

ASIO NEWSLETTER

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EDITORS: MAMTA BEHL, SHIRISHA CHITTIBOYINA, SARYU GOEL,
PRASAD KRISHNAN AND SHEETAL THAKUR



President's Message



Dear ASIO Members

The preparations for 2013 SOT meeting and annual ASIO events has begun. I would like to congratulate all the ASIO members for their tremendous efforts and dedication in submitting high quality proposals (Symposia, Workshops, Roundtable Discussions, Informational Sessions, Continuing Education) for SOT 2013 meetings. By now the SOT proposal review committee has made its initial decision and has communicated the outcome to speakers. Again, congratulations to all those who had their proposal accepted. Those who were not as fortunate this time around should reach out to SOT and find out how they can improve their proposals, revise and resubmit for next meeting. Over the years I have noticed several invited speakers for various SOT sponsored sessions are graduate student and postdocs. I will encourage young ASIO members to review their research and if it is unique, then work with their mentors and senior ASIO/SOT members to develop a proposal for 2014 SOT meeting. It is a unique opportunity to showcase your expertise and experience, and will help with future career growth.

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As in the past, ASIO will again give several awards at next SOT meeting in different categories (graduate students, post docs, young and senior scientists). I will encourage, the members to check out ASIO website, review the criteria and send in their entries early for consideration. We are thankful to our endowment (Drs. Harihara Mehendale, Dharma Singh, Laxman Desai), corporate and individual sponsors for their generous support who make these awards possible on perpetual basis. We hope new sponsors will step forward and help fund additional awards in future.

ASIO Office bearers and numerous volunteer members continue to work diligently throughout the year to keep its activities going, for example, review of proposals in conjunction with SOT in April/May 2012, preparation of ASIO Newsletter, participate and represent ASIO in various SOT committees. I thank all who continue to dedicate their time and efforts towards the success of ASIO.

Best Regards,
Saryu Goel
President

ASIO OFFICERS 2012-2013

President:

Saryu Goel

saryu.goel@gmail.com**Vice President:**

S. Satheesh Anand

Satheesh.S.Anand@DuPont.usa.com**Vice-President elect:**

Sachin Devi

sdevi@lecom.edu**Secretary/Treasurer:**

Jatinder Singh

singh.jatinder@gene.com**Councilors:****Past President:**

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vsrinivasan@rd.us.loreale.com

Sudheer Beedanagari

beedanas@bms.com

Mamta Behl

mamta.behl@gmail.com**PostDoctoral Representative**

Sheetal Thakur

thakursa@mail.nih.gov**Student Representative**

Shirisha Chittiboyina

schittib@indiana.edu

STUDENT-POSTDOC COLUMN

Past Student Representative ASIO:**Sandeep Sreevalasan**

We bid goodbye to Sandeep Sreevalasan, who was the ASIO student representative from June 2011- June 2012. Sandeep will be moving on to the next set of challenges in his graduate career. When asked about his experience, Sandeep mentions that “the collective interaction I had with my colleagues in the association was very enriching and memorable”. He also graciously adds “ I will look forward to be of any assistance for the association in the days to come”. We will miss his contributions to the board!

Current Student Representative ASIO:**Shirisha Chittiboyina**

We are elated to introduce our new student representative, **Shirisha Chittiboyina**. Shirisha has been a very active and enthusiastic volunteer for ASIO activities during the past year. She also serves as the current chair for the quarterly ASIO newsletter. Now that Shirisha officially accepts responsibility as a student representative, she has a few words to say -“It is as much a responsibility as an honor to serve as student representative of ASIO.” She also adds “Graduate students must actively involve in the special interest groups, specialty sections they belong to for improvement in not only their career opportunities but also to hone their managerial and leadership skills”



HAPPY INDEPENDENCE DAY

ASIO conveys its best wishes to all its members and fellow scientists on the U.S. Independence day July 4th and Indian Independence day August 15th. It is a day to remember the sacrifices of great men and women of history and also cherish the gift they left for us.

