

caMEK1 Mouse

Catalogue number: 151478

Sub-type: Mouse

Images:

Contributor

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Images:

Tool details

***FOR RESEARCH USE ONLY**

Name: caMEK1 Mouse

Alternate name:

Class:

Conjugate:

Description: Disease model for spontaneous epilepsy; in vivo studies of constitutively active form of MEK1, which is conditionally expressed in the murine brain and results in ERK activation. The caMEK1-CamKII α Cre transgenic mouse exhibits an epileptic phenotype, characterised by frequent, spontaneous seizures from 6-8 weeks of age. Seizures occur throughout the lifetime of the mouse, becoming less frequent in older animals. On average, caMEK1-CamKII α Cre mice have 6.2 seizures per day. The caMEK1-CamKII α Cre mouse expresses a constitutively activated MAP/ERK Kinase (caMEK1) specifically in neuronal cells of the cortex, striatum and hippocampus of the mouse brain. The epileptic phenotype results from caMEK1-mediated activation of ERK, which positively regulates protein translation (via phosphorylation of eIF4E) and augments translation and protein levels, specifically levels of the N-methyl-D-aspartate receptor (NMDAR) subunit NR2B, a factor which is strongly implicated in epileptogenesis and a promising candidate for anti-epileptic therapies. The caMEK1-CamKII α Cre mouse gives researchers the opportunity to study both the molecular pathways contributing to epileptogenesis and possible anti-epileptic therapies acting on the ERK pathway/NMDARs.

Purpose:

Parental cell:

Organism:

Tissue:

Model:

Gender:

Isotype:

Reactivity:

Selectivity:

Host:

Immunogen:

Immunogen UNIPROT ID:

Sequence:

Growth properties:

Production details: A caMEK1 transgene vector, containing a caMEK1 expression cassette preceded by a loxP flanked resistance cassette, was transfected into 129 ES cells. Properly targeted ES cells containing the transgene were selected, cloned, and injected into C57BL6 blastocysts. Chimeric offspring were backcrossed to establish heterozygous lines. Transgenic mice were mated to CamKII-Cre mice, excising the loxP flanked resistance cassette from the caMEK1 transgene in tissues expressing Cre, and establishing caMEK1-CamKII-Cre mice with cortex-, striatum-, and hippocampus-specific caMEK1 overexpression.

Formulation:

Recommended controls:

Bacterial resistance:

Selectable markers:

Additional notes:

Target details

Target: Constitutively active MAP/ERK kinase 1 (caMEK1) mutant

Target alternate names:

Target background:

Molecular weight:

Ic50:

Applications

Application:

Application notes:

Handling

Format:

Concentration:

Passage number:

Growth medium:

Temperature:

Atmosphere:

Volume:

Storage medium:

Storage buffer:

Storage conditions:

Shipping conditions: Embryo/Spermatozoa- Dry Ice

Related tools

Related tools:

References

References: Hser et al. 2001. EMBO J. 20(8):1940-51. PMID: 11296227. ; MEK kinase activity is not necessary for Raf-1 function.

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