

17th Annual Scientific Meeting and Education Day Recap

By Nicholas Butowski, MD

A FORUM FOR SHARING THE LATEST LABORATORY AND CLINICAL RESEARCH

The 17th Annual Scientific Meeting of the Society for Neuro-Oncology was held November 15-18, 2012, in Washington D.C. We thank Drs. E. Antonio Chiocca (Scientific Chair), Balveen Kaur and Vinay Puduvalli (Education Day Co-Chairs), and Michael Glantz (Quality of Life Chair), for composing a comprehensive program highlighting cutting-edge laboratory and clinical research in the field of neuro-oncology. The meeting resulted in a stimulating exchange of ideas among neuro-oncologists, medical oncologists, neurosurgeons, neuropathologists, radiation oncologists,



Over 1400 registrants from 52 countries attended the SNO annual meeting.

neuroradiologists, pediatricians, laboratory scientists, nurses and other specialists involved in the research, diagnosis, care and treatment of patients with tumors of the central nervous system. In addition to the thought-provoking Education Day and the abstract driven scientific sessions



The 2012 annual meeting was held at the Hilton Hotel in Washington, DC

of the main meeting, SNO offered a number of innovative features at 2012 meeting, including a special biomarkers course, a keynote address from Dr. Bert Vogelstein, a new Public Service Award, the inaugural Abhijit Guha Award and Lecture, expanded sessions for Young Investigators, and an evening satellite symposium on 1p/19q codeleted anaplastic gliomas.

Education Day

The meeting began on Thursday, November 15th with an opportune and relevant program for the Education Day consisting of concurrent morning sessions entitled Targeted Therapies Against Primary Brain Tumors and Quality of Life / Symptom Management. The afternoon session offered a novel program titled SNO Course on the Basics of Biomarkers 2012.



Edward Shaw was recognized at the opening of the meeting as the inaugural recipient of the SNO Public Service Award.

SNO Annual Meeting

The formal meeting launched on Friday November 16th with Sunrise Sessions on the following topics: 1) EANO and SNO Joint Session: From Guidelines To New Trials in Low Grade Gliomas: The American and European Views; 2) NF2 Update: Hearing Restoration and

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SNO Abstract Award Winners



Gelareh Zadeh
Award for Excellence in Adult Translational Research
Supported by Merck, Inc.
Spatiotemporal Regulation of GBM Neo-vascularization and Response to Therapy
Pictured: Jim Pluda (L) and Gelareh Zadeh



Justin Lathia
Award for Adult Basic Science
Supported by the National Brain Tumor Society
Know thy enemy: the development of imaging models to interrogate the complexity of cancer stem cells in malignant brain tumors
Pictured: Justin Lathia (L) and Kristina Knight



Shih-Shan Lang
Award for Excellence in Pediatric Translational Science
Supported by the Pediatric Brain Tumor Foundation
Development of pediatric glioma models for BRAF-targeted therapy
Pictured: Shih-Shan Lang (L) and Robin Boettcher



Sebastian Bender
Award for Excellence in Pediatric Basic Science
Supported by the Pediatric Brain Tumor Foundation
Molecular characterization of mutated histone in pediatric glioblastoma
Pictured: Robin Boettcher (L) and Sebastian Bender



Ralf S. Schmid
Award for Excellence in Adult Basic Science
Supported by Genentech
Cortical GFAP+ astrocytes as a potential cellular origin of GBM
Pictured: Ralf S. Schmid (L) and Heidi Phillips



Robert B. Jenkins
Award for Excellence in Epidemiology
Supported by EMD Serono
New low frequency risk loci in the 8q24.21 (CCDC26) region are strongly associated with risk of oligodendroglial tumors and IDH1/2 mutated astrocytomas
Pictured: Robert B. Jenkins (L) and Andrea Ashford



Michael Weller
Award for Adult Clinical Research
MGMT promoter methylation predicts benefit from temozolomide versus radiotherapy in malignant astrocytomas in the elderly
Pictured: Michael Weller (L) and Frederick Barker



