

**SATELLITE MEETING OF THE
INTERNATIONAL SOCIETY FOR NEUROCHEMISTRY
AND
EUROPEAN SOCIETY FOR NEUROCHEMISTRY**

PROGRAM AND ABSTRACTS

August 16-19, 2005

Isola di San Servolo, Venice, Italy

**Cellular and Molecular Mechanisms
of Drugs of Abuse and Neurotoxicity:
Cocaine, GHB and Substituted Amphetamines**

Conference Organizers:

Francesco Fornai (Italy)

Yossef Itzhak (USA)

Syed Ali (USA)

REGISTRATION/WELCOME RECEPTION

Tuesday, August 16, 2005

6:00-8:00 p.m.

Conference Lobby Area

ACKNOWLEDGEMENTS

The generous financial support of the following Society, State and Federal Agencies is gratefully acknowledged. Without their support, this Conference would have not been possible.

International Society for Neurochemistry

Neuromed Pozzilli (IS)

National Center for Toxicological Research

Venice International University

Under the patronage of “Regione Veneto” and “Provincia di Venezia”



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General Information about the Congress site

The island of San Servolo is located in the Venetian lagoon, between Venice city center and the island of Lido. The island was originally the home of the Venetian Calbana family who, beginning in 810, hosted the seat of a Benedictine Monastery. The buildings of the island have been developed and changed over the ages along with the people who inhabited it. San Servolo remained a monastery until the mid-eighteenth century when it was transformed into a Hospital. The total surface of the island is 48,260 sq. m (about 12 acres). One fifth of the area is covered by buildings (for a total of about 10,000 sq. m and a usable building area of more than 18,000 sq. m - 200,000 sq. ft) surrounded by an extensive park. The island overlooks the tranquil waters of the lagoon, and covers an area of over sixteen-thousand square meters that were once used for vineyards and gardens. San Servolo is an oasis in a unique urban setting. Students can study, work, and relax in a peaceful park spread across 12 scenic acres with a panoramic view of Venice. It is at present the site of the “International University of Venice”, a consortium of several prestigious University from all over the world, which organizes Masters and Summer Courses for foreign students every year.

How to get to the Island of S. Servolo:

From the historic center :

Once you are in the historic center of Venice, the island of San Servolo can be reached either by public transportation (there are hourly boats running to and from the island from in front of the Londra Palace Hotel) or by private taxi. Taxis can cost from €30 to €75 one way. The public boats n° 20 to San Servolo leave from San Marco in front of the Londra Palace Hotel, Riva degli Schiavoni. Tickets from S. Zaccaria to San Servolo cost €1.80. Other routes (excluding Grand Canal) cost €3.50 one way, or €6.00 return. The most economic option is to buy a daily, 3-day or monthly pass.

The boat from Venice to San Servolo leaves from the Riva degli Schiavoni at San Marco; the stop is in front of the Londra Palace Hotel. Boat number 20 goes to San Servolo. Please note: Boat capacity: 19 passengers + 1 driver. Remember to arrive a few minutes before departure time.

Ticket prices for boat line n° 20: One way - €3.50; Carta Venezia – €1.00 (one way).

Other ticket fares: 24-hour ticket: €10.50; 72-hour ticket: €22.00.

Travel cards: it is possible for students (< 26 years old) to get a pass for one zone. It costs €7.00

passport size photo and certificate of attendance to VIU is required for application. For more information: visit the ACTV Home page (Public transports in Venice) at <http://www.actv.it/english/home.php>.

