BACKGROUND

Growth-associated protein-43 (GAP-43), a neurite growth potentiator, is a nervous system specific F-actin regulating phosphoprotein expressed during development that enables differentiating neurons to respond to extracellular signals. GAP-43 also plays a role in sprouting responses associated with adult plasticity. GAP-43 is expressed along with BDNF in response to neuronal injuries and is upregulated in granule cells following BDNF treatment. It was shown that GAP-43 is an essential downstream effector of positive AMPA receptor modulators and subsequent BDNF-induced responses. In addition, GAP-43 plays important role in neural cell adhesion molecule (NCAM)-mediated regulation of actin cytoskeletal dynamics. By binding to the fibroblast growth factor receptor (FGFR), NCAM activates intracellular pathways to trigger calcium release, lipid diacylglycerol (DAG) formation, and protein kinase C (PKC) activation to specifically phosphorylate GAP-43 on serine 41. Phosphorylated GAP-43 plays a key role in neurite outgrowth, presumably by promoting actin polymerization. Of all NCAM isoforms, only NCAM-180 takes part in this GAP-43-dependent neurite outgrowth. GAP-43 and NCAM-180 are found in the same plasma membrane domains (rafts), and these two proteins form a functional complex with spectrin that may control cytoskeleton dynamics to induce neurite outgrowth. In addition, it was also shown that modification of GAP-43 at its PKC phosphorylation site directs its distribution to different membrane microdomains that have distinct roles in the regulation of intrinsic and extrinsic behaviors in growing neurons.

References:

APPLICATIONS

Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

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<thead>
<tr>
<th>Application</th>
<th>*Dilution</th>
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<tbody>
<tr>
<td>WB</td>
<td>1:1000</td>
</tr>
<tr>
<td>IP</td>
<td>n/d</td>
</tr>
<tr>
<td>IHC</td>
<td>1:50-200</td>
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<tr>
<td>ICC</td>
<td>n/d</td>
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<tr>
<td>FACS</td>
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*Optimal dilutions must be determined by end user.

QUALITY CONTROL DATA

Top: Western Blot detection of GAP43 proteins in rat brain tissue lysate using GAP43 Antibody. Bottom: This antibody stains paraffin-embedded rat brain tissue in immunohistochemical analysis.

TECHNICAL INFORMATION

Source:
GAP43 Antibody is a rabbit antibody raised against a short peptide from human GAP43 sequence.

Specificity and Sensitivity:
This antibody detects endogenous levels of GAP43 proteins without cross-reactivity with other related proteins.

Storage Buffer: PBS and 30% glycerol