Olivier Chinot
Award for Adult Clinical Research
Phase III trial of bevacizumab added to standard radiotherapy and temozolomide for newly-diagnosed glioblastoma: mature progression-free survival and preliminary overall survival results in AVAglio



Jonathan L. Finlay
Award for Pediatric Clinical Research
Final Report of Outcome of the CCG-99703 Children's Oncology Group Study for Children Less Than 3 Years of Age Newly-Diagnosed with Malignant Brain Tumors



Rakesh Jalali
Award for Quality of Life
Supported by the Sontag Foundation
Hippocampus as a dose constraint model to preserve neurocognition in young patients with low-grade brain tumors treated with focal stereotactic conformal radiotherapy: data from a prospective clinical trial
Pictured: Rakesh Jalali (L) and Christopher Pelloski

Foundations for the Future; 3) Energetics and Metabolism; 4) Re-engineered T Cells and Bone Marrow Cells. The first plenary session began with an official meeting welcome by Dr. Chiocca followed by a Public Service Award presented to Edward Shaw and by presentation of top-Scoring Abstracts. Subsequent to these events the first Abhijit Guha Award was bestowed to James Rutka, and we heard an invigorating keynote lecture given by Bert Vogelstein.



Bert Vogelstein (L) delivered the Keynote Address and received a plaque from Meeting Chair E. Antonio Chiocca (R).



The Guha family were present for the inaugural Abhijit Guha Award and Lecture, delivered by James Rutka who was introduced by Frederick Lang. (From L to R: Deep Guha, Soma Guha, Tanya Guha, James Rutka, Frederick Lang).

A Young Investigators Luncheon Roundtable was held at noon on Friday at which trainees and early phase independent investigators participated in informal discussions with senior investigators at roundtables organized into a variety of different areas. Afternoon concurrent sessions included 1) Medical, Neuro- and Radiation Oncology and 2) Basic Sciences. The next set of concurrent sessions included 1) Symptom Management, Neuro-cognitive and Quality of Life; and 2) Molecular Epidemiology, -Omics and Prognostic Markers. After an



Gregory Cairncross (L) and Robert Jenkins (C) received the Levin Award from SNO President Kenneth Aldape (R).

exciting, first of its kind, town-hall style meeting on the management of 1p/19q co-deleted anaplastic gliomas, the evening opened for poster sessions, which was an opportunity for lively discussion and debate.

Saturday, November 17th Sunrise Sessions featured the following topics: 1) Asian Society for Neuro-Oncology Session; 2) The CMV and Glioma Connection; 3) Mechanisms of Glioblastoma Immuno-evasion; 4) Pituitary Tumors: Biology and Treatment. Next in line was the presentation of the Victor Levin Award and Lecture by Gregory Cairncross and Robert Jenkins. The first afternoon concurrent sessions were 1) Cell Biology/ Signaling and Epidemiology or 2) Pathology and Radiology with subsequent afternoon concurrent sessions on 1) Angiogenesis/Invasion and 2) Surgery and Immunology. The second lively poster session took place after the oral sessions concluded for the day. That evening, the SNO Banquet beheld itself as the social highlight of the meeting.

Sunday, November 18th witnessed the first SNO highlights session – an invitation only press program that highlighted new advances in neuro-oncology, major trial results, and significant advances in supportive care and patient quality of life. Sunrise Sessions included 1) Oncolytic Viruses: Clinical Trials Update; 2) The Radiobiology of CNS Tumors; 3) The Biology of Brain Metastases; and 4) MicroRNA Biology in CNS Tumors. These were followed by a plenary session presenting Top Scoring Abstracts and a RANO session prior to the meeting adjournment.

We look forward to seeing members of all international neuro-oncology societies at the 4th Quadrennial Meeting of the World Federation of Neuro-Oncology in conjunction with the 18th Annual Scientific Meeting of the Society for Neuro-Oncology next November 21-24, 2013 in San Francisco, California.

