

Report of the ISN-Wiley-Blackwell-JNC-International Lectureship Organized at National Brain Research Centre, Manesar, INDIA



The prestigious *ISN-Wiley-Blackwell-JNC-International Lectureship* was organized during the 34th Annual meeting of the Indian Academy of Neurosciences. The ISN event was advertised on IAN 2016 website, through emails, brochure, and posters etc that helped in gathering a huge crowd for the event. ISN financial support was mentioned on all backdrops, banners, conference website as well as the official cell phone app that was used for the IAN 2016 meeting. This was the largest gathering of neuroscientists in India in 2016, and was attended by more than 400 participants from USA, Japan, Singapore, Sri Lanka, Italy and India. Additional information available on the conference website – <http://www.nbrc.ac.in/ian2016/index.php>

Title of the meeting: XXXIV Annual Conference of Indian Academy of Neurosciences (IAN-2016).

Theme of the Symposium: “*Molecules to Mind*”

Title of ISN-Wiley-Blackwell-JNC-International Lectureship: *Structure and temperature sensing mechanisms in capsacin receptor TRPV1 channel.*

Date: October 20th, 2016 at National Brain Research Centre, Manesar, India.

By

Dr. Kenton Swartz of National Institutes of Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Bethesda, USA

The 34th Annual Meeting of Indian Academy of Neurosciences brought together leaders in the field of neuroscience for a comprehensive overview of this rapidly expanding area of research and

development in India. The conference was held at National Brain Research Centre (NBRC), Manesar, Gurgaon from October 19 to 21, 2016. The NBRC is a premier neuroscience research institute in India located in the foothills of Aravali range in Manesar. Its dedication for research and education in neuroscience and excellent instrument and infrastructure facilities attract researchers and students from diverse disciplines to join the exciting and challenging field of neuroscience.



Group Photograph of IAN 2016 delegates (Dr. Kenton Swartz encircled)

The second day of the meeting started with the **ISN Wiley Blackwell JNC International Lectureship Award** that was delivered by Dr. Kenton Swartz of National Institutes of Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Bethesda, USA. His talk was on *Structure and Temperature sensing mechanisms in capsaicin receptor TRPV1 channel*.

Dr. Swartz discussed about the Transient Receptor Potential (TRP) channels that are a large family of ion channels that are activated by diverse stimuli and ligands, including second messengers, temperature, voltage and natural products such as capsaicin, menthol and wasabi. He mentioned during the talk that investigations are under progress to gain insights into the structure and gating mechanisms of the heat-activated TRPV1 channel using the double-knot toxin (DkTx) from tarantula venom. He presented the structure of DkTx that has been solved using NMR, and showed how they have docked DkTx into the electron density maps from the recent single particle EM structure of the toxin bound TRPV1 channel to reveal a range of interesting features of the toxin-channel interaction. Results from their laboratory reveal that DkTx binds to the perimeter of the external pore of TRPV1 at the interface of the channel with the surrounding lipid membrane. Dr. Swartz also talked about functional experiments suggesting that DkTx and extracellular ions profoundly alter activation of TRPV1 by heat, implicating the external pore in the mechanism of temperature-sensing.

Dr. Kenton Swartz was honored with an elegant plaque for the prestigious ISN Wiley Blackwell JNC lectureship and a shawl by Prof. Gaiti Hassan of National Centre of Biological Sciences (NCBS), Bangalore.

Another important event after Dr. Swartz's lecture was a National Academy of Sciences India (NASI) Sponsored even for Children interaction with Peers in neuroscience. For this event, several local schools in and around Manesar area were invited. The event was attended by a total of 120 students and their teachers, from 5 different schools. The students were of 10+2 levels that were highly inquisitive about understanding functioning of a normal human brain functions and what are the complications that arise in various neurological disorders. The session started with a talk on basic functions of human brain and brain diseases. School students enthusiastically interacted with

the speaker and later the students were encouraged to interact with the national and international experts that were invited for the session. The **ISN Wiley Blackwell JNC International Lectureship Awardee**, Dr. Kenton Swartz, participated as one of the international experts for this event for school students.



Students Interacting with Neuroscientists and seeking clarification their questions on Healthy and Diseased Brain

The experts included –

Prof B Roeder, University of Hamburg, Germany.

Dr. SB Singh, DIPAS, New Delhi, India.

Prof PK Seth, Biotech Park, Lucknow, India.

Prof UC Srivastava, General Secretary, NASI and Prof University of Allahabad, India

Dr. K Swartz, NINDS/NIH, Bethesda, USA

Prof S. Sinha, NBRC, India

Prof C Kaur, National University of Singapore, Singapore

Prof R. DeSilva, Nugegoda, Sri Lanka

The financial support by ISN for the **ISN Wiley Blackwell JNC International Lecture** was useful in many ways. It enabled the organizers of the Indian academy of neurosciences (IAN) to invite an eminent neuroscientist, Dr. Kenton Swartz from National Institutes of Health, Bethesda, USA for the meeting. Dr. Swartz shared his research findings with the delegates. His presence throughout the meeting provided an opportunity for Indian neuroscientists and school students to interact with him.

Photographs taken during the ISN Wiley Blackwell JNC Lecture



Dr. Kenton Swartz delivering the lecture (top); Dr. Swartz with the plaque for ISN Wiley Blackwell JNC Lecture (bottom).



Dr. Kenton Swartz (Center) receiving the ISN Wiley Blackwell JNC Lectureship from Professor Gaiti Hasan (right) and Prof Pankaj Seth, Secretary IAN (Left)



Dr. Kenton Swartz (Center) participating as expert during the *Children interaction with Peers of Neuroscience* event organized after his lecture.