



# New biological measurement technology pioneered

## New Information

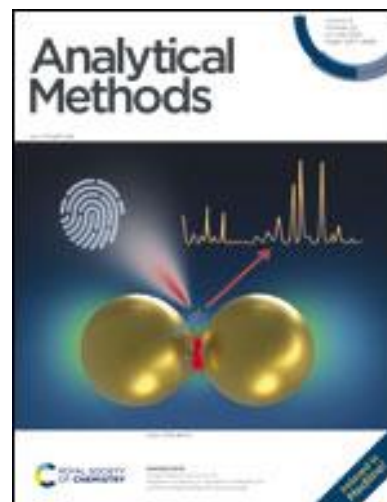
The manuscript concerning a novel bio-detection system (PepTenChip®) was accepted for publication by the Royal Society of Chemistry, "Analytical Methods" on May 7, 2025.

### Title

Development of a new biodetection system independent of known marker molecules using a novel material for microarrays made from amorphous carbon substrates  
Y. Tominaga & K. Nokihara,

Anal. Methods, 2025, **17**, 4590-4598.

DOI: <https://doi.org/10.1039/D5AY00426H>



Since foundation of HiPep Laboratories, a lot of efforts have been devoted to the novel bio-detection system in the next-generation and recently the system is completed, additionally related products are available. The system is based on an innovative principle and technology that does not rely on conventional specific marker molecules. The paper describes new principle, methods, materials and equipment necessary for practical use. This unique bio-sensing tool involves a peptide microarray using substrates made from amorphous carbon on which structured peptides are immobilized as capturing molecules to realize highly sensitive protein detection.

### Innovative material

A novel material for substrates made from amorphous carbon with appropriate surface chemistry provides stable bonding and shows excellent characteristics over conventional glass slides.

### Highly reproducible and easily reusable

The detection allows without known marker molecules with high sensitivity.

Immobilization through stable amide bonds allows washing and scrubbing procedures.

The chip can be reused 10 to 20 times after simple cleaning; thus, regeneration is easy.

### New information videos

PepTenChip® System integrated [https://hipep.com/?page\\_id=3662](https://hipep.com/?page_id=3662)

Peptide microarrays/ PepTenCam (detecor), with a novel principle <https://youtu.be/xcar8LTKAcU>

Product information <https://youtu.be/dksB2XGb2yA>

Protocol for manual arraying technology, researchers who have no arrayer and Re-use (chip-plates can be repeatedly use) <https://youtu.be/bFVfJTDY4Uw>

### Quantitative results and visualization

Visual presentation as the "Protein-Fingerprints" based on fluorescence intensity changes. Recognition is dose dependence and allowing quantitative analysis.

### Classification of complex samples

Statistical data processing (multivariate analysis) allows highly accurate results of complex samples such as body fluids, and allows classification in the similar diseases.

### New discovery method, Chip and Mass spectra

In addition to fluorescence intensity changes, substrates can be inserted into MALDI-TOF mass spectrometer (since chip material has high electrical conductivity). Discovering marker candidates can be expected.

★ **Clinical applications (pre-cancer detection and identification of similar diseases) are under way.**

