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T4H protocol

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Tech4Health

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- 1 Clean Au chip: insert in piranha solution (75% H₂SO₄, 25% H₂O₂), wash with DI water, dry with nitrogen gas.
- 2 Mix the solution for imprinting in 19/1 volume ratio: 19 for the analyte, 1 for the monolayer former at self-assembled monolayer (SAM) concentration.
- 3 Place Au chip in the imprinting solution.
Incubate overnight RT.
Wash multiple times with 3M NaCl solution.
Leave overnight in DI water.
- 4 At this point the chip can be sealed for future use.
Prior to measurement chip is inserted in PBS for 2 hours.
- 5 The chip is connected as the working electrode in a potentiostat circuit.
A reference electrode is added to the reaction vessel and recording of the open-circuit potential (OCP) is started.
When the voltage stabilizes, the analyte is added.

6 Adding the analyte shifts the OCP if the analyte is recognized by the imprinted working electrode.

In the calibration phase, controlled serial dilutions of analyte are added, and resulting OCP values are recorded. The relationship between analyte concentration and OCP is established from these calibration measurements, and is used for the detection of unknown analytes.