

May 20, 2016  
SBI Pharmaceuticals Co., Ltd.

**Registration of a Patent for Treatment and Prevention of Radiation Damage  
through Joint Application with The University of Tokyo**

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 radiation damage.

This patent was filed jointly with The University of Tokyo (Main campus: Bunkyo-ku, Tokyo; President: Makoto Gonokami).

Patent number:	5920902
Title of invention:	An agent for the Treatment and/or Prevention of radiation damage
Assignee:	The University of Tokyo and SBI Pharmaceuticals Co., Ltd.
Filing date:	July 11, 2013

Radiation damage is a general term for a physical disability or injury caused by the exposure to radiation, such as X-rays or gamma rays, and irradiation and radioactive contamination, etc. are known as the causes thereof. Treatment carried out today for radiation exposure is administration of hematopoietic cytokines (\*2) or bone-marrow transplant, both of which remain confined to the treatment for myelosuppression (\*3), one type of radiation damage.

We have found in our experiments using irradiated model mice that 5-ALA ameliorated the body weight loss and alleviated hematopoietic disorder, and was potentially effective against a wide range of symptoms caused by radiation damage through a new mechanism of action. This 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: Cytokine

The general term for a special protein secreted from cells of the immune system. G-CSF is known as one of the cytokines that promote hematopoiesis.

\*3: Myelosuppression

The state where bone marrow activity is decreased. A reduction in blood cells, including red blood cells, white blood cells and platelets causes symptoms like anemia.



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