

# Auria: Why Tears?

Tears as a diagnostic fluid has been studied for decades by groups around the world. Tears and Blood can be thought of as two sides of the same clinical picture. Blood, while an important diagnostic fluid, has a large dynamic range of components, from as big as large as red blood cells or lymphocytes, down to very small proteins. When trying to find protein biomarkers to diagnose for diseases and conditions such as cancer, those large molecules can get in the way of important biomarker identification. Large molecules can be removed, however, the techniques a clinical lab must use to reach low molecular weight proteins can damage or even remove proteins of interest. Our peer reviewed communication titled **“Tears as the Next Diagnostic Biofluid: A Comparative Study between Ocular Fluid and Blood”** provides evidence that many of the same proteins that can be detected in blood can also be detected in tears, however, tears provide the means to get to proteins of interest quicker, easier, and in higher concentrations\*.

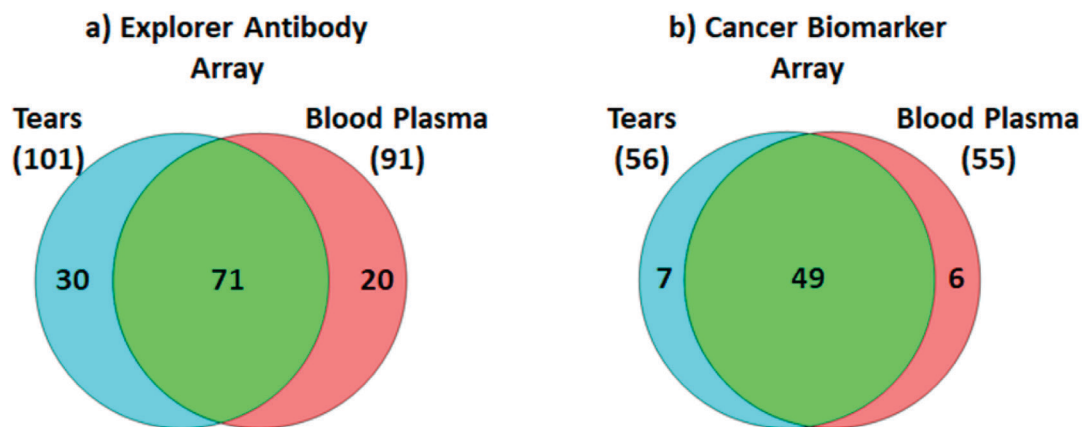


Figure 1: Microarray data analyzed for common protein expression in tears and plasma: (a) Explorer biomarker array; and (b) Cancer biomarker array.

## How is a tear sample collected?

An important question in the process is, how is a tear sample collected? Proteins can be easily collected using a Schirmer strip. The strip is folded and placed gently inside the lower eyelid. The microcapillaries on the inner surface of the lower eyelid act as a filtration mechanism, removing any of the large components in blood that can mask low molecular weight proteins, and allowing the small proteins through. These proteins stick to the strip and are removed using the sample buffer provided in the collection kit. The sample buffer now containing the proteins of interest is what we test in the clinical lab.



\*Ravishankar, P.; Daily, A. **Tears as the Next Diagnostic Biofluid: A Comparative Study between Ocular Fluid and Blood**. *Appl. Sci.* 2022, 12, 2884. <https://doi.org/10.3390/app12062884>