

Technical Bulletin

**sciPOLY3D –
direct biomolecule immobilization on unmodified polymer supports**

Introduction:

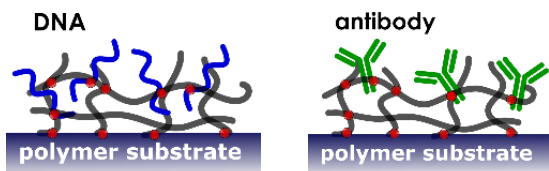
One decisive factor for manufacturing high quality and low-cost microarrays is the capture probe immobilization chemistry. sciPOLY3D enables covalent and robust immobilization of unmodified probe biomolecules on unmodified polymer substrates. Most conventional immobilization chemistries rely on the surface functionalization of the whole substrate with e.g. carboxy or epoxy moieties.

Workflow:

The solubility of sciPOLY3D allows for mixing it directly in the printing media together with a buffer and the biomolecule. After printing the microarrays with a sciFLEXARRAYER, a subsequent short UV exposure crosslinks the polymer chains leading to a polymer network, coupled to polymer substrates and covalently attaches the biomolecules to the network. Due to the hydrophilic nature of the polymer, a surface-attached hydrogel with covalently embedded probe molecules is obtained.

Product features:

- large variability of capture probes as DNA, proteins, antibodies, glycans
- tuneable density of capture probes
- thermal stability 3D matrix
- high accessible of capture probes
- compatible with colorimetric and fluorescence detection



Conclusion:

With sciPOLY3D virtually all common plastic substrates, such as COP, PMMA, COC, PP, PS, etc. can be used as it is for microarray applications. This feature eliminates all wet chemistry steps in the microarray manufacturing process and facilitates for example the probe immobilization on structured substrates, such as microfluidic chips or microtiter plates.

Manufacturing process of microarrays on unmodified polymer substrates

