



Over view of HiPep Products and Services

Research tools	
PepTenChip®, a novel bio-detection system	Labeled peptides arrayed as capture molecules, amorphous carbon plates, and detection device (on-site use & maintenance free), in which basic technologies have been completed.
Mimosine (Mim), non-proteinogenic amino acid, and mimosine containing peptides	Mim has several biological functions. Large scale production of high quality Mim has been performed and antioxidative peptides have been developed. Application of mimosine containing peptides as ingredients for drugs/functional cosmetics: collaboration and /or technology transfer to companies having markets.
Various peptide-based libraries for basic research and drug discovery: a cyclotide immobilized on a gel-type bead/peptide-vehicles for DDS	Libraries/Bioconjugates are useful tool in R and D, moreover drug discovery and development such as optimization. Discovery and development are also carrying out as own research projects. The technologies with materials can be transferred.
Novel telomere staining probe (HPTH59, a fluorescent dye labeled PIPA)	Visualization of human telomere has been successfully performed. Telomere should be one of the important biomarker in examining the aging process and tumorigenesis since the length of telomere is believed to be associated with aging or cancer diseases.
Early stage of preclinical	
Angiogenic peptides and their conjugates for reconstruction medicine	Small peptides exhibiting strong angiogenesis has been found in animal experiments and SAR has been elucidated. Licensing and clinical applications by the collaboration of angiogenic peptides (patented in USA & Japan) are requested
DNA-recognition by PIPAs (Peptide-DNA interactions)	Synthetic peptide based on design, peptides/polyamides consisting of non-proteinogenic amino acids, N-methylpyrrole and N-methylimidazole as major building blocks, designated PIPAs, bind to specific nucleotide sequences in the minor groove of double helical DNA with high affinity and specificity. PIPA has functions for gene regulation through DNA binding and applied as novel chemical probes or vehicle/shuttles for delivery that is the use for diagnostics and/or therapeutic agents. PIPLS (Large Scale Synthesis System) has been constructed.
Research Support Business: Contract syntheses & analyses	
Devices/consumers & novel HPLC-columns with high resolution developed for in-house use and contract researches	Several devices focusing on highly efficient library construction in addition to technology know-how can be applied contract based works.

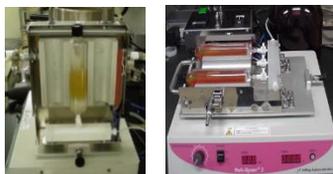


Contract based Research, Syntheses and Characterization

Carried out by using in house developed materials/devices

- Libraries: Design, Synthesis and Construction of Peptide/ Polyamide derivatives, and Bioconjugates: Design, syntheses and characterizations: High quality peptides containing not only natural amino acids but also non-proteinogenic amino acids, Glycopeptides, Lipopeptides, Cyclic peptides, Phosphopeptides, Sulfated peptides, Glutathione derivatives (metabolites), Pyrrole-imidazole polyamides, Peptide Nucleic Acids, Protein syntheses by chemical ligation, Cell penetrating peptides, Peptide-Vehicles for DDS
- Analyses: Amino acid composition, Determination of residual organic solvents/acids, water contents, Chiral analyses = GMP-GLP approved
- Characterization: LCMS, MS/MS, MALDI-TOF-MS/MS, Protein-sequencing by the Edman degradation
- Microarray printing services: Utilizing the most advanced facilities and expertise on patented concepts with novel substrates made from amorphous carbon and/or high quality glass substrate slides (operated in the class 100 clean room)
- Biochip detection service: Fluorescent scanner or a fluorescent microscopy, further MALDI-TOF-MS

① Production of starting resin, by the in-house developed PetiSzyzer®



Peptide Construction Libraries



② Automated Synthesizer PSSM-8, by Nokihara in 1991 (operated over night)



Screening + Analyses



- ③ Manual syntheses for costly reagents, difficult sequences
- ④ Cleavage by PetiSzyzer®



Tailor made Bio-detection, Biochip-fabrication



⑤ Large scale purification by in-house packed columns



SPPS by 1~2 Liter Reactors

⑥ Use of multiple LC-MS & MALDI-TOF/TOF



Arraying & detection services

