Method validation of a concentration assay of rhIFN using surface plasmon resonance biosensor

황상연, 이은규*, 최효진, 서창우[1]
한양대학교 화학공학과; [1](주)대웅 생명과학연구소
(eklee@hanyang.ac.kr*)

We performed a basic experiment for rapid, on-line, real-time measurement of recombinant human interferon-a-2a (rhIFN) concentration by using a surface plasmon resonance biosensor to quantify the recognition and interaction of biomolecules without labeling. We immobilized anti-IFN antibody as a ligand molecule to the dextran layer on a CM5 chip surface that was previously activated by NHS/EDC.

The assay was able to cover the linear concentration range 3.1 to 12 nM. The limit of detection (LOD) and limit of quantification (LOQ) were calculated as 0.2 and 0.7 nM, respectively. The precision of the assay was very good; the intra- and inter-assay coefficients of variation were <5%. Furthermore, the accuracy was also good with <108% recovery. The specificity and ruggedness were also acceptable by the USP guideline. In summary, this study result showed the potential of the SPR biosensor-based method as a rapid, quantitative, on-line assay, which might be able to replace the current ELISA method.