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Cloning of dog in the past has been done using somatic cells. Researchers at RNL Bio used adipose stem cell-derived from fat tissue to clone a dog. They achieved a breakthrough in cloning two puppies in January 2009 by using the dog cloning technologies from the Seoul National University. This is the world's first dog cloning using adipose tissue-derived stem cells from a Beagle donor. A month later, the company announced that it has successfully cloned a toy breed, Pekingese, for the first time in the world.

RNL Bio, which accomplished the world's first commercial dog cloning in 2008, was chosen for the BioSpectrum Asia Pacific Bioscience Industry Emerging Company of the Year Award for 2010.

Dr Jeong Chan Ra, who worked at veterinary college in Seoul National University and LG Life Sciences (formerly LG Chemistry) and with Bayer Korea as team leader, established RNL Bio with an initial investment of $170,000 in November 2000 along with professors of veterinary college in Seoul National University to overcome cell damaged diseases and future catastrophic viral diseases.

Path towards progress

RNL Bio has established the largest GMP center for producing stem cells in Korea in 2006. After three years, the company has extended its GMP facility to meet the growing needs for stem cells. It has opened stem cell therapy centers at Tiantan Puhua Hospital, Yanda International Hospital and stem cell healing center for long- term patients at Yanji in China. RNL Bio has also opened cell therapy center for cancer, diabetes and auto-immune diseases in Kyoto, Japan. The company has licensed the stem cell technology to Japan in 2008.

The company is focusing on developing stem cell products such as Lipostem-Femoran for curing hip joint fracture; Lipostem-DM for curing diabetes mellitus; Astrostem for curing spinal cord injury; Vascostem for curing ischemic cardiac and cerebral infarction; and Cancerstem for curing cancer. RNL Bio has entered into agreements with many global research organizations such as Johns Hopkins School of Medicine, Newcastle University for lever regeneration and the German Heart Center.

RNL Bio has tied up with local medical centers and university hospitals, such as SAM and ASAN Medical Center, Seoul and Busan National University Hospital and Seoul ST Mary's hospital for conducting trials. It has received approval to commence phase I trial using adipose stem cells for spinal cord injury in 2009. RNL Bio has already commenced the phase I/II trial for Buerger's disease and degenerative arthritis, after getting the approval in 2007 and 2008 respectively. Meanwhile, it has completed trials related to Romberg's disease using fat-derived stem cells and also for critical limb disease.

RNL Bio has filed 26 patents of which 22 are with Korean authorities and rest with international agencies. It received five patents that are related to skin and cosmetic applications, for a method of isolating and culturing placenta-derived epithelial stem cells, for proliferating hematopoietic stem cells and has successfully commercialized the stem cell applications in cosmetics space. For optimum skin health, RNL Bio has launched a one-of-a-kind stem cell cosmetics line called Dr Jucre, incorporating the most advanced in stem cell technology and the best in modern skincare. The company was awarded the highest technology award in South Korea in 2009 for its advancement in stem cell research.

In November 2009, RNL Bio has successfully provided stem cell therapy treatment to an American student who was suffering from autoimmune hearing loss.

In 2010, in addition to the exclusive rights for the technology for the cloning of dogs from the Snuppy project, RNL Bio has acquired from Seoul National University, the exclusive rights to use Dolly Patents [somatic cell nuclear transfer (SCNT)] cloning technology on the non-transgenic dog cloning, following a recent court order on patent settlement with Start Licensing of US.

Through the acquisition of such rights, RNL Bio has become the unique entity in the business of providing dog cloning services worldwide. Not only that RNL Bio has the world-wide exclusive rights for cloning pet dogs and special-purpose dogs such as cancer and narcotic detection dogs, but it also has acquired the rights for transgenic dog cloning as well as cloning of endangered species. With this settlement, RNL Bio will expand its services overseas, as the world's sole dog cloning services provider, starting with countries that have the greatest demands such as the US, Japan, China and Russia.

Besides establishing a leading position in dog cloning, RNL Bio has launched commercial stem cell therapy for pets suffering from spinal cord injury in 2008. The company has also opened world's first integrated stem cell bank, called RNL Biostar to bank stem cells from cord blood, adipose tissues and placenta for animals in Rockville, Maryland, US. The company has cured old horse with ligament injury using fat stem cell therapy.

Expanding horizons

The work force of RNL Bio has grown over the period from five people in 2000 to 290 with 28 scientists. Currently, it has gross sales of $40 million with market capitalization of $350 million. The company has generated most of its sales from stem cell banking services. RNL Bio has signed 5,300 banking contract cases and 3,000 stem cell therapy cases.

The company plans to expand its business to cloning of detection dogs, theme park for cloned dogs, and development of improved breeds via transgenic cloning technologies. In order to meet the growing demands in dog cloning, RNL Bio is currently constructing the world's largest dog cloning research center in Yongin, Kyunggi Do, which is scheduled to open in April 2010.

On future plans, Dr Jeong Chan Ra, CEO of RNL Bio, says, "We are looking at achieving a sales of $900 million by 2012 with net profit of $50 million. To reach this target, we have set three goals: treating 100,000 patients all over the world, to complete standard therapy protocol for Buerger's diseases, osteoarthritis, spinal cord injury, rheumatoid, chronic renal failure, and Alzheimer's and finally to establish medical network of 200 stem cell therapy centers world over."

On receiving the BioSpectrum Asia Pacific Emerging Company of the Year 2010 Award, Dr Jeong Chan Ra, says, "In the 21st century, stem cells and their capacity to treat diseases have become a driving force in the field of biotechnology. We live in times where disease causes death of life-sustaining cells, but now, thanks to the regenerating mechanism found in stem cell, our future looks much brighter. We strongly believe that the life-saving stem cell therapies will be a central focus while developing medicine in future. RNL Bio is committed to creating and developing therapies that will not only prevent diseases but also ensure a better quality of life for all," he adds on a confident note.