

XVth ISCM Programme

Sunday, October 16

- 1200-1400 Registration & Arrival assistance (Palais des Congrès)**
- 1400-1430 Opening Remarks**  
French Organizing Committee
- 1430-1510 Opening Lecture**  
Chair: Hermona SOREQ
- Jean-Pierre CHANGEUX (FR)**  
The nicotinic receptor from allosterity to cognition: consequences for drug design
- 1510-1550 Honorary Lecture**  
Chair: Jean-Pierre CHANGEUX
- Hermona SOREQ (IL)**  
The cholinergic tradeoff of stress micromanagement: CholinomiR suppressors of anxiety-related inflammation in metabolic disorder
- 1550-1605 "Water break"**
- 1605-1750 Session "Higher brain functions / nicotinic and muscarinic modulation"**  
Chairs: Evelyn K LAMBE / Marina PICCIOTTO
- 1605-1630 Evelyn K LAMBE (CA)**  
High fidelity: Cholinergic mechanisms and prefrontal attention circuits
- 1630-1655 Marina PICCIOTTO (US)**  
Increased acetylcholine signaling in brain: cholinergic mechanisms related to anxiety and depression
- 1655-1720 Andrew TOBIN (GB)**  
M1-muscarinic allosteric modulators slow prion neurodegeneration and restore memory loss
- 1720-1735 Jaromir MYSLIVECEK (CZ)**  
The effects of oxotremorine, scopolamine and cocaine differ in active and inactive phase in wild type and M4 KO mice
- 1735-1750 Jacques BARIK (FR)**  
Nicotinic acetylcholine receptors and social stress: behavioral and cellular impacts on the reward system
- 1750-1800 Remittance of the BP Doctor Young Investigator Awards**  
Chair: Palmer Taylor
- 1800-2000 Welcome Party (Palais des Congrès – Marseille Chanot)**
- 2000-..... Free Evening**

## Monday, October 17

### 0830-1005 Session “Neurodegenerative diseases, development, neurogenesis”

Chairs: Maryka QUIK / Kamil KUCA

**0830-0855 Maryka QUIK (US)**

Role for the nicotinic cholinergic system in Parkinson’s disease; mechanisms and therapeutic implications

**0855-0920 Sultan DARVESH (CA)**

Pre-clinical SPECT imaging of butyrylcholinesterase for the diagnosis of Alzheimer’s disease

**0920-0935 Marco PRADO (CA)**

Anticholinergic activity regulates RNA metabolism to cause Alzheimer’s-like pathology in mice

**0935-0950 Elizabeth COULSON (AU)**

Does cholinergic dysfunction explain the link between sleep apnea and sporadic Alzheimer’s disease?

**0950-1005 Tangui MAURICE (FR)**

Learning performances and vulnerability to amyloid toxicity in acetylcholinesterase and butyrylcholinesterase knockout mice

### 1005-1035 Morning coffee/tea break

### 1035-1155 Session “Brain: cholinergic circuits, optogenetic stimulation of cholinergic neurons”

Chairs: Vania FERREIRA PRADO / Lorna ROLE

**1035-1100 Lorna ROLE (US)**

Cholinergic control of fear behaviors and fear memory engrams in cortical-amygdala circuits

**1100-1125 Vania FERREIRA PRADO (CA)**

Cholinergic co-transmission in the striatum: roles in cognition and drug abuse

**1125-1140 Boris LAMOTTE D'INCAMPS (FR)**

The heteromeric nicotinic receptors of the Renshaw cell are likely (3 alpha)(2 beta) LS receptors

**1140-1155 Lili ANGLISTER (IL)**

Cholinergic control of the frequency and power of the motor output during locomotor activity

### 1155-1300 Poster Highlights (3 min each)

Chairs: Marina PICCIOTTO / Marco PRADO / Zrinka KOVARIK

**Part 1 -**

Sovy CHAO (FR)  
Émilie DAVID (FR)  
Vladimir FARAR (CZ)  
Joseph FARLEY (US)  
Martina Hrabínova (CZ)  
Magdalena KÖNIG (DE)

