***Crude shrimp extract preparation***

Peeled shrimps without shell and veins were boiled at 60 °C in 100 mL in 0.1M phosphate-buffered saline (PBS), pH 7.4 for 15 min. Afterward, the content was homogenized by a blender for 3 minutes in 0.01M (1:10 wt/vol) PBS, and shaking for 16 hours at 4 °C, then centrifuged at 6.500 r.p.m g for 30 minutes at 4°C. The final solution was dialyzed overnight (ON) against deionized water using 3.5 kDa cut-off dialysis membrane (Spectra/Dialysis membranes, Houston, TX,USA) and filtered through a 0.45-μm membrane. Protein content was measured by Bradford (Bio/Rad, Laboratories, San Francisco, CA, US).

 ***Preparation of rLit v 1***

Lit v 1 was produced in the Institute for Immunological Research by expression of the recombinant using expression vector pET45b+/Lit v1 (Genscript. Nanjing, China) in transformed *Escherichia coli* strain BL21 (DE3). A single fresh colony was grown in LBA culture medium ON at 37 °C, then an aliquot was diluted 1:20 in LBA and incubated until an optical density (OD) of 0.5 was reached. Protein expression was induced by the addition of 1 mM isopropyl-β-D–thio-galacto-pyranoside (IPTG), and incubation for 4 h at 37 °C. Then, cells were then harvested by centrifugation at 6500 rpm at 4 °C for 15 min. The cell pellets were solubilized in lysis buffer (8 M urea, 100 mM NaH2PO4, and 10 mM Tris, pH 8.0) at room temperature (RT) and sonication on ice using an ultrasonic homogenizer. Insoluble material was removed by centrifugation. The supernatant containing the recombinant protein was loaded to a Ni-NTA affinity column (Invitrogen, Carlsbad, CA, USA), and purified in denaturing conditions, following the instructions from the manufacturer. Fractions containing eluted proteins were pooled and dialyzed against 10 mM Tris, pH 8.0. The protein concentration was determined by Bradford assay (Bio-Rad Laboratories, San Francisco, CA, US). The purity and integrity of all proteins were assessed by SDS-PAGE.

**Determination of serum IgE reactivity to *L. vanamei* extract and Lit v 1**

Serum IgE level to *L. vannamei* extract ant Lit v1 were determined by ELISA as follows: microtiter plate wells (Immulon-4 Dynatech, Chantilly, VA, USA) were coated with 0.5 μg of Lit v 1 or 5 ug of shrimp extract in sodium carbonate/bicarbonate buffer at 4 °C ON. After three washes with PBS-Tween 20 (PBS-T), the wells were incubated with 100 μL of blocking buffer (PBS-T, 1% BSA, 0.02% sodium azide) for 3 hours at RT in a wet chamber. Then wells were incubated with 100 μL of human serum diluted 1:5 for IgE, ON at RT and after washing, the wells were incubated with 100 μL of alkaline phosphatase-conjugate anti human IgE (Sigma A3525) diluted 1:500 for 2 h at RT. After a final washing the wells were incubated with 100 μL of substrate p-nitrophenyl phosphate (Sigma )diluted in 10% diethanolamine, 0.5mM MgCl2 at RT for 30 min. Absorbance at 405 nm wavelength was determined using a spectrophotometer (Spectra MAX 250, Molecular Device, Sunnyvale, CA, USA). All experiments were performed in duplicate.