



National Hospital Organization Osaka National Hospital and K Pharma Conclude Joint Research Agreement for Development of Novel Regenerative Medical Products Using Human iPS Cells for the Treatment of Chronic-phase Stroke, Brain Hemorrhage, and Traumatic Central Nervous System Injuries

K Pharma, Inc. ("K Pharma"; President and CEO: Komei Fukushima) has announced that it has concluded a joint research agreement with National Hospital Organization Osaka National Hospital ("Osaka National Hospital"; Director: Yasushi Matsumura) to develop novel regenerative medical products using human induced pluripotent stem cells ("iPS cells").

In the joint research, K Pharma will work with the Department of Biomedical Research and Innovation in the Institute for Clinical Research at Osaka National Hospital, led by Dr. Yonehiro Kanemura, to achieve regenerative medical treatments for chronic-phase stroke, brain hemorrhage, and traumatic central nervous system injuries, using novel iPS cell-derived neural precursor cells currently being developed by K Pharma, with the aim of achieving practical implementation.

Komei Fukushima, President, and CEO of K Pharma, states, "Dr. Kanemura's research department has played a significant role in the manufacturing of cells used for treatment, in the context of clinical research on treatment of sub-acute spinal cord injuries currently being conducted with Keio University taking the lead. K Pharma is preparing for clinical trials based on insights from this clinical research. Our entire company will unite and collaborate with Dr. Kanemura's research department, as we aim to deliver effective regenerative medical products for chronic-phase stroke and other conditions."

About chronic-phase stroke

A stroke, also known as a cerebral infarction, occurs when an artery that supplies blood to brain tissue becomes blocked by a clot or other obstruction, leading to partial necrosis of brain tissue due to inadequate blood and oxygen supply. This results in functional impairments such as language disorders, limb paralysis, and walking difficulties. In the chronic-phase following acute treatment, continued intervention, such as medication and rehabilitation, is crucial to prevent recurrence. It is estimated that there are approximately 1.3 million chronic-phase stroke patients in Japan.

About brain hemorrhage

Brain hemorrhages occur when a small artery within the brain ruptures due to some cause, leading to bleeding and the formation of a hematoma, which can exert pressure on the brain, causing symptoms such as nausea, impaired consciousness, and neuromuscular paralysis. The main treatments include medication to address underlying hypertension and surgical intervention, such as hematoma removal. It is estimated that there are approximately 200,000 chronic-phase brain hemorrhage patients who require treatment in Japan.

About traumatic central nervous system injuries

Traumatic central nervous system injuries occur when the brain or spinal cord, part of the central nervous system, is damaged due to a traumatic event such as an accident or fall. It involves paralysis of limbs and organs, sensory impairment, and muscle spasms in normally immobile muscles. It is estimated that there are approximately 57,000 traumatic central nervous system injury patients who require treatment in Japan.

About K Pharma

K Pharma is a spin-out venture company of the Keio University School of Medicine, and was established in November 2016. Leveraging human iPS cell technology discovered by Professor Shinya Yamanaka of Kyoto University in 2007, K Pharma is engaged in regenerative medicine business for conditions such as spinal cord injury and stroke, as well as "iPS drug discovery" business targeting intractable neurological disorders. K Pharma is committed to

addressing unmet medical needs worldwide and contributing to the field of medicine through regenerative medicine and iPS drug discovery business.

For more details, please visit: <https://en.kpharma.co.jp>

About Osaka National Hospital

As a member of the National Hospital Organization, which operates 140 hospitals nationwide under a single organization, Osaka National Hospital is a government-established medical institution intended to provide "policy-based medical care" in Japan. It addresses a wide range of disease conditions, including major illnesses like cancer, heart disease, and stroke, as well as infectious diseases such as AIDS and hepatitis C, and provides advanced emergency and disaster medical care. In addition, Osaka National Hospital has a clinical research center and are working on the development of new medical treatments, including multimodality cancer treatments, introduction of genetic diagnosis, and research on regenerative medicine using iPS cell-derived neural precursor cells. Osaka National Hospital actively participates in clinical research and trials, contributing to the advancement of medical care.

For more details, please visit: <https://osaka.hosp.go.jp/index.html>

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