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Antibodies to Drosophila Signal Transduction Proteins

Anti-Drosophila melanogaster Fos (d-Fos) antibodies (Dfos-101AP and Dfos-112AP)

The Dfos/kayak gene encodes a bZIP protein, DFos, required in a large variety of differentiation and morphogenetic processes throughout Drosophila development. Fos and Jun proteins homo- or heterodimerize to form functional AP-1 transcription factor. Mutation in these genes cause phenotypic mutations in Drosophila. Drosophila mutants lacking either Jun or Fos display indistinguishable dorsal open phenotypes, indicating an essential function of both Jun and Fos for embryonic dorsal closure (1). Phenotypic analysis of these mutants reveals that homodimers of Fos or of Jun cannot replace the function of the heterodimeric complex. This defect is not explained by the lower stability of homodimers as compared to heterodimers, because 'pseudo-homodimers' which are as stable as native Jun-Fos heterodimers cannot substitute for their function. Thus Jun and Fos play complementary roles that are both required for signal transduction and gene activation during dorsal closure. AP-1 transcription factor Dfos and Forkhead Box O transcription factor Foxo are also required downstream of Jun-N-terminal kinase signaling for the apoptotic response to UV-induced DNA damage in the developing Drosophila retina (2). Activation of JNK pathway is also involved along with puckered (puc) expression in wound healing of D. melanogaster wing imaginal disc wound healing and dorsal closure, the cells of the epidermis activates the AP-1 transcription factor comprised of DJUN and DFOS that, in turn, upregulates the expression of the dpp gene. stage-specific steroid-triggered programmed cell death of larval tissues during Drosophila metamorphosis induce the expression of several key genes of Rel/NF-Kappa B and AP-1 (3). Dfos is induced in a stage-specific manner, immediately before this tissue is destroyed while Djun is expressed for many hours before salivary gland cell death (3).

Spatial and temporal regulation of the JNK signaling cascade may be a general mechanism that controls tissue remodeling during morphogenesis and wound healing. Djun and Dfos mRNA are continuously expressed and their abundance levels are transiently regulated by multiple signaling pathways, the peak response coming at 1-2 hours after perturbation. Djun and Dfos, the products of the Drosophila proto-oncogenes Djun and Dfos, are similar in size and sequence to their mammalian counterparts c-Jun and c-Fos and are related to their mammalian counterparts by their antigenic properties. The Dfos is more highly regulated than Djun which is only modulated. The receptor tyrosine kinase pathways positively regulate Dfos and Djun. The cAMP-mediated pathway positively regulates Dfos but negatively regulates Djun. The protein kinase C-activated pathway does not affect Djun whereas it negatively regulates Dfos (4). The Anti-Dfos-selective antibodies were generated against conserved sequences at or near the N and C-terminal end of the protein that are unique to fruit fly fos protein. The Dfos-selective antibodies are affinity purified against immobilized antigen based affinity chromatography which yielded epitope-specific antibodies. The Dfos antibodies label both dfos and AP-1 complex on Western blot using PC-Dos samples. FabGennix Inc. will also conjugate antibodies with various fluorescent probes upon request at nominal charge. Limited quantities of antigenic peptides are also available (inquire before ordering). FabGennix Inc. also carries a wide selection of D. melanogaster genome antibodies, please visit www.FabGennix.com for a complete listing. FabGennix Inc employs cyclic peptide methodology for generating antibodies, which results in higher titer and specificity. FabGennix Int. Inc., will also provide Western blot positive controls for most of these antibodies in ready-to-use buffer for easy identification of respective proteins.

Catalog #	Host Species	Nature	Cross reactivity	Quantity	price
Dfos-101AP	Rabbit	Affinity purified Dfos antibodies	D. melanogaster	100ug	235
Dfos-112AP	Rabbit	Affinity purified Dfos antibodies	D. melanogaster	100ug	235
P-Dfos100	n/a	Antigenic blocking peptide for Dfos-101AP	n/a	250ug	125
P-Dfos110	n/a	Antigenic blocking peptide for Dfos-112AP	n/a	250ug	125
PC-Dfos	n/a	Western blot positive control for dfos	n/a	5 appl	inquire

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

Immunogen: Synthetic peptides corresponding to 6-66 (ERTTK KPAIRKPEDP DPAAEED) and aa 501-520 (NKVPKERPN TLA FQRPLGQM). The peptides were amidated and covalently modified to achieve desired antigenicity.

Concentration: Dfos-101AP and Dfos-112AP (IgG concentration 1-1.25 mg/ml in antibody stabilization buffer).

Applications: Antibody Dfos-101 and Dfos-112AP are ideal for WB, IMM/immunopulldown assays and IHC on D. melanogaster sections. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions. WB: > 1:1000; IMM & i.p pull-down assays: > 1:250; IHC <1:200

Reactivity: This antibody detects the Dfos and AP-1 complex in western blot positive control sample.

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

Form/Storage: The antiserum is supplied in antibody stabilization buffer with 0.02% sodium azide. The affinity-purified antibodies are isolated on immobilized antigen affinity column and supplied in antibody stabilization buffer. For long-term storage of antibodies, store at -20°C. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi-use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45u filter after every use for long-term storage.



Upper Panel: IHC of D. melanogaster section with Dfos-112AP. Antibody dilution 1:200 in diluOBuffer.
Lower panel: WB of PC-Dfos with Dfos-101AP and Dfos-112AP. Antibody dilutions are 1:500 in DiluOBuffer.

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 required.

References:

- Ciapponi L, Bohmann D. An essential function of AP-1 heterodimers in Drosophila development. Mech Dev. 2002 Jul;115(1-2):35-40.
- Luo X, Puig O, Hyun J, Bohmann D, Jasper H. Foxo and Fos regulate the decision between cell death and survival in response to UV irradiation. EMBO J. 2006 Dec 21; May;9(5):581-90.
- Lehmann M, Jiang C, Ip YT, Thummel CS. AP-1, but not NF-kappa B, is required for efficient steroid-triggered cell death in Drosophila. Cell Death Differ. 2002 Aug;26(3):147-57.

* For users who may require large amounts of Dfos-101AP, Dfos-112AP, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

021202-0020SF100 k87-rev10.00

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