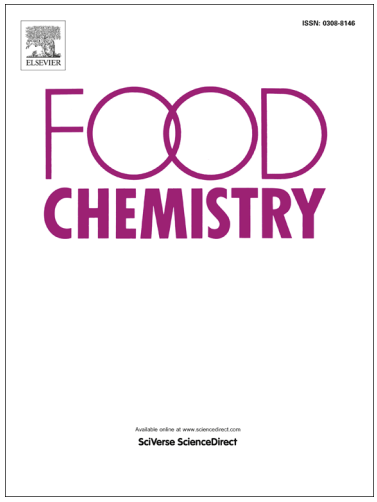

Identification of pyruvate kinase as a novel allergen in whiteleg shrimp (*Litopenaeus vannamei*) by specific-IgE present in patients with shrimp allergy

Chih-Hung Lee, Chia-Ching Wu, Yu-Chang Tyan, Wei-Tai Yu, Edward S. Huang, Hsu-Sheng Yu

PII: S0308-8146(18)30521-1
DOI: https://doi.org/10.1016/j.foodchem.2018.03.088
Reference: FOCH 22631

To appear in: *Food Chemistry*

Received Date: 13 December 2017
Revised Date: 11 March 2018
Accepted Date: 20 March 2018

Please cite this article as: Lee, C-H., Wu, C-C., Tyan, Y-C., Yu, W-T., Huang, E.S., Yu, H-S., Identification of pyruvate kinase as a novel allergen in whiteleg shrimp (*Litopenaeus vannamei*) by specific-IgE present in patients with shrimp allergy, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.03.088

Research papers

Identification of pyruvate kinase as a novel allergen in whiteleg shrimp (*Litopenaeus vannamei*) by specific-IgE present in patients with shrimp allergy

Chih-Hung LEE[1], Chia-Ching WU[2], Yu-Chang TYAN[3,4,5], Wei-Tai YU[6], Edward S. HUANG[7] and Hsu-Sheng YU[2,*]

[1] Department of Dermatology, Kaohsiung Chang Gung Memorial Hospital and College of Medicine, Chang Gung University, Kaohsiung 833, Taiwan
[2] Department of Food Science, National Pingtung University of Science and Technology, Pingtung 912, Taiwan
[3] Department of Medical Imaging and Radiological Sciences, and Center for Infectious Disease and Cancer Research, and Graduate Institute of Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan
[4] Department of Medical Research, Kaohsiung Medical University Hospital, Kaohsiung 807, Taiwan
[5] Institute of Medical Science and Technology, National Sun Yat-sen University, Kaohsiung 804, Taiwan
[6] Department of Dermatology, Kaohsiung Medical University Hospital and Graduate Institute of Clinical Medicine, College of Medicine, Kaohsiung Medical University, Kaohsiung 807, Taiwan, Kaohsiung 807, Taiwan
[7] Department of Gastroenterology, Palo Alto Medical Foundation, Mountain View, CA 94040, USA

***** Correspondence: hsyu@mail.npust.edu.tw; Tel.: +886-8-770-3202 ext.7779

ABSTRACT

Food allergy is one of the most important health issues worldwide. In Taiwan, current literature suggests shrimps and crabs are the most common causes of food allergy, and are frequently associated with acute allergic reactions such as urticaria, atopic dermatitis, and asthma. However, knowledge regarding the shrimp allergens remains limited. Thus, there is an urgent need to establish comprehensive information for elucidating underlying triggers for food allergy. In this study, whiteleg shrimp (*Litopenaeus vannamei*) was used to evaluate the IgE-binding properties of various shrimp proteins to 7 allergic patients' sera by western blot. A 63kDa protein was found in raw and cooked shrimp bound to specific-IgEs in 7 and 4 patients' sera, respectively. This protein was further identified as pyruvate kinase based on the proteomic mass spectrometry. This study identifies an important shrimp allergen unique to Taiwan and further testing and prevention measures might be implemented in the allergen analysis.