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Saving urinary proteins and nucleic acids on a piece of membrane simply and economically

Urine has become more and more recognized as important biomarker source in biomarker discovery. By nature, urine accumulates all kinds of changes and changes are the most basic property of biomarker. In this sense, theoretically urine can be even better biomarker source than blood. There may be a urine biomarker era ahead of us. Even though metabolites were analyzed extensively as potential biomarker in urine, proteins and microRNAs may possess more specificity of the diseases. Saving proteins and nucleic acids were challenging because they not only took huge space but also gradually degraded even frozen in -80 degree. Here we present a simple and economical method that make storing large number of urinary proteins and nucleic acids clinical samples possible. Urine samples were filtered through the membrane and urinary proteins were adsorbed onto the membrane. The membrane used can have high affinity to proteins or nucleic acids. Then the membrane was dried and stored in a vacuum bag which kept the protein and microRNA faithfully preserved. The membrane may even permit storage at room temperature for weeks. This simple and inexpensive method requires minimal sample handling, uses no organic solvents, and is environmentally friendly. With this method, large number of samples will be available to biomarker discovery and validation. Biomarker research can be significantly more efficient. There has not been any new form of tissue preservation for years. This membrane, which we call urimem, may be kept with medical record of all consenting people in the future.

Biography

Youhe Gao is a Professor in Beijing Normal University. He received his MD from Peking Union Medical College and his PhD from University of Connecticut and Postdoctoral training from Beth Israel Deaconess Medical Center, Harvard Medical School. He was the Professor of 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.

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