

Monoclonal Antibody to dNp73



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Monoclonal Antibody to δ Np73

Catalog No : IMG-313A
Formulation : 0.1 mg antibody in 0.2 ml PBS containing 0.05% BSA and 0.05% sodium azide. Sodium azide is highly toxic.
Isotype : Mouse IgG1, Kappa
Clone : 38C674.2
Purification : Protein G Chromatography
Species React : Human, Mouse, Rat
Predicted React : Monkey
Host : Mouse

Application
Western blot analysis: 1-3 ug/ml
IHC (paraffin): 1:2000 dilution; please see product citation Saifudeen et al. (2005)
ChIP: 5ug; please see product citation Saifudeen et al. (2005)
IHC (frozen): See Dominguez et al, 2006 for details.
Storage
Store at 4°C. For long-term storage, store at -20°C.

Background

p73 was identified as a long-lost cousin of tumor suppressor protein, p53 (1). p73 has high homology with p53 as well as with p63, a gene implicated in the maintenance of epithelial stem cells. Significant homology between p53, p63, and p73 (approximately 63% amino acid identity in the DNA-binding domain) suggest that they may have overlapping functions in the regulation of gene expression (2). The targeted disruption of p73 gene leads to defects in hippocampal dysgenesis, hydrocephalus, chronic inflammation and infections (3). Recently, splicing variant mRNAs of p73 have been identified in MCF-7, a breast carcinoma cell line. These mRNAs code for variant p73 proteins bearing distinct carboxy-terminal structures suggesting that the carboxy-terminal region of p73 may be important for the functions of this protein (4). Recently, Yang et al. (2000) have cloned a p73 variant that lacks an amino-terminal transactivation domain, called deltaNp73 (5). The δ Np73 message is transcribed from an alternative promoter located in intron 3.

Antigen

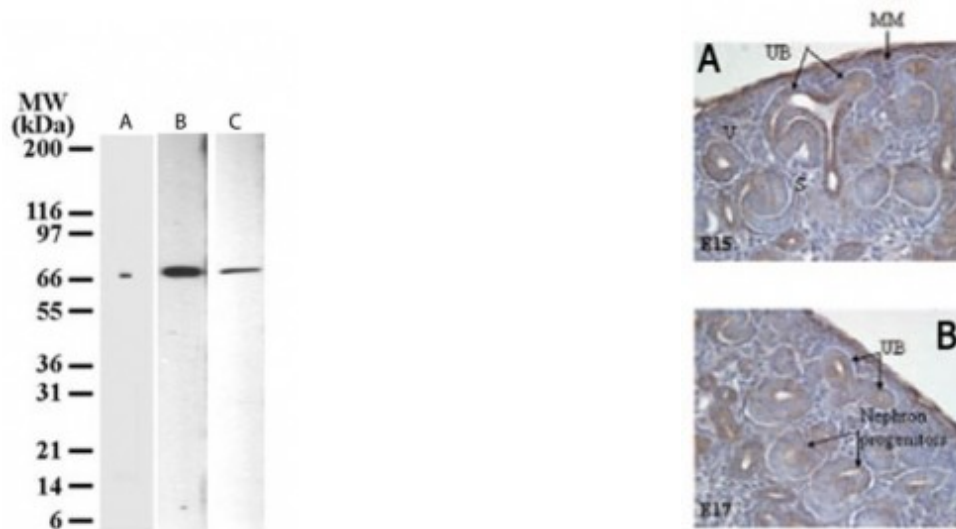
This antibody was developed against a peptide corresponding to amino acid residues 2-13 LYVGDPARHLAT of human dNp73. Mouse and human sequences are more than 95 % identical at these amino acid residues. In mouse, alanine at position 8 is replaced by methionine.

Application Notes

1. IMG-313A reacts with an epitope that is located on the N-terminal region of human δ Np73 protein. It does not cross react with full-length p73.
2. IMG-313A (clone 38C674.2) is also referred to as OP181 or OP181, clone 38C674 in the literature.

Genebank Info (Protein)

NP_005418



Western blot analysis for δ Np73 using IMG-313 at 1 ug/ml in A) a cell line transfected with δ Np73 cDNA, B) HeLa, and C) NIH 3T3 cell lysate.

IHC analysis of Delta Np73 in embryonic day 15 (A) and day 17 (B) E15 rat embryonic kidney at 1:2000. Delta Np73 is expressed in ureteric bud (UB) branches, and metanephrogenic mesenchyme (MM), as well as in cells invading the glomerular cleft. Delta Np73 is expressed in the ureteric bud (UB) branches, metanephrogenic mesenchyme (MM), and nephron progenitors.

