



INSTITUTE OF LIFE SCIENCES

Bhubaneswar



Dr. Ganeshi Lal, Dr. Ajay Parida and Dr. Sanghamitra Pati commencing the Women's Conclave held on International Women's Day.

18TH SCIENTIFIC ADVISORY COMMITTEE

July 15th – 16th, 2019



HIGHLIGHTS

- 18TH SCIENTIFIC ADVISORY COMMITTEE
- State level Women Scientific Programme.
- National Science Day.
- Farmers Training Programme.
- Product launch.
- 73th Independence Day Celebration at ILS.
- ILS Foundation Day
- ILS Hostel Day.

Dr. Satish Devdas' Group



Our lab works on understanding immune responses in both physiological and pathological status, with special focus on the adaptive arm. T cells specifically CD4⁺ T cells form a major component of the adaptive arm and have been shown to have exquisite control over immune homeostasis. In order to understand normal versus immuno pathological responses we use both murine and human T cell models and disease models and have found certain fundamental similarities, exquisite differences and obvious incompatibilities. Subsequently we understand that mice and human

disease models though similar are not same, for e.g. acute T cell mediated immuno pathology in human arthritis, asthma, diabetes, malaria and viral infections. Our proposal aims to characterize the presence of multiple human and mouse T helper subsets in normal, Auto Immune and chronic Immune pathologies etc. so as to be able to understand T cell biology in normal and aberrant immune responses.

Dr. Sandip K. Mishra's Group

Breast cancer treatment comes with challenges of drug resistance, metastasis and recurrence. Major focus of our lab is to identify key molecules playing role in development of tamoxifen resistance in estrogen receptor



(ER) positive breast cancer that may be of therapeutic importance. We have identified a molecule which is known as estrogen related receptor beta (ERR β) which has been proved by us, to work as a potent tumor suppressor. To further understand the molecular insights into the tumor suppressive role of ERR β in breast cancer, role of its other target genes are also being studied. One of its target gene named, XEDAR (X-linked ectodermal dysplasia receptor), is currently the other focus of research. Experiments performed till date in our lab indicates its critical role in cancer cell proliferation and migration. Further studies may prove XEDAR as a diagnostic molecular marker in breast cancer.

Lastly, but not the least, we have been able to prove in mouse as well as human tumor model that using the inhibitor of EZH2, the metastasis can be challenged in smoking group of women population who are diagnosed with breast cancer. We have been able to develop three potential candidate drugs for challenging breast cancer. We work with the zeal to try and make breast cancer a history.

Scientific Advisory Committee June and August, 2019



The 18th Scientific Advisory Committee meeting 2019 was organised in four sessions; three Sub-SAC being held in ILS, Bhubaneswar on Cancer Biology on 15th-16th July chaired by Prof. Radhakrishna Pillai, Plant and Environmental Biotechnology on 19th July chaired by Prof. Swapan Kumar Dutta and Infectious Disease Biology on 22nd-23rd July chaired by Dr. Sudhanshu Vрати. The final SAC meet was held in Chilika, Odisha on 19th-20th August, which was chaired by Prof. M. R. S. Rao and Prof. Swapan Kumar Dutta. Poster sessions were held for students which were reviewed by the SAC jury.

Aspirational District Programme

ILS is implementing a program focusing on Economic Empowerment of Tribal Farming communities of Nabarangapur (an Aspirational District) with support from the Department of Biotechnology, GOI. This program being implemented in collaboration with RMRC and KISS aims at improving agriculture productivity through integrated farming systems and promotion of low water requiring crops, address nutrition and health concerns and empower communities for agri-entrepreneurships with training and capacity development.

