COMT gene

<http://www.genecards.org/cgi-bin/carddisp.pl?gene=COMT>

<http://ghr.nlm.nih.gov/gene/COMT> //Genetics Home Reference

<http://en.wikipedia.org/wiki/Catechol-O-methyl_transferase>

<http://atgenglobal.com/csv/datasheets/COM0905.pdf>

“Recombinant human COMT protein was expressed in *E.coli* and purified by using conventional chromatography techniques.”

<http://cancerres.aacrjournals.org/content/61/18/6716.long> //research paper about Vanderbilt team that transformed gene into E. coli.

Catalyzes the O-methylation, and thereby the inactivation, of catecholamine neurotransmitters and catechol

hormones.

Specific reactions catalyzed by COMT include:

* [Dopamine](http://en.wikipedia.org/wiki/Dopamine) → [3-Methoxytyramine](http://en.wikipedia.org/wiki/3-Methoxytyramine)
* [DOPAC](http://en.wikipedia.org/wiki/DOPAC) → HVA ([homovanillic acid](http://en.wikipedia.org/wiki/Homovanillic_acid))
* [Norepinephrine](http://en.wikipedia.org/wiki/Norepinephrine) → [Normetanephrine](http://en.wikipedia.org/wiki/Normetanephrine)
* [Epinephrine](http://en.wikipedia.org/wiki/Epinephrine) → [Metanephrine](http://en.wikipedia.org/wiki/Metanephrine)
* [Dihydroxyphenylethylene glycol](http://en.wikipedia.org/wiki/Dihydroxyphenylethylene_glycol) (DOPEG) → [Methoxyhydroxyphenylglycol](http://en.wikipedia.org/wiki/Methoxyhydroxyphenylglycol) (MOPEG)

[3,4-Dihydroxymandelic acid](http://en.wikipedia.org/wiki/3,4-Dihydroxymandelic_acid) (DOMA) → [Vanillylmandelic acid](http://en.wikipedia.org/wiki/Vanillylmandelic_acid) (VMA)

Researchers have looked extensively at the potential connection between changes in the *COMT* gene and the risk of developing schizophrenia

Size: 221 a.a.

ASMT gene

**N-Acetylserotonin O-methyltransferase** also known as **ASMT** is an [enzyme](http://en.wikipedia.org/wiki/Enzyme) that catalyzes the final reaction in [melatonin](http://en.wikipedia.org/wiki/Melatonin) biosynthesis, converting [Normelatonin](http://en.wikipedia.org/wiki/Normelatonin) to melatonin. This reaction is embedded in the more general [tryptophan](http://en.wikipedia.org/wiki/Tryptophan) metabolism pathway. The enzyme also catalyzes a second reaction in tryptophan metabolism: the conversion of [5-hydroxy-indoleacetate](http://en.wikipedia.org/wiki/5-hydroxy-indoleacetate) to [5-methoxy-indoleacetate](http://en.wikipedia.org/w/index.php?title=5-methoxy-indoleacetate&action=edit&redlink=1).[1

<http://en.wikipedia.org/wiki/Acetylserotonin_O-methyltransferase>

(more research will be continued).

“Identification of the ASMT protein was verified by melatonin production in *E. coli*.” -- <http://onlinelibrary.wiley.com/doi/10.1111/j.1600-079X.2010.00841.x/full> (in the section, “results and discussion).