

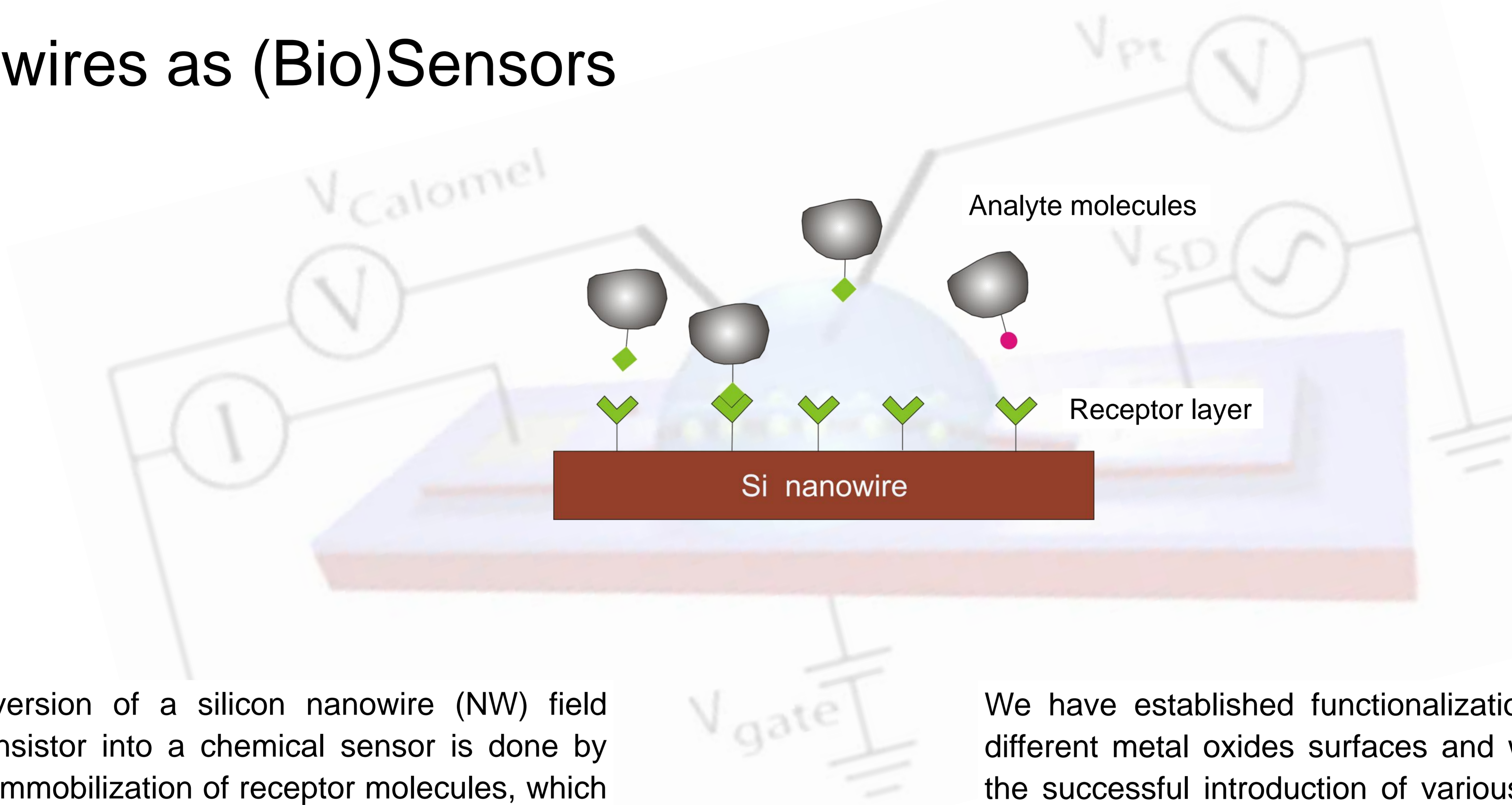
# Nanowire sensors for chemical and biological detection

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## Nanowires as (Bio)Sensors



The conversion of a silicon nanowire (NW) field effect transistor into a chemical sensor is done by covalent immobilization of receptor molecules, which selectively interact with the specific target objects to be recognized.

