



May 10, 2019  
PeptiDream Inc  
<http://www.peptidream.com/>  
(Ticker Code: 4587 TSE First Section)  
JCR Pharmaceuticals Co., Ltd.  
<http://www.jcrpharma.co.jp/>  
(Ticker Code: 4552 TSE First Section)

## **PeptiDream and JCR Pharma Announce Development of BBB Carrier Peptides Capable of Targeting Therapeutic Payloads to the Brain**

KANAGAWA, JAPAN – May 10<sup>th</sup>, 2019 – PeptiDream Inc., a public Kanagawa-based biopharmaceutical company (“PeptiDream”)(Tokyo:4587) and JCR Pharmaceuticals Co., Ltd., a public A Hyogo-based biopharmaceutical company (“JCR Pharma”)(Tokyo:4552) announced today the successful development of constrained peptides capable of carrying various therapeutic payloads across the blood-brain barrier (BBB) for delivery/targeting to the brain, arising from the joint research collaboration between the companies initiated in February 2016.

Most therapeutics do not readily cross the BBB into the brain, with only a small fraction of the drug ever entering the central nervous system (CNS), posing a significant challenge to the development of effective therapeutics for the treatment of CNS disorders. The developed peptide carriers, when conjugated to various therapeutic payloads (herein referred to as a peptide-drug conjugates or “PDC”), function to facilitate the transport of the payload across the BBB into the brain, thereby significantly increasing the amount of the therapeutic in the brain. Potential payloads range from antibody and protein therapeutics to nucleic acid, peptide, and small molecules drugs. The current peptides, when conjugated to therapeutic antibodies have proven extremely effective in animal models at targeting the therapeutic antibody to the brain. The companies will continue to investigate further applications of these peptides to other therapeutic payloads and undertake pharmacokinetic studies with a priority on small molecule payloads.

The two companies will now focus on the development of brain-targeting PDCs, utilizing the aforementioned peptide carriers, and initiate third-party licensing activities. PeptiDream will lead third-party licensing activities to streamline process management and supply the peptide carriers for conjugation to interested third-parties’ therapeutic payloads. The

companies will share related revenues from licensing activities. The companies expect these peptide carriers to greatly accelerate the development of therapeutics for the treatment of CNS disorders and diseases to which no effective drugs are currently available.

**[Comment from Keiichi Masuya, EVP, and Patrick Reid, CEO of PeptiDream]**

*"We are extremely excited to now be able to provide an effective solution to one of the major challenges in the discovery and development of effective therapeutics for treating CNS diseases/disorders. Developing antibody-based therapeutics for CNS diseases/disorders is challenging because so little antibody ever crosses the BBB into the CNS, it simply never reaches an effective concentration, however, by now conjugating that antibody to our BBB-transporting peptide carriers, we can now effectively target the antibody to the CNS and significantly increase its concentration to a level where it can be effective. These peptide carriers have the potential to be effective when conjugated to a wide variety of therapeutic payloads. PeptiDream will now initiate licensing activities to conjugate our peptides to interested third-parties' therapeutic payloads."*

**[Comment from Shin Ashida, CEO of JCR Pharma]**

*"In February 2016, JCR Pharma and PeptiDream initiated a joint research collaboration utilizing JCR Pharma's knowledge of J-Brain Cargo®, its proprietary BBB technology, and PeptiDream's constrained peptide development technology based on its proprietary Peptide Discovery Platform System. I'm delighted that this collaboration has resulted in the successful development of constrained peptides that enable delivery of various therapeutic payloads across the BBB. Leveraging this achievement, JCR Pharma and PeptiDream will continue striving to contribute to the treatment of as many patients as possible."*

**<About JCR Pharma Inc.>**

JCR Pharma is a specialty pharma engaged in the research, development, manufacture and marketing of biopharmaceuticals and regenerative medicine with a focus on rare diseases. Its philosophy, "Contributing towards people's healthcare through pharmaceutical products" drives JCR Pharma to create innovative pharmaceutical products as a value-added treatment options for the under-served patient community.

For further information, please visit <http://www.jcrpharm.co.jp/en/site/en/index.html>

**<About PeptiDream Inc.>**

PeptiDream Inc. is a public (Tokyo Stock Exchange 1<sup>st</sup> Section 4587) biopharmaceutical company founded in 2006 employing our proprietary Peptide Discovery Platform System (PDPS), a state-of-the-art highly versatile discovery platform which enables the production of highly diverse (trillions) non-standard peptide libraries with high efficiency, for the identification of highly potent and selective hit candidates, which then can be developed into peptide-based or small molecule-based therapeutics. PeptiDream aspires to be a world leader in drug discovery and development to address unmet medical needs and improve the quality of life of patients worldwide. For further information, please visit [www.peptidream.com](http://www.peptidream.com).

**<Enquiries about the press release>**

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**<Enquiries about the licensing and joint research on BBB Carrier Peptides>**

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