**Part 2 -**

Natalia KOWAL (IS)  
Dmitrii KULBATSKII (RU)  
Claudio MORALES-PEREZ (US)

Aurélie NERVO (FR)  
Julia PEDERSEN (SE)

**Part 3 -** Konstantin PETROV (RU)  
Marco PIRAZZINI (IT)  
Yasuyuki TANAHASHI (JP)  
Catherine THORN (US)  
Tuba TUYLU KUCUKKILINC (TR)

**1300-1500 Lunch buffet & Poster session (odd # on duty)**

**1500-1620 Session “Inflammation, non-neuronal cholinergic systems” (part 1)**

Chairs: Maryna SKOK / Ignaz WESSLER

**1500-1525 Sergei GRANDO (US)**  
Cutaneous non-neuronal cholinergic system

**1525-1550 Maryna SKOK (UA)**  
The key role of alpha7 nicotinic acetylcholine receptors in neuroinflammation and memory impairments

**1550-1605 Katrin LIPS (DE)**  
Bone status of nAChR alpha9 and alpha10 knockout mice

**1605-1620 Paul LAYER (DE)**  
Acetylcholinesterase regulates skeletogenesis both dependently and independently of its substrate

**1620-1650 Afternoon coffee/tea break**

**1650-1800 Session “Inflammation, non-neuronal cholinergic systems” (part 2)**

Chairs: Veronika GRAU / Sergei GRANDO

**1650-1715 Ignaz WESSLER (DE)**  
Royal jelly of honeybees and pluripotent stem cells of mammals: Two examples for non-neuronal acetylcholine (ACh) and the non-neuronal cholinergic system

**1715-1730 Veronika GRAU (DE)**  
Alpha-1 antitrypsin inhibits ATP-induced release of monocytic IL-1 $\beta$ ; via activation of CD36 and nicotinic receptor subunits  $\alpha$ 7,  $\alpha$ 9,  $\alpha$ 10

**1730-1745 Toshio TAKAHASHI (JP)**  
Visualization of acetylcholine distribution in intestinal tissue sections by tandem imaging mass spectrometry and its function in mice

**1745-1800 Klaus DECKMANN (DE)**  
Muscarinic acetylcholine receptors 2 and 5 mediate a negative autocrine feedback mechanism in urethral brush cells activated by bitter stimuli

**1800-1900 Round Table**

**“Societal and funding issues associated with cholinergic neurotransmission”**

Chairs: Denis SERVENT / Palmer TAYLOR / Henry LESTER

**Invited contributor:** Louis LAURENT, Director of Research and Scientific Activities, French Agency for Food, Environmental and Occupational Health & Safety (ANSES)

**Participants:** Jean-Claude MARTEL, Pierre Fabre Research Institute, FR  
Henry LESTER, California Institute of Technology, US

**1900-2000 IAB Meeting**

**2000-.... Free Evening**

## Tuesday, October 18

### 0830-0935 Session "Genetics: human, animal models, polymorphism, evolution, epigenetics"

Chairs: Karl TSIM / Arnaud CHATONNET

#### 0830-0855 Karl TSIM (HK)

Acetylcholinesterase knock-out mice develop osteoporosis: a role of the globular enzyme form in osteoblastic differentiation

#### 0855-0920 Kinji OHNO (JP)

Splicing regulation of the human acetylcholinesterase gene

#### 0920-0935 Oksana LOCKRIDGE (US)

The unknown protein in the C5+ variant of human butyrylcholinesterase originates from the polyproline-rich exon of the RAPH1 gene

