

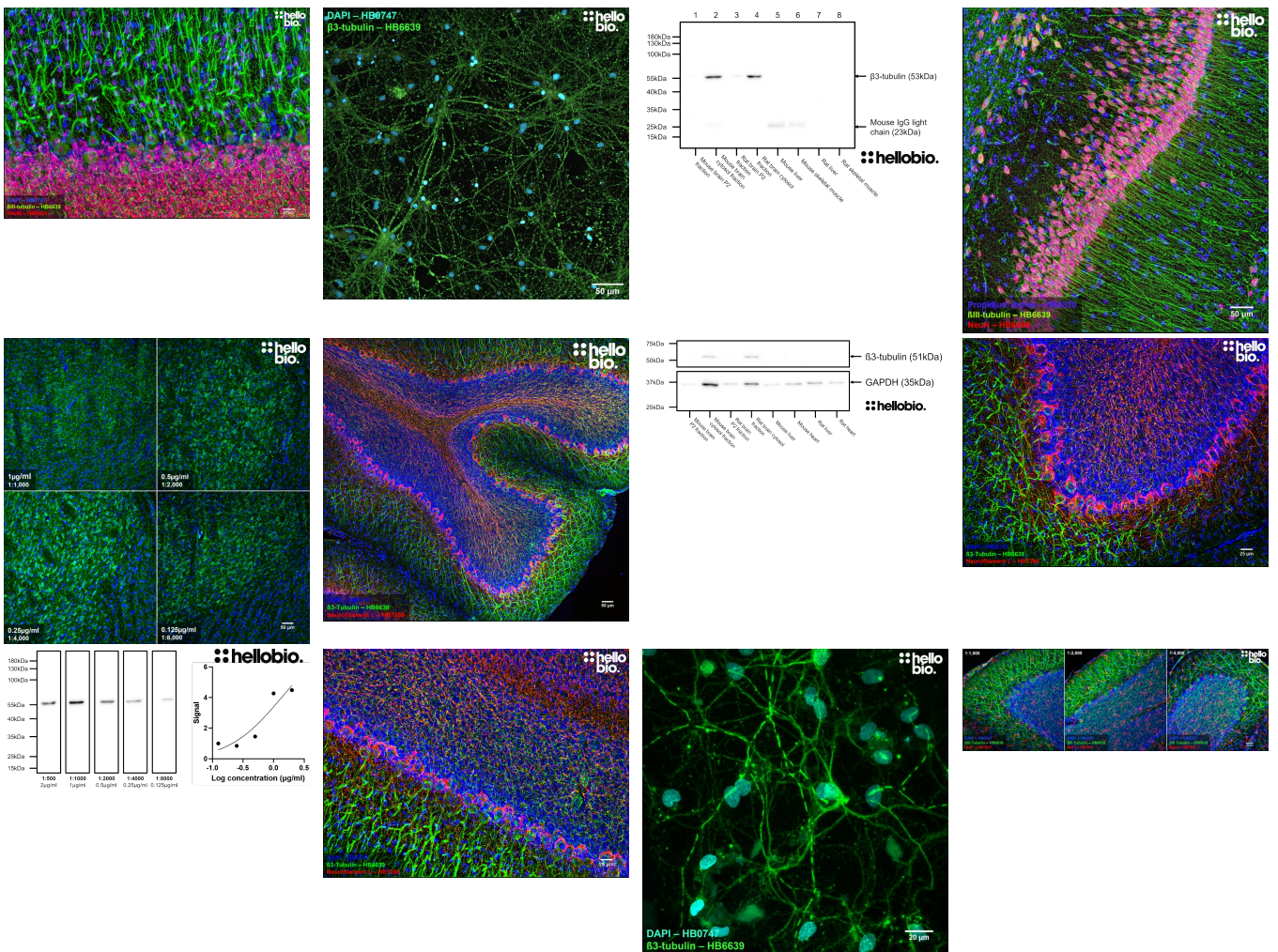
# DATASHEET

## Anti- $\beta$ III Tubulin antibody ValidAb™

### Product overview

<b>Name</b>	Anti- $\beta$ III Tubulin antibody ValidAb™
<b>Cat No</b>	HB6639
<b>Host</b>	Mouse
<b>Clonality</b>	Monoclonal
<b>Target</b>	Beta III tubulin
<b>Customer comments</b>	<i>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</i>
<b>Description</b>	Antibody to $\beta$ III Tubulin - cytoskeletal protein used as a neuronal marker. Part of the ValidAb™ range of highly validated, data-rich antibodies.

