

Active Recombinant Human Tyrosinase (Oculocutaneous Albinism IA), His-tagged

Cat. No. TRY-690H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human Tyrosinase (Oculocutaneous Albinism IA) is produced in E. coli. with a N-terminal His-tag. MW= 52 kDa.
Species	Human
Source	E.coli
Description	Tyrosinase definition in biology refers to a copper-containing enzyme present in plant and animal that catalyzes the oxidation of tyrosine into melanin and other pigments. More specifically, it catalyzes four steps in the melanin and catecholamine synthesis pathways. Tyrosinase deficiency is thought to be responsible for albinism. Like tyrosine hydroxylase (EC 1.13.16.2), it can catalyze the formation of L-DOPA in the brain and nervous system. It oxidizes monophenols, but like catecholoxidase (EC 1.10.3.1), it can also oxidize o-diphenols to o-quinones. Like what we see the tyrosinase enzyme in potato, the blackening of a peeled or sliced potato is due to its exposure to air. Enzyme tyrosinase can be found in many foods, such as in cheese, chocolate, orange, tuna, animal liver etc. It is involved in cancer, Parkinson's, pigmentation diseases, Alzheimer's and obesity. Much of the research and inhibitor screening has used mushroom tyrosinase. And many experiments regarding tyrosinase enzyme kinetics had been done to determine if it is stereospecific. However, mushroom tyrosinase interacts very differently with substrates and inhibitors compared to the human enzyme. In addition, commercially available mushroom tyrosinase is not always of good purity. Recombinant versions of human

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tyrosinase amino acids 1-345 or 1-378, also available commercially, are not functional due the lack of critical catalytic and structural residues.

Purity ~90% (SDS-PAGE).

Activity 170 U/mg. One U=100pmol/min at 37°C using 0.5mM L-Tyrosine as substrate in 50mM potassium phosphate, pH 7.3, 2% dimethylformamide, 5mM MBTH (3-methyl-2-benzothiazolinone hydrazone) and monitoring formation of dopachrome-MBTH adduct at 484nm ($\epsilon_{484}=22,300 \text{ M}^{-1}\text{cm}^{-1}$).

Storage -20°C. Avoid freeze/thaw cycles.

GENE INFORMATION

Gene Name TYR tyrosinase (oculocutaneous albinism 1A) [Homo sapiens]

Synonyms TYR; tyrosinase (oculocutaneous albinism 1A); OCA1A; OCA1A; SHEP3; Tyrosinase; EC 1.14.18.1; Monophenol monooxygenase; Tumor rejection antigen AB; SK29-AB; LB24-AB

Gene ID 7299

mRNA Refseq NM_000372

Protein Refseq NP_000363

MIM 606933

UniProt ID P14679

Chromosome 11q14-q21

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Location	
Pathway	Betalain biosynthesis; Biosynthesis of alkaloids derived from shikimate pathway; Isoquinoline alkaloid biosynthesis; Melanogenesis; Metabolic pathways; Riboflavin metabolism; Tyrosine metabolism
Function	copper ion binding; metal ion binding; monooxygenase activity; monophenol monooxygenase activity; protein binding; protein heterodimerization activity

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