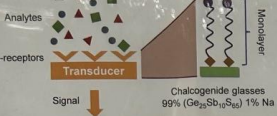


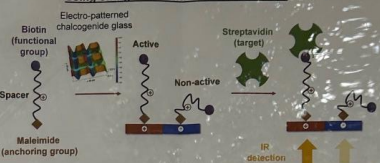
Context and objectives

Building a biosensor by using a monolayer to functionalize chalcogenide glasses

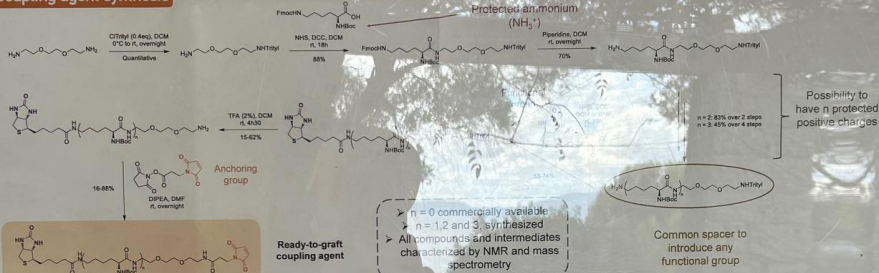


Chalcogenide glasses are transparent in the mid-infrared region, making them highly promising materials for the development of devices such as biosensors. The main challenge is to immobilize organic compounds on them to obtain a biosensitive functionalized monolayers.^[1] Then, by functionalizing electro-patterned glasses^[2] with charged coupling agents, it will be possible to obtain active and non-active domain of the bio-receptor.^[3]

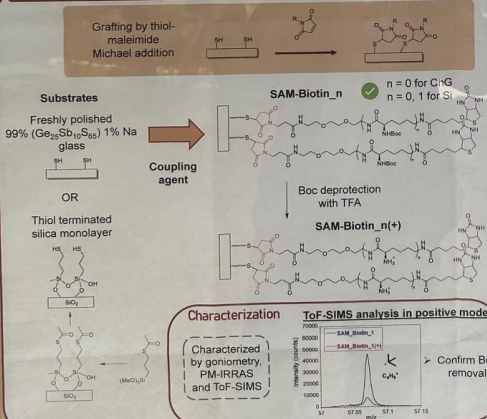
Using charges to control the biodection



Coupling agent synthesis



Surface functionalization



Conclusions

- ✓ Development of a versatile synthetic route to prepare various organic coupling agents with different number of lysine units
- ✓ Functionalization of thiol-terminated silica surfaces with biotin-based coupling agents
- ✓ Successful grafting of biotin linkers through maleimide chemistry demonstrated by both characterization of biotin-monolayers and detection with streptavidin
- ✓ Validation of Boc deprotection conditions to generate charged ammonium ions

Biotin detection with Streptavidin

Biotin detection with Streptavidin conjugated to Cyanine 5 (fluorophore)