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Related Products

1. IMG-5019A-2 [Monoclonal Antibody to GAPDH - Loading Control]
2. IMG-5019A-1 [Monoclonal Antibody to GAPDH - Loading Control]
3. 20101 [Goat Anti-Mouse Ig HRP Conjugate]

Reference

1. Ueda Y, Hijikata M, Takagi S, Chiba T, and Shimotohno K. *Oncogene* 18: 4993-4998 (1999).
2. Yang A, Walker N, Bronson R, Kaghad M, Oosterwegel M, et al. *Nature* 404: 99-103 (2000).
3. Levrero M, De Laurenzi V, Costanzo A, Gong J, Wang JY, and Melino G. *J Cell Sci* 113 (pt 10): 1661-1670 (2000).
4. Kaghad M, Bonnet H, Yang A, Creancier L, Biscan JC., et al. *Cell* 90: 809-819 (1997).

Product Citations

1. **The p73 Gene Is an Anti-Tumoral Target of the RAR β -Selective Retinoid Tazarotene.** Marina Papoutsaki, Mauro Lanza, Barbara Marinari, Steven Nistico, Francesca Moretti, Massimo Levrero, Sergio Chimenti, and Antonio Costanzo. *J Invest Dermatol.* 123:1162–1168 (2004). **IMGENEX antibodies cited: 1. p73 (IMG-259A) [WB, Fig 1AB, (immortalized keratinocytes C5N and HaCaT cell lines), Fig 4A (HaCaT cell line)]. 2. deltaNp73 (IMG-313A) [WB, Fig 1AB (C5N and HaCaT cell lines), Fig 4A (HaCaT cell line)].**
 2. **DN-p73 is activated after DNA damage in a p53-dependent manner to regulate p53-induced cell cycle arrest.** Stefania Vossio, Emanuele Palescandolo, Natalia Pediconi, Francesca Moretti, Clara Balsano, Massimo Levrero, Antonio Costanzo. *Oncogene* 21, 3796-3803 (2002). **IMGENEX antibodies cited: 1. deltaNp73(IMG-313A) [WB, Fig 2B, Fig 4B (human osteosarcoma U2OS cells)].**
 3. **Treatment with arsenic trioxide (ATO) and MEK1 inhibitor activates the p73-p53AIP1 apoptotic pathway in leukemia cells.** Paolo Lunghi, Antonio Costanzo, Massimo Levrero, and Antonio Bonati. Katarina Tomkova, Abbes Belkhiri, Wael El-Rifai, and Alexander I. Zaika. *Blood*, 104: 519-525 (2004). **IMGENEX antibodies cited: 1. p73 (IMG-259A) [WB, Fig 1CD, Fig 2B (NB4 acute promyelocytic and K562 erythroleukemia cells)]. 2. deltaNp73 (IMG-313A) [WB, Fig 1CD, Fig 2B (NB4 and K562 cells)].**
 4. **p73 Isoforms Can Induce T-Cell Factor–Dependent Transcription in Gastrointestinal Cells.** Katarina Tomkova, Abbes Belkhiri, Wael El-Rifai, and Alexander I. Zaika. *Cancer Res.*, 64: 6390-6393 (2004). **IMGENEX antibodies cited: deltaNp73 (IMG-313A) [WB, no data present (AGS gastric cell line)].**
 5. **Spatiotemporal switch from deltaNp73 to TAp73 isoforms during nephrogenesis: Impact on differentiation gene expression.** Zubaida Saifudeen, Virginia Diavolitsis, Jana Stefkova, Susana Dipp, Hao Fan, and Samir S. El-Dahr. *J. Biol. Chem.*, 280: 23094-23102 (2005). **IMGENEX antibodies cited: 1. deltaNp73 (IM-313A) [IHC (paraffin), Fig 5 (adult rat kidney)], [WB, Fig 5 (adult rat kidney)].**
 6. **MEK1 inhibition sensitizes primary acute myelogenous leukemia to arsenic trioxide-induced apoptosis.** Paolo Lunghi, Antonio Costanzo, Luigi Salvatore, Nelida Noguera, Laura Mazzera, Antonio Tabillo, Francesco Lo-Coco, Massimo Levrero, and Antonio Bonati. *Blood*, Feb 2006; 10.1182/blood-2005-07-2829.
 7. **p53 dependent and independent sensitivity to oxaliplatin of colon cancer cells.** Florent Toscano, Béatrice Parmentier, Zineb El Fajoui, Yann Estornes, Jean-Alain Chayvialle, Jean-Christophe Saurin and Jacques Abello. *Biochemical Pharmacology*, 74 (3): 392-406 (2007). **IMGENEX antibodies cited: deltaNp73 (IMG-313A) [WB, Fig 9 (oxaliplatin treated HCT116, Isreco1, and V9P cell lines)].**
 8. **Acetylcholinesterase-R increases germ cell apoptosis but enhances sperm motility.** Mor I, E Sklan, E Podoly, M Pick, M Kirschner, L Yogev, S Itach, L Schreiber, B Geyer, T Mor, D Grisaru. *Journal of Cellular and Molecular Medicine* doi: 10.1111/j.1582-4934.2008.00231.x (2008). **Imgenex products cited [WB (testicular tissue from male transgenic (TGR) mice)]:**
