The 8th World Congress of Neuroscience was organised jointly by the International Brain Research Organization (IBRO) and the Italian Society of Neuroscience (SINS) at Florence, Italy from July 14-18, 2011. This was truly a global and large event reflecting IBRO’s core mission of promoting international collaboration and exchange of scientific information as it was attended by more than 4200 neuroscientists including 1500 from developing nations. The meeting was a major event as IBRO was celebrating its 50th anniversary in 2011 and SINS was celebrating 150th anniversary of birth and Unity of Italy. The venue was centrally located at Medicean Fortress (Fortezza da Basso) close to the main railway station of Florence which provided admirable congress facilities to run several scientific sessions concurrently. Most of the delegates were accommodated within walking distance of the fortress, ranging from 5-star hotels to budget/student accommodation. Dr. Gaetano Di Chiara, Cagliari, Italy was the chairperson of local organising committee of this Congress.

In order to encourage the young neuroscientists from countries with limited resources, IBRO organised for the first time a pre-congress Young Investigator Program (YIP) which aimed to assist budding neuroscientists to present their scientific achievements, to meet their senior colleagues, to establish collaborations and to plan future exchange visits. Through this training program, 83 young researchers from developing countries (Asia-31, Latin America-29, Africa-19 and Eastern Europe-4) spent one month in selected European laboratories. Their lodging and travel expenses from the host laboratory to Florence were covered by the YIP. In a nutshell, YIP provided PhD students and post-docs an exceptional prospect to ascertain collaborations and learn new techniques, and at the same time, presented a magnificent opportunity to western European researchers to expand their view on neuroscience research in the world. Dr. Micaela Morelli, Cagliari, Italy was the chairperson of YIP who looked after and handled this programme successfully.

Overall 9 plenary lectures, 7 special workshops, 14 special events, 20 parallel symposia and 40 parallel workshops were organised during this five days congress. Daily 10 parallel workshops were planned in two sets of 5 parallel workshops in early afternoon and late afternoon sessions, which covered almost all topics of neuroscience research ranging from fundamental brain facts to therapeutic interventions for the control of brain disorders. In addition, more than 2000 posters were displayed daily according to different categories of diverse themes of IBRO World Congress of Neuroscience, i.e., Nervous system development & developmental disorders, Axonal guidance, Synaptic formation & trophic factors, Glia, Stem cells: neural injury & repair, Neurogenetics, Excitatory membranes & ion channels, Synaptic transmission & signal transduction, Neural plasticity, Neuroendocrine & autonomic regulation, Pain, Sensory systems, Motor systems, Learning and memory, Cognition & emotion, Neurodegeneration & aging, Neurological disorders, Psychiatric & behavioural disorders, Neuroinformatics & computational neuroscience, Neuroelectronics & neurorobotic interfaces and History, teaching, neuroethics, awareness & social impact. The best posters were awarded by SINS under Young Investigator visiting Programme poster prize scheme.

The Congress started with a warm and traditional Tuscan welcome on July 14 at 5:00 PM. This late-afternoon observance began with a traditionally dressed Florentine flag and drum core which carried the banner during the procession leading up to the auditorium. A trumpeter and drummer made the customary “call of the city” to open the ceremony, after which the SINS representatives made opening remarks to welcome the participants who came from all over the world to this huge gathering. Ms. Stefania Saccardi, the Councillor of Health, representing the mayor and the city of Florence, gave “Keys to the City of Florence” to IBRO President Carlos Belmonte in a gesture to open the doors of Florence for neuroscientists. The main attraction of the inaugural function was welcome address by renowned neuroscientists like Pierre Magistretti (IBRO-Secretary General), Lucio Annunziato (President, SINS), Gaetano Di Chiara and other academic & city authorities. Carlos Belmonte, current IBRO President invited past IBRO Officers on-stage: Albert Aguayo, Marina Bengtovicchio, Masao Ito, Jennifer Lund, Steve Redman, Piergiorgio Strata and Torsten Wiesel to present awards and honours to them. Dr. Aguayo, Montreal, Canada gave EDAB’s presidential lecture on 50 years of IBRO, during which he presented a detailed and informative historical account of IBRO. The first opening plenary lecture was given by Andrew Schwartz, University of Pittsburgh, USA to discuss the useful signals from the motor cortex. Just before the welcome reception, participants were treated to a special surprise of an opera concert of three tenors, from the Venti Lucenti Opera Company of Florence, who sang all-Italian opera favourites dating from the late 19th century, the period in which the unification of Italy took place. After the half-hour concert, the evening’s events ended with an outdoor welcome reception held within the ancient brick walls of the historical Fortezza da Basso, with entertainment provided by traditional Florentine flag wavers and drum core.

