



Recent Advances in the Genomics-Genetic Diseases & Autoimmune Diseases

Qiu-Xing Jiang

Hauptman-Woodward Medical Research Institute, USA.

Abstract:

Extraordinary technical advances in the field of human genetics over the past few years have catalyzed an explosion of new information about the genetics of human autoimmunity. In particular, the ability to scan the entire genome for common polymorphisms that associate with disease has led to the identification of numerous new risk genes involved in autoimmune phenotypes. Several themes are emerging. Autoimmune disorders have a complex genetic basis; multiple genes contribute to disease risk, each with generally modest effects independently. In addition, it is now clear that common genes underlie multiple autoimmune disorders. There is also heterogeneity among subphenotypes within a disease and across major racial groups. The current crop of genetic associations are only the start of a complete catalog of genetic factors for autoimmunity, and it remains unclear to what extent common variation versus multiple rare variants contribute to disease susceptibility. The current review focuses on recent discoveries within functionally related groups of genes that provide clues to novel pathways of pathogenesis for human autoimmunity.

Keywords: genome-wide association (GWA) study, interferon, NF- κ B, autophagy, autoantigen.

Biography:

Qiu-Xing Jiang is a membrane biophysicist and is interested in the molecular physiology of different membrane proteins and RNA-binding molecular complexes that are closely pertaining to human health. His research group is working on three directions ~ lipid-dependent gating of voltage-gated K channels, ion channels in the regulated secretory pathway, and tight ON-OFF control of human telomerase holoenzyme. He has also been involved in developing new technologies for both membrane biophysics and cryo-EM structure determination. The goal of these studies is to reveal new insights on the fundamental mechanisms that might suggest new strategies to treat specific human diseases.

Recent Publications:

1. Gaya Yadav and Qiu-Xing Jiang (2020) Reconstituted membrane systems for assaying membrane proteins in controlled lipid environments. Chapter 6, pages



93-122. In: "New techniques for studying biomembranes" ed. By Qiu-Xing Jiang. CRC Press, Taylor & Francis Group, LLC. Boca Raton, London & New York

2. Mohammed Sayed, Ao Cheng, Andrew Ludlow, Jerry Shay, Woodring Wright and Qiu-Xing Jiang. Catalysis-dependent inactivation of human telomerase and its reactivation by intracellular telomerase-activating factors (iTAFs). *J. Bio. Chem.* 2019. pii: jbc.RA118.007234. doi: 10.1074/jbc.RA118.007234.
3. Qiu-Xing Jiang. Cholesterol-dependent gating effects on ion channels. *Adv Exp Med Biol.* 2019; 1115:167-190.
4. Gaya Yadav, Hui Zheng, Qing Yang, Lauren Douma, Linda Bloom, and Qiu-Xing Jiang. Secretory granule protein chromogranin B forms an anion channel in membrane. *Life Science Alliance.* 24 September 2018. DOI: 10.26508/lsa.201800139.
5. Hui Zheng*, Sungsoo Lee*, Marc C. Llaguno, and Qiu-Xing Jiang. bSUM: a bead-supported unilamellar membrane system enabling unidirectional insertion of membrane proteins into giant vesicles. (2016) *Journal of General Physiology.* 147(1):77-93.

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