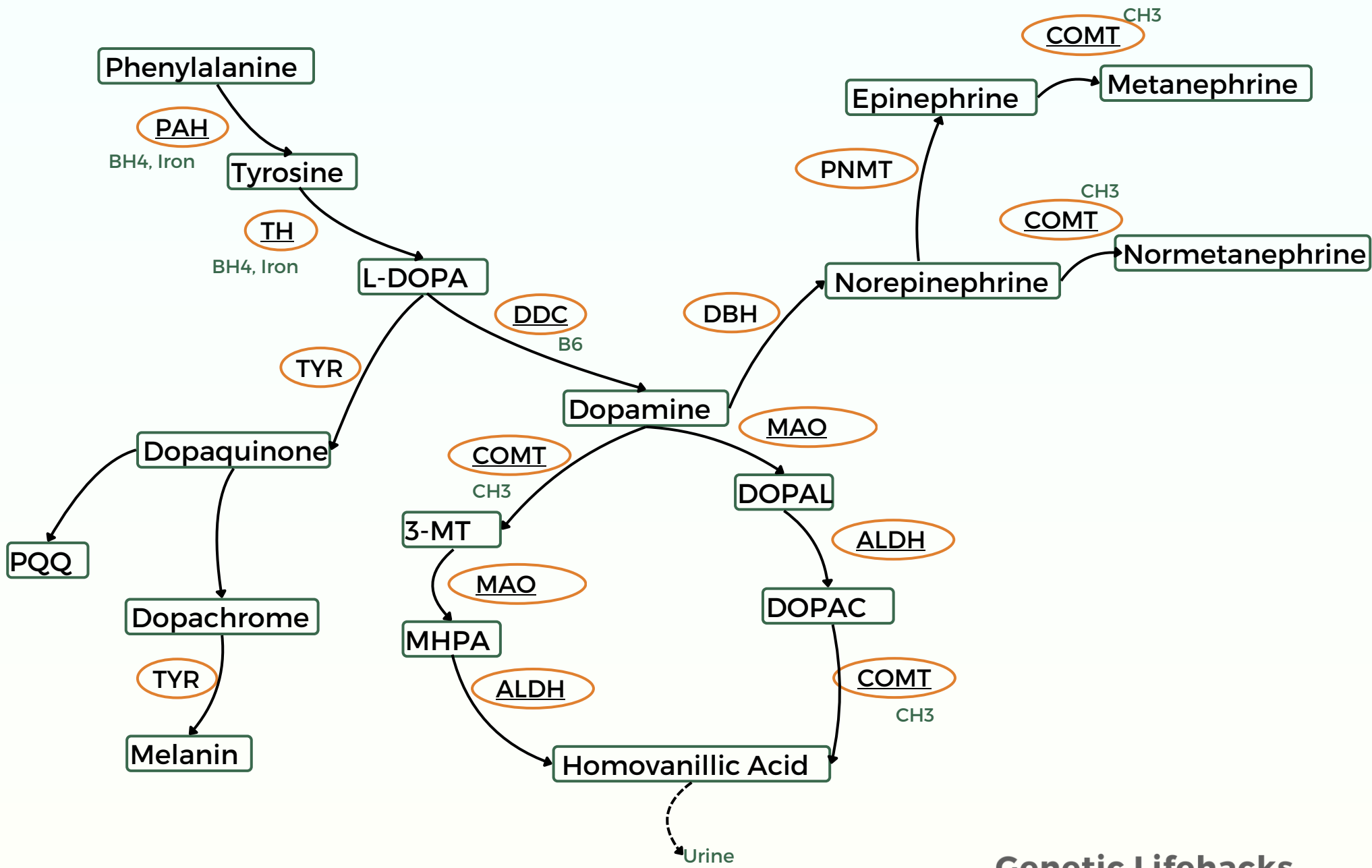


Dopamine Synthesis and Conversion



DOPAL = 3,4-Dihydroxyphenylacetaldehyde

DOPAC = 3,4-Dihydroxyphenylacetic acid

3-MT = 3-Methoxytyramine

MHPA = 3-methoxy-4-hydroxyphenylacetaldehyde

Refs:

PMC2947794

PMC3065393

PMC3629045

Dopamine Related Genes

PAH

- Phenylalanine hydroxylase
- Enzyme that converts phenylalanine to tyrosine in a BH₄-dependent reaction
- Mainly expressed in the liver and kidney

TH

- Tyrosine hydroxylase
- Enzyme that converts tyrosine to L-DOPA in a BH₄-dependent reaction
- Mainly expressed in the brain and adrenals

TYR

- Tyrosinase
- Enzyme that converts tyrosine to melanin
- Mainly expressed in the skin, hair, and eyes

COMT

- Catechol-O-methyltransferase
- Enzyme that transfers methyl groups from SAMe to catecholamines
- Widely expressed throughout the body

ALDH2

- Aldehyde dehydrogenase
- Enzyme that converts aldehydes for excretion
- Widely expressed throughout the body

PNMT

- Phenylethanolamine N-methyltransferase
- Enzyme that methylates norepinephrine to form epinephrine
- Mainly expressed in the brain and adrenals

DDC

- Dopa decarboxylase
- Enzyme that catalyzes the decarboxylation of L-DOPA to dopamine
- Mainly expressed in the brain, kidneys, intestines, and adrenals

MAOA/B

- Monoamine oxidase A and B
- Enzyme that catalyze the oxidative deamination of amines, such as dopamine
- Widely expressed