Next day program started with a plenary lecture on a fascinating topic “Regulation and function of adult neurogenesis in the hippocampal formation” by Fred H. Gage, La Jolla, USA, which was followed by five parallel symposia with four speakers in each symposium. First symposium on integration of new neurons in the adult brain: lessons from brain repair was addressed by Marco Canossa (Genoa, Italy) who explained the regulation of newborn neuron integration into hippocampal circuits by temporal expression of neurotrophin receptors, Alejandro Fabian Schinder (Buenos Aires, Argentina) presented his findings on control of maturation and functional integration of adult-born hippocampal neurons by local network activity, Paola Arlotta (Cambridge, USA) gave a lucid talk on molecular development of projection neuron types and building of local microcircuitry in the cerebral cortex and Benedikt Berninger (Munich, Germany) spoke about voluntary versus forced metamorphosis of astroglia into neurons. The other symposium was on the molecular and cellular determinants of neuron/glia specification, in which Magdalena Gotz (Munich, Germany) presented recent findings on molecular and cellular mechanisms of neurons gener-
ing glial cells, Eva Anton (Chapel Hill, USA) explained about radial glial polarity and its contributions to neuronal migration in cerebral cortex, Kinichi Nakashima (Ikoma, Japan) talked on intra- and extra-cellular factors regulating neural stem cell differentiation during brain development and FCA Gomes (Rio de Janeiro, Brazil) shared his recent work on cellular determinants of radial glia commitment and astrocyte differentiation: implications for synapse formation. In the symposium on elimination of amyloid from the ageing and Alzheimer's disease brain, Yvonne Eisele (Tubingen, Germany) discussed about the prion-like aspect of cerebral amyloidosis, Roxana Octavia Carare (Southampton, UK) talked on the role of perivascular drainage in ageing, James Nicoll (Southampton, UK) described a promising approach on immunotherapy in Alzheimer's disease and JoAnne McLaurin (Toronto, Canada) explained about dissolving the fibrils and targeting the phagocytes of the Alzheimer's brain. Another symposium was based on the theme of blind sight in action: residual visuomotor functions after lesions of primary visual cortex. This symposium was addressed by Melvyn Goodale (London, Canada) on the topic of goal-directed grasping and obstacle avoidance after lesions of V1, Ed Callaway (La Jolla, USA) presented his well established findings on the disynaptic routes from superior colliculus to dorsal stream visual areas, Beatrice de Gelder & Marco Tamietto (Tilburg, The Netherlands) talked on the issue of sensory-motor blind sight in the physical and social world and Carlo Alberto Marzi (Verona, Italy) tried to solve the cause of blind sight, which may be mediated either by the lesioned or the intact hemisphere. The computational study of memory information processing: data analysis and modelling of cortico-hippocampal interaction was discussed in the final symposium of the day. Francesco Battaglia (Amsterdam, the Netherlands) delivered a lecture on “cortical reactivation of recent neuronal activity patterns in the subsequent sleep is related to hippocampal activity.” Masami Tatsuno (Lethbridge, Canada) discussed about memory reactivation during slow-wave sleep and REM sleep. Colin Molter (Lausanne, Switzerland) spoke about rhythmic modulation of theta oscillations, which are supported by encoding of spatial and behavioural information in the rat hippocampus. Last speaker of symposium was Yoko Yamaguchi (Wako, Japan) who explained about the dynamical representation of environments in the brain.