From MARCO POLO INTERNATIONAL AIRPORT

There are several services that run from the airport to Venice:

- Alilaguna waterbus service: this company offers a service that goes from the airport to Murano, the Lido, the Arsenale with a final stop at San Marco. Tickets cost €10. and can be purchased in the arrival hall of the airport or directly on board. Boats leave hourly. Take shuttle bus from terminal to dock.
- ATVO buses: these blue buses run hourly from the airport to Piazzale Roma and they leave from in front of the entrance of the departure hall. Tickets cost €2.70 and can be purchased at the ATVO stand in the arrival hall or directly on board. The service runs from 9.00 to 24.00 and takes about 20 minutes to reach Venice.
- ACTV Public bus n°5: these orange buses run every half hour. The last stop is "Piazzale Roma". Tickets cost €1.00 and can be purchased from the tobacconist inside the departure hall. The service takes about 25 minutes to reach "Piazzale Roma".
- Water and land Taxis: you can take a private water taxi directly to your final destination (which is an expensive choice. From the airport to San Servolo it costs about €75). Take shuttle bus from terminal to dock. Alternatively you can take a land taxi to Piazzale Roma, and from there catch a public boat, called a "vaporetto", to the stop closest to your final destination.

By car

If you bring a car to Venice, you will have to pay for a garage or parking space during your stay. The last stops in Venice where you can leave your car are called "Piazzale Roma" and "Tronchetto". Parking at "Piazzale Roma" in the parking lot run by the city costs between €7.7 and €12.90, and at the private Garage San Marco (next door) it costs between €20.00 and €24.00 for 24 hours, depending on the size of the car. To reach the privately run "Tronchetto" parking area, as you come into Venice, follow the signs and turn right before "Piazzale Roma". Warning: do not be waylaid by illegal touts - often wearing fake uniforms - who may try to flag you down and offer to arrange parking and hotels. Instead, continue on until you reach the automatic ticket machines. Parking here costs around €18.00 for 24 hours, do not leave valuables in the car. There is a luggage deposit office, open daily 8 a.m. - 8 p.m., next to the Pullman Bar on the ground floor of the municipal garage at "Piazzale Roma".) Another solution is to park your car in front of the train station in Mestre. Parking here costs much less (around €4.15 per day), and there are frequent trains and buses between Mestre and Venice Piazzale Roma: see ACTV Home Page , schedule for Bus n° 2).

By train

Venice has rail connections with every major city in Italy and the rest of Europe. The main train station (Stazione F.S. Venezia S. Lucia) is on the Grand Canal in the northwest corner of the city. Some through trains do not terminate at Santa Lucia, stopping only at the Venezia-Mestre Station on the mainland. All trains traveling to and from Santa Lucia stop at Mestre, so to get from Venezia-Mestre to Santa Lucia, or vice versa (a 10-minute trip), take the first available train, remembering there is a *supplemento* (extra charge) for traveling on Intercity and Eurocity trains, and that if you do not pay it before boarding, you are liable for a fine. You can also check the European train schedule (<http://www.raileurope.com/>) in case you are arriving by train from Europe or the Italian train schedule (<http://www.trenitalia.com/>) if you are getting to Venice from another Italian city.

Public boats (ACTV Public bus) from different parts of Venice to S. Servolo Island:

From the Lido to San Servolo: From the Lido you must take boat n°52, n°82, n°61 or n°1 to the San Zaccaria boat stop and change to boat n°20 for San Servolo. The boat n° 20 to San Servolo leaves from the Riva degli Schiavoni, in front of the Londra Palace Hotel.

From San Marco to San Servolo: The public boat to San Servolo leaves from the Riva degli Schiavoni at San Marco. The stop is in front of the Londra Palace Hotel and you can take boats n° 20.

From Piazzale Roma to San Servolo: There are several choices from Piazzale Roma to San Servolo. You must take either the n°1, n°51, n°41, n°61 or n°82 boat (not bus!), direction "Lido", and get off at the San Zaccaria boat stop. At San Zaccaria you must change to line n°20. Both lines leave from in front of the Londra Palace Hotel.

From the train station to San Servolo: There are several choices from the train station to San Servolo. You must take either the n°1, n°51 or n°82 boat, direction "Lido", and get off at the San Zaccaria boat stop. At San Zaccaria you must change to line n°20. Both lines leave from in front of the Londra Palace Hotel.

Information on Scientific Sessions

Speakers

You need to bring your presentation on a CD or USB port (stick) to the conference room 30 minutes before the session on the day you present. PP on a PC will be available to view the slides.

Poster Presenters

The poster session will be held adjacent to the meeting room from 5:00 - 7:00 PM on August 17, 2005. Poster boards will be available to hang the poster on Wednesday 12:00 noon on August 17, 2005.

