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**Guixiu Shi**

Xiamen University, China

## Gaq: An important immune regulator in autoimmunity

G $\alpha$ q is the  $\alpha$ -subunit of Gq protein that is encoded by GNAQ. The heterotrimeric G proteins consist of  $\alpha$ -subunit that binds and hydrolyses guanosine-5'-triphosphate as well as a  $\beta$  and a  $\gamma$ -subunit that form an undissociable complex. Based on the types of their  $\alpha$ -subunits, G proteins can be grouped into four subfamilies, Gai, Gas, Gaq/11 and G12/13 and each subfamily contains several members of G proteins. Gq protein is a member of the Gaq/11 subfamily. The Gaq containing protein initially attracted attention for its physiological significance is in cardiovascular system. In recent years, its role in immune regulation has been indicated. Studies demonstrated that Gaq plays crucial role in regulating both innate and adaptive immune cells function and it is involved in the development of autoimmune disease. Our group focused on the research of role of Gaq in immune regulation. We found that Gaq was involved in innate immune cells migration. Deficiency of Gaq can lead to abnormal activation, proliferation, differentiation and apoptosis of T-cells and B-cells. We first demonstrated the role of Gaq in autoimmune diseases. We found that Gnaq $^{-/-}$  chimeric mice spontaneously developed autoimmunity with multi-organ involvement and joints swelling. Abnormal expression of Gaq has been found in several autoimmune diseases such as rheumatoid arthritis. Gaq might be used as a novel therapy target autoimmune disease.

## Biography

Guixiu Shi has completed his PhD at University of Montreal, Canada and completed his Post doctorate at The Trudeau Institute, USA. He is a Professor and Chair of the Department of Rheumatology and Clinical Immunology in The First Affiliated Hospital of Xiamen University. He serves as a Vice Director of the Professor Committee in the Medical School of Xiamen University. He has published more than 50 papers in peer-reviewed journals including JEM, Blood and JI. His research interest covers immune regulation and autoimmunity.

[Gshi@xmu.edu.cn](mailto:Gshi@xmu.edu.cn)