

Using Rectangular Capillaries to Develop Liquid Crystal Immunoassay

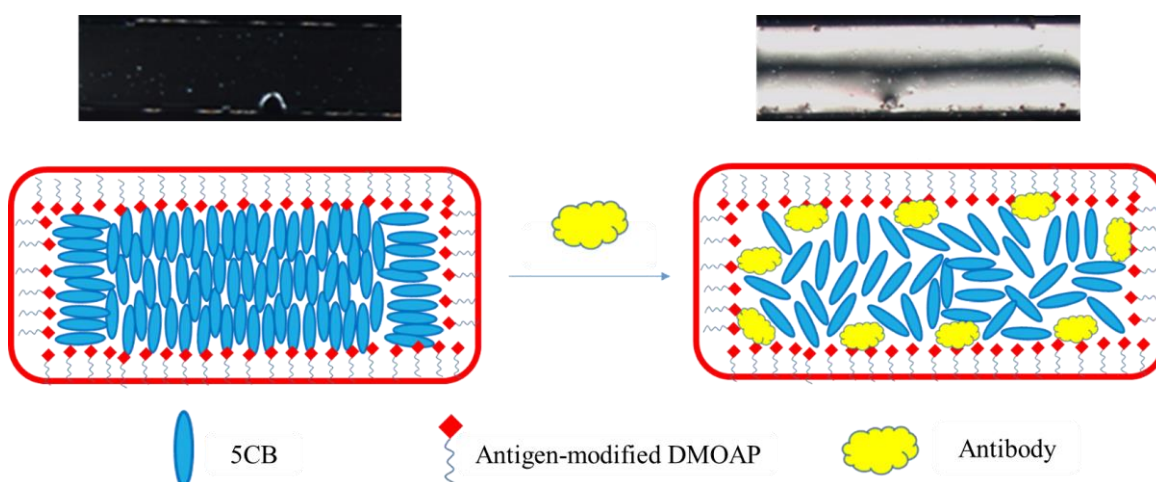
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In this study, we develop a new liquid crystal (LC) based biosensor which is using rectangular capillaries as a substrate to improve the LC/solid sensor system. When we modify the probe on rectangular capillaries, it could develop a LC/solid biosensor, and the specific binding between probe and target led to the configuration change of LC, resulting in a dark-to-bright transition of the LC images under polarized light.

By using the rectangular capillaries which is modify with human serum albumin (HSA), the limit of detection (LOD) for anti-human serum albumin (anti-HSA) is 5 $\mu\text{g/mL}$ and it did not respond to anti-human immunoglobulin G (anti-h-IgG). Besides, we also found that we can quantitative by calculate the capillary phenomenon high during the experiment. And we also use the rectangular capillaries which is modify with bovine serum albumin (BSA), the LOD for anti-bovine serum albumin (anti-BSA) is 5 $\mu\text{g/mL}$, so we can say that we can using rectangular capillaries to develop a LC immunoassay. The rectangular capillaries based LC/solid sensor is much more convenient then general LC/solid sensor because rectangular capillaries based LC/solid sensor do not have to make the cell after sensing, so we can make a portable and more convenient LC biosensor by using rectangular capillaries.



- 1) Chen, C. H.; Yang, K. L. *Anal. Biochem.* 2012, 421, 321-323.
- 2) Lowe, A. M.; Abbott N. L. *Chem. Mater.*, 2012, 24, 746-758