Institute of Life Sciences NEWSLETTER

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Highlights

- Inauguration of ILS Outreach Center
- International Women's Day Celebration at ILS
- National Workshops
- Dr. A. Parida received the prestigious Samanta Chandra Sekhar Award

Hon'ble Governor of Odisha Dr. S C Jamir and other invited guests at Inauguration Ceremony of the Science Outreach Centre

Inauguration of Science Outreach Centre

In an attempt to promote general awareness and reconcile science the Institute of Life Sciences (ILS) inaugurated its science outreach centre. The inauguration was held at campus II at Niladri Vihar in Bhubaneswar on 1st March 2017. A one day programme was conducted which included lectures, talks, discussions, and a wide range of presentations. After an introductory speech by director ILS Dr. Ajay Parida, Odisha governor Dr. S. C. Jamir inaugurated the outreach centre and reaffirmed his belief in the ability of science to transform society. Dr. B. Ravindran, former Director ILS, Dr. Meenakshi Munshi, Advisor, Department of Biotechnology, Government of India, Mr. V. V. Yadav, Secretary, Science and Technology, Government of Odisha, Dr. S. P. Das, Director, SVNIRTAR, and Dr. Ashok Das, VC, Utkal University, made the programme a great success with their valuable and informative talks on bridging the gap between scientific research and public. The outreach centre aims at making scientific discoveries more relevant and understandable to the society.

Apart from acknowledging the fact that Institute of Life Sciences has provided a platform to young and enthusiastic minds to get a hands-on-training in carrying out scientific research Dr. S. C. Jamir also mentioned in his speech that science needs to be reachable to common people so they can relate to research.

ILS director, Dr. Ajay Parida, mentioned that the outreach centre would focus mainly on popularizing scientific advances for the benefit of the society. The emergence of a programme of this kind will serve as a hub of interactions between young vibrant minds and eminent scientists in all fields which would help the students pursue science as a career with much clarity and focused thinking.

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Dr. Nrisingha Dey Group

Group motto: Promoting sustainable agriculture, plant molecular farming and metabolic engineering.

The development of transgenic technique in plant biotechnology contributes significantly towards two important aspects; first to boost sustainable agriculture and second to promote plant molecular farming. Development of beneficial transgenic plants requires the development of efficient plant expression vehicles coupled to unique transcriptional promoters. Transcriptional promoters (wild type) of plant/non-plant origin are usually long and weak. The strength and tissue specificity of native promoters can be enhanced by manipulating its 'cis-architecture' through 'cis-engineering' thereby generating improved synthetic promoters. Over the last three decades, synthetic promoters have gained extensive popularity in plant biotechnology for regulating plant gene expression. Our lab is working towards developing smart synthetic genetic elements by studying and modifying the native promoter sequences as well as their transcriptional regulators viz. the transcription factors. This is being achieved by employing both 'cis' and 'trans' engineering coupled to the CRISPR-Cas9 approach for targeted editing in plants.

Dr. Anshuman Dixit Group

Information stored in genes moves via RNA to its active implementation as proteins. The proteins by interacting with other proteins carry out diverse molecular processes e.g. metabolism, transport, cell cycle regulation etc. Direct protein–protein interactions are one of the strongest indications of a functional relationship between genes and this fact can be utilized for the identification of candidate genes. Therefore, the study of the protein-protein interaction (PPI) network is of great importance. The recent advances in computer hardware and software coupled with biological knowledge have made it possible to study these interactions in great details. Recently, many studies on PPIs and their role and physiology and pathophysiology have been reported in scientific literature. In our lab, we are focusing on two major areas of interest (1) Network analysis and identification of biological pathways related to oral cancer (2) To understand the effect of small alterations e.g. point mutations and indels on protein function using Bioinformatics techniques.

We use the computational biology and bioinformatics techniques such as sequence analysis, protein structure modeling, molecular dynamics simulation, data mining, metagenomics etc. to understand structure-function relationship in proteins and their relationship(s) in disease processes. We are also involved in the virtual screening of chemical databases using a variety of techniques involving similarity search, pharmacophore search, molecular docking and estimation of binding affinities etc.

International Women's Day : 'Be Bold for a Change'.

"Anybody who knows anything of history knows that great social changes are impossible without feminine ferment." - Karl Marx.

