

***FIRST ANNUAL  
INTERNATIONAL DRUG ABUSE RESEARCH SOCIETY  
&  
INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY  
SATELLITE MEETING***

***PROGRAM AND ABSTRACTS***

**New Research Frontiers & Advances in Drug Addiction**

***August 14-17, 2007  
Hyatt Regency Hotel, Merida, Mexico***

***Conference Organizers:***

***Syed Ali (USA)  
Michael Kuhar (USA)  
Abel Santamaria (Mexico)  
Francesco Fornai (Italy)  
Yossef Itzhak (USA)***

***REGISTRATION/WELCOME RECEPTION  
Tuesday, August 14, 2007  
First Floor Conference Area***

## **ACKNOWLEDGEMENTS**

**Without the generous financial support from the following Organizations this conference would not have been possible:**

**International Society for Neurochemistry (ISN)**

**National Institute on Drug Abuse (NIDA)**

**ESA Biosciences, Inc.**

**CMA Microdialysis**

**National Center for Toxicological Research/  
United States Food & Drug Administration (NCTR/FDA)**

# Table of Contents

<b>General Information about the Congress Site .....</b>	<b>4 - 5</b>
<b>Information on Scientific Sessions.....</b>	<b>6</b>
<b>Registration and Welcome .....</b>	<b>7</b>
<b>Program.....</b>	<b>8 - 16</b>
<b>Listing of Speaker Abstracts .....</b>	<b>17 - 20</b>
<b>Listing of Poster Abstracts .....</b>	<b>21- 25</b>
<b>Abstracts .....</b>	<b>27 - 111</b>
<b>Alphabetical Listing of Conference Participants .....</b>	<b>112 - 120</b>



## **General Information about the Meeting site**

### **Merida**

**Merida, a city of about 1 million people, is a wonderful mixture of colonial city and cosmopolitan destination. With Merida as your base, you can visit cathedrals and churches, Mayan ruins, museums, haciendas and cenotes. You'll also find movies, theaters, important hospitals, public and private schools, four universities, shopping malls with such stores as Sear's, and chain stores such as Sam's, Costco and Wal-Mart, as well as the Mexican chains of Liverpool, Commercial Mexicana/MEGA, Soriana and Sanborn's.**

### **HISTORY**

**The Spaniard Francisco de Montejo founded Merida on January 6, 1542. When the Spaniards arrived, Merida was a large Mayan city known as T'ho, situated on what is now the Main Plaza. It was conquered by the Spaniards, who dismantled all the pyramids and used the huge stones as the foundation for the Cathedral of San Idelfonso (1556-1599), the oldest cathedral on the American continent.**

**The Cathedral, situated on the east side of the Plaza, is only one of Merida's many interesting sites. Directly across the Plaza is the Palacio Municipal (1735), Merida's Town**

**Hall. On the south side is the Casa de Montejo (1542), the former home of the conqueror of Yucatan. The Palacio de Gobierno (1892), on the north side, houses 27 murals by Fernanco Castro Pacheco illustrating the somewhat violent history of the Yucatan.**

**One of the major influences on Yucatan history is the henequen plant, also called sisal (for the Yucatecan city of Sisal from which shipments left the continent). This plant became known as 'green gold' or verde oro for the wealth it lavished upon the hacendados or hacienda owners in this area. In the early 20<sup>th</sup> Century, as a result of the henequen or sisal trade, Merida was the home for numerous millionaires who built their lavish homes on Paseo Montejo, and their impressive haciendas throughout the jungle surrounding Merida. A walk down Paseo Montejo is a wonderful way to view some of these mansions, many of which are completely restored, and some of whose romantic decay are food for the imagination.**

**For centuries, geography made it difficult for the Yucatecans to communicate with the rest of Mexico. As a result, architectural and cultural influences from Europe, the Caribbean and New Orleans were as strong or stronger in the growth of the city. To this day, the people who live here consider themselves Yucatecans first, Mexicans second. If you look carefully, you will see t-shirts and bumper stickers proclaiming Orgullosos Yucatecos, Yucatecan Pride.**