PLEASE NOTE

The size of the poster boards is 185 cm (height) X 85 cm (width). Poster presenters are invited to prepare posters which can fit in the board, and in the same time be easy to be viewed by the audience (please remember that the 185 cm height is the distance from the floor). Pushpins will be provided for your convenience for hanging your posters.

The poster numbers are listed on pages 24- 27.

Publication of Proceedings

The proceedings of this satellite meeting will be published in a special issue of “Annals of The New York Academy of Sciences”. All presenters are invited to submit manuscripts for publication in the proceedings, the deadline to submit the manuscript for the proceeding is October 1st 2005. Information for Authors will be available at the registration desk.

Tuesday, August 16, 2005

6:00 – 8:00 PM

REGISTRATION AND WELCOME

Conference Lobby Area

Wednesday, August 17, 2005

7:00 - 8:30 a.m. Breakfast will be served at the Cafeteria

Conference Auditorium

8:40 a.m. Opening of the Satellite Meeting
Welcome and General Information
Francesco Fornai and Syed Ali

SESSION I: GENES AND DRUGS OF ABUSE
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Moderators: Jean Lud Cadet (USA) and Peter Dodd (Australia)

9:00 - 9:20 a.m. Methamphetamine-induced neuronal apoptosis is mediated by the activation of multiple death pathways.
Jean Lud Cadet, Molecular Neuropsychiatry Branch, National Institutes of Health, NIDA/RIP, Baltimore, MD, USA.

9:20 - 9:40 a.m. *c-fos* mediates acquisition and extinction of chronic cocaine-induced changes.
Ming Xu, University of Cincinnati, College of Medicine, Cincinnati, OH, USA.

9:40 - 10:00 a.m. Genes and gene expression in the brain of human alcoholics.
Peter Dodd, University of Queensland, Brisbane, Australia.

10:00 – 10:20 a.m. Coffee/Tea Break

SESSION II:**METHAMPHETAMINE NEUROTOXICITY**

Moderators: Glen Hanson (USA) and Michael Baumann (USA)

- 10:20 - 10:40 a.m.** Cellular events leading to methamphetamine-induced DA neurotoxicity.
Glen Hanson, *University of Utah, Salt Lake City, UT, USA.*
- 10:40 - 11:00 a.m.** The neurotoxicity of the amphetamines – Lessons Learned.
Diane Miller, *Toxicology & Molecular Biology Branch, CDC-NIOSH, Morgantown, WV, USA.*
- 11:00 - 11:20 a.m.** Differential effects of psychostimulants on the vesicular monoamine transporter-2 and on dopamine transporter complex formation.
Annette Fleckenstein, *University of Utah, Salt Lake City, UT, USA.*
- 11:20 – 11:40 a.m.** Substance P is shared by distinct mechanisms mediating methamphetamine-induced neuronal apoptosis and dopamine terminal damage in the striatum of mice.
Jesus Angulo, *Hunter College of The City University of New York, NY, NY, USA.*
- 11:40 - 12:00 p.m.** Balance between dopamine and serotonin release modulates behavioral effects of amphetamine-type drugs.
Michael Baumann, *National Institute on Drug Abuse, Baltimore, MD, USA.*
- 12:00 – 12:20 p.m.** Modulation of pavlovian conditioning by amphetamines neurotoxicity.
Yossef Itzhak, *University of Miami, School of Medicine, Miami, FL, USA.*
- 12:20 - 2:00 p.m.** Lunch will be served at the Cafeteria