 1. IMG-246 (TAp73) Fig. 3D
 2. IMG-313 (Δ Np73) Fig. 3D**Note: IMG-246 and IMG-314 detected p73 forms in whole cell lysate as well as p73 forms that co-immunoprecipitated with RACK1, Fig 3D**
 9. **Cooperation between p53 and p73 in cisplatin-induced apoptosis in ovarian carcinoma cells.** Righetti S, Perego P, Carenini N, Zunino F. *Cancer Letters* 263: 140-144 (2008). **WB (human ovarian cell lines A2780 and A2780/BBR3464), Fig. 3.**
 10. **New antibodies recognizing p73: Comparison with commercial antibodies.** Sayan AE, A Paradisi, B Vojtesek, RA Knight, G Melino, E Candi. *Biochemical Biophysical Res Communications.* 330:186-193. (2005). **IMGENEX antibodies cited (p73 transfected cells, SK-N-SH human neuroblastoma cells, HaCaT human keratinocyte cells):**
 1. p73 (IMG-246): IP, Fig 3B (p73 transfected cells); WB, Figs 1 and 2 (p73 transfected cells).
 2. p73 (IMG-259A): WB, Figs 1 and 2 (p73 transfected cells)
 3. p73 (IMG-313A): WB, Figs 1, 2 and 3 (p73 transfected cells)
- Note: See Table 1 for a summary of antibody results (WB and IF/ICC) in p73 transfected cells, SK-N-SH cells and HaCaT cells) IMG-313A (Clone 38C674.2) is referred to as OP181 in this publication.**
11. **Delta TAp73 upregulation correlates with poor prognosis in human tumors: putative in vivo network involving p73 isoforms, p53 and E2F-1.** Dominguez G, JM Garcia, C Pena, J Silva, V Garcia, L Martinez, C Maximiano, ME Gomez, JA Rivera, C Garcia-Andrade and F Bonilla. *J Clinical Oncology* 24:1-11 (2006). **Imgenex antibodies cited [IHC (F) in human colon and breast tumors], Fig 2:**
 1. p73 (IMG-313A)
 2. p73 (IMG-246)
 12. **TAp73 knockout shows genomic instability with infertility and tumor suppressor functions.** Tomasini R, K Tsuchihar, M Wilhelm, M Fuitani, A Rufini, C Cheung, F Khan, A Itie-Youten, A Wakeham, M Tsao, J Iovanna, J Squire, I Jurisica, D Kaplan, G Melino, A Jurisicova, T Mak. *Genes and Development* 22:2677-2691 (2008). **WB (mouse embryonic fibroblasts), Fig. 1D.**
 13. **Targeting MEK/MAPK signal transduction module potentiates ATO-induced apoptosis in multiple myeloma cells through multiple signaling pathways.** Lunghi P, N Giuliani, L Mazzera, G Lombardi, M Ricca, A Corradi, A Cantoni, L Salbatore, R Riccioni, A Constanzo, U Testa, M Levrero, V Rizzoli, A Bonati. *Blood* 112: 2450-2462. **Imgenex antibodies cited:**
 1. p73 (IMG-246): WB (human myeloma cell lines (HMCLs) XG-6 and XG-1), Fig. 4Ci.
 2. p73 (deltaNp73) [IMG-313A]: WB (HMCLs), Fig. 4Ai.
 3. DcR2 (IMG-121): WB (HMCLs), Fig. 5A.
 14. **STI571 prevents apoptosis, tau phosphorylation and behavioural impairments induced by Alzheimer's B-amyloid deposits.** Cancino G, E Toledo, N Leal, D Hernandez, F Yevenes, N Inestrosa, A Alvarez. *Brain* 131: 2425-2442 (2008). **Imgenex antibodies cited [WB (rat hippocampal cells)]:**
 1. IMG-246 (p73): Fig. 5A.
 2. IMG-313 (Δ Np73): Fig. 5B.
 15. **p73 plays a role in erythroid differentiation through GATA1 induction.** Marques-Gacia F, N Ferrandiz, R Fernandez-Alonso, L Gonzalez-Cano, M Herreros-Villanueva, M Rosa-Garrido, B Fernandez-Garcia, J P Vaque, M M Marques, M E Alonso, J C Segovia, J Leon, M C Marin. *JBC* 284: 21139- 21156 (2009). **IMGENEX antibodies cited for ChIP in K562 cells (Figs 4C, 6) and fetal liver extracts from mouse embryos (Fig 10):**
 1. p73 (IMG-246)
 2. p73 [deltaNp73 (IMG-313)]
 16. **Interaction of the p53 protein family in cellular stress response in gastrointestinal tumors.** Viilgelm A, M Washington, J Wei, H Chen, V Prassolov, A Zaika. *Mol Cancer Ther.* 9: 693-705 (2010). **IMGENEX products cited:**
 1. delta Np73 (IMG-313A) IHC (paraffin), Fig 1A, human colorectal adenocarcinoma cells.
 2. NOXA (IMG-349A) WB, Fig 2A, Fig 2B, Fig 2D, colon adenocarcinoma and esophageal carcinoma cell lines.

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