### 0935-1020 Presentations by Laureates of Young Investigator Poster Prizes (4 min each)

Chairs: Hermona SOREQ / Karl TSIM

*(The names of the laureates of an ISN / IBRO-PERC Young Investigator Poster Prize or a Lee's Pharma / Wah Kin Chinese Young Investigator Poster Prize were announced prior to the session. Poster Prize certificates were remitted at the end of the session.)*

Bettina NADORP (IL)	ISN / IBRO-PERC Poster Prize
Cathy WC BI (CN)	Lee's Pharm / Wah Kin Poster Prize
Eugenie NEPOVIMOVA (CZ)	ISN / IBRO-PERC Poster Prize
Etta YL LIU (CN)	Lee's Pharm / Wah Kin Poster Prize
Adrianna WYSOCKA (PL)	ISN / IBRO-PERC Poster Prize
Miranda L XU (CN)	Lee's Pharm / Wah Kin Poster Prize
Tamara ZORBAZ (HR)	ISN / IBRO-PERC Poster Prize
Samira ZTAOU (FR)	ISN / IBRO-PERC Poster Prize
Uriya BEKENSTEIN (IL)	ISN / IBRO-PERC Poster Prize

### 1020-1050 Morning coffee/tea break

### 1050-1220 Session "Supramolecular organization of the synapse"

Chairs: Richard L ROTUNDO / Nadine KABBANI

#### 1050-1115 Richard L ROTUNDO (US)

Acetylcholinesterase folding, assembly and trafficking to the synapse

#### 1115-1140 Jean-Louis BESSEREAU (FR)

Specifying postsynaptic composition using extracellular scaffolds

#### 1140-1205 Antoine TRILLER (FR)

Receptor-scaffold interactions, a thermodynamic approach using super-resolution microscopy: toward chemistry *in cellula*

#### 1205-1220 Nadine KABBANI (US)

Molecular determinants of metabotropic G protein signaling by  $\alpha 7$  nAChRs in neural cells

### 1220-1305 Presentations by Laureates of BP Doctor Memorial Young Investigators Awards (5 min each)

Chairs: Palmer TAYLOR / Israel SILMAN

Gisela Andrea CAMACHO HERNÁNDEZ (MX)

Maria-Letizia CAMPANARI (FR)

Rajnish KUMAR (SE)  
Jayharsh PANCHAL (US)  
Katrín RICHTER (DE)  
Luís Eduardo SANTOS (BR)  
Natalia VASILYEVA (RU)  
Nadav YAYON (IL)

**1305-1320 Tribute to Victor P. Whittaker**

Israel SILMAN (IL)  
R. Jane RYLETT (CA)

**1320-1330 Group photo (Palais des Congrès – Marseille Chanot)**

**1330-1900 Free Afternoon**

**1900-2200 Gala dinner (Palais du Pharo, Salon Eugénie)**

## Wednesday, October 19

### 0830-1030 Session “Neuromuscular junction and motoneuron: development, diseases and therapeutic strategies”

Chairs: Lin MEI / Claire LEGAY

**0830-0855 Lin MEI (US)**

Molecular mechanisms of neuromuscular junction formation and maintenance

**0855-0920 Cécile MARTINAT (FR)**

Human pluripotent stem cells for the study and treatment of neuromuscular diseases

**0920-0945 Rüdiger RUDOLF (DE)**

Sympathetic coinnervation of NMJs and its importance for synaptic homeostasis

**0945-1000 Michela RIGONI (IT)**

ATP released by toxin or immunocomplexes-injured neurons activates Schwann cells

**1000-1015 Eric KREJCI (FR)**

Complex regulation of ColQ, a major anchor of AChE

**1015-1030 Sophie CREUZET (FR)**

Pinnatoxins are potent antagonists of nicotinic receptors and potential threat for global health: characterization of their neuro-developmental effects in embryos