SESSION III: METHAMPHETAMINE : OXIDATIVE STRESS, NEUROTOXICITY,

NEURODEGENERATION AND NEUROPROTECTION

- Moderators:** James O'Callaghan (USA) and Nicola Mercuri (Italy)
- 2:00 - 2:20 p.m.** Dopamine quinones cause microglial activation and induce a neurotoxic gene expression profile: relationship to methamphetamine-induced nerve-ending damage.
Donald Kuhn, *Department of Psychiatry & Behavioral Neurosciences, Wayne State University School of Medicine, Detroit, MI, USA.*
- 2:20 - 2:40 p.m.** Protection against the dopamine depleting effects of neurotoxic doses of methamphetamine.
Wayne Cass, *Department of Anatomy and Neurobiology, University of Kentucky College of Medicine, Lexington, KY, USA.*
- 2:40 - 3:00 p.m.** Human immunodeficiency virus-1 protein TAT and methamphetamine interactions.
William Maragos, *Department of Neurology, University of Kentucky College of Medicine, Lexington, KY, USA.*
- 3:00 - 3:20 p.m.** Estrogen, testosterone and methamphetamine toxicity.
Dean Dluzen, *Universities College of Medicine (NEOUCOM), Rootstown, OH, USA.*
- 3:20 - 3:40 p.m.** Roles of oxidative stress in methamphetamine-induced neurotoxicity.
Hyoung-Chun Kim, *Kangwon National University, Kangwon, Korea.*
- 3:40 - 4:00 p.m.** Coffee/Tea Break

SESSION IV: METHAMPHETAMINE AND MPTP NEUROTOXICITY: SIMILARITIES AND DIFFERENCES

- Moderators:** Stephen Bondy (USA) and Diane Miller (USA)
- 4:00 - 4:20 p.m.** Convergent roles of alpha-synuclein, DA metabolism and the ubiquitin-proteasome system in nigrostriatal toxicity.
Francesco Fornai, *University of Pisa, Pisa, Italy.*
- 4:20 - 4:40 p.m.** Glial signaling, TNF- α and dopaminergic neurotoxicity due to MPTP and methamphetamine.

James O'Callaghan, Centers for Disease Control and Prevention-NIOSH, Morgantown, WV, USA.

4:40 - 5:00 p.m. **Role of metabotropic glutamate receptors in neurodegeneration/neuroprotection mechanisms of basal ganglia motor circuit.**
Giuseppe Battaglia, I.R.C.C.S-I.N.M. Neuromed, Pozzilli, Italy.

SESSION V: POSTER SESSION

5:00 - 7:00 p.m.

Moderators: Tice Macedo (Portugal) and Yasuo Takahashi (Japan)

12:00 – 1:00 p.m. **Authors need to hang their posters.**

5:00 – 6:00 p.m. **Odd numbered posters: authors need to be present for question and answer session.**

6:00 - 7:00 p.m. **Even numbered posters: authors need to be present for question and answer session.**

7:00 - 9:00 p.m. **Dinner will be served at the Cafeteria.**

Thursday, August 18, 2005

7:30 - 8:30 a.m. Breakfast at the Cafeteria.

SESSION VI: COCAINE

Moderators: Michael Kuhar (USA) and Jean Zwiller (France)

9:00 - 9:20 a.m. Induction by cocaine and fluoxetine of the Methyl-CpG-binding proteins MeCP2 and MBD1 genes in adult rat brain.

Jean Zwiller, *Centre de Neurochimie, Strasbourg, France.*

9:20 - 9:40 a.m. In vivo gene delivery of Urokinase-type plasminogen activator with regulatable Lentivirus and its silencing in the nucleus accumbens induces changes in cocaine-induced hyperlocomotion.

Amine Bahi, *University of Fribourg, Fribourg, Switzerland.*

9:40 - 10:00 a.m. Protection from cocaine-induced neurotoxicity by proteasome and antioxidant enzymatic activities.

Jean-Bernard Dietrich, *Centre de Neurochimie, Strasbourg, France.*

10:00 - 10:20 a.m. Cart peptides as modulators of psychostimulants in the nucleus accumbens.

Michael Kuhar, *Yerkes National Primate Center of Emory University, Atlanta, GA, USA.*

10:20 - 10:40 a.m. Coffee /Tea Break.

SESSION VII: 3,4-METHYLENEDIOXYMETHAMPHETAMINE (MDMA), AND METHYLPHENIDATE

Moderators: Yossef Itzhak (USA) and Jerry Meyer (USA)

10:40 - 11:00 a.m. Effects of repeated exposure to MDMA in rats.

