

PeptiDream Inc.

Aiming to establish its proprietary Peptide Discovery Platform System (PDPS) as global de facto standard

www.peptidream.com

PeptiDream Inc.
3-25-23 Tonomachi
Kawasaki-ku, Kawasaki City
Kanagawa Prefecture 210-0821
JAPAN

Founded in: 2006
Chairman: Kiichi Kubota
No. of employees: 60
Type of Ownership: Public
Stock exchange: 4587 TSE

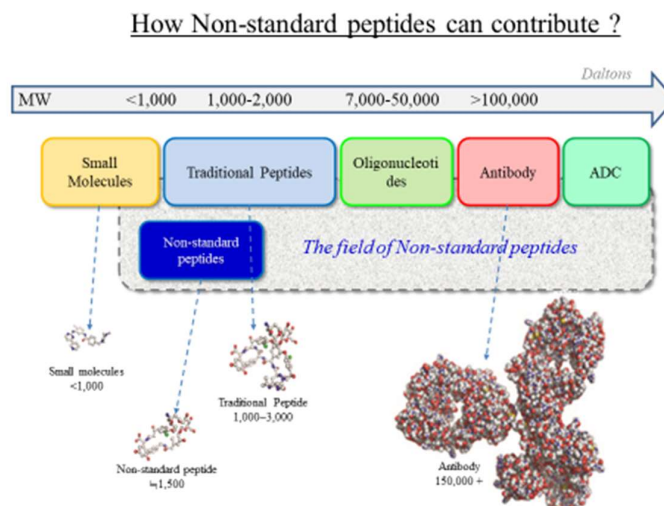
September 2017: Inventiveness in peptide drug technology and a well-thought-out business strategy characterize PeptidDream's thriving growth. Venture Valuation (VV) interviewed Kiichi Kubota, co-founder and Chairman.



VV: What is PDPS?

Kubota: PDPS is a versatile discovery platform capable of producing trillions of non-standard peptide¹ libraries, identifying selective hit candidates which can be developed into peptide-based, small molecule-based, or peptide drug conjugate (PDC)-based therapeutics.

As the image below shows, non-standard peptides are smaller than oligonucleotides, antibodies, and ADC (antibody drug conjugate) but larger than small molecules.



¹ "Peptides isolated as natural products are frequently found to contain non-proteinogenic amino acids as well as bearing a macrocyclic structure and are referred to as non-standard peptides".

<https://www.chem.s.u-tokyo.ac.jp/users/bioorg/English/kenkyu/index.html>

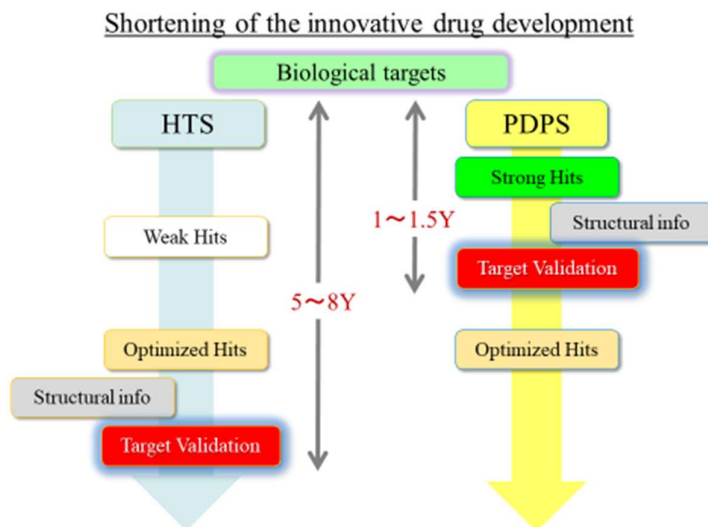
Being middle sized and bearing macrocyclic structures allow the non-standard peptides to create exactly the right set of new therapeutic modalities. The non-standard peptides are small enough to cross the cell membrane, meaning that they are not limited to only acting on cell-surface targets. Also they have the potential to be developed into oral therapeutics as are small molecules.

PDPS consists of three technologies: Flexizyme², an artificial ribozyme catalyzing the aminoacylation of tRNA with a wide range of natural and unnatural amino acids; Flexible In-vitro Translation System enabling the production of trillions of diverse non-standard peptides; Random Peptide Integrated Discovery Display System for high speed screening.

VV: **Your clients are mostly major global pharma/biotech companies.**

Kubota: The advantages of our technology attract companies who are interested in reducing time and costs for drug research and development (R&D) in a reliable and competent way. Our clients are naturally among the top 20 global pharmaceutical companies as well as prominent drug discovery companies.

PDPS is able to drastically shorten the time to target validation to 1 year to 1.5 years while the currently applied processes require 5 to 8 years (see below).



We have been working on 60 projects in which we are involved in supporting our clients' R&D activities and/or providing PDPS licensing services.

² Invented by Prof. Hiroaki Suga, University of Tokyo, PeptiDream's co-founder and Executive Advisor



VV: Along with promoting business alliance and technology licensing, you are preparing to develop new drugs on your own and create internationally the first peptide CMO (Contract Manufacturing Organization).

Kubota: Our mission, which is inspired by our dream, is to provide affordable and efficacious drugs to address unmet medical needs. Our company name PeptiDream advertises our ambition to make it happen.

Two of several projects in our in-house pipeline have been in priority: influenza and HER2-positive breast cancer. For influenza peptide therapeutics are applied because of easier quality control and less expensive manufacturing costs than the current biologic therapeutics. For HER2-positive breast cancer, we use PDC-based therapeutics, proven to be more effective and lower production costs than the current ADC-based therapeutics.

Being the one and only expert possessing the fully comprehensive data on non-standard peptides, we are determined to contribute to the peptide drug discovery industry. In September a new company called PeptiStar Inc. will start its operations as peptide CMO. PeptiStar Inc., invested by Shionogi Pharmaceuticals, Sekisui Chemical and us, will first of all establish mass production technology processes. We forecast 40 billion USD sales eventually.

VV Comments after the interview:

It is quite common that biotech startups experience many years without profit with a large amount of expenses due to mainly R&D activities. PeptiDream is an exception. Along with the strategically thought-out business plan as well as the strong and well-developed patent portfolio, PeptiDream was already in the black when it went public in 2013. Its recent market capitalization is around 4 billion USD.

PeptiDream is playing a leading role not only in the global peptide drug discovery field but also in the biotech industry in Japan. The total biotech market capitalization in Japan is estimated to be 15% of the pharma industry, whereas 50% in the U.S.³ One of the reasons seems that the U.S. pharma companies more actively invest in and partner with biotech startups. PeptiDream may change the attitude of Japanese pharma companies who tend to hesitate to enter into a tie-up with domestic biotech startups.

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Venture Valuation specializes in independent assessment and valuation of technology-driven companies in growth industries, such as the Life

³ Nikkei News Paper on August 7, 2017

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