The next day program was started by a plenary lecture where Erin M. Schuman (Frankfurt, Germany) highlighted the local control of synaptic function in an informative way. First symposium of the day was planned to discuss about the new approaches for studying dendritic function in vivo by putting dendrites back into the brain. Arthur Konnerth (Munich, Germany) focused on synaptic activation of dendrites and spines in sensory cortex neurons in vivo. Kazuo Kitamura (Tokyo, Japan) presented his work on 2-photon imaging of Purkinje cell dendritic activity in vivo. Matthew Larkum (Bern, Switzerland) explored dendritic activity in vivo from different angles in context of cortical networks. Michael Haussser (London, UK) explained the dendritic synaptic integration in mossy fiber visual cortex in vivo. Another parallel symposium on signal transduction and cell biology of growth cone guidance attracted many listeners, in which Yimin Zou (La Jolla, USA) talked on cell polarity signaling and growth cone guidance, Frank Bradke (Martinsried, Germany) presented a very interesting work where he demonstrated that ADF/Cofilin-mediated actin turnover directs neuritogenesis in the developing mammalian brain, Hiroi Kagiuch (Wako, Japan) featured on the membrane dynamics in growth cone guidance and Dietmar Schmucker (Leuven, Belgium) shared his recent findings on molecular mechanisms of axon branching and its role in neural circuit formation. Symposium on subcellular localization and function of voltage-gated ion channels was addressed in parallel by Andrea Lorincz (Budapest, Hungary) on the topic of polarized subcellular distribution of voltage-gated Na⁺ and K⁺ channels in the central nervous system, Judith Makara (Ashburn, USA) on the area of compartmentalized processing and storage in pyramidal neurons, Mal Shah (London, UK) on the issue of HCN channel regulation of cortical glutamatergic synaptic transmission and Dimitri Kullmann (London, UK) on the subject of Kv1.1 in neuronal excitability and synaptic transmission: insights from channelopathies. Symposium on prion biology and pathology (SO9) was highly enlightening as Claudia Steuerner (Konstanz, Germany) focused on role of reggie/flotillin and prion protein in axon growth and adherens junction formation, Jerson Silva (Rio de Janeiro, Brazil) discussed about the interaction of mammalian prion proteins with nucleic acids and glycans. Yukirosaka (Tokushima, Japan) elaborated the
role of the N-terminal region of prion protein in prion disease and Hugh Perry (Southampton, UK) talked on the role of neuroinflammation in the pathogenesis of prion disease. Another parallel symposium on the endogenous opioid systems in psychiatric and neurological diseases was discussed in details under the sub topics of Mu and delta opioid receptors: opposing roles by Brigitte Kieffer (Illkirch, France), Opioids and the coordination of stress response by Andreas Zimmer (Bonn, Germany), Role for p38 MAPK in kappa opioid receptor-dependent dysphoria by Michael Bruchas (St. Louis, USA) and the dynorphin/KOP system in temporal lobe epilepsy by Christoph Schwarzer (Innsbruck, Australia).

Poster session consisted of more than 500 posters on different sub-themes. Three parallel special events followed the poster session. First special event of the day was actually an IBRO symposium on contribution of IBRO to world neuroscience. This symposium momentarily summarized the rise of neuroscience in the past 50 years, and highlighted the unique role played by IBRO. During this special event, Masao Ito (Wako, Japan) gave his introductory overview, Gordon M. Shepherd (New Haven, USA) reviewed the worldwide brain research in the last 50 years and Torsten Wiesel (New York, USA) gave his concluding remarks. Moreover, participants from different IBRO regions like Rajesh Kalaria (Africa), Hitoshi Okamoto (Asia and the Pacific), Omar Macadar (Latin America), Gordon Shepherd (Northern America) and Tamas Freund (Western and Eastern Europe) discussed about the neuroscience progress in their respective regions. Fine-scale mapping of the developing mouse and human brain was the main focus of another special event, where Luis Puelles (Murcia, Spain), Salvador Martinez (Alicante, Spain), Allan Jones (Seattle, USA) and John Hohmann (Seattle, USA) gave a new approach to brain mapping during different developmental stages of mouse and human. Last parallel special event of the day was another joint meeting between the French and Italian neuroscience societies, which included a SDN-SINS mini-symposium on the topic of new insights into gephyrin function. Antoine Triller (Paris, France), Andrea Barberis (Genoa, Italy), Enrico Cherubini (Trieste, Italy) and Pierrieck Poisbeau (Strasbourg, France) explained the role of gephyrin in different important brain functions at synapse level. The evening plenary lecture saw a huge gathering when Allan I. Basbaum (San Francisco, USA) gave a lucrative talk on the neurobiology of pain and its control. Two parallel special workshops were planned after the lecture on two different areas. First one was organised to look into the neuroscience in Africa, in which eminent African neuroscientists presented their sample from north, south, east and west Africa, whereas second one was an evening discussion with plenary speakers on how to start our own lab. This special event took into the account major issues involved in starting a lab as a new junior investigator, including the relative merits of bringing in undergraduates, graduate students, postdocs, and research assistants into lab; how quickly to grow; the distinction among supervision, advising, and mentoring and the strengths & weaknesses of collaborations for junior investigators.

