

论文

表面等离子体共振成像法用于糖蛋白分析

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摘要:

建立了一套表面等离子体共振成像方法, 用于筛选糖蛋白和非糖蛋白, 并可以区分不同糖蛋白与伴刀豆凝集素的识别强度. 波长调制的表面等离子体共振与成像法所得结果一致. 伴刀豆凝集素的洗脱成像实验为识别强度提供了补充验证方案.

关键词: 糖蛋白 蛋白质微阵列 表面等离子体共振成像

Glycoproteins Analysis by Surface Plasmon Resonance Absorption and Imaging

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Abstract:

Surface plasmon resonance (SPR) absorption and imaging (SPRI) have been explored for screening and differentiating glycoproteins from non-glycoprotein according to the shift of maximum SPR absorption and/or to the variation of picture gray intensity. In combination with competitive washing with sugar solutions, SPRI has the ability to produce different signals for different glycoproteins, offering a potential way to identify these glycoconjugates. To conduct SPR and SPRI, proteins (at 1.0 mg/mL), instead of lectins, were immobilized on gold sensing films to reduce the use of the costly glycoproteins. The sensing film was fixed in a laboratory-established SPR or SPRI system, equilibrated with 50 mmol/L Tris-HCl at pH=7.4 at a flow rate of 20 μ L/min, reacted with 200 nmol/L ConA (prepared in the Tris-HCl solution containing 120 mmol/L NaCl, 25 mmol/L CaCl₂ and 5 mmol/L MnCl₂) at room temperature for 1 h and rewashed with Tris-HCl solution. For competitive washing, 80 mmol/L glucose solution was pumped into the analytical cell and reacted for 1 h. The signals were recorded whenever necessary. Non-glycoproteins had no signals when using either SPR or SPRI while glycoproteins gave different SPR shifts and gray intensity in SPRI.

Keywords: Glycoprotein Protein microarray Surface plasmon resonance imaging (SPRI)

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