

# ***NEWS RELEASE***

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**Takara Bio entered into a licensing agreement relating to Oncolytic Virus  
“Canerpaturev” with Dong-A ST, South Korea**

Kusatsu/Shiga Japan – August 22, 2018 – Takara Bio Inc. (Takara Bio), announced today that it has entered into an agreement with Dong-A ST Co., Ltd. in Seoul, South Korea (Dong-A ST) for exclusive development and sales of Oncolytic Virus Canerpaturev (C-REV)\* in South Korea as of August 22, 2018.

Under the agreement, Dong-A ST is allowed to conduct clinical development of C-REV in South Korea exclusively. After acquisition for manufacture and sales approval, Dong-A ST will exclusively sell C-REV in South Korea. In contrast, Takara Bio holds a right to manufacture C-REV and supply Dong-A ST with the products under certain financial condition.

Takara Bio will receive upfront and milestone payments from Dong-A ST depending on the achievement of certain development based on the execution of the agreement. Following launch, Takara Bio will also receive milestone payments upon the achievement of target sales and running royalty on net sales in addition to the product supply for compensation. Above upfront and milestone payments will be up to a maximum total amount of around 300 million yen.

With the aim of early commercialization, Takara Bio advances the clinical development of gene therapies utilizing oncolytic virus and engineered T cells in Japan and overseas. Notably, our plan is to apply for application of C-REV targeting melanoma for FY2019 in Japan. The impact of executing this agreement is immaterial to the current fiscal year’s financial forecast.

\* HF10 has been given an international name as Canerpaturev (C-REV) in March 2018.

< Reference >

1. About Dong-A ST Co., Ltd.

Company Name	Dong-A ST Co., Ltd.
Established	March 1, 2013
Head Office	64 Cheonho-daero, Dongdaemun-gu, Seoul 02587
CEO	Daesik Eom
Number of Employees	1,493 (as of March 31, 2018)
Stock Market	Korea Stock Exchange/KOSPI
Business Description	Manufacturing and distributing of ethical drugs, etc. Development of new drugs

## 2. Glossary

### Oncolytic virus

Oncolytic viruses selectively replicate within cancer cells and break it down without giving excessive damage to normal cells. Virus released from cells destructed via such replication spreads to infect other cells, and further the fragmentation from destructed cancer cells is expected to lead to the tumor shrinkage even on unadministered tumors by stimulating immunity to cancer cells. This type of virus is called an oncolytic virus.

### Canerpaturev (C-REV)

Canerpaturev is an attenuated strain of the herpes simplex virus 1 (HSV-1) and exhibits antitumor activity when inserted into a cancerous region. Takara Bio has entered into an exclusive licensing agreement for domestic co-development and exclusive sales of Oncolytic Virus C-REV with Otsuka Pharmaceutical Co., Ltd. in December 2016. An international nonproprietary name assigned to HF10 pharmaceutical products is Canerpaturev made through a review by WHO (World Health Organization).

(Reference) WHO Drug Information, Vol.32, No1, 2018

### Melanoma

Melanoma is the malignant type of skin cancer. Skin cells which make the pigment melanin are called melanocytes, and melanoma is known to be a form of cancer which melanocytes or nevus cells (cells in mole) become malignant.

### Engineered T-cell Therapy

It is a therapy through selective recognition and attack cancer cells by therapeutic gene-transduced T cells which are responsible for immune homeostasis.