

Professor Steve Rannard, Chief Scientific Officer of IOTA NanoSolutions, will be presenting at the Nanomedicine: Visions for the Future Conference, 24th – 25th February 2010, Amsterdam. Professor Rannard will be delivering a presentation entitled:

**‘Novel Non-Attrition Approaches to Water-Based Formulation
of Poorly Soluble APIs’**

Date: Wednesday 24th February 2010

Time: 12.00 - 12.25pm

Venue: NH Carlton Amsterdam Hotel, Amsterdam

Abstract:

The processing of poorly soluble APIs to form nanodispersions predominantly involves either solid/liquid phase attrition or solution approaches. Grinding of large particles in water to form nanodispersions is often limited by API physical properties, stabiliser choice and long term stability of the dispersion. Solution approaches that rely upon precipitation or emulsion manipulation are also limited by the chemistry of the active ingredient and the formation of stable liquid dispersions.

New non-attrition routes with wide applicability to varying ingredient physical properties and chemistries are of clear value to the pharmaceutical industry. We have developed a series of nanoparticle formation technologies that are being applied to amorphous, crystalline, high melting point and low melting point poorly water-soluble and water-insoluble organic materials, leading to the generation of nanodispersions without the use of traditional particle formation steps such as milling or precipitation. The technologies have been successfully applied to form nanodispersions of hydrophobic actives in water as well as hydrophilic actives in hydrophobic liquids and have generated a range of benefits including improved bioavailability and bioactivity, controlled release of actives and enhanced material efficacy.

Results of nanodispersion formation will be discussed for materials with a range of solubilities, melting points and crystalline/amorphous properties. In vivo, ex vivo and in vitro application data from pharmaceutical, antimicrobial and antifungal nanodispersion formulations will be described in overview.

Speaker Biography:

Steve has over 16 years experience within industrial R&D and is currently Chief Scientific Officer of IOTA NanoSolutions Limited. In addition to his position at IOTA NanoSolutions, Steve is a professor at the University of Liverpool Chemistry Department.

Steve is a cofounder of IOTA NanoSolutions Limited, having led the development of the technology within Unilever, Port Sunlight Laboratories before joining IOTA NanoSolutions and the University in 2007. Steve held senior research and management positions within Unilever for 9 years, initially as a member of the Physical Sciences Group Leadership Team and Unit Leader for the Molecular Sciences Unit, moving to become the Science Area Leader for Functional Ingredients in 2001. Latterly, Steve held the position of Discovery Platform Director for Molecular and Nanotechnologies for the HPC division of Unilever. Steve has also worked for Courtaulds Strategic and Corporate Research and for the Cookson Technology Centre. Steve gained his first degree in Chemistry with Materials Science and a D.Phil in Controlled Block Copolymer Synthesis from the University of Sussex. He was also the first recipient of the RSC/MacroGroup Young Researcher of the Year Medal for his branched polymer research in 1998. Steve is the co-inventor of over 50 patent filings and co-author of over 55 scientific publications.