May 18, 2016
SBI Pharmaceuticals Co., Ltd.

Registration of a Patent for Treatment and Prevention of Influenza Virus Infection through Joint Application with Tokushima University

SBI Pharmaceuticals Co., Ltd., (Head office: Minato-ku, Tokyo; Representative Director and CEO: Yoshitaka Kitao; "SBI Pharmaceuticals"), a subsidiary of SBI Holdings, Inc., engaged in research and development of pharmaceuticals, health foods and cosmetics using 5-aminolevulinic acid ("5-ALA") (*1), hereby announces that a patent has recently been registered in Japan for the treatment and prevention of influenza virus infection.

This patent was filed jointly with Tokushima University (Main campus: Tokushima-city; President: Sumihare Noji).

Patent number:	5920901
Title of invention:	An agent for the treatment and prevention of influenza virus infection
Assignee:	SBI Pharmaceuticals Co., Ltd. and Tokushima University
Filing date:	June 3, 2013

Influenza virus infection occurs widely across the world each year and causes mass infection that sometimes leads to patient's death. Influenza vaccines that make use of the immune system and oseltamivir and zanamivir that inhibit neuraminidase, an enzyme existing on the surface of the viruses, are frequently used for the prevention and treatment of this infection, respectively. However, these medicines for treatment are only effective at the early stage of infection (within 48 hours). Moreover, it is recently reported that the viruses resistant to the medicines are isolated. Consequently, the development of new agents is highly expected.

In our recent experiment, 5-ALA and sodium ferrous citrate (SFC) (*2) prevented the decline of food intake and body temperature and improved the survival rate in the model mice infected with influenza. It is assumed that the mechanism of action of the treatment with 5-ALA and SFC is not an inhibition of virus replication but an amelioration of the energy metabolism of vascular endothelial cells that primarily depends on lipids and a suppression of the generation of inflammatory cytokines through preventing the inflammation-induced collapse of such cells that could lead to severe symptoms. This finding allowed us to discover the potential of offering a new treatment for the influenza virus infection in future and has resulted in the registration of the above-mentioned patent.

SBI Pharmaceuticals will continue to pursue various potential applications of 5-ALA, and focus on research and development to provide pharmaceuticals that satisfy the unmet medical needs of as many people as possible around the world.

(*1) 5-aminolevulinic acid (5-ALA):
An amino acid produced in mitochondria. It is an important substance that serves as a functional molecule related to energy production in the form of heme and cytochromes, and its productivity is known to decrease with age. 5-ALA is contained in food such as shochu lees, red wine and Asian ginseng. It is also known as a material forming chloroplasts in plants.

(*2) Sodium ferrous citrate (SFC): A compound that is effective for the treatment and prevention of anemia, SFC has widely been used for pharmaceuticals and health foods for many years.

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