Data Sheet (Cat.No.TMPY-00719)

CNDP1 Protein, Human, Recombinant (His)

General Information

Synonyms:	HsT2308;CN1;carnosine dipeptidase 1 (metallopeptidase M20 family);CPGL2
Protein Construction:	A DNA sequence encoding the mature form of human CNDP1 (NP_116038.4) (Ser27-His507) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Ser 27
Species:	Human
Expression Host:	HEK293 Cells
Accession:	Q96KN2
Molecular Weight:	55.3 kDa (predicted); 60-65 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Measured by its ability to cleave carnosine (β-Ala-L-His) in a two-step assay. The specific activity is > 250 pmoles/min/μg.
Purity:	> 90 % as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

CNDP1, also known as carnosine dipeptidase 1, glutamate carboxypeptidase-like protein 2 (CPGL-2) or carnosinase 1 (CN1), is a member of the M20 metalloprotease family. The CNDP1 gene contains trinucleotide (CTG) repeat length polymorphism in the coding region, which has been demonstrated to be associated with susceptibility to developing diabetic nephropathy, for carnosine protection against the adverse effects of high glucose levels on renal cells. In humans, CNDP1 is secreted from the liver into the serum. In other mammals,

including rodents, CNDP1 is expressed exclusively within the kidney and lacks a signal peptide. CNDP1 protein is a secreted homodimeric dipeptidase that specifically hydrolyzes L-carnosine (β-alanyl-L-histidine), and is identified as human carnosinase expressed in the brain. CNDP1 has been associated with diabetic nephropathy in Europeans and European Americans, but not African-Americans. It was identified and confirmed as a risk factor, were cross-sectional and mostly in patients with type 2 diabetes. The polymorphisms of CNDP1 can be excluded as a risk factor for nephropathy in type 1 diabetes. In addition, CNDP1 is also suggested to be implicated in the actions of neuroprotection and neurotransmiting.

Reference

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McDonough CW,et al.(2009) The influence of carnosinase gene polymorphisms on diabetic nephropathy risk in African-Americans. Hum Genet. 126(2):265-75.

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