Efficacy of NF-κB decoy oligodeoxynucleotides for periodontal disease
confirmed in an animal study
-An academic paper published in the scientific journal,
Antioxidants & Redox Signaling-

AnGes MG, Inc. has announced that a study of NF-κB decoy oligodeoxynucleotides (ODN) conducted by Osaka University has confirmed efficacy for periodontal disease in an animal study and that the study results have been published in the scientific journal, *Antioxidants & Redox Signaling* (electronic edition (Instant Online)).

These study results were achieved in the project named "Development of Novel High-Function-Added Medical Devices" under the 2005 Basic Research Promotion in the Health and Medical Field. The study was selected and grant-funded by the Independent Administrative Agency National Institute of Biomedical Innovation. This project has been conducted by Osaka University Graduate School of Medicine.

In this study, the administration of NF-κB decoy ODN into the gingival submucosa at the tooth root of canine periodontitis models statistically significantly suppressed gingival recession and alveolar bone absorption due to periodontitis. When evaluating the effect of NF-κB decoy ODN in wound healing using canine alveolar bone defect models, the results confirmed that

NF-κB decoy ODN also promoted the wound healing of alveolar bone defect compared to controls. These findings suggested that NF-κB decoy ODN inhibits the production of inflammatory factors such as interleukin-6 (IL-6) and monocyte chemotactic protein-1 (MCP-1), which are enhanced at the onset of periodontitis, resulting in inhibiting the activation of osteoclasts and bone absorption. At the same time, NF-κB decoy ODN did not affect normal cells involved in bone metabolism.

The periodontal disease is classified roughly into gingivitis and periodontitis. Periodontitis in particular is a condition in which inflammation initiated in the gingiva extends to the deep periodontium. The cause is considered to be oral bacteria in dental plaque. Although antibiotics and anti-inflammatory drugs are used to treat periodontitis, an adhesion mechanism connecting the periodontium with teeth will corrupt and the alveolar bone will gradually become absorbed. In severe cases, tooth extraction is required.

For this invention, AnGes MG has already submitted a patent application for "a therapeutic agent for periodontal disease and post surgery defect of the alveolar bone," also indicating that the company owns its exclusive license.
AnGes MG expects NF-κB decoy ODN, with its effect of controlling inflammation and bone absorption, to become a therapeutic agent for periodontal disease, and expects it to lead to the offering of a wider range of treatment options for this condition.