

Live cell-based platform for target delivery and accurate detection

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Various biomaterial platforms have been investigated to detect particular target molecules in the field of biosensing, diseases diagnosis, cellular functions and pathology. General biomaterial platforms are facing biological and environmental limitations. To overcome these limitations we have developed highly biocompatible platforms: live immune cells based sensor and/or target delivery platforms using Layer-by-Layer (LbL) technique and biotin-streptavidin affinity (bioconjugation) technique. It is critical that the live immune cells-based platform should have certain aspects such as biomolecules used on cell-based platform shows proper biocompatibility and low cytotoxicity. Also, it should not interfere with the functions of the original cells, and it is important to confirm whether the target molecule could be conjugated or delivered. In this study, we introduced biomolecules such as biotin-streptavidin, ssDNA (Aptamer), Poly-L-lysine, Hyaluronic acid (PLL/HA) on cell surface to produce e-PBMCs. Characterization, Preparation, Detection ability, Morphology, Loading efficiency of engineered live immune cells as cell-based platform were evaluated.