**Product datasheet**

**Anti-L1CAM antibody [2C2] ab24345**

- **Overview**
  - **Product name**: Anti-L1CAM antibody [2C2]
  - **Description**: Mouse monoclonal [2C2] to L1CAM
  - **Host species**: Mouse
  - **Specificity**: ab24345 L1[2C2] antibody recognizes one or two polypeptides of L1 or Ng-CAM corresponding to the full length protein (~200 kD) and the 60-80 kD C-terminal cleavage products (as shown). ab24345 will recognize protein after denaturation in the presence of reducing agents and can detect protein in lysates (10-100 micrograms of protein) of the nervous system (such as rat cerebellum - see figure).
  - **Tested applications**: Suitable for: ICC/IF, IHC-FoFr, Flow Cyt, WB
  - **Species reactivity**: Reacts with: Mouse, Rat, Human
  - **Immunogen**: chicken NgCAM protein (ab24345 detects the C-terminus portion of the protein that is conserved with mammalian L1)
  - **Positive control**: rat cerebellum, nervous system tissue
  - **General notes**: L1CAM can be detected between 200-220 kD. In brain samples it is typically seen at ~ 200 kD. When the protein is overexpressed in vitro it is often detected as a doublet with bands at 200 and 220 kD. The unglycosylated, unprocessed L1CAM is ~ 140-150 kDa. The protein has 21 putative N-glycosylation sites on the extracellular portion of the protein which, when they are all glycosylated, results in a detected MW of 200-220 kD depending upon how many residues are actually glycosylated. L1CAM can be cleaved by the metalloprotease ADAM10 resulting in fragments of 180 kD and 40 kD. L1CAM can also be cleaved by plasmin resulting in fragments of 140 kD and 80 kD. In theory, therefore, one could detect bands at ~220, 200, 180, 140, 80 and 40 kD.

- **Properties**
  - **Form**: Liquid
  - **Storage instructions**: Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C or -80°C. Avoid freeze / thaw cycle.
  - **Storage buffer**: Liquid ascites fluid that was precipitated by ammonium sulfate and resuspended and dialyzed in PBS.
  - **Purity**: Ascites
  - **Clonality**: Monoclonal
Clone number
2C2
Isotype
IgG1

Applications

Our Abpromise guarantee covers the use of ab24345 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
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<tbody>
<tr>
<td>ICC/IF</td>
<td>⭐⭐⭐⭐⭐</td>
<td>1/300 - 1/1000.</td>
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<tr>
<td>IHC-FoFr</td>
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<td>1/300 - 1/1000.</td>
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<tr>
<td>Flow Cyt</td>
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<td>1/20. (paraformaldehyde or methanol fixed cells)</td>
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</tbody>
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ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB ⭐⭐⭐⭐⭐ 1/1000. Detects a band of approximately 200 kDa. Cleavage products observed at 60-80 kDa.

Target

Function
Cell adhesion molecule with an important role in the development of the nervous system. Involved in neuron-neuron adhesion, neurite fasciculation, outgrowth of neurites, etc. Binds to axonin on neurons.

Involvement in disease
Defects in L1CAM are the cause of hydrocephalus due to stenosis of the aqueduct of Sylvius (HSAS) [MIM:307000]. Hydrocephalus is a condition in which abnormal accumulation of cerebrospinal fluid in the brain causes increased intracranial pressure inside the skull. This is usually due to blockage of cerebrospinal fluid outflow in the brain ventricles or in the subarachnoid space at the base of the brain. In children is typically characterized by enlargement of the head, prominence of the forehead, brain atrophy, mental deterioration, and convulsions. In adults the syndrome includes incontinence, imbalance, and dementia. HSAS is characterized by mental retardation and enlarged brain ventricles.

Defects in L1CAM are the cause of mental retardation-aphasia-shuffling gait-adducted thumbs syndrome (MASA) [MIM:303350]; also known as corpus callosum hypoplasia, psychomotor retardation, adducted thumbs, spastic paraparesis, and hydrocephalus or CRASH syndrome. MASA is an X-linked recessive syndrome with a highly variable clinical spectrum. Main clinical features include spasticity and hyperreflexia of lower limbs, shuffling gait, mental retardation, aphasia and adducted thumbs. The features of spasticity have been referred to as complicated spastic paraplegia type 1 (SPG1). Some patients manifest corpus callosum hypoplasia and hydrocephalus. Inter- and intrafamilial variability is very wide, such that patients with hydrocephalus, MASA, SPG1, and agenesis of corpus callosum can be present within the same family.

Defects in L1CAM are the cause of spastic paraplegia X-linked type 1 (SPG1) [MIM:303350].
Spastic paraplegia is a degenerative spinal cord disorder characterized by a slow, gradual, progressive weakness and spasticity of the lower limbs. Note=Defects in L1CAM may contribute to Hirschsprung disease by modifying the effects of Hirschsprung disease-associated genes to cause intestinal aganglionosis. Defects in L1CAM are a cause of partial agenesis of the corpus callosum (ACCPX) [MIM:304100]. A syndrome characterized by partial corpus callosum agenesis, hypoplasia of inferior vermis and cerebellum, mental retardation, seizures and spasticity. Other features include microcephaly, unusual facies, and Hirschsprung disease in some patients.

Sequence similarities
Belongs to the immunoglobulin superfamily. L1/neurofascin/NgCAM family. Contains 5 fibronectin type-III domains. Contains 6 Ig-like C2-type (immunoglobulin-like) domains.

Cellular localization
Cell membrane.

Images

Western blot - Anti-L1CAM antibody [2C2] (ab24345)
This image is courtesy of Martin Grumet, Rutgers University, United States

Performed under reducing conditions.

**Observed band size:** 200 kDa
why is the actual band size different from the predicted?
**Additional bands at:** 60-80 kDa (possible cleavage fragment)

ab24345 recognizes one or two polypeptides of L1 or Ng-CAM corresponding to the full length protein (~200kDa) as well as 60-80 kDa C-terminal cleavage products (as shown in the figure).

Immunofluorescence analysis of COS7 cells transfected with full-length L1CAM (left) or truncated L1CAM (right), staining L1CAM (green) with ab24345.

Cells were incubated with primary antibody (1/1000 in 1% goat serum + 0.3% Triton X-100 in PBS) and incubated overnight at 4°C. An AlexaFluor®488-conjugated anti-mouse IgG (1/700) was used as the secondary antibody. Nuclei were counterstained with bisbenzimide (blue).
Overlay histogram showing PC12 cells stained with ab24345 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab24345, 1/20 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in PC12 cells fixed with methanol (5 min) used under the same conditions.

Please note that Abcam does not have data for use of this antibody on non-fixed cells. We welcome any customer feedback.

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