Datasheet for 200-401-159

Zic-1 Antibody

Overview

Description:	Anti-Zic-1 (Mouse/Human) (RABBIT) Antibody - 200-401-159
Item No.:	200-401-159
Size:	100 µg
Applications:	ELISA, WB, IF, Multiplex
Reactivity:	Human, Mouse
Host Species:	Rabbit

Product Details

Background:	Anti Zic-1 Antibody recognizes the product of the Zic-1 gene, that encodes a zinc finger protein which is expressed in the developing or matured central nervous system in a highly restricted manner. Zic-1 is expressed in granule cells that make synaptic contact with Purkinje cells. Clearly Zic-1 is a gene critical to cerebellar pattern formation. The expression of Zic genes is first detected at gastrulation and at neurulation, becomes restricted to the dorsal neural ectoderm and the dorsal paraxial mesoderm. Zic-2 and Zic-3 are highly similar genes, especially in their product's zinc finger motif and by comparison of their genomic organization in that they share common exon-intron boundaries and belong to the same gene family. By comparison in function, Zic-2 is essential for the formation of the brain and Zic-3 is important for right and left axis formation. The Zic-1 gene has been mapped to chromosome 9 in mouse. The 5' flanking region of the Zic-1 gene contains a region-specific enhancer determined to be essential in in vivo and in vitro deletion analysis. The temporal profile of mRNA expression differs for each of the Zic gene products. The Drosophila odd-paired gene is highly homologous to the Zic gene family.
Synonyms:	rabbit anti-Zic-1 Antibody, Odd paired homolog Drosophila antibody, Zic 1 antibody, ZIC antibody, Zic family member 1 (odd-paired Drosophila homolog) antibody, Zic family member 1 antibody
Host Species:	Rabbit
Clonality:	Polyclonal
Format:	IgG

Target Details

Gene Name:	Zic1

Reactivity:	Human, Mouse
Immunogen Type:	Conjugated Peptide
Immunogen:	The whole rabbit serum used to produce this IgG fraction antibody was prepared by repeated immunizations with an 18 aa synthetic peptide from a region near the N-Terminus of mouse Zic-1. This domain is completely conserved in human ZIC-1.
Purity/Specificity:	This is an IgG preparation of whole rabbit antiserum purified by a multi-step process which includes delipidation, salt fractionation and ion exchange chromatography followed by extensive dialysis against the buffer stated above. This antibody is directed against Zic-1 from mouse. In general, this antibody also detects human Zic-1. Cross-reactivity with other species is likely but has not been determined.
Relevant Links:	• UniProtKB - P46684 • NCBI - AAH60247.1 • GeneID - 22771 • NCBI - NP_033599.2

Application Details

Tested Applications:	ELISA, WB
Suggested Applications:	IF, Multiplex (Based on references)
Application Note:	Anti Zic-1 Antibody has been tested by western blotting and for ELISA. Researchers should determine optimal titers for applications that are not stated below.
Assay Dilutions:	All assays should be optimized by the user. Recommended dilutions (if any) may be listed below.
ELISA:	1:10,000 - 1:50,000
IF:	1:400
IHC:	1:400
WB:	1:5,000

Formulation

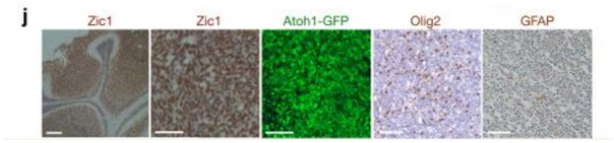
Physical State:	Liquid (sterile filtered)
Concentration:	1.0 mg/mL by UV absorbance at 280 nm
Buffer:	0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2

Preservative:	0.01% (w/v) Sodium Azide
Stabilizer:	None

Shipping & Handling

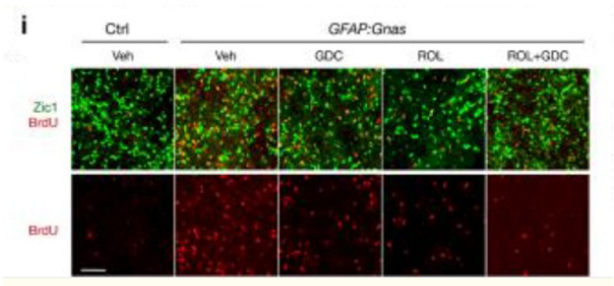
Shipping Condition:	Dry Ice
Storage Condition:	Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.
Expiration:	Expiration date is one (1) year from date of receipt.

