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Development of an HTRF Antibody Screening Assay for Cell Line Development

Abstract

In the production of monoclonal antibodies there is increasing demand to generate high producing cell lines and this usually requires screening large number of transfectants. Selecting the appropriate screening assay is important as the throughput of the assay is critical and a potential bottle neck in the process. Traditional antibody screening methods such as enzyme linked immunosorbent assays (ELISAs) are time consuming even in an automated format. The homogeneous time resolved fluorescence (HTRF) technology by CISBIO presents an opportunity for developing cost effective high throughput antibody screening assays. Using this technology, we developed a screening assay using XL665 labeled protein A as the acceptor and Europium Cryptate labeled anti-mouse antibody as the donor fluorophore. This assay is simple, homogeneous, fast and completed in a few steps. In this study we demonstrate the assay specifically detects IgG in CHO cell culture fluid and is consistent in ranking the top antibody producing clones. Also, a high number of transfectants (~6000/ day) can be screened with ease in a manually operated environment. This assay has better throughput and is more cost effective when compared with other available antibody screening methods.

Resume

Esohe Idusogie has vast experience in analytical methods development, qualification and validation. Esohe received her PhD in Biochemistry in 1997 from the University of Notre Dame, Notre Dame, IN. She then spent three years at Genentech studying the structure-function relationships of one of Genentech's lead drugs, Rituxan. At Genentech she used site directed mutagenesis to confer changes to the Rituxan molecule and developed immunological assays that were used to understand functional aspects of the molecule. To broaden her experience, Esohe spent a couple of years working in a Gene therapy organization (Aventis-Gencell), constructing viral and reporter vector systems for gene expression in vitro and in vivo. At Aventis, she also developed biochemical assays to determine the effectiveness of tumor targeting molecules. In 2002 she joined Abgenix/Amgen where she assumed a leadership position in the process development group, supporting analytical methods development, assay and product comparability, validation, and technology transfer. Esohe recently joined OncoMed Pharmaceuticals and is leading the analytical group in process development. At OncoMed her group is responsible for characterization, assay transfer as well as routine analytical support of upstream and downstream activities. Esohe's work has been presented in publications, patents and external conferences.