

## CALML3 Protein, Human, Recombinant (His)

### General Information

Synonyms:	calmodulin-like 3;CLP
Protein Construction:	A DNA sequence encoding the human CALML3 (P27482) (Met 1-Lys 149) was expressed, with a polyhistidine tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	E. coli
Accession:	P27482
Molecular Weight:	18.7kDa (predicted); 16 kDa (reducing conditions)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	Please contact us for more information.
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

Calmodulin-like protein 3 (CALML3) is similar to that of authentic calmodulin and may actually compete with calmodulin by binding, with different affinity, to cellular substrates. Calmodulin-like protein 3 (CALML3) is a tumor-sensitive protein specifically expressed in normal epithelial cells but downregulated in tumorigenesis. Downregulation of the protein is an early event in breast cancer development. One of the most pressing questions raised by the discovery of CLP/CALML3 is that of its potential targets. Although it is 85% identical to human

calmodulin, the distinct properties of CLP suggest that it has specific targets or targets that only partially overlap with those of calmodulin. Research has identified the unconventional myosin-10 (Myo10) as a specific target of CALML3. The discovery of Myo10 as a specific target of CALML3 is highly significant and suggests multiple lines of further research such as investigations of the Ca<sup>2+</sup> regulation of Myo10 and the role of the loss of CLP in epithelial differentiation, adhesion, and cancer. Cells expressing CALML3 displayed a striking increase in the number and length of myosin-10-positive filopodia and showed increased mobility in a wound healing assay.

### Reference

- Bennett RD, et al. (2007) Calmodulin-like protein increases filopodia-dependent cell motility via up-regulation of myosin-10. *J Biol Chem.* 282(5): 3205-12.
- Perochon A, et al. (2011) Calmodulin and calmodulin-like proteins in plant calcium signaling. *Biochimie.* 93(12): 2048-53.
- Chinpongpanich A, et al. (2011) Biophysical characterization of calmodulin and calmodulin-like proteins from rice, *Oryza sativa* L. *Acta Biochim Biophys Sin (Shanghai).* 43(11): 867-76.

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