### Validation data



### Product information

<b>Immunogen</b>	Amino acids 441-448 of human beta III tubulin coupled to maleimide-activated keyhole limpet hemocyanin
<b>Epitope</b>	ESESQGPK (Amino acids 441-448 of beta III tubulin)
<b>Clone number</b>	TU-20
<b>Isotype</b>	IgG1
<b>Purification</b>	Protein A affinity chromatography
<b>Concentration</b>	1mg/ml
<b>Formulation</b>	Lyophilised. When reconstituted contains PBS with 15mM sodium azide and 1% recombinant BSA
<b>Predicted species reactivity</b>	Human, Mouse, Rat, Pig, Dog
<b>Tested species reactivity</b>	Mouse, Rat

## Tested applications

<b>Applications</b>	ICC, WB, IHC(IF)
<b>Western blot optimal concentration</b>	1µg/ml (1:1000) as measured in rat brain cytosol
<b>IHC(IF) optimal concentration</b>	1µg/ml (1:1000) as measured in free-floating fixed hippocampal sections
<b>ICC optimal concentration</b>	1µg/ml (1:1000) as measured in a cultured rat hippocampal neuron preparation.
<b>Positive control</b>	β3-tubulin is widely expressed in neural tissues. It is also well expressed in SH-SY5Y, Hep G2, A549 and SCLC-21H cell lines.
<b>Negative control</b>	Non-neural tissues, except for tissue from the testes. Poorly expressed in many cell lines such as JURKAT, HeLa and HEK293.
<b>Open data link</b>	Please follow <a href="#">this link</a> to OSF

## Target information

<b>Other names</b>	TUBB3, Tubulin beta-4 chain, Tubulin beta-III
<b>UniProt ID</b>	Q13509
<b>Gene name</b>	TUBB3
<b>NCBI full gene name</b>	tubulin beta 3
<b>Entrez gene ID</b>	10381
<b>Amino acids</b>	450 (50.4kDa)
<b>Isoforms</b>	Beta III tubulin has two isoforms. Isoform 1: canonical; Isoform 2: missing amino acids 1-72
<b>Expression</b>	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.
<b>Subcellular expression</b>	Beta III tubulin is a key cytoskeletal component therefore is widely expressed as bundles of Beta III tubulin positive fibres.
<b>Processing</b>	Following translation no processing is required for Beta III tubulin to reach its active conformation.
<b>Post translational modifications</b>	Beta III tubulin is subject to three postranslational modifications: phosphorylation by CDK1 at Ser172, Polyglutamylation at Glu438 and phosphorylation at Ser 444 (note: this is within the epitope of HB6639)
<b>Homology (compared to human)</b>	Mouse and human proteins are identical while rat beta III tubulin shows a single change (E440D)
<b>Similar proteins</b>	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 (96% similarity) and epididymis sperm binding protein (95%)
<b>Epitope homology (between species)</b>	The epitope sequence is conserved between humans, mice and rats within beta III tubulin
<b>Epitope homology (other proteins)</b>	Proteins containing the sequence of the epitope of HB6639 include: <ul style="list-style-type: none"> <li>• Myosin cardiac beta chain (Mice 100%, 87.5 human) - 221.5kDa,</li> <li>• Bromodomain and PHD finger containing protein (1aa difference) 135.7kDa,</li> <li>• MAP2 (85.7% match) - 199.5kDa,</li> <li>• MAPK2 (87.5% match) - 42kDa,</li> <li>• FAM43A (85.7% match) - 46kDa</li> </ul>

## Storage & Handling

<b>Storage instructions</b>	-20 °C then use reconstitution advice
<b>Reconstitution advice</b>	We recommend reconstituting with either: <ul style="list-style-type: none"> <li>• dH<sub>2</sub>O and storing at 4 °C</li> <li>• 50:50 ratio of dH<sub>2</sub>O to glycerol and storing at -20 °C</li> <li>• dH<sub>2</sub>O then aliquot and store at -80 °C</li> </ul>

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.

## Important

For more information please see our detailed guide on [storing and using your antibody](#)  
This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use

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## 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 $\beta$ -tubulin subunit TUBB3 result in malformation of cortical development and neuronal migration defects

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

**PubMedID** [20829227](#)

### Human TUBB3 mutations perturb microtubule dynamics, kinesin interactions, and axon guidance

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

**PubMedID** [20074521](#)

### Class III $\beta$ -tubulin expression and in vitro resistance to microtubule targeting agents

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

**PubMedID** [20029418](#)

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