We have established functionalization protocols for different metal oxides surfaces and we demonstrate the successful introduction of various functionalities. Our modified surfaces exhibit features which are important for sensor design.

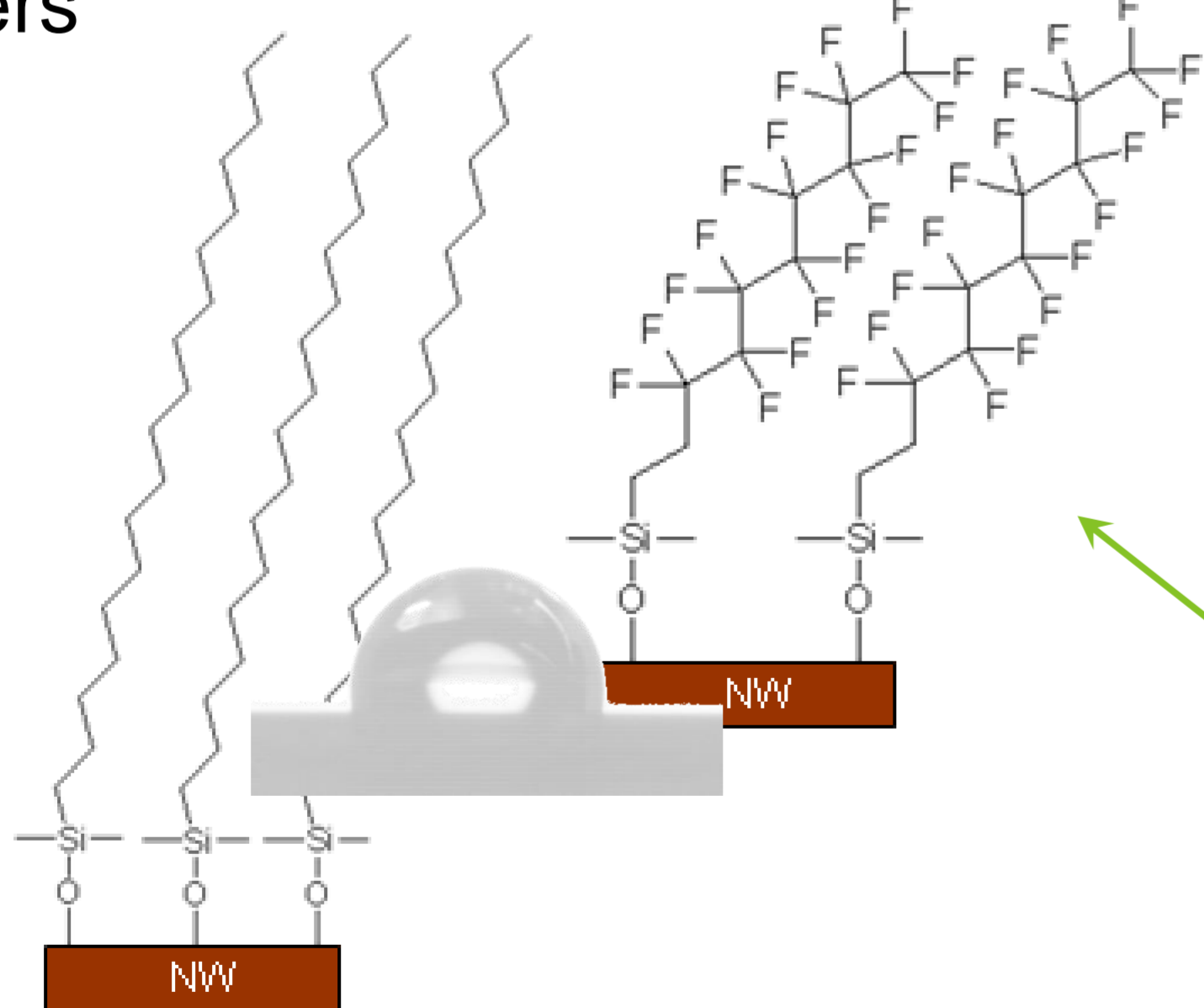
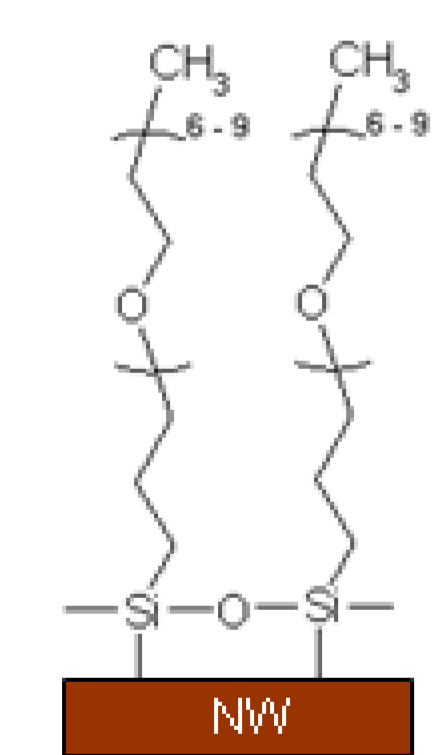
## Formation of Functional Monolayers

