

International Conference on  
**Targeting Diabetes and Novel Therapeutics**  
September 14-16, 2015 Las Vegas, Nevada, USA

**Recombinant production of human skin growth factors for effective treatments of hard-to-heal wounds**

**Wan Keung R Wong**

Hong Kong University of Science and Technology, Hong Kong

An estimated population of 400 million people is currently afflicted with Diabetes Mellitus (DM) worldwide. Among DM patients, 15% of them will develop a foot ulcer, which is a major complication of DM, and 15% of the patients with DM foot ulcers will require amputations. Consequently, DM patients account for half of the non-traumatic lower-limb amputations. The cost of diabetic foot care is unbelievably high; for example, an estimated cost of non-operative care of a single foot ulcer could be as high as US\$ 7,000. In view of the difficulties and expensive costs of treating DM foot ulcers, in 2003, our team made use of recombinant human Epidermal Growth Factor (EGF), which was produced using our proprietary *Escherichia coli* excretion system, and conducted a double-blind randomized controlled study to investigate the efficacy of EGF in treating DM ulcers. The results revealed that EGF was highly effective in the treatments, with a high healing efficiency of 95% within a median time of six weeks, in comparison with 42.1% for non-EGF treatment over a period of 12 weeks. Our findings were reported in the June 2003 issue of *Diabetes Care*, and a PCT patent for the findings was granted in USA, China, Taiwan, Europe and Hong Kong. In this presentation, efficient expression systems, which have been employed to produce EGF and another important skin growth factor, human Basic Fibroblast Growth Factor (bFGF), will be introduced. The important properties of EGF and bFGF required to exert their bio-activities will also be discussed. Both EGF and bFGF may prove to be invaluable means exploited for cost-effective treatments of DM foot ulcers in the future.

**Biography**

Wan Keung R Wong graduated from UBC in 1986 and worked first as Postdoctoral Fellow and subsequently as Research Scientist at Allelix Biopharmaceuticals for four years, joined Hong Kong University of Science and Technology (HKUST) in 1990 and is currently appointed as Associate Professor of Division of Life Science at HKUST. Concurrently, he serves as Chairman of Gene-vinate Limited, which was founded in October 2006 and is currently a member/company of the HKUST Entrepreneurship Program. He has been involved in both basic and applied research activities in the field of Biotechnology. His expertise lies in molecular biology, development of microbial expression systems, and cost-effective production of recombinant proteins for commercial applications. He was a pioneer in the development of novel *Escherichia coli* excretion and intein-mediated expression systems for efficient expression of valuable proteins, e.g. human Epidermal Growth Factor (EGF) and basic Fibroblast Growth Factor (bFGF). These factors have been employed by WK's team as active ingredients in skincare products for applications. For example, EGF has been used to effectively treat hard-to-heal wounds including diabetic foot ulcers, bedsores and others. In addition to publishing these important results in the June 2003 issue of *Diabetes Care*, a PCT patent, covering USA, PRC, Taiwan, Europe, and Hong Kong has been granted for these novel findings. Under the leadership of WK, GVN has developed many lines of healthcare and cosmetic products for commercial applications. Because of his enthusiasm in biotechnological R&D, and commercialization of the resulting outputs, WK has recently been nominated by *China Daily* as one of the world's 80 eminent Chinese entrepreneurs in 2014. In addition, GVN has recently been elected by *Mediazone Group* as the most innovative Biotechnology Group in Hong Kong in 2015.

[bcwkrw@gmail.com](mailto:bcwkrw@gmail.com)

**Notes:**