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Company Name: AnGes Inc.

Presentative: Ei Yamada, President & CEO

(Code Number 4563, Mothers of the TSE)

AnGes and Osaka University launch joint DNA vaccine development targeting novel Coronavirus (COVID-19)

-Participation of Daicel corporation with a new administration device technology-

Tokyo, March 13, 2020 - AnGes Inc. announced that Daicel Corporation (hereinafter "Daicel"), with a new administration device technology to deliver drugs intracellularly, has decided to take part in our project with Osaka University in connection with the joint development of a DNA vaccine against a novel coronavirus announced on March 5, 2020. Using the new jet injector Actranza™ lab during for administration of a drug makes it possible to increase the efficiency of gene expression and to raise antibody production capability of DNA vaccine, leading to the development of more efficient DNA vaccine. In this collaboration with Daicel to the joint development between AnGes and Osaka University, the new drug administration device and Takarabio's plasmid DNA production capability enable us to aim to start clinical trial within 6 months.

【Daicel's participation in the development of DNA vaccines targeting the novel coronavirus】

- Daicel is developing an intradermal gene transfer method, using this new administration device, and promote research with Osaka University (Impulse Science for Medicine; Department of Health Development and Medicine), aiming at its clinical application.
- Use of this new administration device is expected to increase the efficiency of intradermal genetic expression and antibody production capability, enabling the development of more efficient DNA vaccines.

【Overview of the development of preventive DNA vaccines against the novel coronavirus, using plasmid DNA manufacturing technology-Reference information from the March 5 press release】

- Joint development of DNA vaccine against novel coronavirus between AnGes and Osaka University (Department of Clinical Gene Therapy; Department of Health Development and Medicine) based on the previous achievement of plasmid DNA product.
- The manufacturing process can be established in a shorter period of time with the manufacture of DNA vaccines, compared with the vaccine with using inactivated viruses (attenuated vaccines) or the vaccine with using genetically modified virus protein.
- The manufacturing operations will be undertaken by Takara Bio Inc. that possesses manufacturing technology and facilities of plasmid DNA.

<About Actranza™ lab, Daicel's new drug administration device>

It is a technology driven by pyro combustion to deliver drug solutions inside a specific tissue without using a needle. A study using animal models has reported that, compared to injections using the conventional needles, the device showed greater accuracy of the delivered sites, and increased the efficiency of gene expression. Because numerous immunocompetent cells exist intradermally compared to intramuscularly, the device is expected to enhance vaccine efficiency.



<About DNA vaccine>

DNA vaccines are safe and can be produced in a short time period without using any dangerous pathogens. By inoculating a circular DNA (plasmid) encoding the protein of the target pathogen, the pathogen protein is produced in the body and immunized against the pathogen. Unlike attenuated vaccines, DNA vaccines are safe as they have no pathogenicity.

The impact this will have on the full-year consolidated results for this fiscal year is currently being examined.

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