PRODUCT INFORMATION

S-Catechol O-Methyltransferase (human, recombinant)
Item No. 15563

Overview and Properties

Synonyms:  S-COMT, Pyrocatechol-O-methyltransferase, S-Adenosyl-L-methionine:Catechol O-methyltransferase
Source:    Active recombinant N-terminal hexahistidine- and SUMOpro-tagged protein expressed in E. coli
Amino Acids:  2-221 (full length)
Uniprot No.:  P21964
Molecular Weight:  37.6 kDa
Storage: -80°C (as supplied)
Stability: ≥2 years
Purity:  batch specific (≥70% estimated by SDS-PAGE)
Supplied in:  50 mM Hepes, pH 8.0, with 500 mM NaCl and 10% glycerol

Protein
Concentration:  batch specific mg/ml
Activity:  batch specific U/ml
Specific Activity:  batch specific U/mg
Unit Definition: One unit produces 1 nmol/hr of O-methylated products from 3,4-dihydroxyacetophenone (DHAP) with S-adenosyl-L-methionine (SAM) as substrate at pH 7.6, 37°C, measured by absorbance at 344 nm.

Images

Lane 1: MW Markers
Lane 2: S-COMT (4 µg)
Lane 3: S-COMT (2 µg)
Lane 4: S-COMT (1 µg)

Representative gel image shown; actual purity may vary between each batch.
S-Catechol-O-methyltransferase (S-COMT) is the soluble cytosolic form of COMT.\textsuperscript{1} A rough endoplasmic reticulum membrane-bound form of COMT (MB-COMT) is also encoded by the COMT gene but produced via a separate promoter and contains an additional 50 amino acid residues, which compose the membrane anchor region.\textsuperscript{1,2} COMT is comprised of one domain with eight α helices surrounding a central β sheet.\textsuperscript{3} It is the methyltransferase responsible for transferring a methyl group from S-adenosyl-L-methionine (SAM) to a catechol hydroxyl in the inactivation or degradation of catechol-containing molecules such as catecholamines.\textsuperscript{4} S-COMT is involved primarily in the inactivation of endogenous and xenobiotic catechols, such as catechol-containing hormones and carcinogenic flavonoids, and MB-COMT is involved primarily in the degradation of endogenous catecholamine neurotransmitters.\textsuperscript{4,5} S-COMT is the predominant form of COMT and is found primarily in the liver and kidney but is also found in the stomach, small intestine, adrenal gland, spleen, and brain.\textsuperscript{6} A valine-to-methionine substitution (Val158Met) in COMT affects its thermostability and may reduce its activity by greater than 50% in the human brain.\textsuperscript{7} The Val158Met variant of COMT is associated with Parkinson’s disease in an ethnicity-dependent manner.\textsuperscript{8} COMT interacts with severe acute respiratory coronavirus 2 (SARS-CoV-2) non-structural protein 7 (Nsp7), which, together with Nsp8, forms the primase complex of the replicase-transcriptase complex of SARS-CoV-2.\textsuperscript{9} Cayman’s S-Catechol-O-Methyltransferase (human, recombinant) protein can be used for ELISA, Western blot (WB), and enzyme activity assay applications.

References