PAM Protein, Human (HEK293, His)

Cat. No.:	HY-P73731
Synonyms:	Peptidyl-glycine alpha-amidating monooxygenase; PAM; PHM; PAL
Species:	Human
Source:	HEK293
Accession:	P19021-2 (M1-S866)
Gene ID:	5066
Molecular Weight:	Approximately 94.4 kDa

PROPERTIES

Biological Activity	Measured by its ability to convert Hippurate to Benzamide and Glyoxylate. The specific activity is 731.87 pmol/min/μg, as measured under the described conditions.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	The PAM protein operates as a bifunctional enzyme, overseeing the post-translational modification of inactive peptidylglycine precursors to their bioactive alpha-amidated peptide forms—a crucial terminal modification in the biosynthesis of numerous neural and endocrine peptides. The alpha-amidation process involves two sequential reactions, each governed by distinct catalytic domains within the enzyme. In the first step, the peptidyl alpha-hydroxylating monooxygenase (PHM) domain catalyzes a copper-, ascorbate-, and O2-dependent stereospecific hydroxylation (with S stereochemistry) at the alpha-carbon (C-alpha) of the C-terminal glycine of the peptidylglycine substrate. The subsequent step, orchestrated by the peptidylglycine amidoglycolate lyase (PAL) domain, entails a zinc-dependent cleavage of the N-C-alpha bond, resulting in the production of the alpha-amidated peptide and glyoxylate. Additionally, PAM exhibits a similar capacity to catalyze the two-step conversion of an N-fatty acylglycine to a primary fatty acid amide and glyoxylate in a manner reminiscent of its peptidylglycine modification function.

Caution: Product has not been fully validated for medical applications. For research use only.

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