SANTA CRUZ BIOTECHNOLOGY, INC.

# BETA 3 (E-17): sc-6045

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Members of the myogenic determination family are basic helix-loop-helix (bHLH) proteins that can be separated into two classes. Class A proteins include the ubiquitously expressed E-box binding factors E12/E47, ITF2 and HEB (BETA 1 or HTF4). Class B proteins such as Myo D, myogenin and Neuro D (BETA 2) are transiently expressed and exhibit a more limited tissue distribution. Class A proteins heterodimerize with class B proteins to activate transcription. Working in opposition to these positively acting factors are a specialized group of proteins that function as dominant negative regulators. For instance, the Id family of transcriptional repressors contains a HLH region required for dimerization but lacks a functional DNA-binding domain. The Id family can therefore form heterodimers with the myogenic family, but the resulting complexes are transcriptionally inactive. BETA 3 is a protein that is functionally similar to members of the Id family in that it can inhibit the binding of E47 homodimers as well as E47/Neuro D and E47/Myo D heterodimers to consensus DNA sequences. In contrast to members of the Id family, BETA 3 contains a putative DNA-binding domain.

## REFERENCES


1. Lee, J.E., et al. 1995. Conversion of *Xenopus* ectoderm into neurons by NeuroD, a basic helix-loop-helix protein. Science 268: 836-844.
2. Naya, F.J., et al. 1995. Tissue-specific regulation of the Insulin gene by a novel basic helix-loop-helix transcription factor. Genes Dev. 9: 1009-1019.
3. Vitola, S.J., et al. 1996. Substitution of basic amino acids in the basic region stabilizes DNA binding by E12 homodimers. Nucleic Acids Res. 24: 1921-1927.
4. Goldfarb, A.N., et al. 1996. Determinants of helix-loop-helix dimerization affinity. Random mutational analysis of SCL/tal. J. Biol. Chem. 271: 2683-2688.


## CHROMOSOMAL LOCATION

Genetic locus: BHLHE22 (human) mapping to 8q12.3; Bhlhe22 (mouse) mapping to 3 A1.

## SOURCE

BETA 3 (E-17) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of BETA 3 of hamster origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-6045 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-6045 X, 200 µg/0.1 ml.

## STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## APPLICATIONS

BETA 3 (E-17) is recommended for detection of BETA 3 of mouse, rat, human and hamster origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

BETA 3 (E-17) is also recommended for detection of BETA 3 in additional species, including canine.

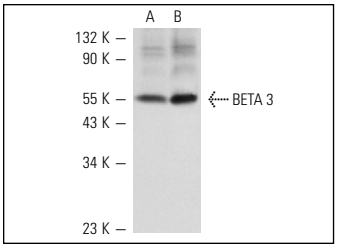
Suitable for use as control antibody for BETA 3 siRNA (h): sc-42066, BETA 3 siRNA (m): sc-42067, BETA 3 shRNA Plasmid (h): sc-42066-SH, BETA 3 shRNA Plasmid (m): sc-42067-SH, BETA 3 shRNA (h) Lentiviral Particles: sc-42066-V and BETA 3 shRNA (m) Lentiviral Particles: sc-42067-V.

BETA 3 (E-17) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of BETA 3: 55 kDa.

Positive Controls: rat lung extract: sc-2396, rat brain extract: sc-2392 or rat kidney extract: sc-2394.

## DATA




BETA 3 (E-17): sc-6045. Western blot analysis of BETA 3 expression in rat lung (**A**) and brain (**B**) tissue extracts.

## SELECT PRODUCT CITATIONS


1. Gupta, A.K., et al. 2002. USF-1 and USF-2 *trans*-repress IL-1β-induced iNOS transcription in mesangial cells. Am. J. Physiol. Cell Physiol. 283: C1065-C1072.
2. Elshatory, Y., et al. 2007. Islet-1 controls the differentiation of retinal bipolar and cholinergic amacrine cells. J. Neurosci. 27: 12707-12720.
3. Skaggs, K., et al. 2011. Regulation of spinal interneuron development by the Olig-related protein Bhlhb5 and Notch signaling. Development 138: 3199-3211.
4. Jin, K., et al. 2015. Tfap2a and 2b act downstream of Ptf1a to promote amacrine cell differentiation during retinogenesis. Mol. Brain 8: 28.
5. Jin, K., et al. 2015. Tfap2a and 2b act downstream of Ptf1a to promote amacrine cell differentiation during retinogenesis. Mol. Brain 8: 28.


## RESEARCH USE

For research use only, not for use in diagnostic procedures.