National Science Day

August 28, 2019

ILS Bhubaneswar celebrated the National Science Day by organizing a science outreach programme for school students in seven district headquarters (Jajpur, Baripada, Adaspur, Rayagada, Kamgaon-Baragadh, Khama - Sambalpur, Dhenkanal) of Odisha. Around 3000 students interacted with the scientists and participated in scientific competitions. The event was inaugurated by Minister S&T, Odisha, Shri Badri Narayan Patra. Other prominent delegates for the



inaugural session were Dr. Ashoka Das, VC, State Higher education council, Dr. Sanghamitra Pati, RMRC and Mr. Prabhat Mallik, CMD, Naxatra news.

Product Launch

February 22nd 2019



QuickSort Magnetic Cell Separation kit developed by Scientist, **Dr. S K Sahoo** was launched in the presence of Dr. Sujay Singh, CMD, Abgenex,

Dr. Ajay Parida, Director, ILS and Dr. Sanghamitra Pati, Director, RMRC on 22nd February in ILS.

Product: Antibodies for Chikungunya



Dr. Soma Chattopadhyay has been selected for “**Biotech Product and Process Development and Commercialization Award 2019**”. The prestigious

award is conferred for her team’s work on “**Development of antibodies against all the non-structural proteins nsP1, nsP2, nsP3 and nsP4 of Chikungunya virus**”.

Farmer’s Training Programme July 27, 2019.



ILS organised two Farmers Interaction Program with the objective of enhancing farm productivity for ensuing cropping season. The first meeting in the series was held on June 23, 2019 at Angul. Scientists of CRRRI, CTCRI, CHES, IIWM participated in the discussion with around 100 farmers. The second meeting was an interactive workshop with farmers of Tigiria block on 27th July 2019, which was participated by 70 farmers. Scientists from ILS Bhubaneswar (Dr Senapati & Dr Swain), NRRI (Dr. Lotan Bose), CIFA (Dr. JK Sundray), CIMAP (Dr. Mohanty), RMRC (Dr. Anna), CHES (Dr. Acharya) and others provided an orientation on adoption of better varieties, technology and integrated farming.

Tribal Health & Nutrition, Tiljora



As a part of the Flagship program on Tribal Health and Nutrition focussing on “Linking the Genetic Variation, Disease/ Pathogen-specific Immune Profile, Microbiomes and Nutritional status of Tribal People for Food, Nutrition and Health security”, scientists and technical staff of ILS went to Tiljora village of Sundergarh district. The team of

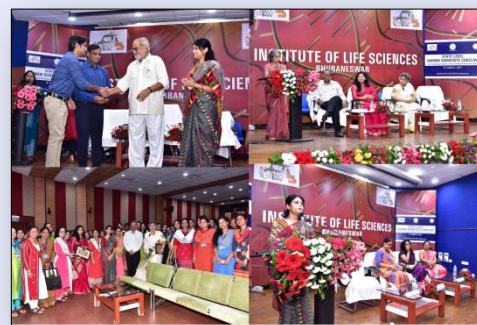
investigators, collected blood samples of Four Tribal groups from the region.

Discussion meeting on Linking Universities and Institutions

DBT organized a meeting at ILS for forging partnerships between Universities, Institutions and Government for advanced biotechnology research and applications. Dr. Meenakshi Munshi and Dr. Suraksha Diwan from DBT, Vice Chancellors and Directors of many Universities and Institutions, respectively participated in the meeting with full vigour.

State level Women Scientist Program March 8, 2019

On the occasion of International Women’s Day, ILS organized a State-level conclave of Women Scientists and technologists. The focus of the event was to deliberate the issues and challenges faced by women in Scientific environment. The event was inaugurated by respected Governor of Odisha, Prof. Ganeshi Lal and the succeeding sessions were chaired by Dr. Soumendra Pattnaik, VC Utkal University, Dr. Sasmita Samantha, Registrar, KIIT University, Dr. Geetanjali, Director, AIIMS and Dr. Sharmila Mande, TCS. Dr. Ganeshi Lal also inaugurated the sample collection and processing van which would be employed for the collection of tribal samples under the Flagship Program.



