

December 27, 2012

Kobe University  
KNC Laboratories Co., Ltd.  
Dainippon Sumitomo Pharma Co., Ltd.

**Signing a license agreement and a joint research agreement for new anti-cancer drug candidate compounds targeting the Ras signaling pathway**

Kobe and Osaka, Japan, December 27, 2012 – Kobe University (Headquarters: Kobe, President: Hideki Fukuda, Ph.D.), KNC Laboratories Co., Ltd., (KNC; Headquarters: Kobe, President: Katsutoshi Hirose) and Dainippon Sumitomo Pharma Co., Ltd. (DSP; Headquarters: Osaka, Japan; President: Masayo Tada) announce the signing of an exclusive world wide license agreement for the development, manufacturing and sales of promising compounds co-discovered by Kobe University and KNC, that are related to the Ras signaling pathway.

According to the terms of the agreement, DSP will make an upfront payment and thereafter milestone and royalty payments to Kobe University and KNC.

In addition, DSP and Kobe University have signed a joint research agreement aiming at the discovery of anti-cancer drugs, beyond the scope of the license agreement, that are relevant to the Ras-dependent signal transduction.

Kobe University has continually aimed to contribute to society with innovative drug discovery through many years of research at Graduate School of Medicine, and to apply its knowledge to society through licensing.

On the other hand, KNC is progressing its development of business proposals in medicinal chemistry based on its own technical capabilities in organic synthesis.

Kobe University determined the three-dimensional structure of the target protein by X-ray crystallography and NMR spectroscopy, and discovered a “druggable”, specific pocket on the surface of the target protein which can be targeted by low molecular weight compounds. Kobe University has carried out drug discovery research in collaboration with KNC using this pocket as a “keyhole”, searching for “keys”, i.e., compounds that are able to inhibit the functions of the protein by fitting into the pocket.

Both parties have succeeded in the design and synthesis of the compounds with good anti-cancer activities in pre-clinical studies by utilizing methods such as in silico docking simulations and structural biology studies.

In addition, this research achievement came from a contract research commissioned by the National Institute of Biomedical Innovation and a Grant-in-aid for Scientific Research from the Ministry of Health, Labour and Welfare.

Dainippon Sumitomo Pharma designates the oncology area with high unmet medical needs as a frontier therapeutic area. The DSP Cancer Institute, established in September 2012, focuses on drug discovery research with new approaches to deliver innovative anti-cancer medicine to cancer patients. With this license agreement DSP aims to strengthen its drug development pipeline in oncology area, while through the industry-academia collaboration with Kobe University, accelerating the discovery of innovative new drugs.

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[Reference: Glossary]

Ras signaling: Ras signaling pathway is known as one of the most important intracellular signaling pathways controlling the cell proliferation and differentiation.

X-ray crystallography: Although most X-ray radiation penetrates through material, some X-rays are scattered or absorbed. X-ray crystallography is a technique to determine the three-dimensional structure of a substance by analyzing the information gathered from scattered X-rays.

NMR: Nuclear Magnetic Resonance spectroscopy is one of the methods whereby it is possible to obtain structural and quantitative information about a substance through the analysis of its spectrum (atomic nucleus and molecular components).

In silico docking simulation: A technique for estimating the stability of co-structures of small molecule (such as drugs and hormones) and biomacromolecule (such as a protein and nucleic acid) using computer calculations.