

March 13, 2020

DAICEL Corporation

## **DAICEL Participates in the Joint DNA Vaccine Development Against the New Coronavirus Conducted by Osaka University and AnGes, Inc. with Our Novel Drug Delivery Device, “Actranza™ lab.” Technology**

DAICEL Corporation (Head office: Kita-ku, Osaka, President and CEO: Yoshimi Ogawa, hereinafter: “DAICEL”) provides our novel drug delivery device, Pyro-drive jet injector “Actranza™ lab.” technology, which delivers drugs into cells, with the joint DNA vaccine development against the new Coronavirus disease 2019 (COVID-19) conducted by Osaka University (Head office: Suita-shi, Osaka, President: Shojiro Nishio, hereinafter: “Osaka University”) and AnGes Inc. (Head office: Ibaraki-shi, Osaka, President and CEO: Ei Yamada, hereinafter: “AnGes”).

The Actranza™ lab. technology enables efficient delivery of plasmid DNA encoding antigen protein into the cells and this ensures antibody production and, therefore, a highly efficient vaccination can be expected. With the joint development by Osaka University and AnGes, acceleration of the DNA vaccine development in the drug delivery technology by using the Actranza™ lab. technology of DAICEL, and production by Takara Bio, Inc. (Head office: Kusatsu-shi, Shiga, President and CEO: Koichi Nakao, hereinafter: “Takara Bio”) that has the plasmid DNA production technology and production facilities, we aim to commence clinical trials as soon as possible, possibly within 6 months, through this integrated process from development to production.

### <Overview of the joint development>

- By utilizing the plasmid DNA platform of AnGes, a joint development was conducted for Prophylactic DNA vaccines for the COVID-19 with Osaka University (Department of Clinical Gene Therapy/Department of Health Development and Medicine).
- The DNA vaccine production process can be established in a shorter period of time than the production of the conventional vaccines.
- The production is implemented by Takara Bio that has the plasmid DNA production technology and production facilities.

### <Participation of DAICEL>

- DAICEL developed a gene transfer method by using the Actranza™ lab. technology and is conducting the research for its clinical application with Osaka University (Department of Device Application for Molecular Therapeutics/Department of Health Development and Medicine).
- The Actranza™ lab. technology enables the gene transfer along with good intradermal delivery, leading to the efficient vaccination.

### <Overview of the novel drug delivery device Actranza™ lab.>

This technology distributes a liquid into a specific organ as a needle-free system by using a force generated from pyro combustion. According to the animal studies, a higher gene expression is achieved in addition to the accurate delivery to skin (the dermis/epidermis layer) than the conventional needle injection. Since dermal/epidermal tissue contains more immunocompetent cells than the muscle tissue, the efficiency of the vaccines can be enhanced when vaccine is delivered in this mode.

View details : <https://www.daicel.com/en/research/actranza.html>

### <About DNA vaccine>

DNA vaccines can be produced in a short period of time without pathogenic components. By inoculating a circular DNA (plasmid) encoding the specific viral protein, the antigen protein is produced in the body and immunized against the pathogen.

### <Contact for inquiry on this subject>

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