Inert layers:

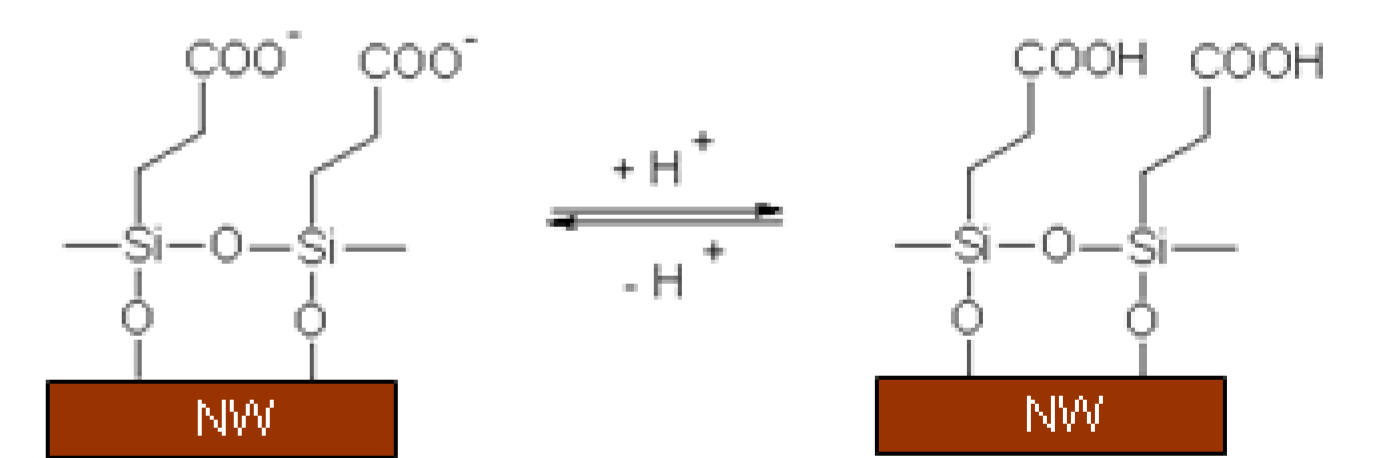
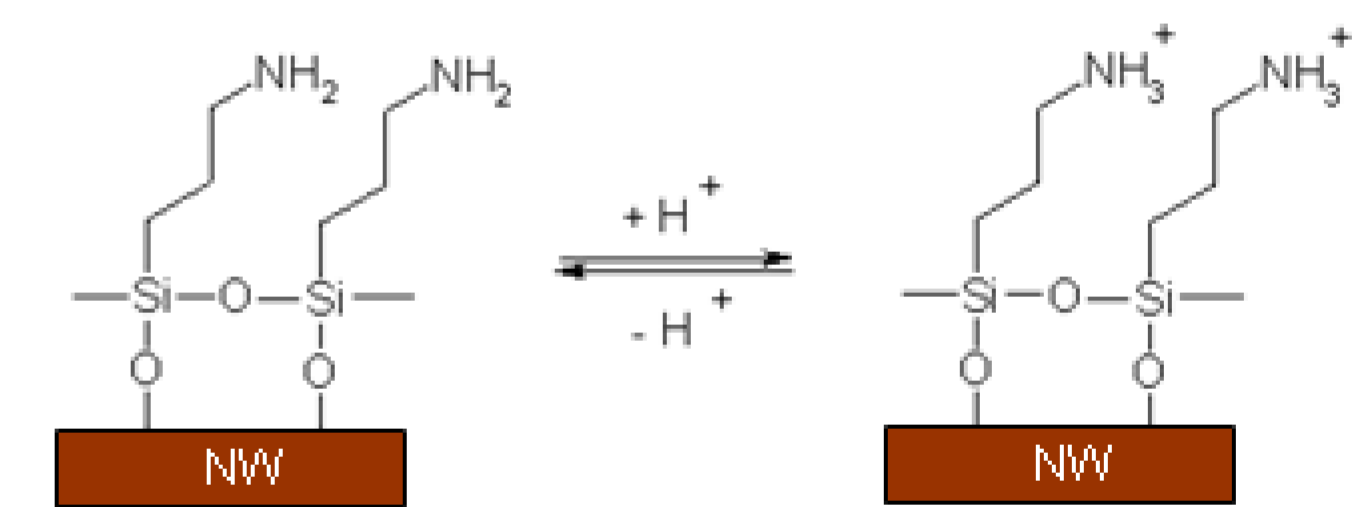
alkane silane layers