Images

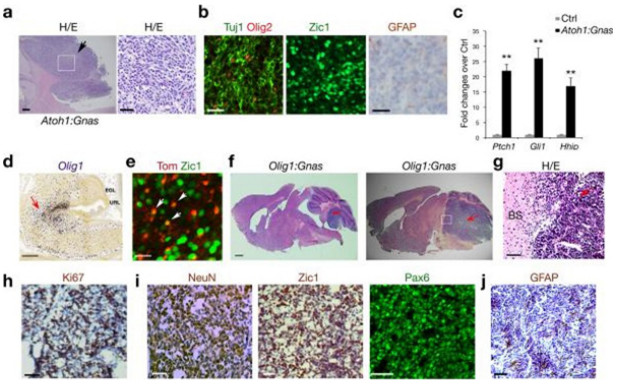


Immunofluorescence Microscopy
(j) The cerebellar EGL region of GFAP:Gnas mice carrying the Atoh1-GFP reporter at P50 was immunostained with anti-Zic1, Olig2 and GFAP as indicated.
Figure 2.
PMID: 25150496

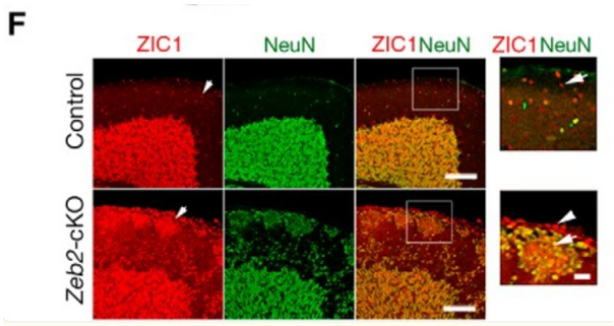
Immunofluorescence Microscopy
(i) Images show immunostaining of Zic1 and BrdU in vehicle and Rolipram-treated GFAP:Gnas tumors at P65. Insets: high magnification in boxed areas. Bar graph (right) depicts the percentage of BrdU+/Zic1+ cells (n = eight animals each group).
Figure 3. PMID: 25150496



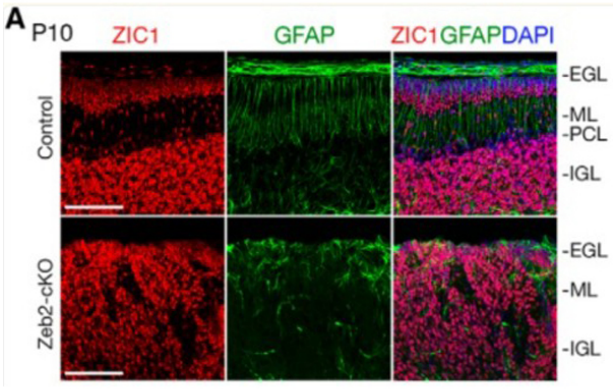
Immunofluorescence Microscopy
(j) Zic1 and BrdU immunostaining in GNPs from Gnas mutants treated GDC-0449, Rolipram or both and labeled with BrdU for 48 hr.
Figure 4. PMID: 25150496



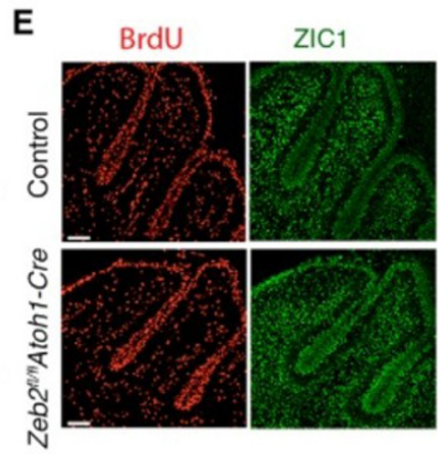
Immunofluorescence Microscopy
Loss of Gnas in Atoh1+ or Olig1+ progenitors leads to an anatomically distinct Shh-associated MB.
(A)A sagittal hindbrain section from a Atoh1:Gnas mouse at P50 was stained with H/E. The boxed area is shown at a high magnification in the right panel.
(b) Tumor tissues were immunostained with anti-Tuj1, Olig2, Zic1 and GFAP as indicated.
(c) Bar graphs depict expression of Ptch1, Gli1 and Hhip in Atoh1:Gnas cerebella over control at P40. Data represent the mean ± SEM from five animals each group. ** $P < 0.01$; Student's t test.
(d) Olig1 expression (arrow) was detected in the progenitors of the dorsal brainstem at sagittal levels at E15.5 by in situ hybridization.
(e) The dorsal brainstem region from Olig1-Cre:Rosa-tdTomato mice at P7 was immunostained with Zic1. Arrows indicates a population of tdTomato+ cells Zic1.
(f-g) H/E staining of the sagittal sections of Olig1:Gnas brains at 3 or 5 month ages. Arrows indicate the tumor tissue. Boxed region in f is shown at high magnification in g. BS: brainstem.
(h-j) Sections of Olig1:Gnas tumor tissues were immunostained with anti-Ki67, NeuN, Zic1, Pax6 and GFAP as indicated.
Scale bars in a, 50 µm. b, 20 µm, d, f, 200 µm; e, 20 µm; g-j, 50 µm.
Figure 5. PMID: 25150496



