



Development of Non-Thermal Plasma Medical Devices from Basic Research

Jeong-Hae Choi¹, Young-Min Kim¹, Hyun-Young Lee¹, Eun-Ji Ann¹, Dae-Seok Hwang³, Hae-June Lee⁴, Jin-Woo Hong⁵ and Gyo-Cheon Kim^{1,2}

¹R&D Center, FEAGLE Corporation, Yangsan 50614, Republic of Korea

²Department of oral anatomy and cell biology, School of Dentistry, Pusan National University

³Department of Oral & Maxillofacial Surgery, School of Dentistry, Pusan National University, Yangsan 50612, Republic of Korea

⁴Department of electrical engineering, Pusan National University, Busan 46241, Republic of Korea

⁵Department of Internal Medicine, School of Korean Medicine, Pusan National University, Yangsan 50612, Republic of Korea

E-mail: ki91000m@feagle.co.kr

Since 2004, we have studied the medical roles of non-thermal plasma (NTP). In the field of dentistry, we introduced the techniques of NTP such as tooth bleaching, anti-microbial activity and fluoride application on tooth. We further suggested new therapeutic methods against cancer using NTP and cancer-specific antibody conjugated gold nanoparticles. As for skin application, we introduced the mechanism of transdermal drug delivery and atopy sedative effect mediated by NTP. Skin wound healing and rejuvenation by NTP were also demonstrated due to the fact that NTP accelerates the proliferation of epidermal cells, the production of extracellular matrix and secretion of various growth factors. Based on these findings, we established a venture company called Feagle in 2014, which produces plasma medicine related devices. In this presentation, we would like to introduce NTP devices of Feagle for dental care, cosmetics, skin diseases, muscle pain and nerve regeneration.

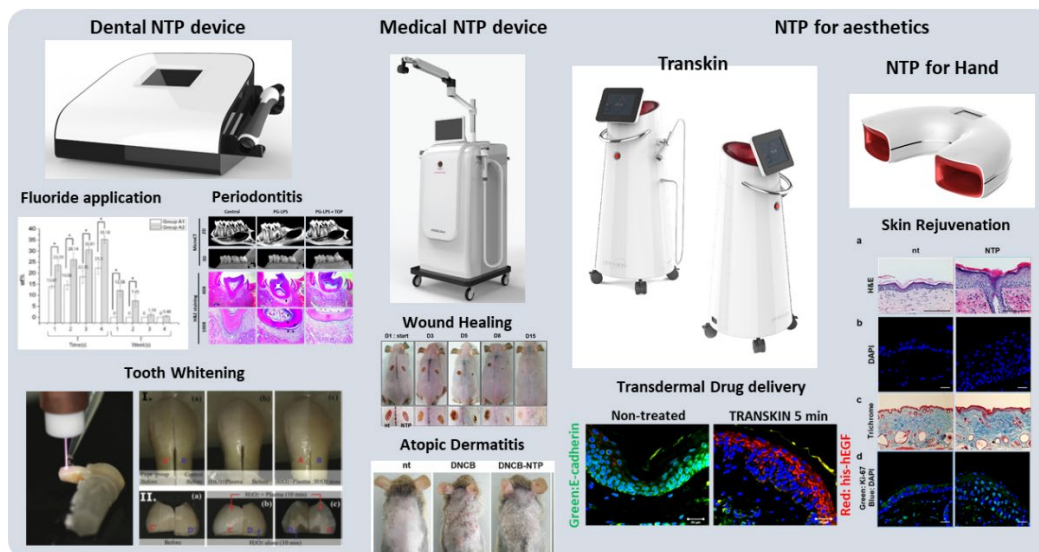


Fig. 1 FEAGLE's research Field and Items under development.

References

- [1] J. H. Choi, Y. S. Song, H. J. Lee, J. W. Hong & G. C. Kim, *Scientific Reports* (2016)
- [2] J. H. Choi, Y. S. Song, K. Song, H. J. Lee, J. W. Hong & G. C. Kim, *Scientific Reports* (2017)