



January 22, 2024

To Whom It May Concern

KYORIN and Veneno Technologies conclude Joint Research Agreement
for Functional DRPs

KYORIN Pharmaceutical Co., Ltd. (Head office: Chiyoda-ku, Tokyo, President & CEO: Yutaka Ogihara, hereafter “KYORIN”) and Veneno Technologies Co. Ltd. (Head office: Tsukuba-shi, Ibaraki, President: Kazunori Yoshikawa, hereafter “Veneno”) today announced that they have entered into a joint research agreement.

Under the terms of the joint research agreement, both parties will implement a program to obtain functional Disulfide-Rich Peptides (DRPs) for their selected target membrane proteins by using Veneno’s next-generation peptide discovery technology called “PERISS”.

KYORIN aims to create high-value new drugs that meet medical needs under its long-term vision “Vision 110”. KYORIN will achieve continuous new drug creation through the active use of open innovation.

Veneno Technologies, as a leading bio-active DRP discovery platform company, will continue to support bio-active DRP discovery research companies in the pharmaceutical field and promote a wide range of developments in the agro-science and materials fields based on this technology.

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[Reference]

1. About KYORIN

KYORIN aims to become a company that contributes broadly to people's health by pursuing innovation in drug discovery to strengthen drug discovery capability to create high-value new drugs that meet medical needs, accelerating its evaluation and acquisition of in-licensed products and establishing a presence in designated fields.

Trade Name: KYORIN Pharmaceutical Co., Ltd.

Location: 6, Kanda Surugadai 4-chome, Chiyoda-ku, Tokyo

Foundation: December 1923

President & CEO: Yutaka Ogihara

URL : <https://www.kyorin-pharm.co.jp/>

2. About Veneno

Veneno is a deep-tech company developing functional DRPs for use in the pharmaceutical, agrochemical, and biomaterial fields. Veneno's technological competitiveness and business concept have been highly evaluated, and AIST Solutions, a subsidiary of the National Institute of Advanced Industrial Science and Technology (AIST), has recognized Veneno as an AISol Startup and provided it with various kinds of support.

Trade Name: Veneno Technologies, Co. Ltd.

Location: 2-1-6 Sengen, Tsukuba-shi, Ibaraki

Establishment: July 2020

President: Kazunori Yoshikawa

URL : <https://veneno.jp/>

3. Disulfide-rich peptide (DRP)

DRPs are a general term for peptides with multiple disulfide bonds in the molecule, usually consisting of 20 to 80 amino acids. The rigid framework created by the multiple disulfide bonds makes DRPs resistant to degradative enzymes and highly thermally stable. It is also known to have low immunogenicity due to its compact and stable structure. These properties make DRP a useful lead molecule for bio-active peptide discovery.

4. PERISS method, a next-generation peptide discovery technology

The PERISS method is a high-throughput screening technology based on evolutionary molecular engineering that enables the discovery of DRPs acting on membrane proteins. By co-expressing a drug target membrane protein and DRP in *E. coli*, a plasmid encoding the DRP bound to the target membrane protein is recovered, and DNA sequence analysis is performed to identify the amino acid sequence. This method is advantageous because it can target membrane proteins such as ion channels, GPCRs, and transporters, which have so far been considered challenging to discover drugs by other evolutionary molecular engineering methods such as mRNA display and phage display. Another significant advantage is the ability to search for target membrane protein-binding DRPs in a very short period of time from a huge size library, which is an order of magnitude larger than the conventional high-throughput screening from chemical libraries.