Doublecortin, DCX Mouse Monoclonal Antibody

**MCA-3E1**

**Applications**

<table>
<thead>
<tr>
<th>WB, IF/ICC, IHC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
</tr>
</tbody>
</table>

**Isotype**

IgG2a

**Molecular Wt.**

35-45kDa

**Species Cross-Reactivity**

Hu, Rt, Ms

---

**Western blot analysis of rat whole brain lysates using mouse mAb to doublecortin, MCA-3E1, dilution 1:1,000 in green:**

- [1] protein standard (red)
- [2] adult rat brain
- [3] embryonic E20 rat brain

Strong bands at 40kDa and 45kDa correspond to the doublecortin protein, detected only in the developing brain.

**Immunofluorescent analysis of cortical neuron-glial cell culture from E20 rat stained with mouse mAb to doublecortin, MCA-3E1, dilution 1:1,000 in red, and costained with chicken pAb to microtubule associated protein 2 (MAP2), CPCA-MAP2, dilution 1:10,000 in green. The blue is DAPI staining of nuclear DNA.**

**Background:**

Doublecortin was originally discovered since defects in the gene encoding it are causative of an X-linked lissencephaly, a rare group of brain malformations resulting in a smooth cerebral cortex caused by aberrant neuronal migration during development (1-4). The name doublecortin comes from the unusual layering of the cortex in this form of lissencephaly, which appears to have a second deep cortical layer of neurons. The doublecortin protein appears to function as a microtubule and actin binding protein expressed in developing neuroblasts as they become post-mitotic, but is lost as neurons mature. Loss of doublecortin causes defects in neuronal migration during development, so that many neurons fail to migrate into the cortex but remain close to the ventricular germinal zones. Antibodies to doublecortin are useful to identify neuronal stem cells and developing neurons in sections and in tissue culture, and to monitor neurogenesis. Studies of neuroblastoma, the most common form of extracranial solid tumor in childhood, show that levels of doublecortin mRNA are associated with poor patient outcome (5-7).

The MCA-3E1 antibody was made against full length recombinant human doublecortin expressed in and purified from *E. coli*. It works well on western blots and cell staining in cell culture and in sections both on human and rodent samples. It works identically to the goat polyclonal peptide antibody to doublecortin (C18):sc-8066 previously available from Santa Cruz, but now discontinued.

---

**Abbreviation Key:**

mAb—Monoclonal Antibody  
pAb—Polyclonal Antibody  
WB—Western Blot  
IF—Immunofluorescence  
ICC—Immunocytochemistry  
IHC—Immunohistochemistry  
E—ELISA  
Hu—Human  
Mo—Monkey  
Do—Dog  
Rt—Rat  
Ms—Mouse  
Co—Cow  
Pi—Pig  
Ho—Horse  
Ch—Chicken  
Dr—D. rerio  
Dm—D. melanogaster  
Sm—S. mutans  
Ce—C. elegans  
Sc—S. cerevisiae  
Sa—S. aureus  
Ec—E. coli