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QTRT1 Blocking Peptide (C-term)

Synthetic peptide
Catalog # BP20812c

Specification

QTRT1 Blocking Peptide (C-term) - Product Information

Primary Accession Q9BXR0

QTRT1 Blocking Peptide (C-term) - Additional Information

Gene ID 81890

Other Names
Queuine tRNA-ribosyltransferase, Guanine insertion enzyme, tRNA-guanine transglycosylase, QTRT1, TGT, TGUT

Target/Specificity
The synthetic peptide sequence is selected from aa 303-317 of HUMAN QTRT1

Format
Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions
This product is for research use only. Not for use in diagnostic or therapeutic procedures.

QTRT1 Blocking Peptide (C-term) - Protein Information

Name QTRT1 {ECO:0000255|HAMAP-Rule:MF_03218}

Synonyms TGT, TGUT

Function
Catalytic subunit of the queuine tRNA-ribosyltransferase (TGT) that catalyzes the base-exchange of a guanine (G) residue with queuine (Q) at position 34 (anticodon wobble position) in tRNAs with GU(N) anticodons (tRNA-Asp, -Asn, -His and -Tyr), resulting in the hypermodified nucleoside queuosine (7-(((4,5-cis-dihydroxy-2- cyclopenten-1-yl)amino)methyl)-7-deazaguanosine) (PubMed:11255023, PubMed:20354154, PubMed:34009357, PubMed:34241577). Catalysis occurs through a double-displacement mechanism. The nucleophile active site attacks the C1' of nucleotide 34 to detach the guanine base from the RNA, forming a covalent enzyme-RNA intermediate. The proton acceptor active site deprotonates the incoming queuine, allowing a nucleophilic attack on the C1' of the ribose to form the product (By similarity).

Modification of cytoplasmic tRNAs with queuosine controls the elongation speed of cognate codons, thereby ensuring the correct folding of nascent proteins to maintain proteome integrity (PubMed:30093495).

Cellular Location
Cytoplasm {ECO:0000255|HAMAP-Rule:MF_03218}. Mitochondrion outer membrane {ECO:0000255|HAMAP-Rule:MF_03218}; Peripheral membrane protein {ECO:0000255|HAMAP-Rule:MF_03218}; Cytoplasmic side {ECO:0000255|HAMAP-Rule:MF_03218}. Note=Weakly associates with mitochondria, possibly via QTRT2. {ECO:0000255|HAMAP- Rule:MF_03218}

QTRT1 Blocking Peptide (C-term) - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Blocking Peptides

QTRT1 Blocking Peptide (C-term) - Images

QTRT1 Blocking Peptide (C-term) - Background

Interacts with QTRTD1 to form an active queuine tRNA- ribosyltransferase. This enzyme exchanges queuine for the guanine at the wobble position of tRNAs with GU(N) anticodons (tRNA-Asp, -Asn, -His and -Tyr), thereby forming the hypermodified nucleoside queuosine (Q) (7-(((4,5-cis-dihydroxy-2-cyclopenten-1- yl)amino)methyl)-7-deazaguanosine) (By similarity).

QTRT1 Blocking Peptide (C-term) - References

Deshpande K.L.,et al.Gene 265:205-212(2001).
Grimwood J.,et al.Nature 428:529-535(2004).
Burkard T.R.,et al.BMC Syst. Biol. 5:17-17(2011).
Van Damme P.,et al.Proc. Natl. Acad. Sci. U.S.A. 109:12449-12454(2012).