

## Microtubule-associated protein tau Protein, Rat (P.pastoris, His)

<b>Cat. No.:</b>	HY-P71753
<b>Synonyms:</b>	Mapt; Mtapt; Tau; Microtubule-associated protein tau; Neurofibrillary tangle protein; Paired helical filament-tau; PHF-tau
<b>Species:</b>	Rat
<b>Source:</b>	P. pastoris
<b>Accession:</b>	P19332 (2A-752L)
<b>Gene ID:</b>	29477
<b>Molecular Weight:</b>	Approximately 80.4 kDa

### PROPERTIES

#### AA Sequence

A E P R Q E F D T M	E D Q A G D Y T M L	Q D Q E G D M D H G	L K E S P P Q P P A
D D G S E E P G S E	T S D A K S T P T A	E D V T A P L V E E	R A P D K Q A T A Q
S H T E I P E G T T	A E E A G I G D T P	N M E D Q A A G H V	T Q E P Q K V E I F
S Q S L L V E P G R	R E G Q A P D S G I	S D W T H Q Q V P S	M S G A P L P P Q G
L R E A T H Q P L G	T R P E D V E R S H	P A S E L L W Q E S	P Q K E A W G K D R
L G S E E E V D E D	I T M D E S S Q E S	P P S Q A S L A P G	T A T P Q A R S V S
A S G V S G E T T S	I P G F P A E G S I	P L P A D F F S K V	S A E T Q A S P P E
G P G T G P S E E G	H E A A P E F T F H	V E I K A S A P K E	Q D L E G A T V V G
A P A E E Q K A R G	P S V G K G T K E A	S L L E P T D K Q P	A A G L P G R P V S
R V P Q L K A R V A	G V S K D R T G N D	E K K A K T S T P S	C A K T P S N R P C
L S P T R P T P G S	S D P L I K P S S P	A V C P E P A T S P	K Y V S S V T P R N
G S P G T K Q M K L	K G A D G K T G A K	I A T P R G A A T P	G Q K G T S N A T R
I P A K T T P S P K	T P P G S G E P P K	S G E R S G Y S S P	G S P G T P G S R S
R T P S L P T P P T	R E P K K V A V V R	T P P K S P S A S K	S R L Q T A P V P M
P D L K N V R S K I	G S T E N L K H Q P	G G G K V Q I I N K	K L D L S N V Q S K
C G S K D N I K H V	P G G G S V H I V Y	K P V D L S K V T S	K C G S L G N I H H
K P G G G Q V E V K	S E K L D F K D R V	Q S K I G S L D N I	T H V P G G G N K K
I E T H K L T F R E	N A K A K T D H G A	E I V Y K S P V V S	G D T S P R H L S N
V S S T G S I D M V	D S P Q L A T L A D	E V S A S L A K Q G	L

#### Appearance

Lyophilized powder.

#### Formulation

Lyophilized after extensive dialysis against solution in Tris-based buffer, 50% glycerol.

#### Endotoxin Level

<1 EU/μg, determined by LAL method.

#### Reconstitution

It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH<sub>2</sub>O.

#### Storage & Stability

Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.

**Shipping**

Room temperature in continental US; may vary elsewhere.

**DESCRIPTION****Background**

Microtubule-associated protein tau (MAPT) plays a pivotal role in cellular dynamics by promoting microtubule assembly and stability, potentially contributing to the establishment and maintenance of neuronal polarity. Its functional architecture reveals a dual role, with the C-terminus binding axonal microtubules and the N-terminus engaging neural plasma membrane components, implying that tau acts as a crucial linker protein between the two structures. The predetermined axonal polarity is governed by tau's localization within the neuronal cell, specifically in the domain defined by the centrosome. Notably, the short isoforms of tau confer plasticity to the cytoskeleton, while the longer isoforms may preferentially contribute to its stabilization. MAPT engages in a complex network of interactions with various proteins, including MARK1, MARK2, MARK3, SQSTM1, PSMC2, FKBP4, CSNK1D, SGK1, EPM2A, PIN1, LRRK2, and LRP1, showcasing its multifaceted involvement in cellular processes. Particularly, its interaction with LRP1, leading to endocytosis, underscores the intricate regulatory mechanisms governing tau's functional versatility.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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