From Fatima al Fihiriyya in 841 CE, who built the first University for higher education to Bhakti Sharma being the youngest woman to set a world record in open swimming in Antarctic waters, and Arunima Sinha being the first Woman amputee to climb Mount Everest, the world has seen innumerable success of women in every field. ILS celebrated the 'International Women's Day' on 8th of March, with a theme 'Role of Women Scientists in Addressing Emerging Challenges' with renowned women Scientists, Doctors and Professors from around the State. One of them being Dr. Vidya Das, Director of Agragamee, Odisha whose work of protecting and fighting for the poor people in India was recently documented by the Al Jazeera, a reputed television network. Dr. Sanghamitra Pati, Director RMRC and a doctor by profession shared her experience and inspired everyone with her bold and positive speech. Dr. Kistawaria, Director, Women in Agriculture, Prof. Samanta, Registrar, KIIT, Dr. Mukherjee, Director, CTCRI and Prof. Pravati Mohaptra, Utkal Univ. kept forward the overall picture of the women today in the highest of the posts around the world, and the need to pull up the ones still fighting the prejudices and oppressions surrounding them, including their rights. The programme ended with the essence of the quote by Brigham young- *"You educate a Man, you educate a Man. You educate a Woman, you educate a Generation".*

National Workshop on Drug Design and Discovery-2017

The fifth National workshop on Drug Design and Discovery was organized at ILS from 20-23rd March 2017 by the Computational biology and Bioinformatics lab. A total of 18 participants which included Masters & PhD students from all over the country attended the workshop. Leading experts from different institutions such as National Institute for Science Education and Research (NISER), MANIT-Bhopal, IIT-Guwahati, IIT-Bhubaneswar, TCS, University of Hyderabad, and University of Patiala, etc. covered different topics related with Biological network analysis, target identification, drug design, virtual screening, pharmacophore modeling, protein structure modeling, molecular docking, molecular dynamics and force-field development. Hands on training in using softwares such as Cytoscape, Schrodinger, Modeller, Autodock, VMD, NAMD and Pymol were provided to the participants. The experts also conducted training sessions where the participants were trained through case studies and an opportunity to learn with subject experts so as to develop an in-depth understanding of the modern drug discovery research.

The workshop concluded on 23rd March with the distribution of certificates and thanks note from Director.

National Symposium and Workshop on Quantitative Proteomics- 2017

The 'National Symposium and Workshop on Quantitative proteomics', was organized by Dr. Amol Suryawanshi in ILS main campus, from March 6th – 10th , 2017.

Quantitative Proteomics have emerged as an essential technique in biological research and the need is growing. The symposium focused on the application of high throughput Quantitative Proteomics techniques. With several eminent speakers from all over the country, and around 80 delegates attending the program including the participants, made this symposium very helpful.

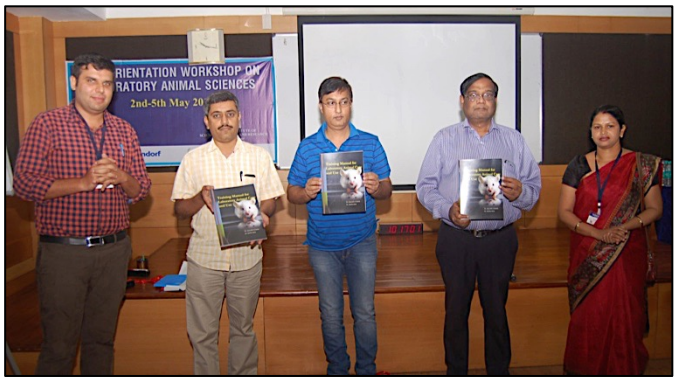
The four day symposium followed by hands on training from the basics to the advanced level proteomics including 'Demonstration of DIGE experiment and Gel analysis by Decyder software to Mass Spectrometry, and more.

The symposium got tremendous positive feedbacks on how useful it was for the students and the ones working in the field of proteomics. The session ended on the note of a promise for this symposium to be held again the next year.

Science Summer School

"The important thing is to never stop questioning", as said by Albert Einstein, and so was this seen in the Summer science school programme organized by the Science Outreach Centre, ILS, for the young minds to explore the dimensions of science in a practical field. Dr. Ajay Parida, Director, ILS addressed the enthusiastic crowd and explained the importance of science in day to day life. Dr. Rajeeb Swain and Dr. Tushar Kanti Beuria on the lead and with other Ph.D. scholars, the students got a basic glimpse of the scientific tools used by the scientists, like the microbiology techniques, Recombinant DNA Technology, protein structure, etc.

A four day programme helped the students not only gain scientific knowledge but was also a very refreshing experience for the scientists and the students. They came in with buckets full of questions, and happy with answers was how they went back. The programme ended with gleaming faces of both students and scientists captured well in a click.



