

The Department of Biotechnology at Jaypee Institute of Information Technology (JIIT), NOIDA, in association with Scintity Inc., organised an International Conference **“Bioproducts and the OMICS Revolution”**, March 16-17, 2013,- as part of the Biotechnology Conference Series - an effort to strengthen and enhance research informed teaching. Continuing the theme of drug discovery and recognising rising threat from multi-drug resistant bacteria, the presentations were devoted to strategies to discover/develop newer antimicrobial molecules/antibiotics, industry approach to drug development, application of Omics, and new generation sequencing technologies. Prof. Sanjeev K. Sharma, Department of Biotechnology, JIIT, moderated the discussions. Prof. Michael Goodfellow, Newcastle University, U.K., in his Keynote lecture- “Anti-Infective agents from Desert Actinomycetes: Back to the future”, expanded on the theme of antibiotic discovery-bioprospecting for novel antibiotics from actinomycetes, the richest source of discovered antibiotics. Prof. Goodfellow explained the importance of focussing attention on extreme habitats as sources of new actinomycetes and novel antibiotics. He stressed the point that there have been many reports of novel chemistry from such studies and provide encouragement that such an approach is likely to be successful in development of new drugs. This echoed Prof. Sharma’s views in the introductory note that microbes are our best bet (bacteria, simply put are champions of evolution and prolific inventors) in the continuously worsening scenario of antibiotic “research and development” pipeline. We only need to harness their genetic plasticity/potential and jokingly suggested granting “patents” to microbes. India (one of the 17 mega diversity countries in the world) and Indian scientists can play a proactive role in ensuring accelerated drug discovery.

Prof. Rup Lal (Department of Zoology Delhi University) in his trademark speak-easy fashion demonstrated how biosynthetic plasticity can be elegantly exploited for production of Rifamycin analogues by genetic mutation of polyketide biosynthetic gene cluster. Prof. A.K. Srivastava, IIT-Delhi and Dr. Amit Saxena from Reliance Life sciences, Mumbai, succinctly covered the journey of bioproducts/biologicals from laboratory to the market; scale-up considerations in Cell culture Bioprocesses, regulatory regimes and phases of drug development. Dr. Gulshan Wadhwa, Department of Biotechnology, Government of India, summarised various facets of Omics characterised by high throughput or large-scale experimental methodologies, generating a vast amount of biological information. Dr. Sanjay Shahi - Xcelris Genomics, Ahmedabad described the fast moving area of next-generation sequencing (NGS) platforms and discussed how advances in NGS technology are improving our understanding of how the genome impact on the diagnosis and mining the microbial resources. Dr. Jyoti Bajpai Dikshit (Strand Life Sciences, Bangalore) addressed the data analysis challenges and optimization of NGS pipelines, data sharing and archiving and demonstrated “AVADIS NGS”- a next generation sequencing analysis software”. Opportunity was provided to students to showcase their talent through poster presentation and interaction with subject area experts, students taking their place as contributors to the university academic environment and level of engagement ensuring high satisfaction levels and the sense of achievement. In his concluding remarks Prof. Sharma hoped that exposure to the way scientists work would motivate students to pursue careers in research. There was participation of around 200 faculty and student delegates from various academic institutions. Overall, a picture emerged that it is imperative to re-focus attention on bacteria/microbes as counter strategies for emerging drug-resistant bacteria utilizing the advanced “Omics” technological platforms of 21st century that complement traditional approaches. Back to the future.