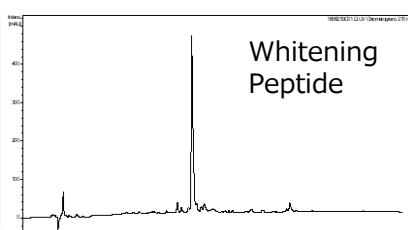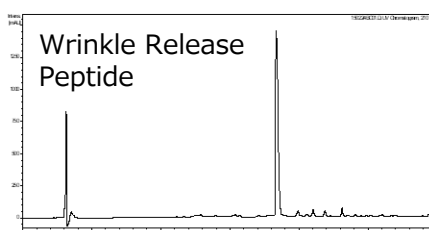**HiPep Laboratories**

High Quality Peptide Cosmeceutical Ingredients

HiPep Laboratories have been promoting R & D aiming at industrial application of molecular recognition mechanism in organisms. The main product objective is diagnosis and novel therapeutic drugs using peptides and proteins as target compounds. Based on the abundant knowledge and experience of Peptide Science, we developed functional peptides as cosmeceutical ingredients [from research to industrial level]. **Developed functional peptides are shown below.**

① **Antioxidant, Antiaging** ② **Wrinkle Release** ③ **Whitening** ④ **Scar & Keloid Release**
⑤ **Hair growth** ⑥ **Regeneration of hair root cells**

It is also possible to combine these functional peptides as cosmeceutical ingredients (differentiation from other products). Furthermore, bioconjugates of these peptides, it is also possible to additional functions such as solubility, antibacterial activity. No patent has been issued for many products. We will also analyze counter ions by making full use of up to 100 g; Price depends on amounts and structures; Delivery term 1 – 2 Months. know-how for pharmaceuticals, especially in certification of purified products. In addition, we offer trifluoroacetic acid-free purified products, which is often a problem with synthetic peptides. Supply minimum 10 g; One batch up to 100 g.

Examples of peptides analyzed structure at HiPep Laboratories and bulk production: Functional peptides already added to commodities in Europe and the United States, no structural disclosure, usually no patent application.

Wrinkle Release Peptide

Whitening Peptide

Examples of commissioned research

HiPep Laboratories supply functional peptide for cosmeceutical ingredients and activity evaluation on client side develops new cosmeceutical ingredients product such as antioxidant peptides, tyrosinase inhibitors, unnatural amino acid Mimosine (plant derived), regenerative medicine: angiogenic peptide, regeneration of hair root cells (distinguished from hair growth). In the case of collaborative research we would like to have a client with an assay system. Concerning the structure, we will sign a Non-disclosure agreement (NDA). Structure disclosure of peptides already known as functional peptides is performed under separate NDA.

HiPep Laboratories have the high technology of immobilization peptide. We utilize this technology to sell micro beads for manufacturing and biochips for peptides.

Peptide for functional cosmetic validation 【Sequence】 Ac-RFAACAA-COOH
Ac-RFAAKAA-COOH   Purity >95%

DPRA: The Direct Peptide Reactivity Assay (DPRA) is an in chemico method used to predict epidermal protein binding. Binding of epidermal proteins is the molecular initiating event on the Adverse Outcome Pathway. The DPRA uses HPLC to measure the depletion of synthetic peptides in solution following exposure to test chemicals. We manufacture and sell synthetic Cys and Lys peptides as the test material.

Advantage of DPRA: Compared with local lymph node proliferation test (LLNA) or guinea pig maximization method (GPMT) using mouse, it can be carried out inexpensively in a short period of time.

Proposal for simplification of assay by immobilization: Although traditional solution method requires reversed phase HPLC, assay method by immobilization does not require, so it is considered that simple and low cost assay is possible. In particular, the resin used for synthesis of immobilized peptides is a support obtained by graft copolymerizing polyethylene glycol (PEG) with polystyrene. This support, named TentaGel®, behaves in the same way as in organic solvents even in aqueous systems because the reaction site is completely in the solvent by the PEG spacer, and it is very excellent in swelling characteristics.

The resin is relatively stable biologically and chemically. However, ultrasonic wave and mechanical stirring can not be performed. Peptide stability depends on the peptide bound. It is usually usable from pH 2.2 to near neutral. Use of detergent is not problems.

Immobilized peptide DPRA-TentaGel SNH$_2$

Ac-RFAA-C/K-AA-CO

CH_2
CH — [benzene ring] — $[O-CH_2-CH_2]_n$ $O-CH_2-CH_2-NH_2$