Laboratory Animal Science Workshop

The institute of life sciences has an experimental animal facility which houses, procures, breeds, and maintains genetically pure strains for scientific research. ILS strictly follows Institutional Animal Ethics Committee (IAEC) guidelines. Animals are maintained in noise free sterile environments bearing temp range of 20-22°C, 40-60% humidity, and high quality feed. Light and dark cycle and breeding cycle is constantly maintained by specialized personnel. Various strains of mice, C57BL/6, BALB/c, and knock out strains; rat; and hamsters are maintained with extreme hygiene for research. ILS in collaboration with NISER conducted the 3rd Orientation Workshop on laboratory animal sciences from 2nd-5th May 2017 in the institute. The four day intense workshop was designed to incorporate awareness among students pertaining the use and ethics involved in handling animals. Importance was given to the 3Rs in animal ethics- Reduction, Refinement, and Replacement. A workshop of this kind is an excellent platform for providing hand-on-training on handling, experience regarding the various sites of injection, sites for sample collection, and administration of medicines to name a few.

Leadership Development Programme

The faculties of ILS attended a workshop on leadership development in the outreach centre of the institute at campus II Niladri Vihar; which focussed on seeking skills, strategies, and accelerated decision making during crisis in order to drive changes in an organization. This event was aimed at engaging the minds of researchers in important management challenges. Prof. Neerpal Rathi and Prof. Sasmit Patra from Xavier Institute of Management (XIMB) were the primary spokesperson of the event. Scientists of ILS had many group activities which exhibited peer collaborative performance.

Guest Seminars

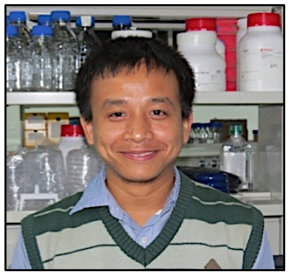
- Dr. Murali Bashyam from CDFD, Hyderabad- "An Integrated genomic and molecular pathology approach identifies novel features in oro-digestive tract tumors".
- Dr. Amaresh Chandra Panda, Assistant Scientist, Miller School of Medicine, University of Miami, Miami FL, USA- "RNA-RNA and RNA-Protein Interactions: Path to Aging".
- Dr. Tapas K. Manna, Associate Professor, School of Biology, IISER Thiruvananthapuram, India-"Molecular Architecture of Microtubule-Chromosome Interface".
- Ms. Asima Mishra from NIEPMD on "Managing Stress at Workplace".

Awards won by ILS members

- ILS director **Dr. Ajay Parida** awarded the prestigious **Samanta Chandra Sekhar Award** on 23rd June 2017.
- **Dr. Vivek Rai**, Scientist-D has been awarded prestigious **American Association of Immunology (AAI): Early Career Faculty Travel Grant, 2017**
- **Mr. Jhasketan Badhai,** Ph.D. scholar has been awarded "**ITS-SERB Financial Assistance** for participating in 7th FEMS Congress of European Microbiologists, in Valencia, Spain.
- **Arup Ghosh**, Ph.D. student has been awarded 1st prize in "**Intel AI Pursuit**", a programming and cryptography challenge organized by Intel Inc., June, 2017.
- **Dr. S. K. Das,** elected as Fellow, West Bengal Academy of Science and Technology

Dr. Parida receiving the award from Mr. N. Patnaik CM, Odisha

Condolence



We deeply mourn the untimely demise of

Mr. Joyness Ningthoukhongjam
(Nov. 9, 1988 – May 3, 2017)

May God give him eternal rest and the family the strength to bear the great pain

Confocal Microscopy Workshop

DSS Imagetech Pvt. Ltd. Organized an advance course in microscopy on June 7th, 2017 in ILS. The talk included confocal microscopy and high end system integration by Dr. K.N. Ganesh OMSI, Bangalore; and super resolution techniques by Dr. Manoj Manna, application specialist DSS, Bhubaneswar. Interested students interacted with the speakers for better understanding and usage of confocal as a technique for better quality imaging and data representation.

Ph.D. thesis awarded

- ***Dr. Doureradjou Peroumal;*** T Cell Apoptosis and immune response in Autoimmunity (Supervisor – Dr. Satish Devdas)
- ***Dr. Sarbari Acharya;*** Exploration of Various strategies for Leukemia Therapy by Drug Loaded Nanoparticles (Supervisor - Dr. S.K. Sahoo).

