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AnGes MG, Inc.

Efficacy of Drug Delivery System (DDS) Nanoparticles Supported Nucleic Acid  
Medicine for Atopic Dermatitis, Developed by Hosokawa Powder Technology  
Research Institute and AnGes MG, Inc. Confirmed in Animal Experiments

Hosokawa Powder Technology Research Institute (Hosokawa Micron Corporation's subsidiary company in charge of its research and development) and AnGes MG, Inc. carried out animal experiments of an external medicine (dermal cream formulation) that was prepared by binding NFκB decoy oligodeoxynucleotides to biocompatible polymer nanoparticles, for demonstrating its efficacy in the treatment of atopic dermatitis and psoriasis.\*

*\* Hosokawa's success of developing composite nanoparticle technology for binding AnGes' developed NFκB decoy oligodeoxynucleotides to biocompatible nanoparticles was released on October 3, 2005.*

We announce that the drug has displayed marked effects that was about 10-times higher than those of a conventional cream. AnGes' NFκB decoy oligodeoxynucleotides binded to Hosokawa's compound nanoparticles (nanocomposites) has shown quite a superior action of skin permeability and delivery into cells.

We will further undertake studies and development of this modified drug to confirm safety for its future clinical application.

These results will be presented at the "23<sup>rd</sup> Symposium on Particle Preparations and Designs" of the Society of Powder Technology to be held on October 25 and 26.

This confirmation of efficacy is a fruit of integration between novel nanoparticle technology and biotechnology. In the future, this area is expected to yield advances in state-of-the-art medical technologies such as protein medicine, gene medicine and nucleic acid medicine.

## [Details]

NFκB decoy oligodeoxynucleotides is developed by AnGes MG as a nucleic acid medicine indicated for immune abnormality and inflammatory diseases such as atopic dermatitis and rheumatoid arthritis.

Of these, atopic dermatitis is a disease for which the development of a new treatment drug is eagerly awaited, since, although there are believed to be as many as 1.4 million patients in Japan, effective treatment methods have yet to be developed.

NFκB decoy oligodeoxynucleotides has the potential to become an epoch-making atopic dermatitis drug that is effective and induces few adverse reactions. Currently, AnGes MG is carrying out its development in Japan in alliance with Alfresa Pharma Corporation.

Meanwhile, due to its high molecular weight (approximately 13,000), the development of decoy oligodeoxynucleotides as a modified medicine was considered to be useful in order to effectively infiltrate into the skin even in areas with high barrier function.

Consequently, AnGes MG applied the percutaneously administering nanoparticles DDS technology of Hosokawa Powder Technology Research Institute and the aforementioned marked effects were demonstrated.

In the analysis of pharmacological effects on skin diseases, the inhibitory activity of the nanoparticle preparation on delayed type allergic reactions in mice after percutaneous administration was evaluated.

As a result, the cream using the nanocomposite particles of Hosokawa Powder Technology Research exerted a pharmacological effect identical to that at approximately 10% of the dose (converted to the weight of decoy oligodeoxynucleotides) of conventionally used vaseline ointment containing decoy oligodeoxynucleotides. The objectives of the study were achieved with confirmation of superior effects of the nanocomposite agent to infiltrate into the skin and deliver the drug into cells.