

ENZYME entry: EC 2.3.3.5

Accepted Name

2-methylcitrate synthase

Alternative Name(s)

2-methylcitrate oxaloacetate-lyase

MCS

methylcitrate synthase

methylcitrate synthetase

Reaction catalysed

H2O + oxaloacetate + propanoyl-CoA <=> (2S,3S)-2-methylcitrate + CoA + H(+)

Comment(s)

- The enzyme acts on acetyl-CoA, propanoyl-CoA, butanoyl-CoA and pentanoyl-CoA.
- The relative rate of condensation of acetyl-CoA and oxaloacetate is 140% of that of propanoyl-CoA and oxaloacetate, but the enzyme is distinct
- Oxaloacetate cannot be replaced by glyoxylate, pyruvate or 2-oxoglutarate.
- Formerly EC 4.1.3.31.

Cross-references

BRENDA	2.3.3.5 (http://www.brenda-enzymes.org/enzyme.php?ecno=2.3.3.5)
EC2PDB	2.3.3.5 (https://www.ebi.ac.uk/thornton-srv/databases/cgi-bin/enzymes/GetPage.pl?ec_number=2.3.3.5)
ExplorEnz	2.3.3.5 (http://www.enzyme-database.org/query.php?ec=2.3.3.5)
PRIAM enzyme-specific profiles	2.3.3.5 (http://priam.prabi.fr/cgi-bin/PRIAM_profiles_CurrentRelease.pl?EC=2.3.3.5)
KEGG Ligand Database for Enzyme Nomenclature	2.3.3.5 (http://www.genome.ad.jp/dbget-bin/www_bget?ec:2.3.3.5)
IUBMB Enzyme Nomenclature	2.3.3.5 (https://www.qmul.ac.uk/sbcs/iubmb/enzyme/EC2/3/3/5.html)
IntEnz	2.3.3.5 (https://www.ebi.ac.uk/intenz/query?cmd=SearchEC&ec=2.3.3.5)
MEDLINE	Find literature relating to 2.3.3.5 (https://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=PureSearch&db=PubMed&details_term=2.3.3.5)
MetaCyc	2.3.3.5 (https://biocyc.org/META/NEW-IMAGE?type=EC-NUMBER&object=EC-2.3.3.5)
Rhea expert-curated reactions	2.3.3.5 (https://www.rhea-db.org/rhea?query=ec%3A2.3.3.5)

UniProtKB/Swiss-Prot	Q8NSH7 (https://www.uniprot.org/uniprot/Q8NSH7), PRPC1_CORGL	Q8NSL1 (https://www.uniprot.org/uniprot/Q8NSL1), PRPC2_CORGL	O3400 (https://www.uniprot.org/uniprot/O3400)
	B0YD89 (https://www.uniprot.org/uniprot/B0YD89), PRPC_ASPFC	Q50I20 (https://www.uniprot.org/uniprot/Q50I20), PRPC_ASPFM	Q937N (https://www.uniprot.org/uniprot/Q937N)
	P31660 (https://www.uniprot.org/uniprot/P31660), PRPC_ECOLI	Q9TEM3 (https://www.uniprot.org/uniprot/Q9TEM3), PRPC_EMENI	C7C43 (https://www.uniprot.org/uniprot/C7C43)
	C7C436 (https://www.uniprot.org/uniprot/C7C436), PRPC_GIBMO	H8F0D7 (https://www.uniprot.org/uniprot/H8F0D7), PRPC_MYCTE	I6Y9Q (https://www.uniprot.org/uniprot/I6Y9Q)
	Q56063 (https://www.uniprot.org/uniprot/Q56063), PRPC_SALTY	Q8EJW2 (https://www.uniprot.org/uniprot/Q8EJW2), PRPC_SHEON	Q6C79 (https://www.uniprot.org/uniprot/Q6C79)

[View entry in original ENZYME format \(/cgi-bin/enzyme/get-enzyme-entry?2.3.3.5\)](#)
[View entry in raw text format \(no links\) \(/EC/2.3.3.5.txt\)](#)

All UniProtKB/Swiss-Prot entries referenced in this entry ([https://www.uniprot.org/uniprotkb?query=\(ec:2.3.3.5\)%20AND%20\(reviewed:true\)\)](https://www.uniprot.org/uniprotkb?query=(ec:2.3.3.5)%20AND%20(reviewed:true))), with poss

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