### 1030-1100 Morning coffee/tea break

### 1100-1230 Session “Nicotine addiction and tobacco abuse”

Chairs: John DANI / Frances LESLIE

**1100-1125 John DANI (US)**

Nicotinic and dopaminergic mechanisms of plasticity and addiction

**1125-1150 Henry A. LESTER (US)**

Nicotine in the endoplasmic reticulum

**1150-1215 Frances LESLIE (US)**

Effects of tobacco smoke constituents on nicotine reinforcement and dependence

**1215-1230 Shannon WOLFMAN (US)**

Neural substrates of the aversive effects of nicotine

### 1230-1430 Lunch buffet & Poster session (even # on duty)

### 1430-1620 Session “Pharmacology, modulators, toxins, drug design, therapeutic agents” (part 1)

Chairs: Denis SERVENT / Lucia SIVILOTTI

**1430-1455 Thomas BALLE (AU)**

Engineered nAChRs and AChBPs for detailed structure-activity relationship investigations

**1455-1520 Lucia SIVILOTTI (GB)**

Agonist efficacy in the nicotinic superfamily

- 1520-1535 Francesco AMENTA (IT)**  
Clinical trial associating a cholinesterase inhibitor and choline alphoscerate in Alzheimer's disease with cerebrovascular injury - Two years interim results
- 1535-1550 Jochen KLEIN (DE)**  
Cholinergic activation during lithium-pilocarpine-induced status epilepticus
- 1550-1605 Denis SERVENT (FR)**  
The tree-finger toxin fold: a multipotent structural fold to modulate the cholinergic function
- 1605-1620 Ekaterina LYUKMANOVA (RU)**  
Human secreted Ly-6/uPAR related proteins: insights into specificity of interaction with acetylcholine receptors
- 1620-1650 Afternoon coffee/tea break**
- 1650-1730 EMBO Keynote Lecture**  
Chair: Yves BOURNE
- Joel SUSSMAN (IL)**  
Recent breakthroughs in the structure/function studies of acetylcholinesterase
- 1730-1905 Session "Structure-dynamics-function relationships of cholinergic proteins" (part 1)**  
Chairs: Yves BOURNE / R. Jane RYLETT
- 1730-1755 Roger PAPKE (US)**  
Paradoxical interactions of alpha7 nAChR silent agonists and allosteric modulators; equilibration between desensitized states and persistent currents
- 1755-1820 Fredrik EKSTRÖM (SE)**  
Discovery and development of selective acetylcholinesterase 1 inhibitors for prevention of vector-borne infectious diseases
- 1820-1835 R. Jane RYLETT (CA)**  
82-kDa choline acetyltransferase alters APP processing and expression of synapse formation related genes
- 1835-1850 Jan JAKUBIK (CZ)**  
Receptor - membrane interactions as a potential basis of functional selectivity of xanomeline for M1 and M4 muscarinic receptors
- 1850-1905 Petros GIASTAS (GR)**  
Crystal structure of the ligand-bound extracellular domain of  $\alpha 2$  nicotinic AChR subunit in pentameric assembly
- 1905-.... Free Evening**

## Thursday, October 20

### 0830-1030 Session "Allostery in cholinergic receptors and enzymes"

Chairs: Jean-Pierre CHANGEUX / Celine VALANT

**0830-0855 Stuart EDELSTEIN (FR)**

Allosteric mechanisms in ionotropic and metabotropic acetylcholine receptors

**0855-0920 Celine VALANT (AU)**

Structural and functional perspectives on muscarinic receptor allostery

**0920-0945 Terrone L. ROSENBERRY (US)**

Hopeahainol A is a reversible inhibitor at the acetylcholinesterase (AChE) peripheral site that inhibits enzyme activity with a novel higher order concentration dependence

**0945-1000 Sofya LUSHCHEKINA (RU)**

Slow-binding inhibition of acetylcholinesterase by an alkylammonium derivative of 6-methyluracil: molecular modeling, X-ray crystallography and kinetic study of inhibition mechanism

**1000-1015 Zoran RADIC (US)**

Allosteric interactions in organophosphate inhibition and oxime reactivation of inhibited cholinesterases