Conference & Workshops

Conference on Emerging trends in Biological Sciences

March 18-19, 2019

Symposium on Emerging Trends in Biological Sciences Research was organized by ILS during March 18-19, 2019 in Mayfair Convention Centre. The symposium endowed opportunity for the research scholar associates and faculty members to have an insight on outstanding research and development in the domains of modern biology, cancer biology, infectious disease biology, developmental biology, agriculture, health, nutrition and translational research.



Molecular Taxonomy Workshop

March 11th-15th, 2019



ILS organized a workshop on Molecular Taxonomy in collaboration with ATREE, Bengaluru from 11th-15th March under the network project programme "Bio resource and sustainable livelihoods in North-East India".

Workshop on Microtomy/Ultra-microtomy April 23rd -26th, 2019

A workshop on Microtomy/Ultra-microtomy, staining and imaging techniques was organized in ILS from 23rd-26th April. It broadly comprised of theory and hands-on training on immunohistochemistry, ultra-microtomy and microtomy techniques. Ultra microtome demonstration was conducted in coordination with Mr. Girish Maurya, National manager, Leica microsystems.



School Science Exhibition

August 7th, 2019

One day School Level Science Exhibition was organised at Odisha Adarsha Vidyalaya, Dasarathpur on 7th August 2019. ILS Scientists, Dr. Amaresh Panda, Dr. Dileep Vasudevan, Mr. Smruti Sambhav Mishra, and Mr. Manas Kumar Jagadev led this program. The Science exhibition was attended by a total of 250 students and around 80 science projects were demonstrated by them.

Next-Generation Sequencing Symposium

March 7th, 2019

A one-day symposium on "Next-Generation Sequencing Technologies: Challenges and Opportunities" was organized by ILS on 7th March. The talks on various applications of NGS were delivered by Dr. Sharmila Mande, Dr. Debasis Chakrabarty, NIPGR, Dr. Debasis Dash, IGIB, Dr. Vinay Panda, and Dr. Sunil Raghav.



Summer Science School

May 6th -10th, 2019

With the objective of exposing the inquisitive young minds to the research environment, ILS organized Science Summer School from 6th-10th May, 2019. The curriculum consisted of interaction with scientists, hands-on experiments and a tour of ILS facilities.

4th Orientation Workshop on Laboratory Animal Sciences

March 11th -15th, 2019

Workshop on Animal Handling
ILS conducted the 4th Orientation Workshop on Laboratory Animal Sciences in coordination with NISER during March 11-15, 2019 at NISER, Jatni.

ILS Foundation Day



The 30th foundation day of ILS was celebrated with the commencement of NASI, Odisha Chapter and release of the commemorative postal cover. This session was graced by the presence of eminent dignitaries like the former biotechnology union secretary Dr. Manju Sharma, MLA Randendra Pratap

Swain and Vice Chancellor of Ravenshaw University, Prof. Ishan Patro. To honour the dedicated contribution of staff and faculties of ILS, award for the best employee in various categories was presented.



ILS Hostel Day



Independence Day

August 15, 2019

Celebration of 73rd Independence Day took place at ILS campus I. The day began with a Yoga session followed by flag hoisting by the Director. The entire ILS family participated with a feeling of patriotism.

150th Birth Anniversary of Prof. Meghnad Saha

July 20, 2019



To commemorate the 150th birth anniversary of Meghnad Saha, ILS held a popular lecture by Prof. Sudhakar Panda, eminent physicist and Director of NISER.

Cyclone Fani – Plantation

July 20, 2019

The large-scale devastation caused by Cyclone Fani had severely affected the natural vegetation of coastal Odisha. Scientists and students of ILS had a detailed survey of the affected areas and have identified Krishnaprasad block of Puri district for undertaking a long term ecological and economic rehabilitation in selected villages in partnership with the local communities and stakeholders. As an initial activity, ILS has initiated a large plantation drive in partnership with Gopinath Vidyapitha of Panasapada village in Puri district. The students and scientists of ILS planted trees of mango, sopota, guava, neem, amla, cashew etc, in the school premises.