Report on the 2nd Biennial Pediatric Neuro-Oncology Basic and Translational Research Conference

By James T. Rutka

The 2nd Biennial Pediatric Neuro-Oncology Basic and Translational Research Conference took place at the Hyatt Pier 66 Hotel in Fort Lauderdale on May 16-17, 2013. The meeting was sponsored by the Pediatric Brain Tumor Foundation (PBTF), and organized by the Society for Neuro-Oncology (SNO).

More than 270 clinicians, scientists, research students, and post-doctoral fellows participated in the event. There was representation from more than 15 countries with some of the more distant sites of origin being China, Australia, and Japan.

On the first day of the meeting, there were three Sunrise Sessions that probed the recent advances in translational therapeutics, optic pathway tumours in children, and radiation therapy for paediatric brain tumours.

The first scientific session was devoted to the topic of medulloblastoma in which there have been major strides made in our understanding of the basic science of this tumour. Several presentations included further subgroup analysis within the four major subgroups for medulloblastoma — the WNT, the Sonic Hedgehog (SHH), Group 3 and Group 4 tumours. There are data now to show that within any one of these subgroups, there are groups of patients who are doing better than others, and their risk for progression within these evolving subgroups is being better defined and calculated. Several laboratories are using novel chemotherapeutics to target medulloblastoma based on known pathways of activation including the HGF/cMET, the SHH, and the WNT pathways.

In Session 2, there were presentations on novel paediatric brain tumour models including murine glioma formation with the KIAA1549:BRAF fusion gene; zebrafish models of CNS PNETs which recapitulate the pathology of the paediatric brain tumour; and a new genetic model of a choroid plexus tumor.

In Session 3, presentations on Ependymoma, High Grade Glioma and Therapeutics followed. Here, it was demonstrated that ependymoma is a tumour with very few, if any, primary genetic alterations, but which has significant epigenetic alterations, making it a target for epigenetic therapy. For high grade gliomas, there was great interest in the presentations on the role of the mutant histone H3.3 as a driver for this tumour type. For translational therapeutics, some interesting targets included Wee1, KIAA1549:BRAF fusion gene anomaly, and the RAF/MEK/mTOR pathways. The first



Over 270 clinicians, scientists, research students participated in the 2nd Biennial Pediatric Neuro-Oncology Basic and Translational Research Conference took place at the Hyatt Pier 66 Hotel in Fort Lauderdale.



day concluded with a session on stem cells, genetics/epigenetics and basic biology. Here, there was an excellent presentation on the methylomic landscape of childhood medulloblastoma using molecular genetic techniques to comprehensively characterize the main features of DNA methylation in these tumours.

On the second day of the meeting, there were three more Sunrise Sessions on optimum therapy for craniopharyngioma, targeted therapies for paediatric brain tumours, and the epigenome of paediatric brain

tumours. The first scientific session was devoted to brainstem tumours, and in particular, the diffuse intrinsic pontine glioma (DIPG). Perhaps here, more than anywhere, we were able to document significant progress since our last meeting in 2011. Since the 2011 meeting, the H3.3-K27 and the H3.1-K27 mutations were identified, and found to specify subgroups of DIPG's. The H3.3-K27 mutation in DIPG is associated with some other novel gene mutations, an increase in activation of the BMP and mTOR pathways, and a median overall survival of 17 months; whereas the H3.1-K27 mutation shows activation of PDGFR-alpha and p53, and has a median overall survival of only 11 months.

Throughout the day, there were additional sessions on medulloblastoma in which new targets for therapy were being pursued such as aurora kinase, various microRNA's, and myc. We also learned of ongoing immunotherapy trials in children with PNET's and gliomas. And, there was a presentation on a large cohort of patients from Japan whose germ cell tumours were studied using advanced genomic strategies.

In the short time span of two years, there have been several advances denoted in our understanding of medulloblastoma, ependymoma and DIPG's. Much of this work has been at the genomic characterization level which has depicted subgroups of patients for whom active and new therapeutic strategies are warranted. These advances are in part attributed to the availability and accessibility of next generation sequencing technologies. It is hoped that within the next two years, much more emphasis will be placed on translational therapeutic strategies which will benefit children with these aggressive cancers. Some of these, no doubt, will be highlighted at the next biennial meeting of this group.