**The Yucatan is one of Mexico's most tranquil and safest states, with a climate resembling that of Florida or Cuba. Yucatecans are good, tranquil and hospitable people who have strong roots and traditions. They take pride in their city, known as "The White City", not only for the predominance of white limestone as a building material, but because of its streets, plazas and parks that are cleaned daily.**

**Because of its tranquility and cleanliness, Merida has become a popular place for families from other Mexican states. Many people have moved here from Mexico City, where crime, pollution and overcrowding are ever growing problems. Crime is not tolerated in Merida, and it has the distinction of the city with the lowest crime rate per capita in Mexico.**

## **Information on Scientific Sessions**

### **Speaker Instructions**

**Please bring your presentation on a CD or USB port (memory stick/thumb drive) to the conference room 30 minutes prior to the beginning of the session on the day you present. Projector, PowerPoint software and a computer will be provided for the presentations.**

### **Poster Presenter Instructions**

**The poster session will be held adjacent to the meeting room from 5:00 – 8:00 PM on Wednesday, August 15, 2007. Poster boards will be made available beginning at noon (12 PM), Wednesday, August 15, 2007.**

**PLEASE NOTE: The size of the poster boards are 185 cm (width) x 85 cm (height). Poster presenters are asked to prepare posters which will not only fit on the board, but also be easily viewed by the audience. Pushpins will be provided for your convenience to display your posters.**

**The poster numbers are listed on pages 21- 25.**

### **Publication of Proceedings**

**The proceedings of this satellite meeting will be published in a special issue of the “Annals of the New York Academy of Sciences.” All presenters are invited to submit manuscripts for publication in the proceedings. The deadline to submit manuscripts for the proceeding is October 1, 2007. Information for Authors will be available at the registration desk.**

**Tuesday, August 14, 2007**

**6:00 – 9:00 PM**

**REGISTRATION AND WELCOME**

**First Floor Conference Area**

## **Wednesday, August 15, 2007**

**7:00 - 8:30 AM**      **Registration/Continental Breakfast in the First Floor Conference Area**  
**Conference Auditorium**

**8:30 -9:00 AM**      **Opening of the IDARS and ISN Satellite Meeting**  
**Welcome and General Information**  
**Syed Ali/Michael Kuhar**  
**LIC. Ivonne Ortega Pacheco (Yucatán State Governor)**

<b>SESSION I:</b>	<b>GENES REGULATION AND DRUG ABUSE</b>
-------------------	--

**Moderators:**      **Michael Kuhar (USA) and Jean Zwiller (FRANCE)**

**9:00 - 9:20 AM**      **Regulation of cocaine-induced intracellular signaling by dopamine D1 and D3 receptors.**  
*Ming Xu, Department of Anesthesia and Critical Care, University of Chicago, Chicago, Illinois, USA*

**9:20 - 9:40 AM**      **Gene polymorphisms associated with personality traits and substance abuse in Chinese drug users.**  
*Alfreda Stadlin, School of Medical Science, Griffith University, AUSTRALIA*

**9:40 - 10:00 AM**      **Effect of methamphetamine on the gene expression in the mouse brain using a DNA microarray method.**  
*Yasuo Takahashi, Brain Research Institute, Niigata University, Niigata, JAPAN*

**10:00 - 10:20 AM**      **Cocaine and epigenetic regulation: Induction of MeCP2 and decrease in cocaine self-administration by HDAC inhibitors.**  
*Jean Zwiller, Centre de Neurochimie, Strasbourg, FRANCE*

**10:20 - 10:50 AM**      **Coffee/Tea Break**

**10:50 - 11:10 AM**      **Transcriptional correlates of substance abuse in human postmortem brain.**  
*Elin Leharmann, Cellular Neurobiology Research Branch and Chemistry and Drug Metabolism Section, NIDA, IRP, NIH, DHHS, Baltimore, Maryland, USA*

11:10 - 11:30 AM     **Genetics and brain gene expression in human chronic alcohol misuse.**  
*Peter Dodd, University of Queensland, SMMS, Brisbane, AUSTRALIA*

**SESSION II:                    GENE, BEHAVIOR AND PSYCHOSTIMULANTS**

**Moderators:**                **Glen Hanson (USA) and Peter Dodd (AUSTRALIA)**

11:30 - 11:50 AM     **Disruption of long-term memory of cocaine-associated context.**  
*Yossef Itzhak, Department of Psychiatry & Behavioral Neurosciences,  
University of Miami, Miller School of Medicine, Miami, Florida, USA*

