

Microsomal triglyceride transfer protein

Microsomal triglyceride transfer protein		
Identifiers		
Symbols	MTTP ^[1] , ABL; MTP	
External IDs	OMIM: 157147 ^[2] MGI: 106926 ^[3] HomoloGene: 212 ^[4] ChEMBL: 2569 ^[5] GeneCards: MTTP Gene ^[6]	
Gene Ontology		
Molecular function	<ul style="list-style-type: none"> lipid transporter activity^[7] lipid binding^[8] apolipoprotein binding^[9] protein heterodimerization activity^[10] 	
Cellular component	<ul style="list-style-type: none"> endoplasmic reticulum lumen^[11] rough endoplasmic reticulum^[12] Golgi apparatus^[13] basolateral plasma membrane^[14] brush border membrane^[15] microvillus membrane^[16] membrane-bounded vesicle^[17] 	
Biological process	<ul style="list-style-type: none"> protein lipidation^[18] lipid metabolic process^[19] triglyceride metabolic process^[20] lipoprotein metabolic process^[21] cholesterol homeostasis^[22] lipoprotein transport^[23] small molecule metabolic process^[24] response to calcium ion^[25] 	
Sources: Amigo ^[26] / QuickGO ^[27]		
RNA expression pattern		
<p>206675_at</p> <p>GeneAtlas Tissues</p>		
More reference expression data ^[28]		
Orthologs		
Species	Human	Mouse
Entrez	4547 ^[29]	17777 ^[30]
Ensembl	ENSG00000138823 ^[31]	ENSMUSG00000028158 ^[32]
UniProt	P55157 ^[33]	O08601 ^[34]
RefSeq (mRNA)	NM_000253 ^[35]	NM_001163457 ^[36]

RefSeq (protein)	NP_000244 ^[37]	NP_001156929 ^[38]	
Location (UCSC)	Chr 4: 100.48 – 100.55 Mb ^[39]	Chr 3: 138.09 – 138.14 Mb ^[40]	
PubMed search	[41]	[42]	

Microsomal triglyceride transfer protein large subunit is a protein that in humans is encoded by the *MTP* gene.^[1]

MTP encodes the large subunit of the heterodimeric microsomal triglyceride transfer protein. Protein disulfide isomerase (PDI) completes the heterodimeric microsomal triglyceride transfer protein, which has been shown to play a central role in lipoprotein assembly. Mutations in MTP can cause abetalipoproteinemia.^[1]

Apoprotein B48 on chylomicra and Apoprotein B100 on LDL, IDL, and VLDL are important for MTP binding.

Interactive pathway map

Click on genes, proteins and metabolites below to link to respective articles.^[43]



Statin Pathway edit^[44]

- [1] http://www.genenames.org/data/hgnc_data.php?hgnc_id=7467
- [2] <http://omim.org/entry/157147>
- [3] http://www.informatics.jax.org/searches/accession_report.cgi?id=MGI:106926
- [4] http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=homologene&dopt=HomoloGene&list_uids=212
- [5] <https://www.ebi.ac.uk/chembl/db/index.php/target/inspect/CHEMBL2569>
- [6] http://www.genecards.org/cgi-bin/carddisp.pl?id_type=entrezgene&id=4547
- [7] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0005319
- [8] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0008289
- [9] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0034185
- [10] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0046982
- [11] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0005788
- [12] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0005791
- [13] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0005794
- [14] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0016323

- [15] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0031526
- [16] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0031528
- [17] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0031988
- [18] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0006497
- [19] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0006629
- [20] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0006641
- [21] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0042157
- [22] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0042632
- [23] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0042953
- [24] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0044281
- [25] http://amigo.geneontology.org/cgi-bin/amigo/go.cgi?view=details&search_constraint=terms&depth=0&query=GO:0051592
- [26] <http://amigo.geneontology.org/cgi-bin/amigo/gp-assoc.cgi?gp=UniProtKB:P55157>
- [27] <http://www.ebi.ac.uk/QuickGO/GIProtein?ac=P55157>
- [28] <http://biogps.org/gene/4547/>
- [29] http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene&cmd=retrieve&dopt=default&list_uids=4547&rn=1
- [30] http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?db=gene&cmd=retrieve&dopt=default&list_uids=17777&rn=1
- [31] http://www.ensembl.org/Homo_sapiens/geneview?gene=ENSG00000138823;db=core
- [32] http://www.ensembl.org/Mus_musculus/geneview?gene=ENSMUSG00000028158;db=core
- [33] <http://www.uniprot.org/uniprot/P55157>
- [34] <http://www.uniprot.org/uniprot/O08601>
- [35] http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?val=NLM_000253
- [36] http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?val=NLM_001163457
- [37] http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?val=NP_000244
- [38] http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?val=NP_001156929
- [39] <http://genome.ucsc.edu/cgi-bin/hgTracks?org=Human&db=hg19&position=chr4:100484918-100545156>
- [40] <http://genome.ucsc.edu/cgi-bin/hgTracks?org=Mouse&db=mm9&position=chr3:138089855-138143388>
- [41] http://www.ncbi.nlm.nih.gov/sites/entrez?db=gene&cmd=Link&LinkName=gene_pubmed&from_uid=4547
- [42] http://www.ncbi.nlm.nih.gov/sites/entrez?db=gene&cmd=Link&LinkName=gene_pubmed&from_uid=17777
- [43] The interactive pathway map can be edited at WikiPathways:
- [44] <http://www.wikipathways.org/index.php/Pathway:WP430>

Pharmacology

Drugs that inhibit MTP prevent the assembly of apo B-containing lipoproteins thus inhibiting the synthesis of chylomicrons and VLDL and leading to decrease in plasma levels of LDL-C.

- Lomitapide (Juxtapid) was approved by the US FDA for adjunctive treatment of homozygous familial hypercholesterolemia.
- Dirlotapide (Slentrol) and mitratapide (Yarvitan) are veterinary drugs for the management of obesity in dogs.

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Further reading

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nih.gov/pubmed/10679949).

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