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Customer Service: 1-800 786 1236
Technical Service: 214 387 8105
Fax: 214 387 0870
Info@fabgennix.com
www.fabgennix.com

Epigenetic Research related antibodies

Growth-Arrest and DNA-Damage inducible 45 beta (GADD45b) Antibodies (Cat # GADD-101AP, P-GADD and PC-GADD)

Other Nomenclature: Myeloid differentiation primary response protein MyD118, Negative growth regulatory protein MyD118. GADD45b, MyD118, My118, Growth-Arrest and DNA-damage inducible 45 genes have been implicated in stress signaling in response to physiological or environmental stressors, which results in either cell cycle arrest, DNA repair, cell survival and senescence, or apoptosis. GADD proteins acts as stress sensors and are mediated by physical interaction with cellular proteins such as PCNA, p21, cdc2/cyclinB1, p38 and JNK stress response kinase, that are implicated in cell cycle regulation and stress related responses. There are two isoforms of GADD45 known (GADD45a and GADD45b), myeloid enriched bone marrow cells from mouse deficient in GADD45a and GADD45b are more susceptible to apoptosis induced chemically or by UV radiation than wild type cells (1). These data suggest that GADD45 proteins are anti-apoptotic and increase the survival of hematopoietic cells following UV irradiation. The GADD45b deficient mouse also exhibit deficiencies in neuronal activity induced proliferation of neuronal progenitors and dendritic growth of new born neurons in adult hippocampus. GADD45b is required for activity-induced DNA demethylation of specific promoters and expression of corresponding genes critical for adult neurogenesis brain derived neurotrophic factors and fibroblast growth factor (2).

Electro-convulsive treatment (ECT) of adult mice causes a sustained up-regulation of hippocampal neurogenesis without any significant cell damage. ECT also up-regulated GADD45b, a known epigenetic regulator (2). The neuroprotective effect of GADD45b has been shown in retinal ganglion cells (RGC), GADD45b is up-regulated in RGCs in response to oxidative stress, aging and increasing ocular pressure. Using GADD45b SiRNA, the RGCs are protected from dying against different neuronal injury including oxidative stress, TNF alpha cytotoxicity and glutamate excitotoxicity in vitro, suggesting GADD45b is a component of an intrinsic neuroprotective mechanism in RGC in retina and perhaps in CNS (3). GADD45b is a neuronal activity-induced immediate early gene in mature hippocampal neurons (2). GADD45b also promotes hepatocyte survival during liver regeneration in mice by modulating the activity of JNK signaling, suggesting that GADD45b may be a potential therapeutic target in liver disease (4). GADD45b is a 160 amino acid (20kDa) protein. The GADD45b-selective rabbit antibodies were generated against a C-terminal peptide epitope conserved in mouse, rat, human, chimp, and other species but not present in GADD45a subunit. GADD45b synthetic peptide was covalently modified to achieve desired antigenic properties and was conjugated to a carrier protein before used as immunogen to raise antibodies in rabbits. The GADD45b antibodies are affinity purified over immobilized immunogenic peptide affinity matrix and stabilized with preservatives for long-term storage. FabGennix will conjugate this antibody to secondary enzymes (alkaline phosphatase or horseradish peroxidase) and fluorophores at a nominal charge. FabGennix Int. Inc. stocks limited quantities of western blot positive controls for GADD45b in ready-to-use buffers and antigenic blocking peptide for immune-depletion assays for GADD-201AP antibody. FabGennix Int. Inc., has a wide range of antibodies and reagents for biomedical research community. For a complete listing please visit www.FabGenix.Com.

| Catalog # | Host Species | Nature | Cross reactivity | Quantity | Vol |
|------------|--------------|-------------------------------------------|--------------------|----------|---------|
| GADD-101AP | Rabbit | Affinity purified GADD45b antibodies | r, m, h, mok, chpz | 100 ug | 200ul |
| FITC-GADD | Rabbit | FITC-Conjugated GADD antibody | r, m, h, mok, chpz | 100ug | 200ul |
| P-GADD | n/a | Antigenic blocking peptide for GADD-101AP | n/a | 250ug | 100ul |
| PC-GADD45b | n/a | Western blot positive control for GADD45b | n/a | 5 appl | inquire |