11:50 - 12:10 PM     **A pathway involving p450, ROS, ATF4 and Cyclin A2 which is responsible  
for the inhibition of neural progenitor cell proliferation by cocaine.**  
*William J. Freed, National Institute on Drug Abuse, National Institute of  
Health, Department of Health and Human Services, Baltimore, Maryland,  
USA*

12:10 - 12:30 PM     **NMDA and AMPA receptors in synaptic membranes of cocaine-sensitized  
rats.**  
*Jose Ortiz, School of Medicine, University of Puerto Rico, San Juan,  
PUERTO RICO*

12:30 - 12:50 PM     **CART peptides in drug abuse.**  
*Michael Kuhar, Yerkes National Primate Center of Emory University,  
Atlanta, Georgia, USA*

12:50 - 2:00 PM     **Lunch**

**SESSION III: SUBSTITUTED AMPHETAMINES NEUROTOXICITY**

**Moderators:**                **Francesco Fornai (ITALY) and Jean Cadet (USA)**

2:00 - 2:20 PM        **The olfactory bulb and methamphetamine-induced neurotoxicity.**  
*Jean Lud Cadet, Molecular Neuropsychiatry Research Branch, NIDA  
Intramural Research Program, Baltimore, Maryland, USA*

2:20 - 2:40 PM        **Sex differences in dopamine- and vesicular monoamine-transporter  
functions: implications for methamphetamine neurotoxicity.**  
*Dean Dluzen, Universities College of Medicine (NEOUCOM), Rootstown,  
Ohio, USA*

- 2:40 - 3:00 PM**      **Neurotoxic-related changes in tyrosine hydroxylase, microglia, myelin, and the blood-brain barrier in the caudate-putamen from acute methamphetamine.**  
*John Bowyer, Division of Neurotoxicology, National Center for Toxicological Research, Jefferson, Arkansas, USA*
- 3:00 - 3:20 PM**      **Coffee/Tea Break**
- 3:20 - 3:40 PM**      **Connection between the striatal Neurokinin-1 receptor and nitric oxide formation.**  
*Jesus Angulo, Department of Biological Sciences, Hunter College/CUNY, New York, New York, USA*
- 3:40 - 4:00 PM**      **Methylphenidate kinetically up regulates membrane-associated VMAT-2-containing vesicles.**  
*Annette Fleckenstein, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, Utah, USA*
- 2:00 - 5:00 PM**      **Poster presenters should display their posters.**

<b>SESSION IV:</b>	<b>POSTER SESSION</b>
	<b>5:00 - 8:00 PM</b>

**Moderators: Tice Macedo (PORTUGAL) and Yasuo Takahashi (JAPAN)**

- 6:00 - 7:00 PM**      **Odd-numbered posters: Authors should be at their posters for questions.**
- 7:00 - 8:00 PM**      **Even-numbered posters: Authors should be at their posters for questions.**

## **Thursday, August 16, 2007**

**7:30 - 8:45 AM      Registration/Continental Breakfast in the First Floor Conference Area**

<b>SESSION V:            MDMA</b>
-----------------------------------

**Moderators:            Jerry Meyer (USA) and Richard Rothman (USA)**

**9:00 - 9:20 AM.        Acute effects of MDMA administration predict the extent of long-term serotonin depletion in rat forebrain.**  
***Michael Baumann, Clinical Psychopharmacology Section, IRP, NIDA, NIH, DHHS, Baltimore, Maryland, USA***

**9:20 - 9:40 AM        Characterization of a novel animal model of intermittent MDMA (“Ecstasy”) exposure during adolescence.**  
***Jerrold Meyer, Neuroscience and Behavior Program, University of Massachusetts, Amherst, Massachusetts, USA***

**9:40 - 10:00 AM      In Vitro toxicity studies of MDMA analogues in PC12 cells.**  
***Gethin McBean, School of Biomolecular and Biomedical Science, Conway Institute University College, Dublin, Ireland***

**10:00 - 10:20 AM     Neuroimaging in MDMA polydrug users.**  
***Ronald Cowan, Vanderbilt University, Institute for Imaging Sciences; Vanderbilt University Medical College, Nashville, TN, USA***