**1015-1030 Pierre-Jean CORRINGER (FR)**

A bacterial homolog of nAChRs functioning at the atomic resolution

### 1030-1100 Morning coffee/tea break

### 1100-1250 Session "Pharmacology, modulators, toxins, drug design, therapeutic agents" (part 2)

Chairs: Jordi MOLGO / Edson ALBUQUERQUE

**1100-1125 Palmer TAYLOR (US)**

Molecular determinants of selectivity for the cholinesterases and nicotinic acetylcholine receptors

**1125-1150 Michela RIGONI, on behalf of Cesare MONTECUCCO (IT)**

Degeneration and regeneration of the neuromuscular junction: novel modulators and possible therapeutic agents

**1150-1205 Igor KASHEVEROV (RU)**

Peptide neurotoxins as tools for the study of acetylcholine receptors and as templates for new drugs

**1205-1220 Grazyna FAURE (FR)**

Rattlesnake PLA2 as a novel NAM of the prokaryotic pentameric proton-gated ion channel GLIC and PAM of CFTR

**1220-1235 Jean-Claude MARTEL (FR)**

The quest for selective modulator of alpha5-containing nicotinic receptors

**1235-1250 Jordi MOLGO (FR)**

Cyclic imine toxins exhibiting high affinity for muscle- and neuronal-subtypes of nicotinic acetylcholine receptors

### 1250-1400 Lunch buffet



**1400-1615 Session "Exposure to organophosphorus pesticides and nerve agents"**

Chairs: Patrick MASSON / Florian NACHON

- 1400-1425 Edson ALBUQUERQUE (US)**  
Developmental neurotoxicity of the organophosphorus pesticide chloryprifos: from animal behavior to molecular mechanisms
- 1425-1450 Zrinka KOVARIK (HR)**  
Efficient detoxification of soman, tabun, and VX by oxime-assisted reactivation of acetylcholinesterase mutants
- 1450-1515 Douglas CERASOLI (US)**  
Broad spectrum protective efficacy against OPs provided by catalytic bioscavengers
- 1515-1530 Helen RICE (GB)**  
Bioscavenger is effective as a delayed therapeutic intervention following percutaneous VX poisoning in the guinea pig
- 1530-1545 Nina JAFFRÉ (FR)**  
Superior efficacy of HI-6 dimethanesulfonate over pralidoxime methylsulfate against Russian VX poisoning in Cynomolgus monkeys (*Macaca fascicularis*)
- 1545-1600 Kamil MUSILEK (CZ)**  
Quaternary oximes with meta-positioned chlorine moiety exhibit improved physical-chemical properties, efficient reactivation of inhibited human acetylcholinesterase and limited animal toxicity
- 1600-1615 Linn C. CADIEUX (US)**  
The potential role of non-oxime reactivators in the treatment of nerve agent intoxication

**1615-1645 Afternoon coffee/tea break**

**1645-1820 Session "Structure-dynamics-function relationships of cholinergic proteins" (part 2)**

Chairs: Pierre-Jean CORRINGER / Thomas BALLE

- 1645-1710 Hugues NURY (FR)**  
Mammalian cys-loop receptors: what to learn from the 5-HT<sub>3</sub> receptor structure?
- 1710-1735 Ryan HIBBS (US)**  
Nicotinic receptor architecture and mechanism
- 1735-1750 Michaela JANSEN (US)**  
Identification of positions crucial for the pentameric assembly of the intracellular domain of pentameric ligand-gated ion channels
- 1750-1805 Yves BOURNE (FR)**  
Diversity in the binding interactions of marine phycotoxins to AChBP, the soluble nAChR surrogate
- 1805-1820 Pascale MARCHOT (FR)**  
Structural and functional analysis of acetylcholinesterase complexes with in situ click-chemistry inhibitors

**1820-1830 Closing Remarks**

**1830 End of XVth ISCM -----**