

## Grating-Coupled Surface-Plasmon-Resonance Disc Biosensor for Monitoring Growth of Self-Assembled Monolayer

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(Received November 5, 2012; accepted February 4, 2013)

**Key words:** surface plasmon resonance, disc, fluidic channel, polydimethylsiloxane, self-assembled monolayer

We present a grating-coupled surface plasmon resonance (SPR) disc biosensor for obtaining kinetic information of molecular interaction. The grating disc combined with a c-shape fluidic channel is capable of driving a testing solution forward by gravity by turning the disc biosensor. The disc biosensor can react with probe molecules on a particular sensing surface and then the next as time goes by. To demonstrate the ability of the biosensor, a test experiment was performed for monitoring the growth of a self-assembled monolayer (SAM) immobilized on a gold surface. These measured response curves show that the saturation time of the SAM growth, whose thickness is smaller than 2 nm, is roughly 5 h when 1 mM 16-mercaptohexadecanoic acid (MHDA)-SAM is grown on gold at room temperature. The demonstration reveals that the disc biosensor with c-shape fluidic channels can be a promising tool for a kinetic analysis of bimolecular interaction without any external fluid pumping systems.

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