TOXICOLOGY IN INDIA- AN UPDATE



**Dr. Upendra Bhatnagar, PhD., ERT, MBA.
Director- Toxicology
Vanthys Pharmaceutical Development (P) Ltd.
Bangalore, India**

The global pharmaceutical industry is undergoing a paradigm shift from a fully integrated pharmaceutical company (FIPCO) to fully/virtually integrated pharmaceutical network (FIPNET/VIPNET) to acquire quick decision points and increase R&D productivity for discovering a new medicine and chemicals. The ecosystem is changing and Indian drug discovery laboratories are both driving and benefiting from it. Recent high-profile drug withdrawals increased pressure on regulators and the pharmaceutical industry to improve preclinical safety testing. Targets for application of new technologies, including *in silico* screening, biomarkers, surrogate assays and 'omic technologies, are new paradigms for multidisciplinary, technologically complex, and collaborative approaches to eliminate undevelopable drug candidates and avoid them being unnecessarily advanced to late stage development.

Over the past decade, agrochemical and pharmaceutical organizations have supported the initiation/growth of CROs, which has attracted a huge knowledge and talent transfer. Now these CROs are offering a wide spectrum of services covering almost all areas of the preclinical and toxicology research. There are demands of additional infrastructure and qualified toxicologists to improve preclinical safety testing and outlines gaps to address. Currently India has about 18 CRO's/companies which have toxicology laboratories with the Indian Good Laboratory Practices (GLP) certificate. Last year, India has been accorded full adherent status for Mutual Acceptance of Data (MAD) by the OECD council. Government pitched for a strong GLP base in the country by increasing the number of GLP compliant test facilities, a move that could boost trade in chemicals, biotech and food sectors. However, Indian Labs are offering capabilities for pre-clinical trials in rodents, and limited for dogs with almost none for primates. Government is increasingly supportive and relaxing hurdles, though restrictions persist (for example, on exporting blood samples).

India's presence in the drug discovery and development domain started from public sector laboratory, Central Drug Research Institute and migrated slowly to Indian Companies. However, due to constrain of skills and resources, Indian companies adopted a model to develop new molecules and license out these to the multinationals in the early phase of clinical development. A new concept of virtual drug development has been successfully tried and established jointly by Indian and MNCs to leverage the expertise and experience of multi-disciplinary specialists for accelerating drug development of NCEs and NBEs. Several successful POC studies along with IND/IMPd packages in the area of diabetics, cancer and neglected disease attracted huge interest for partnering with Indian CROs for integrated drug development.

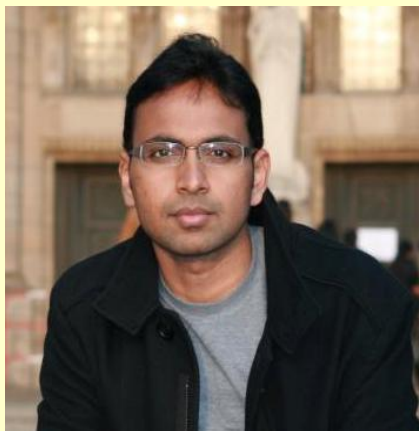
A number of Indian CROs are AAALAC and GLP accredited facilities that meet all global regulatory standards and have a scientific team that is experienced with a wide range of compounds and therapeutic areas. Study personnel possess strong work ethics, learning aptitude and these organizations are having successful history of managing GLP compliant toxicological program from last two decades. However, India offers capabilities for *in vitro* and pre-clinical trials in rodents, and limited for dogs with almost none for primates. During the last 20 years, regular GLP audits from GLP monitoring agencies of Western countries have endorsed successful operation of facilities in compliance with GLP standards. Relatively straightforward preclinical studies via common routes of administration, e.g., oral or intravenous, can be conducted almost anywhere in the country. However, complex, specialized preclinical studies, such as photo toxicity, immunotoxicity or those involving complex analytical methods such as cell marker assays, are only available from more-experienced CROs. These studies should only be conducted with vendors who have the experience, qualifications and credibility to take on these tasks. It has also been observed that the limited supply of quality animals specialized bedding material and certified feed offer timeline challenge. Successful placement of preclinical studies to Indian CROs requires an adequate assessment of the risks & development of a risk mitigation strategy for the regulatory submissions.