perfluorosilanes

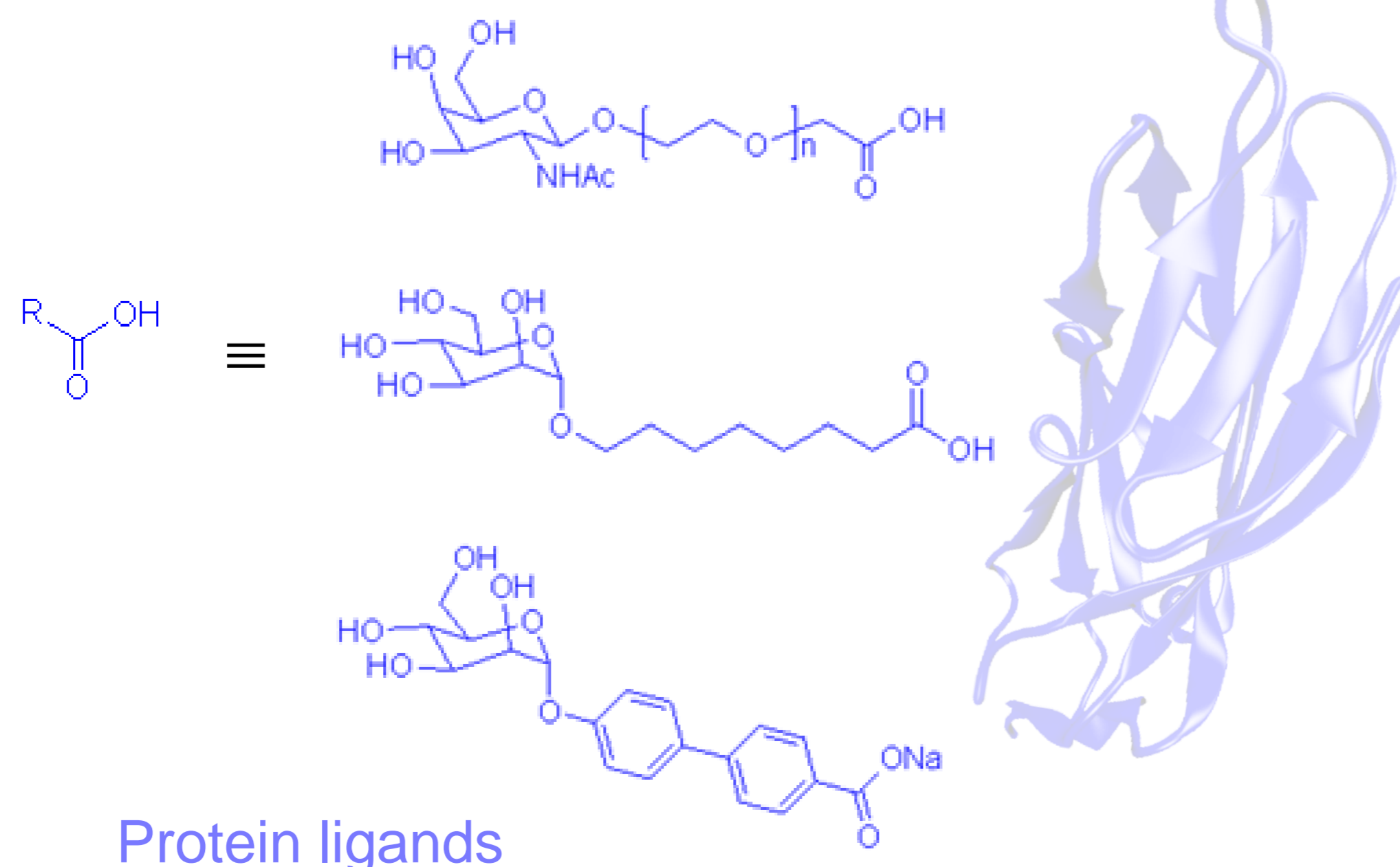
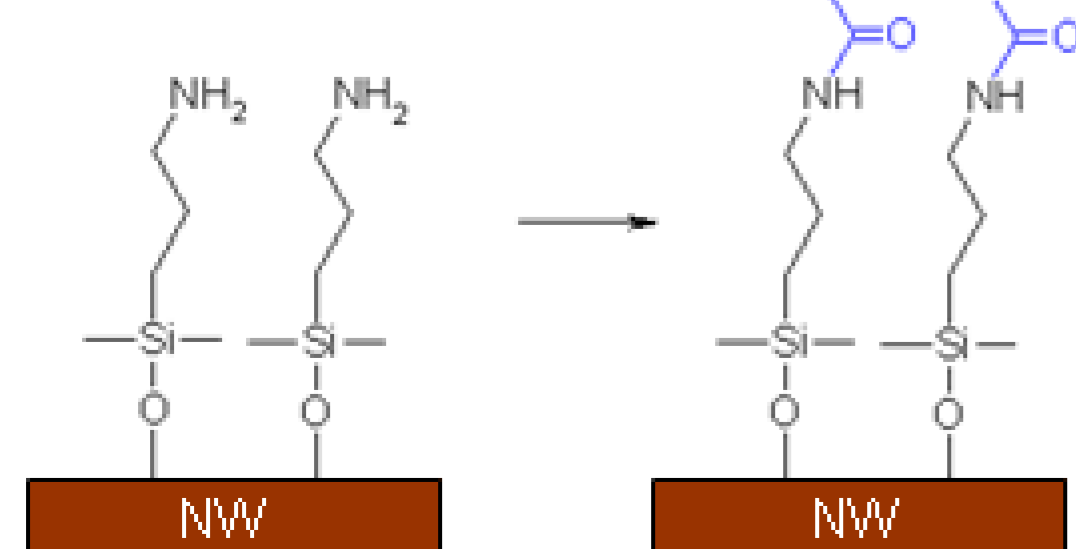
OEG / PEG



pH sensors:  
charged functional groups



Biosensing applications:  
sugar-lectin binding assays



Ion selective sensors  
(crown ethers)

