# Recombinant TSK protein (His tag)

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| **Catalog Number** | 540858 |
| **Synonyms** | E2-induced gene 4 protein; Leucine-rich repeat-containing protein 54 |
| **Species** | Human |
| **Expression System** | E. coli |
| **Accession** | Q8WUA8 |
| **Molecular Weight** | Predictes a molecular mass of 37.77 kDa. In SDS-PAGE under reducing conditions, it migrates as an approximately 38 kDa band. |

## Product Information

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| **Sequence Region** | 17-353 |
| **Form** | Lyophilized powder |
| **Formulation** | Lyophilized from sterile PBS, pH 7.4 |
| **Purity** | >87%, by SDS-PAGE with Coomassie Brilliant Blue staining. |
| **Endotoxin** | Not tested. |
| **Activity** | Not tested. |
| **Stability** | Samples are stable for up to twelve months from date of receipt at -70℃ |
| **Protein Construction** | DNA encoding 17-353 aa (Q8WUA8) were fused with 6His tag. |

## Storage & Handling

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| **Reconstitution** | Reconstitute at 0.25 μg/μl in sterile water for short-term storage. Reconstitution with 50% glycerol solution is recommended for longer term storage (see Stability and Storage for more details). If a different concentration is needed for your purposes please adjust the reconstitution volume as required (please note: the ion concentration of the final solution will vary according to the volume used). Note: Centrifuge vial before opening. When reconstituting, gently pipet and wash down the sides of the vial to ensure full recovery of the protein into solution. |
| **Storage** | Store it under sterile conditions at -20℃ to -80℃. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles. |
| **Shipping** | In general, recombinant proteins are provided as lyophilized powder which are shipped at ambient temperature.<br>Bulk packages of recombinant proteins are provided as frozen liquid. They are shipped out with blue ice unless customers require otherwise. |

## Description

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| **Description** | Introducing the recombinant Tsukushi (TSKU) protein fragment, a highly purified tool designed for investigating key developmental and regulatory processes. This fragment spans amino acids 17-353 and fully encompasses the functional LRRNT domain, making it ideal for studying Tsukushi's interactions with signaling pathways such as Wnt and TGFB1 in wound healing, cholesterol homeostasis, and neural development.<br>Tsukushi, encoded by the TSKU gene in Homo sapiens, is a secreted protein that functions as a versatile modulator of multiple signaling pathways. It acts as a Wnt signaling inhibitor by competing with WNT2B for binding to the FZD4 receptor, thereby influencing peripheral eye development. The protein regulates the hair cycle through TGFB1 signaling control and is essential for hippocampal neural stem cell differentiation and anterior commissure formation in the brain by inhibiting neurite outgrowth. Additionally, Tsukushi plays critical roles in bone elongation, inner ear development via stereocilia formation, and wound healing by suppressing TGFB1 secretion from macrophages to prevent myofibroblast differentiation. It also contributes to cholesterol homeostasis by reducing HDL cholesterol levels and bile acid conversion in the liver. While some studies suggest a role in limiting sympathetic innervation in brown fat, others indicate no effect on thermogenesis or glucose homeostasis. As a secreted protein, Tsukushi operates extracellularly, facilitating its broad impact on developmental and physiological processes. |