**10:20 - 10:50 AM     Coffee/Tea Break**

<b>SESSION VI:            THERAPEUTIC APPROACHS TO DRUG ABUSE</b>
---

**Moderators:            Michael Baumann (USA) and Marco Diana (ITALY)**

**10:50 - 11:10 AM     Significance of differential responses by neurotensin systems to METH and cocaine self-administration: Therapeutic implications.**  
***Glen Hanson, Department of Pharmacology and Toxicology, University of Utah, Salt Lake City, Utah, USA***

- 11:10 - 11:30 AM**      **Effects of buprenorphine in cognitive performances of opiate-dependent subjects.**  
*Marco Diana, Department of Drug Sciences, University of Sassari, Sassari, ITALY*
- 11:30 - 11:50 AM**      **Serotonin transporter ligands affect plasma serotonin in rats: Implications for medication development.**  
*Richard Rothman, Clinical Psychopharmacology Section, IRP, NIDA, NIH, DHHS, Baltimore, Maryland, USA*
- 11:50 - 1:30 PM**          **Lunch**

<b>SESSION VII:</b>	<b>GHB/GBL/1.4-BD and Dexmethorphan</b>
---------------------	---

- Moderators:**            **Timothy Maher (USA) and Maharaj Ticku (USA)**
- 1:30 - 1:50 PM**          **GHB receptor characterization and pharmacology**  
*Maharaj K. Ticku, Pharmacology and Psychiatry, The University of Texas Health Science Center, San Antonio, Texas, USA*
- 1:50 - 2:10 PM**          **Tetrahydrofuran: Another GHB precursor?**  
*Timothy Maher, Department of Pharmaceutical Sciences, Massachusetts College of Pharmacy and Health Sciences, Boston, Massachusetts, USA*
- 2:10 - 2:30 PM**          **Comparison of the cataleptic and locomotor effects of acute and chronic GHB and its precursors GBL and 1, 4-BD in mice.**  
*Timothy Maher, Department of Pharmaceutical Sciences, Massachusetts College of Pharmacy and Health Sciences, Boston, Massachusetts, USA*
- 2:30 - 2:45 PM**          **Acute Administration of gamma-hydroxybutyric acid alters the levels of dopamine and its metabolites in mouse striatum**  
*Tucker Patterson, Division of Neurotoxicology, National Center for Toxicological Research, Jefferson, Arkansas, USA*
- 2:45 - 3:00 PM**          **Dextromethorphan: A re-emerging drug of abuse.**  
*Joseph Banken, Department of Obstetrics and Gynecology, University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA*
- 3:00 - 4:00 PM**          **IDARS BUSINESS MEETING**

**AFTERNOON/EVENING  
FREE TIME  
(No scheduled conference activities)**

## **Friday, August 17, 2007**

7:30 - 8:45 AM Continental breakfast in the First Floor Conference Area

<b>SESSION VIII: METHAMPHETAMINE AND MPTP SIMILARITIES AND DIFFERENCES</b>
--

**Moderators:** James O'Callaghan (USA) and Yossef Itzhak (USA)

9:00 - 9:20 AM **Defining "Neuroinflammation": Lessons from MPTP-and METH-induced neurotoxicity.**

*James O'Callaghan, Health Effects Laboratory Division, Centers for Disease Control and Prevention-NIOSH, Morgantown, West Virginia, USA*

9:20 - 9:40 AM **Novel cell signal pathway of nigro-striatal degeneration.**

*Syed Imam, Departments of Medicine & Pharmacology, University of Texas Health Science Center at San Antonio, San Antonio, Texas, USA*

9:40 - 10:00 AM **Caspase-3 dependent proteolytic activation of PKC delta regulates methamphetamine-induced autophagy and apoptosis in mesencephalic dopaminergic neuronal cells.**

*Arthi Kanthasamy, Department of Biomedical Sciences, Iowa State University, Ames, Iowa, USA*

10:00 - 10:20 AM **Neurodegeneration in the spinal cord of C57BL/6N mice with acute and chronic experimental Parkinsonism and human patients with idiopathic Parkinson's disease.**

