



Molecular epidemiological study of environmental factors, genetic variants and EBV infection in the etiology of nasopharyngeal carcinoma in Southern China

by

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Abstract:

Nasopharyngeal carcinoma (NPC) is rare in most parts of the world, but is more common in Southern China. Although previous studies have consistently shown that genetic and environmental factors, and EBV infection contribute to the etiology of NPC, there are still lots of clinical observations and etiological questions that remain unaddressed. For example, what caused the dramatic increase of anti-EBV-antibody prior to NPC occurrence? Are there any environmental inducers which play a critical role in EBV reactivation in the host? What is the heritability of genetic variants in NPC occurrence? In addition to the identified genetic variants, e.g., loci on HLA regions, are there other common variants, or rare mutations which contribute to NPC development? Is it possible to establish a precise and useful prediction risk model for individualized prevention of NPC? Driven by these interesting questions, we have initiated and conducted the following three research programs: a case-control study in 2005-2008; The Chinese Environment, EBV and Cancer Study (CEEC) in 2005-2016; and The Screening Program for NPC Multiplex Families and Early Onset Patients in Southern China since 2016, which is in progress. In this presentation, our preliminary results from the three programs will be reported. We look forwards to a fruitful discussion and a potential collaboration between Sun Yat-Sen University Cancer Center and HKU.

Bio-sketch:

Professor Wei-Hua Jia is a Principal Investigator at State Key Laboratory of Oncology in Southern China and Director of Biobank, Sun Yat-Sen University Cancer Center. Professor Wei-hua Jia obtained her PhD in Medicine in Epidemiology from Peking Union Medical College. After her PhD training, Professor Jia joined the Department of Experimental Research at Sun Yat-sen University Cancer Center, State Key Laboratory of Oncology in Southern China. Professor Jia has long been devoted to research on cancer epidemiology, cancer genetics and genomics, especially on the interactive effects among EB virus, genetics and the environment in



nasopharynx carcinoma, and susceptible genes of cancer. Professor Jia has published more than 100 SCI papers in peer-reviewed international journals such as Nature Genetics, JNCI and AJHG. Professor Jia has significantly contributed in understanding the long-term trend and risk factors of nasopharynx carcinoma in high-incidence areas. Professor Jia first reported a relationship between smoking and reactivation of EB virus and proposed its potential etiological role for nasopharynx carcinoma. Additionally, Professor Jia has discovered new susceptible genes of nasopharynx carcinoma, including DNA repair genes, metabolism genes for exogenous compounds and series of genes related to immune response, and established a predictive model for onset risk of nasopharynx carcinoma. Professor Jia's other research interests include discovering new susceptible genes of colorectal cancer and lymphoma, and identifying the genomic characteristics that contribute to the tumorigenesis and prognosis of esophageal carcinoma. Professor Jia was awarded the National Ten-thousand Talents in Scientific and Technological Innovation by Ministry of Science and Technology (2016), and the National Science Fund for the Distinguished Young Scholar (2013). At present, Professor Jia is Vice Chair of The Society of Cancer Epidemiology of China Anti-Cancer Association, and Vice Chair of the Biobank Branch of China Medicinal Biotech Association.