Tyrosinase (human), (recombinant) (His-tag)

An oxidase that controls the production of melanin

Tyrosinase is a copper-containing enzyme that catalyzes four steps in the melanin and catecholamine synthesis pathways. 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. It is involved in cancer, Parkinson's, pigmentation diseases, Alzheimer's and obesity. Much of the research and inhibitor screening has used mushroom tyrosinase. 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 tyrosinase amino acids 1-345 or 1-378, also available commercially, are not functional due the lack of critical catalytic and structural residues.

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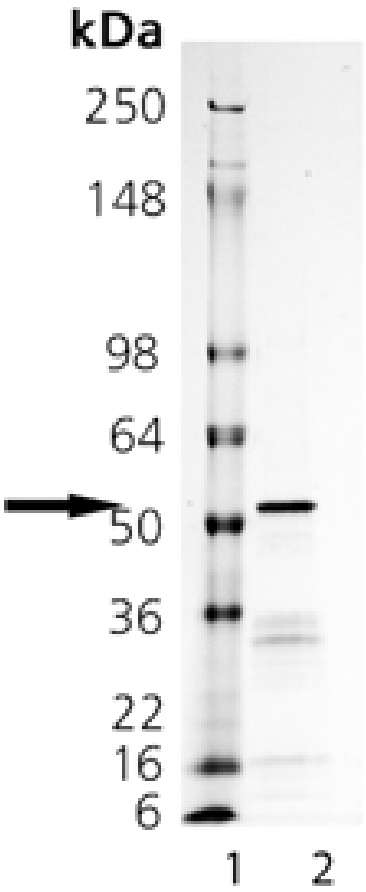
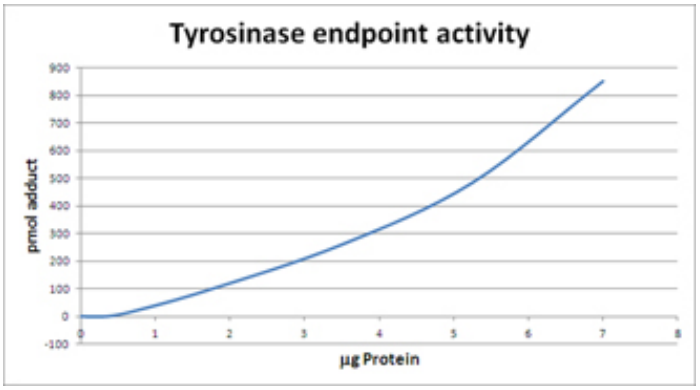
BML-SE535-0100	100µg

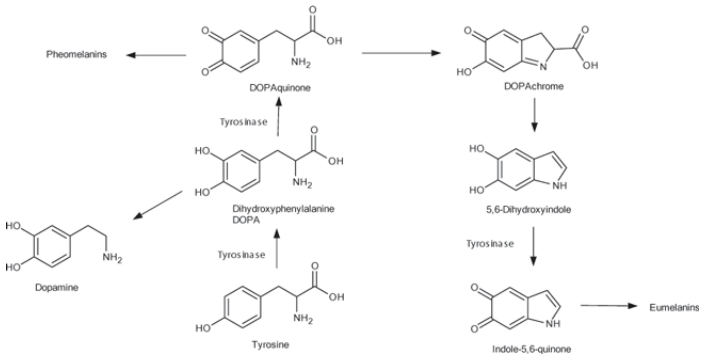
Manuals, SDS & CofA View Online »



SDS-PAGE Analysis. Lane 1: MW Marker, Lane 2: 2 µg Tyrosinase.



Tyrosinase Activity: Formation of dopachrome-MBTH adduct monitoring at 484nm in a 96-well half area microwell plate with a range of enzyme loads. Maximum signal plateau was reached rapidly at 37°C, preventing an accurate time-dependent measurement.



Melanin and catecholamine synthesis pathways

Handling & Storage

Handling	Avoid freeze/thaw cycles.
Long Term Storage	-80°C
Shipping	Dry Ice

Regulatory Status

RUO - Research Use Only

Product Details

Activity	One microgram of BML-SE535 will produce greater than 90pmol of adduct at 37°C over a period of 20 minutes 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 (ε484=22,300 M-1cm-1). NOTE: tyrosinases, in particular mammalian tyrosinase, are inherently inefficient enzymes, with typical changes in OD only in the deciOD range, although the reaction reaches maximal velocity quickly (typically within two minutes). In addition, its substrates and MBTH are very unstable; make stocks fresh and keep sealed in the dark until use. Lifetime and rate of enzymatic activity can be increased by the addition of CuCl to the assay buffer, but this will increase background and may complicate other redox reactions in the assay.
Alternative Name	Monophenol monooxygenase
Application Notes	Useful tool to study enzyme kinetics and screen for inhibitors.
Formulation	Liquid. In 50mM TRIS/HCl, pH 8.0, 1M NaCl, 0.05% Empigen BB, and 30% glycerol.
MW	~52kDa (SDS-PAGE)
Purity	≥85% (SDS-PAGE)
Purity Detail	Purified by multi-step chromatography.
Source	Produced in *E. coli.*

UniProt ID P14679

Last modified: May 29, 2024

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