CELL APPLICATIONS, INC.

GAP43 Antibody

Cat. No. CA1037

Applications:	**WB, IHC**
Detected MW:	**43 kDa**
Species & Reactivity:	**Human, Rat**
Isotype:	**Rabbit IgG**

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.[1] In addition, GAP-43 plays important role in neural cell adhesion molecule (NCAM)-mediated regulation ofn 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.[2] In the absence of GAP-43, the signaling pathway that depends on NCAM-140 and nonreceptor tyrosine kinase (Fyn) is activated.[3]

References:

1. Gupta, S.K. et al: Cell Death Diff. 16: 624–637, 2009
2. Nguyen, L. et al: Mol. Cell. Neurosci. 41:62-73, 2009
3. Korshunova, I. & Mosevitsky, M.:Adv. Exp. Med. Biol. 663:169-82, 2010

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

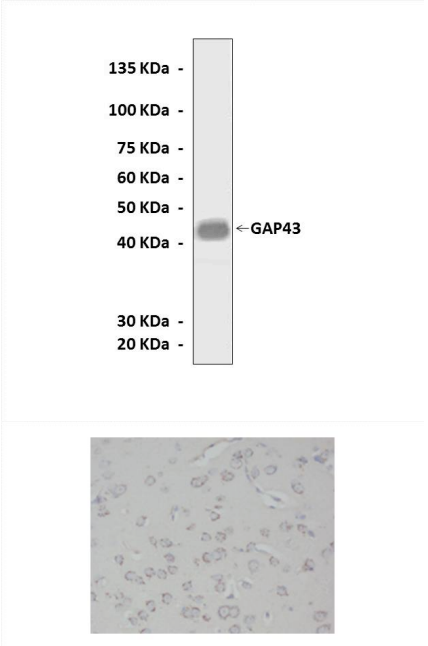
Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	1:50-200
ICC	n/d
FACS	n/d

*****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.