The availability of large numbers of highly-educated talent in India is a major advantage for CROs and clients looking to outsource their studies to India. However, toxicology has not received enough attention as a field for higher education and workforce is largely inexperienced, leaving most organizations no choice but to “grow their own” by making significant investments in training. Over the past decade, Industry’s development, and training of the modern toxicologist, as well as continued education has worked well to keep pace and sustain growth of service sector. Recent addition of several western qualified toxicologists (ERT/DABT) has helped to build credibility of business.

Government is promoting for a strong GLP base in the country by increasing the number of GLP compliant facilities and strengthening the regulation for the GLP applicability to drive regulatory approvals. During the last few years, harmonization of guidelines and financial aid for building infrastructure as per GLP and animal welfare standards attracted a positive wave for the development. Several AAALAC and GLP compliant preclinical research facilities have come up or increased their capacity and introduced an online data capturing system to meet the business requirements. However, there is a great demand for automation at present as well as for the future. Limited capabilities for non rodent studies and experience for quantification of large molecule are posing additional challenge for consideration of integrated project.

With the increase in our health consciousness, as well as concern for our environment, a wide and growing variety of career opportunities exist in toxicology. The demand for well-trained toxicologists continues to increase. Highly competitive salaries are available in a variety of employment sectors. Increasing specialization in the science of toxicology now provides the toxicologist with competitive advantage over chemists, engineers, biologists or other scientists. Current demand for toxicologists is to participate in basic research using the most advanced techniques in molecular biology, analytical chemistry and biomedical sciences and work with industries to test and ensure that their products and workplaces are safe, and to evaluate the implications of new research data. Government agencies are also looking for toxicologist to develop and enforce laws for ensuring adequate safety of chemicals and teach about the safe use of chemicals.

Meet the Winners of ASIO-SOT Awards 2012



“I strongly recommend all the Indian students working in toxicology to become members of ASIO-SOT and actively participate in ASIO events.”

**-Sreenivasa Ramaiahgari,
Leiden University, The Netherlands
Winner of the International Student travel award**

1. Briefly, describe the project for which you won the travel award? How do the findings contribute to the field of toxicology?

I won the ASIO-SOT travel award to present my work titled ‘A high-content imaging based *in vitro* 3D model for assessment of Drug-induced Liver Injury’. We have developed a novel and more physiologically relevant 3D *in vitro* model for predicting drug induced liver injury, which could be used as an alternative to animal models at pre-clinical safety testing of new drugs.

2. Highlight an experience you would like to share while travelling cross-country for the SOT annual meeting.

It was a great experience attending SOT 2012 annual meeting, especially the interaction with the ASIO team. It was a privilege to take part in active discussions with eminent Indian scholar in Toxicology Dr. Harihara M. Mehendale, whose inspirational and motivational words were uplifting. His personal advice will definitely have an impact on the lives of many young scientists. I would like to sincerely thank ASIO committee for supporting me with a travel grant, which allowed me to participate in SOT 2012 and meet outstanding scientists working in academia and private sectors.

3. Please describe one challenge that you are confronted with during the course of your career as an immigrant and how you overcame/are working on overcoming it?

As international students, we have a defined visa time, which should be tread carefully with, one should dedicate this time exclusively to study and research work. Good academic and an industrial research experience will find your way to opportunities after graduation. My research experience at Roslin Institute, Edinburgh (the lab famous for successful mammalian cloning and creation of dolly the sheep) gave me a good foundation in basic research and significantly improved my career prospects.

