

Meeting Report Immunopharmacology 2011. June 26-30, 2011. Varadero, Cuba

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On June 26-30, 2011 the Cuban Society of Pharmacology organized the Second International Congress on Immunopharmacology (IMMUNOPHARMACOLOGY 2011), held at the Convention Centre "Plaza América" and the Meliá Varadero Hotel, in Varadero beach, Cuba.

The main topics of the Congress were Immunopharmacology (including inflammation, cancer immunotherapy and immunodeficiencies), neuroimmunology, hereditary ataxias and neurodegenerations, the pharmacology of cytochrome P 450 and transporters, the development, research and regulatory aspects for biological products (cytokines, monoclonal antibodies, blood products, growth factors and immunomodulators) and bioprocesses, the evaluation and introduction of new technologies and drug delivery and the treatment and prophylaxis of *Helicobacter pylori*.

The Congress was opened by the speeches given by Dr. Mario Landys Chovel, President of the Organizing Committee of Immunopharmacology 2011 and Dr. René Delgado Hernández, President of the Cuban Society of Pharmacology. The Opening Lectures were delivered by Dr. Hugo O. Besedovsky (Institute of Physiology, Marburg, Germany), President of the International Society of Neuroimmunomodulation (ISNIM) who spoke on the role of brain cytokines in the immune-neuro-endocrin interaction and Dr. Agustín Lage (Centre of Molecular Immunology, Cuba), Director of this relevant institution of the Cuban science, who gave a Presentation entitled Immunotherapy of cancer: the bottleneck between "proof of concept" and clinical impact.

IMMUNOPHARMACOLOGY 2011 offered an outstanding scientific program with 7 Plenary Lectures and 140 Lectures distributed in 5 Workshops, 3 Symposia and 154 Posters. It is noteworthy to mention that there was an active contribution of 90 speakers (110 delegates) from countries such as Argentina, Brazil, Canada, Germany, France, United Kingdom, United States, Italy, Venezuela, Costa Rica, Chile, México, Israel, Spain, South Africa, Turkey, Peru, Denmark, Czech Republic, Colombia, Austria and Slovenia. Furthermore, we would like to highlight the participation of more than 170 Cuban researchers from the most important local institutions devoted to the development of the immunology and

pharmacology sciences as well as the manufacturing of biological and biotechnological products. Hence, the Congress was a suitable framework for exchanging experiences, the presentation of results and discussions on the above mentioned topics.

The Workshop on Immunopharmacology was organized by Dr. Silvio Perea and Dr. Ana María Hernández and had three notable sessions: The first was focused on the search of new targets on Immunopharmacology with remarkable presentations on the oncogenic signalling networks and their relevance for cancer therapy, the clinical results on the application of NIMOTUZUMAB and other therapeutic approaches for the treatment of different types of tumours based on the immunomodulation of the EGF receptor, the use of the apoptotic events as part of a cancer strategy and the use of a pro-apoptotic peptide for the *in vivo* and *in vitro* inhibition of the angiogenesis. The second session was addressed to the Immunomodulation in Cancer, Autoimmunity and AIDS with significant Presentations on immunomodulation with drugs, vaccines and other biologicals (therapeutic antibodies, Biomodulin T) of Cancer and the human immunodeficiency virus type 1. The third one was dedicated to the molecular basis for chronic and acute inflammation and new therapeutic approaches in diseases such as diabetes type 1, vascular disorders, atherosclerosis and allergic asthma.

The Workshop on Neuroimmunology was headed by Dr. María de los Ángeles Robinson and distinguished speakers and scientists from the Boards of International Societies and important institutions with a large experience in this field attended.

The Workshop was also divided into three sessions: one on neuroimmunoregulation, neuroimmunomodulation and synaptic plasticity with remarkable talks on the neuroanatomic, neurochemical and immune substrates of neuroimmunology, the immunopathogenesis and the adaptative autoimmune responses associated to Multiple Sclerosis, the astrocyte-induced synchronization used as a relevant mechanism for epilepsy and the preclinical research of new neuroprotective compounds against ischemia and neurovascular disorders;

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a second one devoted to neurodegenerations, regenerations and stem cells therapy with lectures about the stem cell transplant and the role of neural stem cell in brain regeneration and the treatment of optic neuromyelitis and other demyelinating diseases and a third one that focused on clinic and molecular mechanisms as well as on biomarkers in autism spectrum disorder.

A great expectation had the First International Workshop on Regulatory aspects for Biological products. It was organized by Yanet Hechavarría, Olga Lidia Jacobo (both from the Cuban National Regulatory Authority for Drugs) and Mario Landys Chovel (Finlay Institute) and it had the participation of experts from international organizations like WHO, PAHO as well as relevant pharmaceutical companies and regulatory authorities such as ROCHE and Health Canada, respectively. The first Session of this Workshop had a Key Lecture about the WHO initiatives to address challenges in vaccine regulation in order to path the way to Presentations related to regulatory issues like the harmonization of the biological and biotechnological products regulation on The Americas region, the International collaboration regarding the regulation for biologicals and vaccines: EU, "article 58" process, the Regulatory framework in Cuba for Human origin immunobiologicals products, the GMP principles applicable to biological processes, among others.

The second session was devoted to Biosimilars, a much updated topic in the regulatory field of the biological products, with a Key Lecture on the regulatory framework for biotech and similar biotherapeutic products in Cuba. This Workshop was closed with a third combined session, the first part devoted to quality assurance issues and lectures on updated approaches for quality risk management, quality by design, regulations and methods for the establishment of specifications in biological/ biotechnology product on human use and a second part addressed to quality control topics such as formulation and stability of freeze dried Biologicals, control of toxins and antitoxins, analytical comparability and 3Rs alternatives for Potency testing.

