

# Recombinant protein of calreticulin from *Litopenaeus vannamei* involved in shrimp immune response

Siriluk Maskaew<sup>1</sup> and Phanthipha Runsaeng<sup>1,\*</sup>

<sup>1</sup> Division of Health and Applied Sciences (Biochemistry), Prince of Songkla University, Hat-Yai, Songkhla 90110, Thailand

\* Correspondence: phanthipha.r@psu.ac.th; Tel.: +66-842526270

**Abstract:** Calreticulin (CRT) is a multifunctional protein, which has wide range of biological functions including calcium homeostasis, molecular chaperoning and immune response. In this study, the recombinant protein of CRT from *Litopenaeus vannamei* (rLvCRT) was produced in *Escherichia coli* BL21 Star (DE3) and purified by T7-Tag antibody agarose. Then, its biological activities were analyzed. The molecular weight of rLvCRT was 55 kDa. The rLvCRT could induce *Vibrio parahaemolyticus* agglutination in calcium-dependence and had binding specificity for lipopolysaccharide (LPS) and N-Acetyl neuraminic acid (NeuNAc). The pull-down assay and ELISA revealed that rLvCRT could interact with rFmLdlr (recombinant protein of C-type lectins containing low density lipoprotein receptor domain from *Fenneropenaeus merguensis*). In addition, the rLvCRT-rFmLdlr protein complex could bind to the white spot syndrome virus envelope protein VP28. These results implies that LvCRT may be immune-relevant molecule with possessing the ability in antibacterial activity via bacterial agglutination and anti-WSSV activity via binding to viral proteins.

**Keywords:** Calreticulin; *Litopenaeus vannamei*; Innate immunity

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