

July 19-20, 2018
Prague, Czech RepublicYouhe Gao et al., Biomark J 2018, Volume 4
DOI: 10.21767/2472-1646-C1-002

STORAGE OF URINE ON MEMBRANE MAKES BIOMARKER STUDY WITH CLINICAL SAMPLES POSSIBLE

Youhe Gao¹, Liu L², Jia L³, Liu X³, Li M³¹Beijing Normal University, China²Peking Union Medical College, China.³Chinese Academy of Medical Sciences, China

Bynature, biomarker is the measurable change associated with a physiological or pathophysiological process. Unlike blood which has mechanisms to minimize changes and to keep the internal environment homeostatic, urine is more likely to reflect changes of the body and is a better biomarker source. Recent studies have provided many supporting evidences that there are very early disease biomarkers in Urine. Because of its potential in biomarker discovery, contents in urine should be preserved comprehensively as that of the duration of the patients' corresponding medical records. We propose a method to preserve urinary debris, proteins, nucleic acids and metabolites onto a stack of membrane. It is very simple and inexpensive and requires minimal sample handling. It does not use organic solvents, and it is environmentally friendly. Urine was filtered through the membranes, and urinary debris was on the first layer of low adsorption paper by size exclusion, urinary proteins and nucleic acids were adsorbed onto the second layer nitrocellulose or PVDF membrane and metabolite on the third layer filter paper. Membranes were dried and stored in vacuum bag. Urinary debris, urinary proteins, microRNAs and metabolites were remained on the dried membranes, which were stored in vacuum bag. Protein pattern was faithfully preserved as freshly prepared from the same urine sample. Nucleic acids could be amplified from the nitrocellulose. The membranes may even permit storage at room temperature for long time. Using this simple and inexpensive method, it is possible to begin preserving urine samples from all consenting people. Thus, medical research especially biomarker research can be conducted more economically. Even more objective large scale prospective studies will be possible. This method can potentially change the landscape of bio banking, biomarker research and even medical practice in the future.

Biography

Youhe Gao, currently Professor at Beijing Normal University, China. He received his MD from Peking Union Medical College, his PhD from University of Connecticut and Postdoctoral training from Beth Israel Deaconess Medical Center, Harvard Medical School. He was the Professor at Department of Pathophysiology, Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences/ Peking Union Medical College from 2001-2014. His research interests include Biomarker Discovery in Urine, Urine Biobanking, Protein Interaction Methods and Related Bioinformatics.

gaoyouhe@bnu.edu.cn