



9<sup>th</sup> Annual AMGEN Medical Researcher Award



Presented during  
ASMR Medical Research Week®

**EMBARGOED UNTIL MIDDAY JUNE 3, 2008**

Professor Mark Kendall, Australian Institute for Bioengineering & Nanotechnology, and The Diamantina Institute for Cancer, Immunology and Metabolic Medicine, The University of Queensland, has won the 2008 Amgen Medical Researcher Award for his significant advancement of the science of needle-free immunotherapeutic delivery targeting the skin, successfully applying this science to world-leading commercial technologies for health care, namely: (1) Gene Guns, and (2) Nanopatches.

1. The Gene Gun, is the world leading DNA vaccination approach not reliant upon carrier viruses. Gene Guns are hand-held rocket nozzles to accelerate DNA-coated micro-particles to a momentum sufficient to penetrate the human skin (or mucosa), uniquely targeting cells and treating major diseases. Professor Kendall is a world leader in Gene Gun research, with critical fundamental and applied research discoveries of the device design and subsequent physical and immune responses following micro-particle delivery. His findings have reshaped the thinking of biolistic DNA vaccination. Importantly, extending to commercialising patented Gene Gun work (six key patents families with 17 patents in total), to form the world's only handheld Gene Gun system for clinical use. Phase I and Phase II clinical trials are currently underway with an aim to have the biolistic device as a marketed health care product within the next few years.

2. Nanopatches – Professor Kendall initiated and built a dynamic world-leading and growing research team – currently of 15 scientists from around the world – investigating an alternative and novel skin delivery technology: called a micro-nanoprojection array patch (“Nanopatch”, for short). The medical device employs arrays of silicon nano-scale projections, on a patch, to accurately, efficiently and safely deliver large and small molecules not just to specific cells, but to the organelles within them.

Excellent progress has been made with the patented medical device (3 patents filed, with more in preparation), including: establishing a fabrication method; achieving significant immune responses in mice following vaccination (both with conventional and DNA vaccines); and a preliminary study in human volunteers showing the Nanopatch is pain-free, safe and well tolerated following application. Real advances have been made in realising the Nanopatch potential to revolutionize immunotherapeutics (e.g. DNA vaccination and allergy) through more effective targeting with a cheap and practical device suitable for the developed and developing world. Commercialization of Nanopatches has begun.

At age 33, Mark Kendall is a Research Professor appointed by the University of Queensland. He is a Director of the International Needle-free Vaccination Alliance (INVax) that brings together the World Health Organization (WHO), the Program for Appropriate Technology in Health (PATH) and the Seattle Biomedical Research Institute. Professor Kendall recently organized and co-chaired the WHO Conference on Intradermal Immunization (Washington, DC, 2007).