The fourth day of Congress started by an informative plenary lecture by Joshua R. Sanes (Harvard, USA) who provided an insight into the visualization of circuits in the developing visual system. The first parallel symposium of the day about the epigenetic regulation of neural stem/progenitor cell differentiation, Antonella Riccio (London, UK) elaborated a novel epigenetic mechanism in neurons, Soo-Kyung Lee (Houston, Texas) presented the role of histone modifying enzymes in motor neuron development and Victor Tarabykin (Berlin, Germany) presented his findings on control of neocortical development by Sattb proteins. Symposium on glial and neuronal control of brain blood flow in health and disease was addressed by four molecular biologists. Martin Lauritzen (Glostrup, Denmark) talked on the regulation of brain blood flow by synaptic activity in vivo. Brian MacVicar (Vancouver, Canada) presented his findings on astrocyte modulation of cerebral blood vessels in health and disease. Eric Newman (Minneapolis, USA) spoke about the glial regulation of blood flow in the normal and diabetic retina. David Attwell (London, UK) discussed the regulation of capillary diameter by pericytes in health and disease. The other symposium on new roles for melatonin photopigment in non-visual and visual functions was addressed by Claude Gronfier (Bor, France) with an emphasis on light and the human circadian timing system, Robert J. Lucas (Manchester, UK) highlighting the melatonin input to visual structures of the brain in the mouse, Gilles Vandewalle (Liege, Belgium) talking on the short wavelength light modulation of cognitive and emotional brain function in humans and Satchidananda Panda (La Jolla, USA) explaining the use of ectopically expressed melatonin to restore vision in blind animals. Another parallel symposium was of general public interest as it was focused on the mental and physical activity as modulators of brain function and disease. In this symposium, Lamberto Maffei (Pisa, Italy) talked about the consequences of environment on the brain at molecular level, Henriette van Praag (Baltimore, USA) elucidated the role of exercise in the regulation and function of adult hippocampal neurogenesis, Jess Nithianantharajah (Cambridge, UK) unravelled the role of genes and environment in cognitive dysfunction and Marcello Sorinolas (Poitiers, France) explained the preventive and curative effects of environmental enrichment on drug addiction. Last parallel symposium of the day on stress, plasticity & drug-seeking was sponsored by the British Journal of Pharmacology. In this symposium, pregnancy induced changes in the brain plasticity: reversal by stress due to maternal separation were discussed by Giovanni Biggio (Cagliari, Italy), the effect of drug exposure on learning-related plasticity in the striatum and decision-making was elaborated by Bernard Balleine (Sydney, Australia), the role of neuronal nicotinic acetylcholine receptors in the development of alcohol and nicotine use disorders was explained by Selena Bartlett (San Francisco, USA) and findings from preclinical and translational studies on new anti-relapse drugs were presented by Rainer Spanagel (Mannheim, Germany).

