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Product Information

Anti-SLC40A1
produced in rabbit, IgG fraction of antiserum

Catalog Number **SAB4200575**

Product Description

Anti-SLC40A1 is produced in rabbit using as immunogen a synthetic peptide corresponding to an internal sequence of human SLC40A1 (GeneID 30061), conjugated to KLH. The corresponding sequence is highly conserved (84% identity) in rat and mouse. Whole antiserum is purified using protein A immobilized on agarose to provide the IgG fraction of antiserum.

Anti-SLC40A1 specifically recognizes human and rat SLC40A1. The antibody can be used in several immunochemical techniques including immunoblotting (~60 kDa) and immunohistochemistry. Detection of the SLC40A1 band by immunoblotting is specifically inhibited by the SLC40A1 immunizing peptide.

SLC40A1 (also known as ferroportin, FPN1, SLC11A3, Ireg, MTP1), is an iron transporter that plays a central role in systemic iron homeostasis and is critical for normal intestinal iron absorption.[1] SLC40A1/ferroportin is widely expressed in liver, duodenum, spleen and kidney.[1, 2] SLC40A1 is also expressed in the brain and is required for iron homeostasis in the CNS.[3] SLC40A1 is localized in the duodenal mucosa, in neuronal cells and endothelial cells of the blood-brain barrier. SLC40A1 is essential for development of the mouse embryo, forebrain patterning and neural tube closure.[4] Elevated neuronal Fe^{2+} is thought to exacerbate oxidative damage that characterizes Alzheimer's disease. Ferroportin in neuronal cells is required for cellular Fe^{2+} export, a process critical for normal neuronal function. It has been shown to interact with amyloid precursor protein (APP), to facilitate the iron export process from neuronal cells.[5] The expression of ferroportin in liver and intestine has been shown to be modulated by hepcidin, a small antimicrobial peptide specifically produced by the liver, which regulates intestinal iron absorption. Hepcidin binds to and inhibits SLC40A1, thus preventing enterocytes of the intestines from secreting iron into the hepatic portal system, thereby functionally reducing iron absorption.[6] Mutations in the SLC40A1 gene have been linked to hereditary hemochromatosis, a common disorder characterized by iron overload and multi-organ damage.[7]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is also recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working dilution of 1:1,000-1:2,000 is recommended using rat kidney extracts (S1 fraction).

Immunohistochemistry: a working dilution of 1:50-1:100 is recommended using formalin-fixed paraffin-embedded human duodenum.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

1. McKie, A.T., et al., *Mol. Cell,* **5**, 299-309 (2000).
2. Wolff, N.A., et al., *J. Cell Mol. Med.*, **15**, 209-219 (2011).
3. Wu, L.J.C., et al., *Brain Res.*, **1001**, 108-117 (2004).
4. Mao, J., et al., *Development.,* **137**, 3079-3088 (2010).
5. Duce. J.A., et al., *Cell,* **142**, 857-867 (2010).
6. De Domenico, I., et al., *Cell Metab.,* **14**, 635-646 (2011).
7. Njajou, O.T., et al., *Nat. Genet.,* **28**, 213-214 (2001).

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