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DATASHEET

Anti- β III Tubulin antibody ValidAb TM

Product overview

Name Anti-βIII Tubulin antibody ValidAbTM

Cat No HB6639
Host Mouse
Clonality Monoclonal
Target BIII tubulin

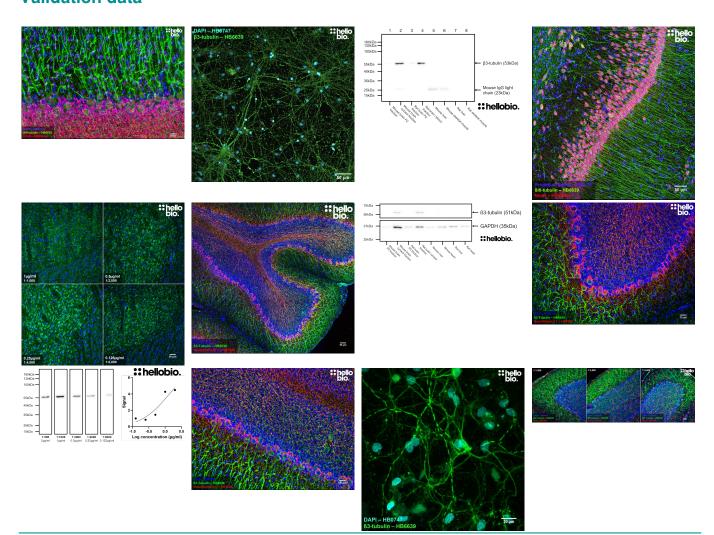
Customer comments The antibody works fine. Staining in our cultures is the same as our other Beta III Tub Abs -

researcher at the University of Western Australia

Description Antibody to βIII Tubulin - cytoskeletal protein used as a neuronal marker. Part of the ValidAb™ range

of highly validated, data-rich antibodies.

Validation data



Immunogen Amino acids 441-448 of human beta III tubulin coupled to maleimide-activated keyhole limpet

hemocyanin

Epitope ESESQGPK (Amino acids 441-448 of beta III tubulin)

Clone number TU-20 Isotype lgG1

Purification Protein A affinity chromatography

Concentration 1mg/ml

Formulation Lyophilised. When reconstituted contains PBS with 15mM sodium azide and 1% recombinant BSA

Predicted species reactivity Human, Mouse, Rat, Pig, Dog

Tested species reactivity Mouse, Rat

Tested applications

ICC, WB, IHC(IF) **Applications**

Western blot optimal 1µg/ml (1:1000) as measured in rat brain cytosol

concentration

IHC(IF) optimal concentration 1µg/ml (1:1000) as measured in free-floating fixed hippocampal sections ICC optimal concentration 1μg/ml (1:1000) as measured in a cultured rat hippocampal neuron preparation.

Positive control B3-tubulin is widely expressed in neural tissues. It is also well expressed in SH-SY5Y, Hep G2, A549

and SCLC-21H cell lines.

Negative control Non-neural tissues, except for tissue from the testes. Poorly expressed in many cell lines such as

JURKAT, HeLa and HEK293.

Open data link Please follow this link to OSF

Target information

Other names TUBB3, Tubulin beta-4 chain, Tubulin beta-III

UniProt ID Q13509 TUBB3 Gene name NCBI full gene name tubulin beta 3 Entrez gene ID 10381 Amino acids 450 (50.4kDa)

Isoforms Beta III tubulin has two isoforms. Isoform 1: canonical; Isoform 2: missing amino acids 1-72

Expression Beta III tubulin is expressed almost exclusively within neurones present in the central nervous system

> and peripheral nervous system. Expression has also been found within the sertoli cells of the testes. Beta III tubulin is a key cytoskeletal component therefore is widely expressed as bundles of Beta III

tubulin positive fibres.

Target function Beta III tubulin forms a key part of the cytoskeleton in neurones and has also been reported to have

> important roles in regulating the oxidative stress and glucose deprivation response in neurones. Beta III tubulin has also been found to be an important prognostic indicator in cancer with expression being

associated with treatment resistance and tumour aggressiveness.

Processing Following translation no processing is required for Beta III tubulin to reach its active conformation. Post translational Beta III tubulin is subject to three postranslational modifications; phosphorylation by CDK1 at Ser172, modifications Polyglutamylation at Glu438 and phosphorylation at Ser 444 (note: this is within the epitope of

HB6639)

Homology (compared to

Subcellular expression

human)

Similar proteins

Beta III tubulin shows similarity in a BLAST search to other beta tubulin family members (e.g. Tubulin beta IV 100%, tubulin beta VI 96%, tubulin beta IIA 95%, tubulin beta IIB 95%) alongside alpha tubulin

Mouse and human proteins are identical while rat beta III tubulin shows a single change (E440D)

(96% similarity) and epididymis sperm binding protein (95%)

Epitope homology (between

species)

The epitope sequence is conserved between humans, mice and rats within beta III tubulin

Epitope homology (other

proteins)

Proteins containing the sequence of the epitope of HB6639 include:

- Myosin cardiac beta chain (Mice 100%, 87.5 human) 221.5kDa,
- Bromodomain and PHD finger containing protein (1aa difference) 135.7kDa,
- MAP2 (85.7% match) 199.5kDa,
- MAPK2 (87.5% match) 42kDa.
- FAM43A (85.7% match) 46kDa

Storage & Handling

Storage instructions -20°C then use reconstitution advice Reconstitution advice Upon receipt store at either -20°C or -80°C. For 100µg packs either:

- Reconstitute with 100µl dH2O and store at 4°C
- Reconstitute with 50µl dH₂O and 50µl glycerol then store at -20°C
- Reconstitute with 100µl dH₂O, aliquot then snap freeze and store at -80 °C

For 25µg packs either:

- Reconstitute with 25µl dH2O and store at 4°C
- Reconstitute with 12.5µl dH₂O and 12.5µl glycerol then store at -20°C
- Reconstitute with 25µl dH₂O, aliquot then snap freeze and store at -80°C

For more information read our guide on the best care for your product. Take care when opening as the precipitate is extremely light and can easily be lost if disturbed. When reconstituting make sure that the antibody is thoroughly dissolved by pipetting up and down before giving the antibody a brief spin at 10,000g to make sure that all material is recovered and at the bottom of the tube.

This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not

Shipping Conditions Important

Stable for ambient temperature shipping. Follow storage instructions on receipt.

for human or veterinary use

References

Proteomic characterization of cytoskeletal and mitochondrial class III beta-tubulin

Cicchillitti L et al (2008) Mol Cancer Ther 7(7) **PubMedID** 18645017

Mutations in the neuronal β -tubulin subunit TUBB3 result in malformation of cortical development and neuronal migration defects

Poirier K et al (2010) Human Molecular Genetics 19(22)

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Tischfield M et al (2011) Cell 140(1)

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Class III β -tubulin expression and in vitro resistance to microtubule targeting agents

Stengel C et al (2010) British Journal of Cancer 102(2)

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