedures.

RIA Sensitivity

Sensitivity is defined as the 90% intercept of a B/B_0 standard curve. In the above system the sensitivity has been found to be at least 400 picograms/tube.

RIA Specificity

Specificity of the antiserum is defined as the ratio of antigen concentration to cross-reactant concentration at 50% inhibition of maximum binding. The cross-reactivity data obtained in the second antibody-PEG I^{125} RIA system is as follows:

Cross-Reactant	%Cross-Reactivity
Human bFGF, rec	100
Human aFGF, rec	<0.1
Human IL-1α rec	<0.1
Human IL-1β rec	<0.1
Human IL-3 rec	<0.1
Human TNFα rec	<0.1
Mouse IL-6 rec	<0.1
Human IL-6 rec	<0.1

(Dilutions for standard curve: 7.8-500 ng/ml; dilutions for cross-reactants 625-2,500 ng/ml).

RIA Affinity Constant

The affinity constant (K_a) is determined by a Scatchard plot using this RIA system.
K_a = minimum 1.0 x 10^9 L/mole

Dilution and Use

Dilute antibody in tissue culture media containing 10% serum or buffered saline containing 1% BSA, according to the planned application.

Storage/Stability

Store undiluted antibody at –20 °C. The antibody should be stored frozen in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended.

Product Profile

This antibody may be used for studying human bFGF in various immunoassays including immunoblotting, dot blot immunoassay, RIA, ELISA, and selective neutralization of human bFGF bioactivity in cell culture. A minimum antibody concentration of 5 μg/ml neutralizes 50% of the biological activity of 1 unit of bFGF using the mouse fibroblast cell line 3T3.

A minimum dilution of 1:10,000 was determined using 50 ng recombinant human bFGF/dot on nitrocellulose membrane.

References

1. Gospodarowicz, D., Nature, **249**, 123 (1974).
2. Gospodarowicz, D., et al., Endocr. Rev., **8**, 95 (1987).
3. Esch, F., et al., Proc. Natl. Acad. Sci. U.S.A., **82**, 6507 (1985).
4. Neufeld, G., and Gospodarowicz, D., J. Biol. Chem., **261**, 5631 (1986).
5. Lobb, R. R., et al., Anal. Biochem., **154**, 1 (1986).
6. Esch, F., et al., Proc. Natl. Acad. Sci. USA, **82**, 6507 (1985).
7. Abraham, J. A., EMBO J., **5**, 2523 (1986).

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