Susan Schenk, *School of Psychology, Victoria University of Wellington, Wellington, New Zealand.*

11:00 - 11:20 a.m. Neural effects of MDMA as determined by functional magnetic resonance imaging in awake marmoset monkeys.

Jerrold Meyer, *University of Massachusetts, Amherst, MA, USA.*

- 11:20 - 11:40 a.m. Electrophysiological pharmacology of MDMA (Ecstasy) on dopamine and serotonin neurons in the rat.
Nicola Mercuri, *University of Rome, Rome, Italy.*
- 11:40 - 12:00 p.m. Tolerance development in rats treated with high-dose 3,4-methylenedioxyamphetamine (MDMA, Ecstasy)
Michael Baumann, *IRP, NIDA, Bethesda, MD, USA.*
- 12:00 - 12:10 p.m. Methylphenidate administration to adolescent rats determines short- and long-term changes on reward-related behavior and striatal gene expression.
Walter Adriani, *Behavioral Neuroscience, Department of Cell Biology and Neurosciences, Istituto Superiore di Sanità, Roma, Italy.*
- 12:10 - 12:20 p.m. Long-term effects of methylphenidate exposure during adolescence: in vivo 1H MRS in adult rat brain.
Walter Adriani, *Behavioral Neuroscience, Department of Cell Biology and Neurosciences, Istituto Superiore di Sanità, Roma, Italy.*
- 12:20 - 12:40 p.m. Pharmacological treatment of methamphetamine psychosis.
Kazufumi Akiyama, *Dokkyo University School of Medicine, Tochigi, Japan.*
- 12:40 – 2:00 p.m. Lunch will be served at the Cafeteria

SESSION VIII: HEROIN, MORPHINE AND OPIATES

- Moderators:** Hari Shanker Sharma (Sweden) and Marco Diana (Italy)
- 2:00 - 2:00 p.m. Comparison among heroin an heroin plus cocaine users: a psychopathological study.
Adolfo Bandettini Di Poggio, *Department of Human Morphology and Applied Biology University of Pisa, Pisa, Italy.*
- 2:20 - 2:40 p.m. Morphine withdrawal-induced morphological changes in the nucleus accumbens.
Marco Diana, *University of Sassari, Sassari, Italy*
- 2:40 - 3:00 p.m. Stress or drug abuse? Mechanisms of long-term impact of prenatal morphine exposure.
Libor Velisek, *Albert Einstein College of medicine, Bronx, NY, USA*

- 3:00 - 3:20 p.m.** **Heroin neurobehavioral teratogenicity in mice is reversed by neural progenitor grafts.**
Joseph Yanai, The Hebrew University-Hadassah Medical School, Jerusalem, Israel.
- 3:20 - 3:40 p.m.** **Alterations in Blood-Brain Barrier Function by Morphine and Methamphetamine.**
Hari S. Sharma, Laboratory of Cerebrovascular Research, Department of Surgical Sciences, Anesthesiology & Intensive Care Medicine, University Hospital, Uppsala University, Uppsala, Sweden.
- 3:40 - 4:00 p.m.** **In vivo microdialysis reveals slow drug elimination from the brain: treatment implications.**
Gerald Zernig, Division of Neurochemistry, Department of Psychiatry, Innsbruck Medical University, Innsbruck, Austria.
- 4:00 - 5:30 p.m.** **IDARS Meeting.**

AFTERNOON FREE

Complimentary guided tour of Island San Servolo
Please sign on at the sign sheet by noon at the registration desk.