4. A one-line message for fellow Indian toxicologists

ASIO is a great platform for anyone working on Toxicology to network and communicate science in a friendly environment. I strongly recommend all the Indian students working in toxicology to become members of ASIO-SOT and actively participate in ASIO events.

Meet the Winners of ASIO-SOT Awards 2012



“Lunch and Learn by ASIO was very helpful in answering many questions I had about career opportunities...”

**-Vijay More, University of Rhode Island
Winner of Dr.Laxman Desai Graduate Student
Best Abstract Award**

1. Briefly describe the research area for which you won the ASIO travel award.

My research area is role of nuclear factor E2 related factor 2 (Nrf2) in lipogenesis and transporter expression and to investigate the novel role of Nrf2 in increasing susceptibility of mice to diet-induced obesity. Part of my project also involves the study of the effect of disease conditions like obesity, diabetes on transporter expression in liver and kidney and role of Nrf2 in regulating that expression.

2. What does the ASIO travel award mean to you in terms of your career/ research?

Any ASIO award is a great motivation for a student toxicologist like me. Getting recognition by the Indian community in the field of toxicology, and the getting this award from renowned toxicologist of Indian origin is one of the most special moments in my graduate career. ASIO is a great platform for networking among fellow Indian toxicologists.

3. Highlight an experience in your travel to SOT this year.

SOT meeting is always a big success and biggest event of the year for me. ASIO award made it even more memorable. Lunch and Learn by ASIO was very helpful for answering many questions I had about industrial jobs, postdoc opportunities and career related information which is not accessible from anywhere else other than experience. The experts in the field shared their experiences with us and motivated us to do our best in our graduate student career and research.

4. Any advice to future aspirants of this award.

Although it is a very competitive award, don't get discouraged. It is a great honor to achieve. The more relevant your personal letter is to the field of toxicology, the better are your chances of getting the award. And even if you don't get this award, attending the ASIO meetings will help you making new contacts and advice senior scientists in the field.

Meet the Winners of ASIO-SOT Awards 2012

“ASIO travel award had given me the confidence to continue research in toxicology”

-Ashwini Phadnis

Winner of Dr.Harihara Mehendale Graduate Student Best Abstract Award



1. Briefly describe the research area for which you won the ASIO travel award.

I have received this award for my work on elucidating the mechanisms underlying 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)-mediated impairment of human B cell activation. I have identified B cell lymphoma -6 (BCL-6) as a candidate gene that is elevated in TCDD-treated primary human B cells. BCL-6 is partly responsible for decrease in expression of B cell activation markers, thus resulting in overall decrease in the ability of B cells to proliferate and differentiate into antibody-secreting cells.

2. What does the ASIO travel award mean to you in terms of your career/research?

This award not only has given my research visibility in a larger toxicology audience but has also given me the confidence to continue conducting research in this area. It has enabled me to gain recognition among my peers and that has in turn helped bring the science of toxicology at the forefront especially given that is a relatively new field.

3. Highlight an experience in your travel to SOT this year.

This year at SOT, I had an extensive opportunity to network with several scientists and students from different universities. Due to the diversity of posters presented at this meeting, I found myself broadening the scope of my knowledge. Meetings with scientists from industry, academia and government gave me an idea of the kind of work conducted there. It has definitely enriched my graduate school career.

4. Any advice to future aspirants of this award.

My advice to the future aspirants of this award would be to continue working hard without letting minor obstacles affect your work. The obstacles themselves help you realize your potential and power.

Meet the Winners of ASIO-SOT Awards 2012



“Determination, hard work and right vision to help the society through our work could be key to success!”

**-Neera Tiwari Singh, University of Colorado
Winner of Dr.Dharm Singh Postdoctoral fellow Best Abstract Award**

- 1. Many Congratulations to you on winning the award. How did you feel when you first heard of your success at the ASIO annual reception?**

It was a great feeling and since we do not know of the award earlier, it was a pleasant surprise and I enjoyed the moment. I thank Dr. Dharm Singh for his kindness and ASIO-SOT for having such awards for the upcoming Scientists of Indian Origin in the field of toxicology.