I should like to take this opportunity to thank Robin Boettcher, PBTF President and CEO, for the support of the Conference by the PBTF. Special thanks are also given to Chas Haynes, Executive Director of SNO, and Linda Greer, Jan Esenwein and Megan Bell from SNO who helped enormously with the organization of this most highly successful conference.

*James T Rutka, MD, PhD, FRCSC
Scientific Program Chair*

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Annual Neuro-Tumor Club Dinner Meeting Recap

By Raymund Yong

The 19th Annual Neuro-Tumor Club Dinner Meeting took place on April 8, 2013, at the Washington Plaza Hotel in Washington, DC. This meeting, for brain tumor researchers attending the AACR Annual Meeting, was organized by the Society for Neuro-Oncology with the support of Genentech, Merck and the National Brain Tumor Society. The event drew approximately 200 investigators from diverse disciplines relevant to brain tumor research, and was very successful in strengthening existing personal research connections and collaborations, generating new associations and presenting the group with updates in topics important to brain tumor research.

Forty-three abstracts were received of uniformly high quality, a significant increase from the 2012 event. Submissions came from nine countries and were reflective of the cutting edge, thought-provoking basic and translational research in the field of neuro-oncology. Trying to reduce this to fourteen talks was difficult given the standard of the submissions. The talks were arranged in four consecutive sessions that encompassed the following topic areas:

- Animal Models, Biomarkers, and Stem Cells
- CNS Metastases
- Geno/Phenotyping and Personalized Combinatorial Therapy
- New Gene and Immunotherapy

Each topic area was excellently framed by overviews from authority figures in those areas, including Justin Lathia (Animal Models, Biomarkers and Stem Cells); Yaacov Lawrence (CNS Metastases); Vivek Subbiah (Geno/Phenotyping and Personalized/Combinatorial Therapy); and Allen Waziri (New Gene and Immunotherapy).

The dinner took place at the Washington Plaza Hotel, an upscale property near the 2013 Annual AACR Meeting. Attendees' registration continued right up to the dinner and in the end there were over two hundred researchers present. The fourteen speakers were scheduled over three hours, requiring tight time-keeping, but the schedule was adhered to well by all presenters. All speakers were very concise, yet managed to convey an astonishing amount of background information and experimental data. The

talks were followed by lively discussions that highlighted areas of controversy.

There were many excellent presentations during the night. In the first session, Hui Zong presented a genetic mosaic brain tumor mouse model called MADM, which



Close to 200 researchers attended the 2013 Neuro-Tumor Club Meeting which was held in Washington, DC, during the AACR annual conference.

allows for unprecedented studies of glioma-initiating cells in the early stages of transformation. In the next session, Dario Marchetti presented a newly identified, EpCAM-negative surface marker signature for human breast cancer circulating tumor cells. More research into this might lead to novel methods of identifying patients at risk for brain metastases, as well as new strategies for preventing metastatic spread. In session three, Priscilla Brastianos described the spectrum of genetic changes observed in a series of 65 meningiomas sequenced using next-generation technology. Oncogenic mutations in AKT1 and SMO were found in a subset of tumors lacking NF2 alterations, suggesting potential new therapeutic targets.

In the final session, Jennifer Sims explained how deep sequencing of the T cell receptor repertoire in gliomas at varying stages of progression in mice and humans may lead to new insights into the mechanisms of anti-tumor immune inefficacy in glioma patients. The evening concluded with many of the attendees remaining to engage in informal conversation prompted by the presented topics.

Members are encouraged to mark their calendars for the next Neuro-Tumor Club Dinner, scheduled to take place on April 7, 2014, in San Diego, CA.

SNO thanks John Park and Raymund Yong for chairing this successful meeting.

Asian Society for Neuro-Oncology Meeting Report

By Susan Chang

The Asian Society for Neuro-Oncology (ASNO) Meeting was hosted by the Indian Society for Neuro-Oncology (ISNO) in Mumbai from March 22nd to March 25th, 2013. We congratulate Dr. Rakesh Jalali and the organizers of the meeting on a successful and interactive conference. There were more than 500 attendees from international neuro-oncology societies. Several members of SNO participated in the sessions.



