

Functionalized Self-Assembled Monolayers (SAMs) to control surface properties

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In the field of biotechnology and nanotechnology, the control of surface properties represents an important parameter for their development. Self-Assembled Monolayers (SAMs) have attracted significant attention since their introduction in 1980 by Sagiv. [1] SAMs based on the chemistry of the organosilanes [2] provide molecularly defined platforms for chemical derivatization and control surface properties such as biocompatibility, wetting and adhesion... The molecular self-assembly is usually controlled by intermolecular van der Waals interactions of the long alkyl chains but using hydrogen bonding is an interesting alternative way. Internal urea and amide in the alkyl chain spacer drive the self-assembly of the monolayers by hydrogen bonding. [3] We have developed different variety of functionalized SAMs bearing a diversity of end group (ester, acid, epoxyde, amine, azide...) to immobilize covalently biological species like protein, bacteria, virus...

[1] J. Sagiv, J. Am. Chem. Soc. 102, 92 (1980)

[2] S.K. Vashist, et al. Chem. Rev. 114, 11083 (2014)

[3] M. A. Ramin et al. Langmuir 28, 17672 (2012)

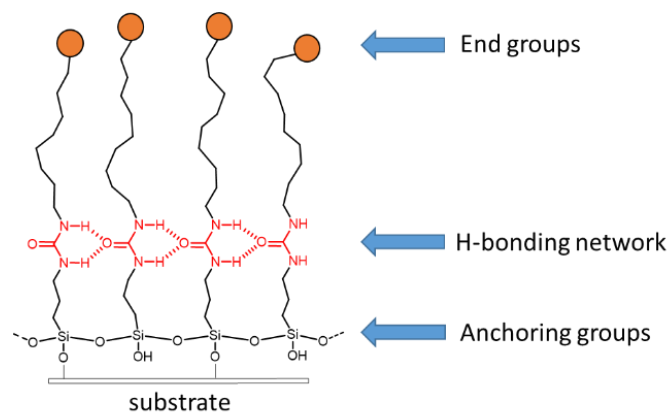


Figure 1 : Schematic representation of Hydrogen Bonding Self-Assembled Monolayers.