Upcoming Events

- ILS Governing Body and Finance Committee Meeting; August 4
- ILS Scientific Advisory Committee Meeting, August 18-19
- National Consultation Workshop on "Bioresources for Sustainable Development: Biodiversity – Agriculture - Health" at Bhubaneswar during 31 July – 2 August
- Pre conference workshop, 26th National conference of Indian Association of Oral and Maxillofacial pathologists, 17-18 Nov
- **India EMBO** International Conference on Autophagy, 11-13 December, 2017


BHUBANESWA

THURSDAY 02.03.2017

Guv stress on role of science

Science outreach centre inaugurated by SC Jamir

'Working on cancer drug'

EXPRESS READ

Equal opportunity for women in science

Bhubaneswar: In the current scenario, a lot has to be done to provide equal opportunity for women in establishing their careers in science, said Director, Institute of Life Sciences Dr Ajay Parida on Wednesday. Addressing a panel discussion on 'Role of women scientists in addressing emerging challenges facing society', Parida praised the efforts and dedication of women scientists in areas of agriculture, health, environment and social reforms.

THE INDIAN EXPRESS Thu, 09 March 2017 epaper.newindianexpress.com/

THE TIMES OF INDIA

women's issues: Institute of Life Sciences (ILS) organized a panel discussion on the role of women scientists in addressing emerging challenges facing

OrissaPOST women's day special

Key roles for women scientists a must: Panelists at ILS debate

HOT SEAT Ajay Parida

ଗବେଷଣା ଏକ ନିରନ୍ତର ପ୍ରକ୍ରିୟା: ଅଜୟ କୁମାର ପରିଡ଼ା

The Statesman BHUBANESWAR, MONDAY 29 MAY

ILS conducts Summer Science camp for high school students

The Statesman BHUBANESWAR, FRIDAY 10 MARCH 2017

'INCENTIVES FOR WOMEN TO JOIN AS SCIENTISTS'

PANEL DISCUSSION ON ROLE OF WOMEN IN THE SCIENCES

Recent publications from ILS

1. Badhai J, Whitman BW and Das SK. 2017. Draft genome sequence of Rhizobium pusense strain NRCPB10T (LMG 25623T) isolated from rhizosphere soil of chickpea (*Cicer arietinum* L.) grown in India. Genome Announcements. 5(17): e00282-17. DOI: 10.1128/genomeA.0028217.
2. Bandyopadhyay S, Whitman BW and Das SK. 2017. Draft genome sequence of Pannonibacter indicus strain HT23T (DSM 23407T), a highly arsenate tolerant bacterium isolated from a hot spring in India. Genome Announcements. 5(18): e00283-17. DOI: 10.1128/genomeA.0028317.
3. Roobrouck VD, Wolfs E, Delforge M, Broekaert D, Chakraborty S, Sels K, Vanwelden T, Holvoet B, Lhoest L, Khurana S, Pandey S, Hoornaert C, Ponsaerts P, Struys T, Boeckx N, Vandenberghe P, Deroose CM, Verfaillie CM. 2017. Clinical-grade Multipotent Adult Progenitor Cells improve the hematopoietic function in myelodysplasia. Cytotherapy.19(6):744-755.
4. Dende C, Meena J, Nagarajan P, Nagaraj VA, Panda AK, Padmanaban G. 2017. Nanocurcumin is superior to native curcumin in preventing degenerative changes in experimental cerebral malaria. Scientific Reports. [In Press]
5. Nagaraj VA, Padmanaban G. 2017. Insights on heme synthesis in malaria parasite. Trends in Parasitology. DOI: 10.1016/j.pt.2017.04.005. [In press]
6. Rajalakshmi R, Rajalakshmi S and Ajay Parida**.** 2017. Evaluation of genetic diversity and population structure in drumstick (*M. oleifere*) using SSR markers. *Current Science* 112: 125—1256.
7. Ravindra Kumar, Sabindra K Samal, Samapika Routray, Rupesh Dash and Anshuman Dixit. 2017. Identification of oral cancer related candidate genes by integrating protein-protein interactions, gene ontology, pathway analysis and immunohistochemistry. Scientific Reports 7: 2472.
8. Nisha S Keeran, G Ganesan, Ajay Parida**.** 2017. A novel heavy metal apeptide from Prosopis juliflora is involved in metal uptake in yeast and tobacco. Transgenic Research DOI: 10.1007/s11248-016-0002-1

ILS welcomes Research Scholars selected through a highly competitive selection process and wish them best of luck in their future career perspectives