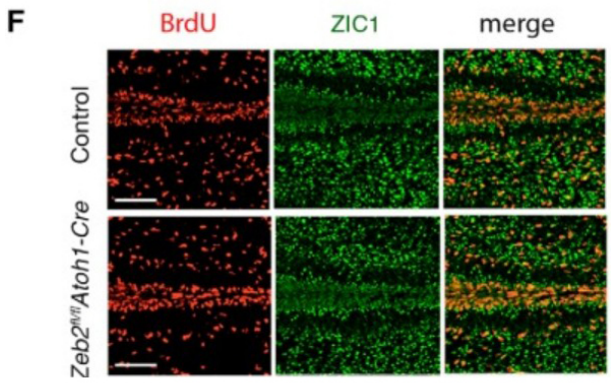
Immunofluorescence Microscopy
F, Double-staining for ZIC1 and NeuN in control and Zeb2-cKO mice at P18. Insets, Arrowhead and arrow indicate EGL and the ectopic cell mass in the ML, respectively. Scale bars: main panels, 100 µm; insets, 20 µm. Figure 2.
PMID: 29326173



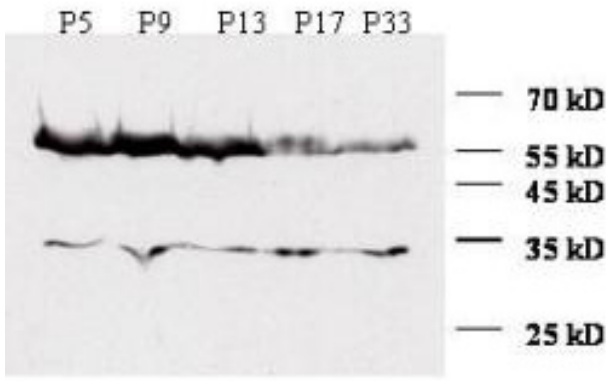
Immunofluorescence Microscopy
Migration defects of granule neurons in Zeb2-deficient cerebella. A, Double-staining for ZIC1 and GFAP in cerebella of control and Zeb2-cKO mice at P10. Scale bars, 100 µm.
Figure 3. PMID: 29326173



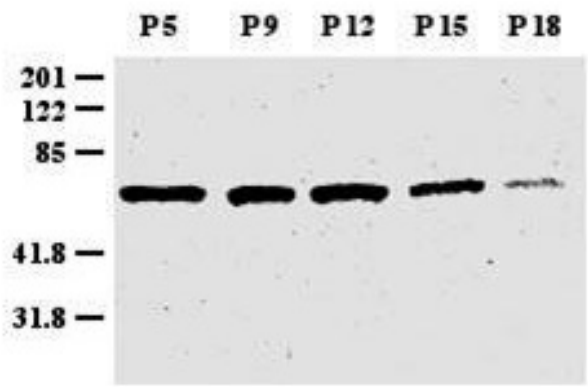
Immunofluorescence Microscopy
E, Double staining for ZIC1 and BrdU in cerebella of Zeb2fl/fl:Atoh1-Cre mouse and littermate control (Zeb2fl/+:Atoh1-Cre) at P1.
Figure 6.
PMID: 29326173



Immunofluorescence Microscopy
F, Double staining for ZIC1 and BrdU in cerebella of Zeb2fl/fl:Atoh1-Cre mouse and littermate control (Zeb2fl/+:Atoh1-Cre) at P1.
Figure 6.
PMID: 29326173



Western Blot
A similar time course experiment is shown using mouse cerebellum extracts at various time points. A 10% SDS-PAGE gel was used to separate proteins prior to transfer to nitrocellulose. The membrane was probed with a 1:5,000 dilution of the antibody. The lower minor band may be a breakdown product of Zic1 or it may represent cross reactivity of the detection antibody. HRP conjugated anti-Rabbit IgG (Chemicon) was used at a 1,000 dilution. Personnel communication, K.H. Herzog.



Western Blot
Western blot. Analysis of Zic1 in mouse cerebellum extract. Protein extracts were prepared from mouse cerebellum between postnatal day 5 (P5) and P18, as indicated above the lanes. ROCKLAND Immunochemical's anti-Zic1 antibody recognizes a single band in all extracts. The positions of the molecular weight markers (in kDa) in the gel are indicated on the left. Personnel communication, C. Kurschner.

References

- Zhang L et al. Single-cell transcriptomics in medulloblastoma reveals tumor-initiating progenitors and oncogenic cascades during tumorigenesis and relapse. *Cancer Cell.* (2019)
- He et al. Transcriptional Regulator ZEB2 Is Essential for Bergmann Glia Development. *The Journal of Neuroscience* (2018)
- Sankar et al. Gene regulatory networks in neural cell fate acquisition from genome-wide chromatin association of Geminin and Zic1. *Scientific Reports* (2016)
- He X et al. The G protein α subunit Gα s is a tumor suppressor in Sonic hedgehog− driven medulloblastoma. *Nat Med.* (2014)

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