The 2nd International Conference on Drug Discovery and Therapy

February 1-4, 2010, Dubai, UAE

The 2nd International Conference on Drug Discovery and Therapy (ICDDT) was held from February 1-4, 2010 at Dubai Men's College, UAE. ICDDT 2010 was the second edition of this major international conference and exhibition, which aimed to present cutting edge advances in various disciplines on drug discovery and new therapeutics. The 2nd ICDDT proved to be a major pharmaceutical and medical research event of the UAE and was covered by the print and electronic media of the region. The conference hosted over 700 pharmaceutical scientists and clinical researchers who discussed the latest global breakthroughs in drug discovery and therapeutic research. Leading industrial and academic experts from 74 countries around the globe presented their findings in the form of Plenary Lectures, Invited Lectures, Session Lectures and Posters at this four-day conference. The conference agenda included more than 300 talks and 250 poster presentations in 23 conference tracks. There was a parallel commercial exhibition where both local and international companies exhibited their products. The 2nd edition of ICDDT provided a platform for all pharmaceutical scientists, internists and primary care physicians to discuss and learn about all the important international breakthrough developments on drug discovery and new therapeutics. The conference witnessed global participation from academia and industry. 731 delegates from 75 countries attended the conference. Majority of the participants were from USA, UK, Germany, Canada, Spain, Japan, Italy, Australia, South Korea, India and UAE.

During Feb 1 Thru 4, 2010, speaker sessions were held in eight halls of Dubai Men's College. All the sessions were well attended and appreciated by the participants. Posters presentation was also conducted simultaneously during the lecture sessions, where the presenters displayed their posters, which were attended by a large number of delegates during the lunch and coffee breaks. The meeting addressing all areas pertinent to this endeavour, concentrating on leads that arise from highly active antiretroviral therapy, effect on the quality of life, laboratory monitoring of patients on HAART and HIV serostatus disclosure. There were presentations in varying subjects of Anaemia, Comparative analysis of malaria parasite density using actual and assumed white blood cell counts, Reference percentiles of haematological and biochemical iron values of blood donors, Prostate cancer diagnosis, Anti-microbiological drug resistance and other interesting topics in the area of Biomedical Science. The list catered to a number of contributions that stem from other sources, aiming to provide a well-informed and productive forum for examination of as wide a range as possible of approaches, developed in disparate laboratories worldwide. Drug discovery, as a field, has evolved into a process that not only involves the scientist but also many other tangential fields such

as physicians, legal experts, business individuals, etc. One portion of the drug discovery effort that is of particular challenge is one pertaining to neuroscience. This is not only the complexity of the nervous system, but also the relatively poor understanding of most psychiatric and neurological diseases. Despite this, the worldwide market for CNS disorders was estimated to be \$50 billion in 2001 and is set to grow to the aging population, due to better diagnostic procedures. However, although the process has become multi-variant over the years requiring billions of dollars to be spent for each successful launch of a drug; the heart of the matter still remains to be target identification/validation and lead discovery/optimization.

This Conference on Drug Discovery and Therapy addressed the major contributions toward CNS research that arises both at the industrial setting as well as the academic setting. The section included a cross-section of both basic research as well as more applied (translational) research that highlights the amount of work being produced at all research sites. It has been predicted that central nervous system (CNS) disorder will be the major medical need of this century. In spite of this recognition and the tremendous effort and money invested in CNS drug discovery, the outcome has been very limited over the last decade. Since the underlying genetic and neuronal abnormalities in most psychiatric and neurological disorders are largely unknown, identifying potential pharmacological targets is particularly difficult. Furthermore, clinical evaluation of drug candidates is challenging as objective measures of symptoms of CNS diseases are frequently lacking. Therefore, adequate evaluation of the outcome, or early sign of clinical improvement of pharmacotherapeutic intervention is also complicated. Although lectures and presentations from all areas of CNS drug discovery and clinical development were welcome, a particular emphasis was placed on translational medicine. The aim was to address some of the above listed difficulties related to the discovery of CNS drugs, while also covering hot topics, such as clinical dose selection and biomarker strategies.

Nanotechnology has already begun to revolutionize medicine. It involves the use of materials with fundamental length scales in the nanometer dimension demonstrating significantly changed properties compared to micron structured materials. Such materials can include particles, fibers, grain sizes, etc. This session highlighted the advancements nanotechnology is making in medicine in such fields as disease prevention, diagnosis, and treatment including (but not limited to) drug delivery, tissue engineering, implants, sensors, cancer treatment, and toxicity.