*Naren Banik, Department of Neurology and Neurosciences, Medical University of South Carolina, Charleston, South Carolina, USA*

10:20 - 10:40 AM **Suppression of autophagy precipitates neuronal cell death following low doses of methamphetamine.**

*Francesco Fornai, Dipartimento di Morfologia Umana e Biologia Applicata, Universita di Pisa, Pisa, ITALY*

10:40 - 11:00 AM **Lithium does protect in amyotrophic lateral sclerosis: Results on human patients and mechanisms involved in transgenic mice.**

*Francesco Fornai, Dipartimento di Morfologia Umana e Biologia Applicata, Universita di Pisa, Pisa, ITALY*

11:00 - 11:20 AM Coffee/Tea Break

**SESSION IX: METHAMPHETAMINE**

**Moderators:** Stephen Bondy (USA) and Diane Miller (USA)

**11:20 - 11:40 AM** Stress-induced changes in brain signaling pathways: Implications for plastic brain changes caused by drug of abuse.

*Diane Miller, Health Effects Laboratory Division, Centers for Disease Control and Prevention-NIOSH, Morgantown, West Virginia, USA*

**11:40 - 12:00 PM** Red wine, alcohol and resveratrol: Effects on methamphetamine-induced dopaminergic neurotoxicity.

*Stephen Bondy, Department of Community & Environmental Medicine, Center for Occupational and Environmental Medicine, University of California, Irvine, California, USA*

**12:00 - 12:20 PM** Methamphetamine neurotoxicity is heterogeneous in striatum: Altered dopamine storage leads to microglial activation and damage to the nucleus accumbens.

*Donald Kuhn, Department of Psychiatry & Behavioral Sciences, Wayne State University School of Medicine, Detroit, Michigan, USA*

**12:20 - 12:40 PM** Methamphetamine dysregulates astrocytic functions, increasing oxidative stress.

*Michael Aschner, Department of Pediatrics, Vanderbilt University Medical Center, Nashville, Tennessee, USA*

**12:40 - 2:00 PM** Lunch

**SESSION X: NICOTINE/MARIJUANA/ ALCOHOL**

**Moderators:** Emmanuel Onaivi (USA) and Mohan Sopori (USA)

**2:00 - 2:20 PM** Role of  $\alpha 7$ -nicotinic acetylcholine receptors in immunity, inflammation, and cancer.

*Mohan Sopori, Lovelace Respiratory Research Institute, Albuquerque, New Mexico, USA*

**2:20 - 2:40 PM** Nicotine and neuroimmunomodulation in the autonomic nervous system.

*Malathi Srivatsan, Department of Biological Sciences, Arkansas State University, Jonesboro, Arkansas, USA*

- 2:40 - 3:00 PM**      Psychosocial withdrawal characteristics of nicotine compared with alcohol and caffeine.  
*Hisatsugu Miyata, Department of Psychiatry, Jikei University School of Medicine, Tokyo, JAPAN*
- 3:00 - 3:20 PM**      Behavioral effects of CB2 cannabinoid receptor activation and its influence on food and alcohol consumption.  
*Emmanuel Onaivi, Biology Department, William Paterson University, Wayne, New Jersey, USA*
- 3:20 - 3:40 PM**      Acetaldehyde mediates alcohol activation of the mesolimbic dopamine system.  
*Marco Diana, Department of Drug Sciences, University of Sassari, Sassari, ITALY*
- 3:40 - 4:00 PM**      Coffee/Tea Break

<b>SESSION XI: 4:00 - 5:30 PM</b>	<b>PANEL DISCUSSION AND OPEN FORUM SUMMARY AND RECOMMENDATIONS</b>
---------------------------------------	--

**Panelists:**

<b>Michael Kuhar</b>	<b>Glen Hanson</b>
<b>Ronald Cowan</b>	<b>Diane Miller</b>
<b>James O'Callaghan</b>	<b>Jean Cadet</b>
<b>Emmanuel Onaivi</b>	<b>Diana Marco</b>
<b>Francesco Fornai</b>	<b>Peter Dodd</b>

**5:30 PM**      **CONCLUDING REMARKS/MEETING ADJOURNED**  
Michael Kuhar/Syed Ali

**7:00 - 10:00 PM**  
**POOLSIDE FAREWELL DINNER**