Synthetic Peptide Arrays:
Chemical Production for Biological Applications

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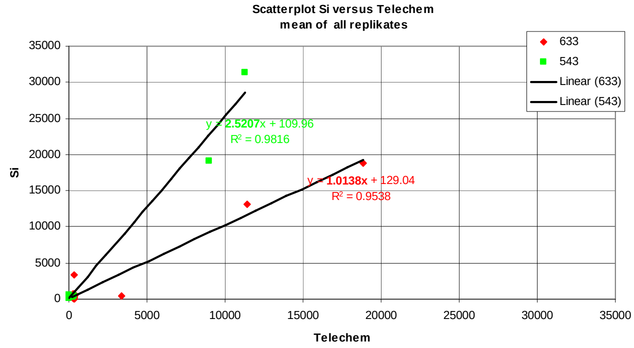
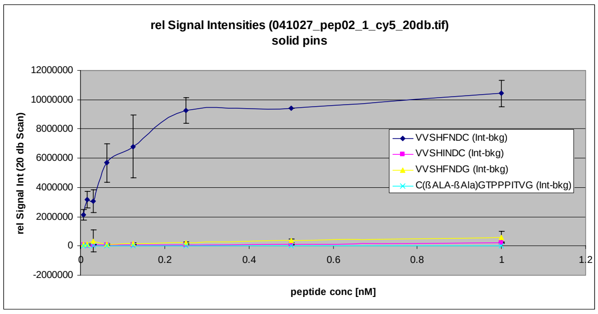
The possibility of synthesizing large addressable arrays of peptides is explored in basically two formats: macro- and microarrays. The former approach consists in the in situ solid-phase synthesis of peptides on cellulose membranes using the automated SPOT technology. This approach can be carried out with two scopes:

- with a preparative scope to generate synthetic peptides in a high throughput fashion for diverse biophysical and biological applications, or
- to generate cellulose-bound peptide arrays for the biochemical analysis of molecular recognition.

Peptide microarray devices are exclusively analytical and most commonly generated by immobilization of ex situ synthesized peptides on glass or silicon platforms.
We discuss a balance of assets and drawbacks of the SPOT technology and the accuracy of quantitative SI (signal intensity) measurements.
Furthermore, silicon wafers have been used for establishing novel biochips: physicochemical modification of the silicon substrate allowed the fast and easy immobilization of peptides, proteins and oligonucleotides, and subsequent screening. Printing of dyes on the surface surprisingly revealed a strong enhancement of fluorescence signal intensities at the wavelength of 545 nm for the silicon substrate, in comparison to common glass chips.





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