Proteomics, the large-scale analysis of proteins, contributes greatly to our understanding of gene function in the post-

genomic era. Proteomics can be divided into three main areas: (1) protein micro-characterization for large-scale identification of proteins and their post-translational modifications; (2) 'differential display' proteomics for comparison of protein levels with potential application in a wide range of diseases; and (3) studies of protein-protein interactions using techniques such as mass spectrometry or the yeast two-hybrid system. Proteomics technologies are under continuous improvements and new technologies are introduced. Nowadays high throughput acquisition of proteome data is possible. The young and rapidly emerging field of bioinformatics is introducing new algorithms to handle large and heterogeneous data sets and to improve the knowledge discovery process. Peptide libraries offer a valuable means for providing functional information regarding protein-modifying enzymes and protein interaction domains. Crucially, new computational and biochemical tools have emerged that facilitate identification of interaction partners and substrates for proteins on the basis of their peptide selectivity profiles. Proteomics can be viewed as an experimental approach to explain the information contained in genomic sequences in terms of the structure, function, and control of biological processes and pathways. Proteomics attempts to study biological processes comprehensively by the systematic analysis of the proteins expressed in a cell or tissue. The field of Bioinformatics provides tools we can use to understand disease processes through the analysis of molecular sequence data. More broadly, bioinformatics facilitates our understanding of the basic aspects of biology including development, metabolism, adaptation, to the environment, genetics and evolution.

The regulatory affairs track provided an insight into the latest trends and cutting edge technology in drug development from both the pharmaceutical/biotech industry and regulatory authority perspectives. As anticipated the presentations from the major regulatory agencies (FDA, EMEA, HC etc) and some of the GCC countries covered the regulatory aspects of drug development and drug life cycle, generic drugs and pharmacovigilance and risk management strategies. Delegates were given the opportunity to gain insight from presenters with substantial collective, regulatory and pharmaceutical industry experience and expertise.

The field of translational research has been modeled most effectively in the oncology setting, where an unprecedented number of new agents are being clinically tested and approved for use against specific malignancies. Impetus for this renaissance has come from the laboratory. Biochemistry and molecular biology have driven advances in understanding the molecular changes that are seen in cancer and have enabled the ability to pharmacologically target these changes. Drug targets in cancer encompass almost every aspect of cellular function, including cell surface expression of molecules, intracellular

signaling events, protein degradation and even gene expression. An advantage of this generation of drugs is the fact that clinical trials may take into account whether the appropriate molecular target has been hit, thereby arming the next phase of drug development in improving the drug itself or choosing a better target. The most dramatic example of the success of these strategies has been in therapies for chronic myeloid leukemia, a blood cancer which aberrantly expresses the BCR/ABL oncogene. Therapies inhibiting BCR/ABL action have changed the management and the clinical course of this disease. More importantly, the strategies utilized to develop these therapies have been adopted by translational researchers working to cure human disease inclusive of, but not limited to cancer.

Every drug has a unique story on its journey from an idea to the marketplace. What is almost always the case though is that each drug has a champion. A company will often be completely reorganized, change management or be acquired by a competitor several times during the period when a promising compound is in late stage discovery or development. There are a number of marketed drugs, including Buspirone, Prozac, Acyclovir, Viagra or Paracetamol that may not have been come to light in modern laboratories. These drugs were invented by scientists relying often on instinctive invention and observation, who sometimes fought shy of formal systems. Many drugs are the product of serendipity, or "lucky" observations, but in fact the scientists involved often "made their own luck", by acting on seemingly disparate data to hunt for a new disease treatment. The session focused on some headline blockbuster drugs, some with well-defined and innovative mechanisms of action as well as some earlier stage compounds with a fascinating rationale and origin. During the talks it was illustrated how every drug is unique; but scientists need to have time and space as well as the motivation to observe and discover, by sound observation. The invention and development of a new drug rarely follows a prescribed pattern. The discipline of Drug-hunting requires determination, openness to new thinking, teamwork and the ability to link apparently disparate observations into a novel rationale. The impact of outstanding project leadership on the process of Drug Discovery and Development was illustrated as an important part of this session.

The last decade has seen a profound increase in our capacity to treat diseases and conditions affecting women. The discovery and development of new and more effective drugs have played a crucial role in this achievement. In the second ICDDT, recent advances made in the discovery of therapeutics and promising new hopes for the improvement of women's health was also covered. Major areas included: treatment of infertility, endometriosis, preterm parturition and cancer.

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