The third day of poster session was based on some of the interesting topics of neuroscience in which 520 posters were displayed. Out of the three parallel special events, first one was presented by Jacopo Annese (San Diego, USA) to examine a notable case of amnesia into the brain of patient H.M. by computerized anatomical assessment. Second special event was held to discuss the ethics of scientific publishing, in which advice from editors of Neuroscience journals, Society for Neuroscience (USA) and IBRO Workshop was offered to students on complex decisions of publishing, authorship, dual submis-
in experience-dependent plasticity in the somatosensory cortex, Ying-Shing Chan (Hong Kong, China) presented his data on crucial role of acquisition of glutamate receptors in central vestibular synapses for developmental recognition of spatial orientation and Pankaj Sah (Brisbane, Australia) spoke about the role of NMDA receptors in synaptic transmission and plasticity in the amygdala. The symposium on the regulation of presynaptic calcium channel activity covered different topics like regulation of presynaptic calcium channels during short-term synaptic plasticity by William Catterall (Seattle, USA), differential effects of presynaptic calcium channel subtypes in control of synaptic transmission by Richard Tsien (Stanford, USA), spatial and temporal regulation of calcium channels by Sumiko Mochida (Tokyo, Japan) and regulation of calcium channel activity by auxiliary alpha2delta subunits by Annette Dolphin (London, UK). Another parallel symposia on the role of sleep in learning and memory formation highlighted diverse aspects of sleep ranging from molecular mechanisms to cognitive function. Susan Sara (Paris, France) presented her findings on sleep-related brain oscillations and memory consolidation. Ted Abel (Philadelphia, USA) analysed the molecular and cellular effects of sleep deprivation on hippocampal function. Paula Tiba (Sao Paulo, Brazil) spoke about the role of glucocorticoids in sleep deprivation effects on learning and memory. Peter Meerlo (Groningen, The Netherlands) talked about the consequences of mild sleep disruption and changes in regional brain activity and learning strategy during this process. The parallel symposium on synapptic protein networks in neurological and psychiatric diseases was of particular interest of mine as Mattijis Verhage (Amsterdam, The Netherlands) presented his work on synaptic gene networks in attention and cognition disorder, Michela Matteoli (Milan, Italy) discussed about modulation of calcium dynamics by SNAP-25, a synapptic protein involved in different psychiatric disorders, Nils Brose (Göttingen, Germany) spoke about synaptic proteins and autism spectrum disorders and Claudia Bagni (Leuven, Belgium) talked about mRNA metabolism and synaptic dysfunctions during Fragile X Syndrome.

A total of 500 posters were displayed during poster presentation during the end day of Congress. After the poster session, special event was organised by the International Council for Science (ICSU) in which Maurizio Iaccarino (Naples, Italy) talked on the science & the use of scientific knowledge. The second parallel special event of the day was specially designed for women neuroscientists to provide funding opportunities and grant writing primer to them. In this workshop, Emmeline Edwards (Bethesda, USA), Marina Bentivoglio (Verona, Italy), Orly Weinreb (Haifa, Israel) and Jean King (Worcester, USA) expressed their views with the participants regarding the successful grant writing strategies. Third parallel special event was a FENS/JNS/IBRO/SPN symposium on legal trends on the use of animals in research across the world. Roberto Caminiti (Rome, Italy), Sharon Juliano (Bethesda, USA), Pedro Maldonado (Santiago, Chile), Kiyoshi Kurata (Hirosaki, Japan) and Kris Turlejski (Warsaw, Poland) discussed about the bioethics and animal research policies in their respective region or country. Another special event was held in parallel to observe the joint meeting between the French and Italian neuroscience societies, where one SDN-SINS special lecture was intended by Bruno Bontempi (Bordeaux, France) on the theme of tracking memory during systems consolidation. After this lecture, the last SDN-SINS mini-symposium on cellular mechanisms in pain sensitivity was held. Marc Landry (Bordeaux, France), Sabatino Maione (Naples, Italy), Eric Linguèglia (Sophia Antipolis, France) and Valerio Magnaghi (Milan, Italy) presented their recent findings during this mini symposium. The closing plenary lecture was given by Karl Deisseroth (Stanford, USA) to highlight the development and application of optogenetics.

The hectic scientific sessions in World Congress were interspersed with a few hours of getaway to the beautiful renaissance palaces, museums, churches and monuments in Florence. Many of the participants did not fail to visit the nearby city of Pisa, to witness one of the modern wonder of the earth i.e. leaning tower of Pisa. The evening social dinners, strolling in the Florentine streets and organ concerts on different days of Congress program had a pleasurable, memorable and refreshing experience. The participants were very satisfied with all the facilities and organizations provided by SINS in congress venue and were stunned by the effort, generosity and time devoted by the team of local organising committee for the successful and interactive IBRO World Congress of Neuroscience. This congress was gener-
ously funded to facilitate travel of neuroscientists from developing countries in the form of YIP and travel grants. It was also a historical moment for the Indians as 5 senior neuroscientists and 19 young investigators were selected from India via travel grants for Asian/Pacific Region participants and YIP fellows respectively. The event was adequately covered by print and electronic media in Italy as well as other countries. Overall, the 8th World congress of Neuroscience was a huge success and advancement in the research activities in neuroscience all around the world and showed great promise for better understanding of the diverse aspects of mechanism of functioning of brain at cellular, molecular and behavioural level as well as the possible future therapies. The next 9th World Congress of Neuroscience will be held after four years in 2015 at Rio de Janeiro, Brazil.

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