

2nd World Biotechnology Congress

December 04-05, 2017 | Sao Paulo, Brazil

A dry method to preserve tear sample

Youhe Gao, Weiwei Qin and Linpei Zhang
Beijing Normal University, China

The tears overlay the epithelial cells of cornea and conjunctiva surface. It provides lubrication, protection and nutrition to the ocular surface. Tears is an important bio-fluid containing thousands of molecules, including proteins, lipids, metabolites, nucleic acids, and electrolytes. Tear fluid can be easily and noninvasively accessed, and it has become a useful resource for biomarker research of ocular and systemic diseases. According to a recent review, hundreds of potential specific molecular biomarkers in tears had been detected to associate with ocular diseases, such as, dry eye disease, keratoconus, Graves' orbitopathy. Other reports showed that tear can also reflect the states of breast cancer, prostate cancer and multiple sclerosis. Ideally tear samples should be stored by a simple, low-cost and efficient method along with the patient's medical record. The primary methods for collecting tears are using the Schirmer's strip and glass capillary tube, followed by flash-freezing at -80°C . But, cryopreservation of tears cannot absolutely prevent the degradation of proteins, as the samples contain various enzymes and hydrolases. Additionally, use of the required cold chain during sample transportation is challenging and costly. Here, we developed a novel Schirmer's strip based dry method which allows storage of tear samples in vacuum bags at room temperature. Using this method tear protein pattern can be faithfully preserved. LC-MS/MS analysis of proteins recovered from our dry method and from traditional wet method, indicating that there is no significant difference. This dry method facilitates sample transportation and makes it possible to store tear samples at large scale, which in turn increases the research pace of tear related diseases.

gaoyouhe@bnu.edu.cn