

Sensor Chip Reuse

Surface Regeneration

A sensor chip is reusable through regeneration of the sensing surface. In this process, a regeneration buffer (10 mM glycine, pH 1.7) removes bound analytes from the receptor ligands to free up binding sites for the next detection event without irreversibly damaging the receptor ligand (Fig. 1). The low pH of the regeneration buffer changes the electrical charge of the analyte and thus altering the intermolecular forces between the analyte and receptor ligand. For research applications each sensor chip can be reused up to three detections total.

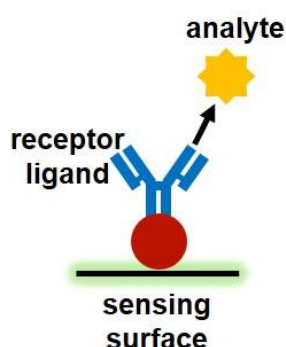


Fig. 1 The regeneration process.

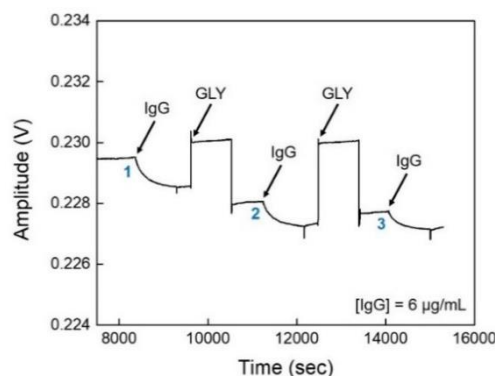


Fig. 2 Regeneration sensorgram of IgG. GLY: glycine buffer (10mM, pH 1.7). 1 is the first IgG detection. 2 is the second IgG detection. 3 is the third IgG detection.

Fig. 2 demonstrates reusing a sensor chip for the detection of immunoglobulin G (IgG). Each regeneration process with the regeneration buffer requires 15 min for the removal of IgG followed by 10 min of the PBS buffer to prepare the sensing surface for subsequent detection.

Preparation of the regeneration buffer

- ✓ Chemicals required:
 - Glycine: Sigma-Aldrich; CAS number 56-40-6; ≥99%
 - Hydrochloric acid (HCl): Sigma-Aldrich; CAS number 7647-01-0; 37% (ACS specification)
- ✓ Preparation protocol:
 1. Dissolve 75.07 mg glycine in 100 mL deionized water and mix thoroughly to prepare a 10 mM glycine solution.
 2. Titrate the glycine solution with HCl until the solution pH is 1.7.