The 2013 ASNO meeting was held in Mumbai, India. In addition to a robust scientific program, the meeting also provided an opportunity for an organizational meeting of the World Federation of Neuro-Oncology Societies.

The education day highlighted review topics in the management of pediatric and adult tumors that spanned the basic science and clinical arenas including the multidisciplinary nature of interventions. There were two very animated and stimulating debates on key issues such as the standard of care for anaplastic oligodendroglioma patients and the use of proton/heavy ion radiotherapy techniques for skull base tumors. In addition there were concurrent sessions that highlighted the results of original research efforts of attendees.

The conference also provided a forum for a meeting of the World Federation of Neuro-Oncology Societies at which time an update of the upcoming World Federation of Neuro-Oncology meeting planned for November 21-24, 2013, in San Francisco was provided. In addition, extension of membership opportunities to Latin America, collaborative international educational efforts and issues related to the journal *Neuro-Oncology* were reviewed by the leadership of the various societies.

Again, we congratulate the ISNO for hosting a wonderful ASNO meeting in Mumbai.

Multidisciplinary Management of Meningiomas Report

By Michael Vogelbaum

The Society for Neuro-Oncology (SNO) partnered with the Section on Tumors (SOT) of the AANS/CNS to collaboratively develop a one-day symposium dedicated to the multidisciplinary management of meningiomas. The symposium, which was held on April 27th in New Orleans, was developed by Patrick Wen (SNO), Leland Rogers (SNO) and Michael Vogelbaum (SNO and SOT), and it covered all aspects of meningioma including recent advances in pathology, imaging, biology, treatment options, and clinical investigation.



Highlights of the invited speaker program included discussions of recent advances in understanding the genetics and grading of meningiomas (Arie Perry), a review of new murine models for studying the pathobiology of meningiomas (Michel Kalamarides), an insightful evaluation of the longterm risk of recurrence and its relation to extent of resection (Fred Barker), discussions of radiation therapy and radiosurgery for meningiomas (Leland Rogers and Jason Sheehan) and discussions of new investigational therapies for meningioma (Patrick Wen and Thomas Kaley). In addition, there were oral presentations of original science competitively selected from abstract submissions. These presentations included discussion of multiple new genes associated with the development of meningiomas and their therapeutic implications (Murat Gunel and Rameen Beroukhim), use of mTOR inhibitors for treating meningiomas (Christian Mawrin), development of a novel immunotherapy for pet dogs with meningiomas (Liz Pluhar), development of additional new murine models of meningioma (David James) and novel imaging methods for discriminating between grades of meningioma (Joerg Tonn and Lucy He). The final session of the symposium featured a debate between Ricardo Kotomar and Franco de Monte on the use of radiation therapy for WHO grade II meningiomas. The symposium was well attended with over 240 registrants.

This collaborative effort was intended to deepen the interactions between surgeons and medical specialists who treat patients with meningioma, and hopefully it will serve as a template for future interdisciplinary educational initiatives of this type.

Chinese Society for Neuro-Oncology Partners with SNO

By Susan Chang

A joint Chinese Society for Neuro-Oncology / Society for Neuro-Oncology (CSNO-SNO) meeting was held in Shenzhen, China on March 16th, 2013.

Dr. Zhao Shiguang was the executive chairman for the meeting with Drs Chen Zhongping (CSNO) and Susan Chang (SNO) served as the respective presidents of the joint effort. The morning sessions highlighted presentations on "Biomarkers and new developments in glioma" and "Standard of Care in Gliomas". Dr. Susan Chang and Dr. David Reardon from SNO were invited guest speakers. In the afternoon, sessions were held that outlined clinical research challenges and ongoing and planned opportunities in China as well as interactive discussion of complex clinical cases. The



SNO was honored to work with the Chinese Society for Neuro-Oncology to organize a joint meeting in Shenzhen, China.

meeting also provided an opportunity for executive committee members of CSNO to meet with Drs Chang and Reardon from SNO to discuss collaborative endeavors that included international educational experiences as well as clinical research efforts.

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