Rapid Detection of Affinity-Tagged Recombinant Proteins Using SPR Imaging Protein Arrays

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Surface Plasmon Resonance(SPR) is an optical technique that is used as a valuable tool to investigate biological interactions. When the SPR is expanded to imaging, the SPR imaging (SPRI) can be an ideal surface-sensitive optical technique to detect the interactions of a number of biomolecules on a protein microarray. Most of the protein arrays developed so far rely on the detection technology based on fluorescence measurement. In contrast, the SPRI system doesn't require a labelling procedure which is time-consuming and costly. In this study, we developed a novel method that can rapidly detect the affinity-tagged proteins directly from the cell lysate. The hydrophilic surfaces containing affinity ligands on gold thin films were developed to capture the affinity-tagged recombinant proteins in an array format for SPRI measurement. As a result, the affinity-tagged proteins were detected within an hour in a high-throughput mode. It is expected that this new analytical technique can effectively replace the conventional SDS-PADE analysis which is time-consuming and labor-intensive.

References

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