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| Catalog Number: | MO25040 | Host: | Mouse |
| Product Type: | IgG ₁ , Clone: BH7 | Species Reactivity: | Human, Rat, Bovine |
| Immunogen Sequence: | Recombinant full length human UCHL1 purified from <i>E. coli</i> . | Format: | Tissue culture supernatant Mouse ascites with 10mM sodium azide as a preservative. Concentration 1 mg/ml. |
| Applications: | Immunofluorescence: 1:1000 Western Blot: 1:10000 | | |
| Storage: | Dilutions listed as a recommendation. Optimal dilution should be determined by investigator. Store frozen. Aliquot as undiluted antisera and immediately place at -20°C. Antisera may have become trapped in top of vial during shipping. Centrifugation of vial is recommended before opening. Stable for at least 6 months at -20°C. Repeated freeze/thaw cycles compromise the integrity of the antiserum. | | |

Application Notes

Positive Controls: Bovine brain whole cell homogenate, HEK 293 lysate, and rat spinal cord/peripheral nerve homogenate.

Western Blot: band at approximately 24 kDa.

Description/Data:

Ubiquitin C-terminal hydrolase 1 (UCHL1) has several other names, such as ubiquitin carboxyl esterase L1, ubiquitin thiolesterase, neuron-specific protein PGP9.5 and Park5. The protein is extremely abundant, and was estimated to be present at a concentration of 200-500 micrograms/g wet weight, representing a major protein component of neuronal cytoplasm (1). This has been claimed to represent 1-2% of total brain protein. The activity is also important to remove ubiquitin from partially degraded proteins, allowing the ubiquitin monomer to be recycled. Regulation of the ubiquitin pathway is very important and many disease states are associated with defects in this pathway. Point mutations in the UCHL1 gene are associated with some forms of human Parkinson's disease. Recent studies suggest that UCHL1 also has a ubiquitinyl ligase activity, being able to couple ubiquitin monomers by linking the C-terminus of one with lysine 63 of the other. Since UCHL1 is heavily expressed in neurons, antibodies to UCHL1 can be used to identify neurons in histological sections and in tissue culture. The great abundance of this protein in neurons means that it is released from neurons in large amounts following injury or degeneration, so the detection of UCHL1 in CSF and other bodily fluids can be used as a biomarker. UCHL1 was also discovered as a gene mutated in some rare familial forms of Parkinson's disease. Interestingly a common allelic variant of UCHL1, the S18Y polymorphism is actually protective against Parkinson's disease. It is also a marker for cells of the diffuse neuroendocrine system and their tumors.

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Image: UCHL1 staining of human embryonic kidney cell line 293 (green) and rabbit antibody to neurofilament NF-M, (red). Blue is a DNA stain. Note that some of the Hek293 cells which have some properties of neuronal lineage cells, are beginning to express both UCHL1 and NF-M, both markers of neurons. The majority of cells, however express neither protein. Note that the UCHL1 is cytoplasmic and diffuse while the NF-M is concentrated in cytoplasmic filaments.

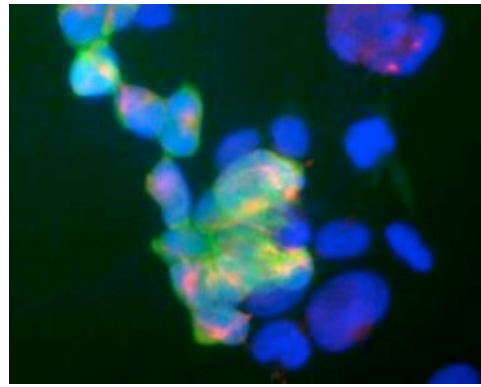
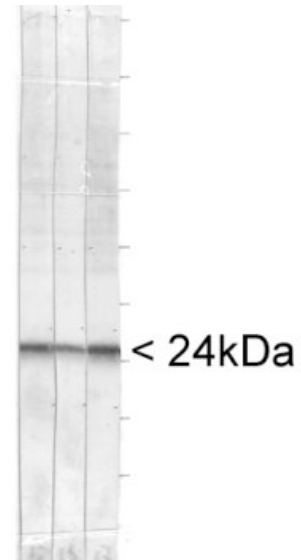


Image: Blots of whole cell homogenate of bovine brain stained with mouse monoclonal UHCL1s. Right most lane is stained with MO25040.



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