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E- Urimem, a simple economical urinary protein membrane, will facilitate biomarker research

Youhe Gao
Institute of Basic Medical Sciences, China

Biological samples from patients are invaluable. Ideally the samples should be preserved for the same period of time as the duration of their corresponding medical records. Urine is a body fluid that can be non-invasively acquired and contains important biological information about the patient. Simple and inexpensive urinary protein sample preservation can be the starting point for comprehensive biological sample storage just like medical record of patients. Here, we propose a method to adsorb urinary proteins to a membrane named Urimem that can then be dried and stored. This method is very simple and inexpensive and requires minimal sample handling. It does not use organic solvents. The proteins on the membrane are dry and are prevented from degradation. The membrane may even be able to be stored at room temperature at least for weeks. The quantity of eluted proteins from a membrane is sufficient for biomarker validation experiments.

Comprehensive historical biological information can also be used in retrospective studies to understand the pathophysiology of disease and the relationships among diseases as well as to monitor the long-term efficacy and side effects of treatments. With this information, medical research can be conducted more easily, considerably faster, and more economically, ultimately benefiting the patients who provided the samples. Thus, we believe that it is possible to preserve urinary protein samples from each stage of disease development for every consenting patient in a hospital. This can potentially change the landscape of medical research and medical practice in the future.

Biography

Youhe Gao received his M.D. from Peking Union Medical College, his Ph.D. from University of Connecticut and postdoctoral training from Beth Israel Deaconess Medical Center Harvard Medical School. He is the Professor of Department of Physiology and Pathophysiology, Institute of Basic Medical Sciences, Chinese Academy of Medical Sciences/ Peking Union Medical College. His research interests include urine proteomics, biomarker discovery, protein interaction and related bioinformatics.

youhegao@163.com