R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

Immunogen: Synthetic peptide from amino acids 142-160 corresponding rat GADD45b protein from the following sequence (see srg nnq vwp yis lee r), was selected from the unique region of the GADD45b protein, peptide was post-synthetically modified to achieve highest antigenicity before used for coupling to KLH using heterobifunctional cross linker for immunogen preparation.

Concentration: GADD-101AP Ig concentration 0.6-0.65 mg/ml in antibody stabilization buffer.

Applications: Antibody GADD-101AP is ideal for IMM/WB applications for detection of endogenous GADD45b protein in PC-GADD45b samples. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions. Western blotting: > 1:250; IMM: Immunoprecipitation 1:200 recommended; IHC = nd. Investigators who want to use this antibody in applications not listed here can ask for a complimentary sample of GADD45b antibodies. We will be happy to provide this antibody form multiple rabbits.

Reactivity: This antibody detects a band of approximately 20kDa GADD45b protein in PC-GADD45b samples and a 21kDa protein in rat hippocampal samples. The antibody also labels a65kDa bands in samples, probably represents either an uncharacterized

variant of GADD45b or a non-specific protein. Further experiments are needed to address these possibilities.

Protocols: Standard protocol for various applications (WB; IMM and IHC) of this antibody is provided with the product specification sheet, however, FabGennix Inc. strongly recommends investigators to optimize conditions for use of this antibody in their laboratories.

Notes: Briefly centrifuge to collect liquid before opening the vial, heat the PC-GADD45b tube in 90oC water bath for 1-2 minutes to dissolve any precipitate before use. This product is "ready-to-use" for electrophoresis. After thawing store at room temperature, Repeated freezing and thawing may result in appearance of higher molecular weight immunoreactive bands.

Note: Now you can recycle your western blots (nitrocellulose, supported membranes and PVDF membranes) by using our StripOBuffer (Cat FGI-1989). Each stripping is guaranteed to give better signal (up to 8 stripping). No strong pungent smell of reducing agents or heating is required.

Form/Storage: The antiserum is supplied in antibody stabilization buffer with 0.02% sodium azide as preservatives. The affinity-purified antibodies are purified on antigen-based affinity column & supplied as stabilized antibody. Store at -20oC for long-term. FabGennix Inc. does not recommend storage of diluted antibody solutions unless they are prepared in dilution buffer (Cat # DiluOBuffer) and filtered through 0.45µ filter after every use for long-term storage.

References:

- Liebermann DA, Hoffman B. Blood Cells Mol Dis. 2007 Nov-Dec;39(3):329-35. Epub 2007 Jul 30. Links
- Ma DK, Jang MH, Guo JU, Kitabatake Y, Chang ML, Pow-Anpongkul N, Flavell RA, Lu B, Ming GL, Song H. Science. 2009 Feb ;323(5917):1074-7. Epub 2009 Jan 1.
- Liu B, Suyeoka G, Papa S, Franzoso G, Neufeld AH. Neurobiol Dis. 2009 Jan;33(1):104-10. Epub 2008 Oct 14. Links
- Papa S, Zazzeroni F, Fu YX, Bubici C, Alvarez K, Dean K, Christiansen PA, Anders RA, Franzoso G. J Clin Invest. 2008 May;118(5):1911-23

For users who may require large amounts of GADD-101AP, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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Western blot of GADD45b using PC-GADD45b and GADD-101AP antibody. Antibody was diluted 1:500 in DiluOBuffer.

FabGennix Inc.
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5850 Town and Country Blvd. Suite 301. Frisco, TX 75034

Customer service: 1800 786 1236; Technical Support: 214 387 8105