Friday, August 19, 2005

7:30 - 8:30 a.m. **Breakfast at the Cafeteria**

SESSION IX:	NICOTINE, CANNABINOIDS, CNS ACTING DRUGS AND fMRI
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Moderators: Mohan Sopori (USA) and Pietro Pietrini (Italy)

9:00 - 9:20 a.m. Nicotine alters nicotinic receptor subunit levels differently in developing mammalian sympathetic neurons.
Malathi Srivatsan, *Arkansas State University Jonesboro, AR, USA.*

9:20 - 9:40 a.m. Neuroimmune effects of nicotine.
Mohan Sopori, *Lovelace Respiratory Research institute, Albuquerque, NM, USA.*

9:40 – 10:00 a.m. Presence and functional expression of CB2 cannabinoids receptors in brain that is involved in depression and substance abuse.
Emmanuel Onaivi, *Paterson University, Wayne, NJ, USA.*

10:00 - 10:20 a.m. An endocannabinoid hypothesis of drug reward.
Emmanuel Onaivi, *Paterson University, Wayne, NJ, USA.*

10:20 - 10:40 a.m. Effect of fluoxetine (Prozac) on the gene expression in the mouse brain using a DNA microarray method.
Yasuo Takahashi, *Niigata University, Niigata, Japan.*

10:40 – 11:00 a.m. In vivo brain functional exploration studies of the neural bases of competition in humans.
Pietro Pietrini, *Laboratory of Clinical Biochemistry and Molecular Biology, University of Pisa, Pisa, Italy.*

11:00 – 11:20 a.m. Coffee/Tea Break

SESSION X:	INFLUENCE OF NUTRITION AND OTHER NEUROTOXICANTS IN METH-INDUCED NEUROTOXICITY
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Moderators: Ashraf Virmani (Italy) and Zbigniew Binienda (USA)

11:20- 11:40 p.m. Calpain activation in motoneuron apoptosis in spinal cord of mice exposed to dopaminergic neurotoxins: a comparative study with MPTP, Rotenone, and methamphetamine.

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

11:40 -12:00 p.m. Role of nutrition in drug of abuse.

Ashraf Virmani, *Sigma Tau-Health Sciences, Pomezia, Italy.*

12:00 – 12:20 p.m. Methamphetamine and 3-nitropropionic acid-induced selective changes in body temperature and alterations in monoaminergic neurotransmission.

Zbigniew Binienda, *Division of Neurotoxicology, National Center for Toxicological Research/FDA, Jefferson, AR, USA.*

12:20 – 2:00 p.m. Lunch at the Cafeteria

SESSION XI:	GHB, GBL, AND 1,4-BD
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Moderators: Timothy Maher (USA) and Ratna Sircar (USA)

2:00 - 2:20 p.m. γ -hydroxybutyric acid exposure in the adolescent rat impairs spatial memory by modulating the NMDA receptor.

Ratna Sircar, *The Zucker Hillside Hospital, Glen Oaks, NY, USA.*

2:20 - 2:40 p.m. Audiogenic withdrawal seizures from GHB and 1,4-BD in Sardinian alcohol-preferring (SP) rats.

Lawrence Quang, *Rainbow babies & Children's Hospital, Cleveland, OH, USA.*

2:40 - 3:00 p.m. The role of GHB and GABA-B receptors in the neuroprotective effects of GBL and 1,4-Butanediol.

Timothy Maher, *Massachusetts College of Pharmacy and Health Sciences, Boston, MA, USA.*

3:00 - 3:10 p.m. **Project GHB: A Communication link to Users of Gamma hydroxybutyrate.**
Joseph Banken, Department of OBGYN, University of Arkansas for Medical Sciences, Little Rock, AR, USA.

3:10 – 3:20 p.m. **Effects of Salvia Divinorum on the dopamine system in PC12 cells.**
Joseph Banken, Department of OBGYN, University of Arkansas for Medical Sciences, Little Rock, AR, USA.

3:40 - 4:00 p.m. **Coffee/Tea Break**

SESSION XII:	PANEL DISCUSSION AND OPEN FORUM:
4:00 - 5:30 p.m.	SUMMARY AND RECOMMENDATIONS

Panelists:	Michael Kuhar	Michael Baumann
	Jean Zwiller	James O’Callaghan
	Pietro Pietrini	Jean Cadet
	Peter Dodd	Timothy Maher
	Francesco Fornai	Syed Ali

5:30 p.m. **CONCLUDING REMARKS**
Francesco Fornai and Syed Ali

MEETING ADJOURNS

7:00 – 9:00 p.m. Farewell Dinner at the Courtyard

9:30 – 10:30 p.m. Concert at the Library