

## TPPP3 Protein, Human, Recombinant (His)

### General Information

Synonyms:	CGI-38;TPPP3;p25gamma;tubulin polymerization-promoting protein family member 3; TPPP/p20;p20;p25y
Protein Construction:	A DNA sequence encoding the mature form of human TPPP3 (Q9BW30) (Met1-Lys176) was expressed with a polyhistide tag at the N-terminus. Predicted N terminal: His
Species:	Human
Expression Host:	E. coli
Accession:	Q9BW30
Molecular Weight:	20.8 kDa (predicted); 21 kDa (reducing conditions)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

#### Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

TPPP3, a member of the Tubulin polymerization-promoting protein family, is an intrinsically unstructured protein that induces tubulin polymerization. TPPP3 is a marker in the developing musculoskeletal system. In tendons, Tppp3 is expressed in cells at the circumference of the developing tendons, likely the progenitors of connective tissues that surround tendons: the tendon sheath, epitenon, and paratenon. Tppp3 is also expressed in forming

synovial joints. The onset of Tppp3 expression in joints coincides with cavitation, representing a molecular marker that can be used to indicate this stage in joint transition in joint differentiation. In late embryonic stages, Tppp3 expression highlights other demarcation lines that surround differentiating tissues in the forelimb. Depletion of TPPP3 by microRNA-based RNA interference (RNAi) inhibits cell growth, arrests cell cycles, and causes mitotic abnormalities in HeLa cells. C57BL/6 mice that received subcutaneously injected LLC (Lewis lung carcinoma) cells in which TPPP3 was knocked down showed a pronounced reduction in tumor progression. The migration/invasion activity of TPPP3-knockdown LLC cells was significantly suppressed in a transwell chamber migration assay. When these cells were injected into the tail veins of C57BL/6 mice, they exhibited milder lung metastasis compared with control tumor cells. Taken together, these findings suggested that the TPPP3 gene played an important role in tumorigenesis and metastasis, and it could potentially become a novel target for cancer therapy.

### Reference

Staverosky JA, et al. (2009) Tubulin polymerization-promoting protein family member 3, Tppp3, is a specific marker of the differentiating tendon sheath and synovial joints. *Dev Dyn*. 238(3):685-92.

Zhou W, et al. (2010) Stable knockdown of TPPP3 by RNA interference in Lewis lung carcinoma cell inhibits tumor growth and metastasis. *Mol Cell Biochem*. 343(1-2):231-8.

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