- 2. What were the key findings in your project that you think enabled you to win the ASIO travel award? How do the findings contribute to the field of toxicology?**

The key findings of my project presented at the SOT 2012 demonstrate the possible antioxidant effects and potential pleiotropic therapeutic efficacy of silibinin, a natural flavanone (a non-toxic phytochemical from the seeds of Milk Thistle, which possesses strong antioxidant and anti-inflammatory properties), in attenuating sulfur mustard analog-induced skin injuries. These research efforts and outcomes are of tremendous value since vesicants, are among the most powerful chemical weapons that are a current focus for the development of countermeasures due to their potential use as both warfare and terrorist agents.

- 3. How important was winning this award with respect to your career?**

Since this was the last award I received before transitioning to a research faculty position at University of Colorado Denver, it means a lot to me and to the research, I am pursuing. This award has not only given me enthusiasm to continue to develop therapeutics to treat skin injuries by chemical warfare agents but also made other people aware of my research accomplishments. This will further help in developing meaningful collaborations, discussion and incorporation of ideas from other scientists who are experts in other fields as well as to explore more resources for better research in this area.

- 4. In the spirit of good peer support, what tips/advice would you provide your fellow students and postdoctoral members of ASIO?**

Apart from hard work and scientific knowledge, timely decision on career options as well as vision of our research outcomes is very important. ASIO-SOT is one of the organizations where such advice and support can be obtained through experienced scientists in the field of toxicology importantly from the same background. Determination, hard work and right vision to help the society through our work could be key to success!

Meet the Winners of ASIO-SOT Awards 2012



“As a researcher whose primary field of expertise is not toxicology, I would advise members of ASIO of similar backgrounds to aggressively think out of the box”
-Karthik Balachandran, Harvard University
Winner of Dr.Dharm Singh Postdoctoral fellow
Best Abstract Award

- 1 . Many Congratulations to you on winning the award. How did you feel when you first heard of your success at the ASIO annual reception?**

I was very excited to hear of receiving the award. The field of toxicology was a new one for me and I was happy to have made an impact in the field with my research.

- 2 . What were the key findings in your project that you think enabled you to win the ASIO travel award? How do the findings contribute to the field of toxicology?**

I designed a cardiac valve on a chip device which could be used to study the effect of pharmacological compounds on valve health and function. This organ on a chip device could be used to rapidly screen compounds, greatly accelerating drug development and testing. The device could also be used to identify adverse off-target effects of drugs on the cardiac valve. I believe that this is a novel device that can greatly enable safety toxicological research.

- 3 . How important was winning this award with respect to your career?**

This award is very important for my career advancement. It enabled me to talk to and network with others in ASIO and in the SOT to gain a better understanding of the needs of the field. This award clearly demonstrates the efforts and appreciation of ASIO and SOT to encourage young scientists like myself in their career advancement.

- 4 . In the spirit of good peers support, what tips/advice would you provide your fellow students and postdoctoral members of ASIO?**

As a researcher whose primary field of expertise is not toxicology, I would advise members of ASIO of similar backgrounds to aggressively think out of the box. To think how they can apply their unique knowledge to advance the field of toxicology. I would also encourage them to apply for as many awards and conferences as possible to gain exposure into the toxicological and scientific community.

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Our sincere thanks to all our sponsors. We would also like to take this opportunity to thank our endowment sponsors for their continued support over the years.

Endowment Sponsors:

Dr.Laxman Desai- Toxicon

Dr.Harihara Mehendale

Dr.Dharm Singh

Become a sponsor: Contact ASIO team to learn more about how your sponsorship can help strengthen and contribute to the continued growth and success of ASIO.

<http://www.toxicology.org/isot/sig/asio/index.asp>