

## iFluor™ 594 Conjugated Anti-Beta III Tubulin Antibody [A8-D10]

# HA600133F



<b>Product Type:</b>	Mouse monoclonal IgG2a, primary antibodies
<b>Species reactivity:</b>	Human, Rat
<b>Applications:</b>	IF, ICC, FC
<b>Molecular Wt:</b>	Predicted band size: 50 kDa
<b>Clone number:</b>	A8-D10

**Description:** Class III  $\beta$ -tubulin, otherwise known as  $\beta$ III-tubulin ( $\beta$ 3-tubulin) or  $\beta$ -tubulin III, is a microtubule element of the tubulin family. In humans, it is encoded by the TUBB3 gene. It is possible to use monoclonal antibodies and immunohistochemistry to identify neurons in samples of brain tissue, separating neurons from glial cells, which do not express Class III  $\beta$ -tubulin. Class III  $\beta$ -tubulin is one of the seven  $\beta$ -tubulin isotypes identified in the human genome, predominantly in neurons and the testis. It is conditionally expressed in a number of other tissues after exposure to a toxic microenvironment featured by hypoxia and poor nutrient supply. Posttranslational changes including phosphorylation and glycosylation are required for functional activity. Class III  $\beta$ -tubulin's role in neural development has warranted its use as an early biomarker of neural cell differentiation from multi potent progenitors. TUBB3 inactivation impairs neural progenitor proliferation. Rescue experiments demonstrate the non-interchangeability of TUBB3 with other classes of  $\beta$ -tubulins which cannot restore the phenotype resulting from TUBB3 inactivation. Congenital neurologic syndromes associated with TUBB3 missense mutations demonstrate the critical importance of class III  $\beta$ -tubulin for normal neural development. Overexpression of class III beta tubulin is associated with the resistances of microtubule-targeted cancer drugs in lung cancer cell lines, breast cancer cell lines, and ovarian tumors.

<b>Conjugate:</b>	iFluor™ 594, Ex: 588nm; Em: 604nm.
<b>Immunogen:</b>	Synthetic peptide (KLH-coupled) within human/mouse 1-50 aa.
<b>Positive control:</b>	Rat brain tissue, HepG2, SH-SY5Y.
<b>Subcellular location:</b>	Cytoplasm. Cytoskeleton. Microtubule.
<b>Database links:</b>	SwissProt: Q13509 Human   Q4QRB4 Rat
<b>Recommended Dilutions:</b>	
IF	1:100
ICC	1:50
FC	1:500-1:1,000
<b>Storage Buffer:</b>	Preservative: 0.02% Sodium azide Constituents: 30% Glycerol, 1% BSA, 68.98% PBS.
<b>Storage Instruction:</b>	Store at +4°C after thawing. Aliquot store at -20°C. Avoid repeated freeze / thaw cycles.
<b>Purity:</b>	Immunogen affinity purified.

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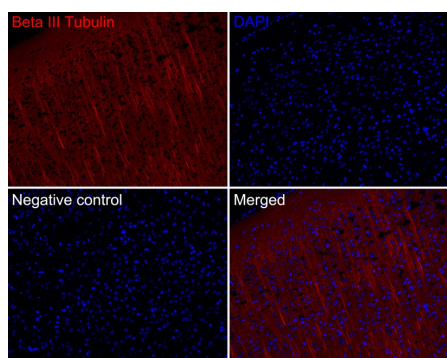
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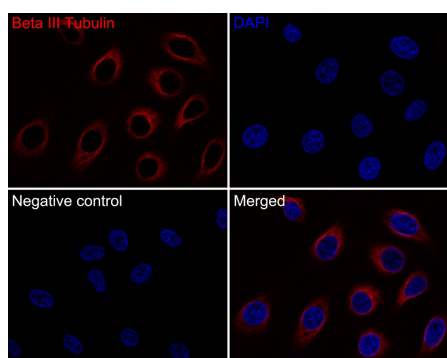
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## Images



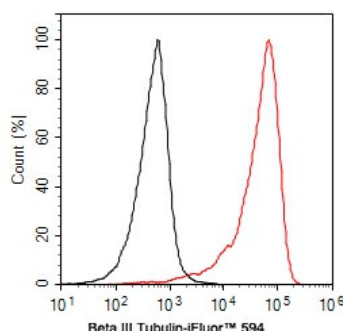
**Fig1:** Immunofluorescence analysis of paraffin-embedded rat brain tissue labeling Beta III Tubulin (HA600133F).

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS. And then probed with the primary antibody Beta III Tubulin (HA600133F, iFluor™ 594) at 1/100 dilution overnight at 4 °C, washed with PBS. DAPI was used as nuclear counterstain.



**Fig2:** Immunocytochemistry analysis of HepG2 cells labeling Beta III Tubulin with Rabbit anti-Beta III Tubulin antibody (HA600133F) at 1/50 dilution.

Cells were fixed in 100% methanol for 10 minutes, permeabilized with 0.1% Triton X-100 in PBS for 15 minutes, and then blocked with 2% normal goat serum for 30 minutes at room temperature. Cells were then incubated with Rabbit anti-Beta III Tubulin antibody (HA600133F) at 1/50 dilution in 2% normal goat serum overnight at 4 °C. Nuclear DNA was labelled in blue with DAPI.



**Fig3:** Flow cytometric analysis of SH-SY5Y cells labeling Beta III Tubulin.

Cells were fixed and permeabilized. Then incubated for 1 hour at +4 °C with Beta III Tubulin (HA600133F, red, 1ug/ml). Unlabelled sample was used as a control (cells without incubation with primary antibody; black).

**Note:** All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

## Background References

1. Tischfield M A et al. Human TUBB3 mutations perturb microtubule dynamics, kinesin interactions, and axon guidance. *Cell* 140:74-87 (2010).
2. Fourest-Lieuvin A et al. Microtubule regulation in mitosis: tubulin phosphorylation by the cyclin-dependent kinase Cdk1. *Mol Biol Cell* 17:1041-1050 (2006).

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