The First International Workshop on Bioprocesses, scientifically headed by Miladys Limonta, Elias Nelson, Eduardo Martínez and Yenisel Hernández, had a great success with the organization of 3 sessions dedicated to upstream and downstream processes and drug delivery and formulation, respectively. The Session on upstream processes considered topics related with the advances in the application of Genomics, Proteomics and Metabolic Engineering to industrial fermentations, the development of high productivity industrial fermentation processes and the expression of recombinant proteins in mammalian cell cultures.

The Session devoted to downstream processes was focused on the upstream and downstream integration, the novel techniques for purification, the integration of purification processes and the modelling, simulation and validation

processes. Meanwhile, the Session addressed to Drug Delivery and Formulation was based in the following relevant topics: Polymers therapeutics, Protein PEGylation, Microsphere technology, nanoparticles and vesicles as platforms for Drug Delivery and Preformulations screening and stability testing. Keynote Lectures entitled The Manufacturing Challenges of Immunotherapy: can the Cuban Biotech be a global player? and Drug PEGylation: present achievements and future developments to open the Sessions two and three respectively were given.

On the other hand, the Workshop on Treatment and Prophylaxis of *Helicobacter pylori* (organized by Beatriz Gutiérrez) took place in two sessions: the first one focused on the diagnosis of the bacteria and its treatment and resistance to conventional drugs. Likewise, the second Session was more diverse with topics related to paediatric issues, gastric cancer and mainly those addressed to new candidate vaccines against *Helicobacter pylori*, with outstanding Presentations about the experimental and clinical vaccine trials against *Helicobacter pylori* and the alternative strategies to *Helicobacter pylori* vaccination using established delivery systems.

Three Symposia were also organized during Immunopharmacology 2011. The first of them was the Second Symposium on Pharmacology of Cytochrome P450 and transporters, headed by Dr. Idania Rodeiro. The Symposium was covering topics such as the impact of some illness conditions (maternal infection, Malaria, chronic inflammation and kidney disease) on drug transporters, the inhibition of the Cytochrome P 450 as an antimutagenesis mechanism, the metabolism studies using human hepatocytes in primary culture, the role of biotransformation and excretion systems in herb-drug interactions, the Pharmacogenetic of CYP2D6 and its clinical implication for antidepressant treatment and suicide in Latin-American populations, among others.

The second Symposium was organized by Dr. Reinaldo Acevedo to discuss issues related with new technologies, delivery systems and current strategies to drug design. In just one session were presented relevant talks about micro and nanoparticles with adjuvant properties, proteomic studies, a comparison study between hybridization-based and sequencing-based gene expression technologies, the identification of peptide mimotopes of viral antigens from a Phage Display Library and bioinformatics applications to select and to identify genes associated to a new treatment for multiple sclerosis.

The third and last Symposium was organized in two sessions by Drs. Luis Velázquez, Tania Marín and Roberto Rodríguez and was devoted to the Hereditary Ataxias. Both sessions were focused on the progress reached in regard to the identification of disease biomarkers and therapeutic targets and the treatment options for the Spinocerebellar ataxias type 2, 3 and 7. The molecular diagnosis and identification of

new genes affected by CTG repeats in Myotonic dystrophy type 1 was also included in the scientific program of this Symposium.

Immunopharmacology 2011 was also a unique opportunity to share experiences with foreign scientific leaders in their respective fields of action: David Stott, Yosef Yarden and Luca Vangelista (Immunopharmacology); Harmut Wekerle, Hugo Besedovsky, Gianvito Martino, Reinhardt Honfeld, Eduardo Arz, Liliana Francis Turner, Carlos Goncalvez and Carmen Gottfried (Neuroimmunology); Dorothea Sesardic, Paul Matejtschuk, Nora Dellepiane, María Luz Pombo, Jia Wang and Ana Maija Autere (Biological products); Francesco Veronese, Gerald Striedner, Terry Allen, Andreas Gombert, Nora Ventosa, Gianfranco Pasut and Marco Rito Palomares (Bioprocesses); Steven Czinn, Thomas Blanchard, John Nedrudd, Philippe Lehours and Vanessa Ramírez (Helicobacter pylori); Adrián Llerena, María José Gómez-Lechón, Javier Espinosa and Micheline Piquette (Cytochrome P 450 and transporters) and Ewa Damrath, Juan Fernández Ruiz, Oscar Hernández and Jonathan Magaña (Ataxias), among others. They formed a fantastic range of speakers,

contributing enormously to our first purpose, i.e. updating the Cuban scientific community working on pharmacology and/or immunology.

The Organizing Committee would also like to thank very much to the institutions that supported the organization of the Congress, especially to organizations such as The International Society of Neuroimmunology (ISNI), the International Brain Research Organization (IBRO), KAIA, Blanc-Labo, ROCHE, Praxis Pharmaceuticals, Sartorius, SEPPIC, TWAS, Copa Airlines, Los Portales, PAA, Gautier-Bagó and IMA-Life. We are also very grateful for the support and sponsorship received from our national scientific centres like Finlay Institute, the Centre of Molecular Immunology (CIM), the Centre for Genetic Engineering and Biotechnology (CIGB), the Cuban Agency for the Quality Control of Drugs (CECMED), the Centre for Research and Development of Drugs (CIDEM), LABIOFAM and the International Centre of Neurological Restoration (CIREN).