Iftar Party



When ILS came together to celebrate Ramadhan, together. With Roohafzah, colorful platter, and everybody opening the fast at the same time, the day came to an end with huge smiles on everybody's face.

Holi



ILS celebrated the festival of colors, Holi, with uber enthusiastic faces painted like an open canvas.

Yoga Day



On the occasion of 5th International Yoga Day, ILS held a morning Yoga session at Science Outreach Centre, campus 2. Yoga gurus from Sri Sri University were invited to hold the session. Around 100 students and staff attended the session.

- Supriya Borah, **Dileep Vasudevan**, Rajeeb K. Swain. 2019. C-type lectin family XIV members and angiogenesis. **Oncology Letters** (In Press).
- Ashish Kumar, Ajit K. Singh, Ruchir C. Bobde, **Dileep Vasudevan**. 2019. Structural characterization of *Arabidopsis thaliana* NAP1-Related Protein 2 (AtNRP2) and comparison with its homolog AtNRP1. **Molecules** 24 (12). pii: E2258.
- Santhosh Gatreddi, Vijaykumar Pillalamarri, **Dileep Vasudevan**, Anthony Addlagatta, Insaf A. Qureshi. 2019. Unraveling structural insights of ribokinase from *Leishmania donovani*. **International Journal of Biological Macromolecules** pii: S0141-8130 (19): 31946-4.
- Das B, **Senapati S**. Functional and mechanistic studies reveal MAGEA3 as a pro-survival factor in pancreatic cancer cells. *J Exp Clin Cancer Res*. 2019 Jul 8;38(1):294.
- Sharma GP, Gurung SK, Inam A, Nigam L, Bist A, Mohapatra D, **Senapati S**, Subbarao N, Azam A, Mondal N. CID-6033590 inhibits p38MAPK pathway and induces S-phase cell cycle arrest and apoptosis in DU145 and PC-3 cells. *Toxicol In Vitro*. 2019 Jun 5;60:420-436.
- Gupta D, Satpati S, **Dixit A**, Ranjan R, Fabrication of biobeads expressing heavy metal-binding protein for removal of heavy metal from wastewater, *Applied microbiology and biotechnology* (2019), 1:10. (Impact factor 3.34)
- Dash UC, Kanhar S, **Dixit A**, Dandapat J, Sahoo AK, Isolation, identification, and quantification of Pentylcurcumene from *Geophila repens*: A new class of cholinesterase inhibitor for Alzheimer's disease, *Bioorganic chemistry* (2019), 102947.
- Das A; Rout PK; Gorospe M; **Panda AC**. Rolling Circle cDNA Synthesis Uncovers Circular RNA Splice variants. *Int J Mol Sci*. 2019. (in press)
- Das A; Das A; Das D; Abdelmohsen K; **Panda AC**. Circular RNAs in myogenesis. *BBA-Gene Regulatory Mechanisms*. 2019 Apr 1; DOI: 10.1016/j.bbagr.2019.02.011
- Raju LS, Kamath S, Shetty MC, Satpathi S, Mohanty AK, Ghosh SK, Kolluri N, Klapperich CM, Cabodi M, Padmanaban G, **Nagaraj V A**. (2019). Genome Mining-Based Identification of Identical Multirepeat Sequences in *Plasmodium falciparum* Genome for Highly Sensitive Real-Time Quantitative PCR Assay and Its Application in Malaria Diagnosis. *The Journal of Molecular Diagnostics*; In press.doi: 10.1016/j.jmoldx.2019.04.004.
- Deb D., **Dey N.**: Synthetic Salicylic Acid Inducible Recombinant Promoter for Translational Research. *Journal of Biotechnology* (2019); 297, 9-18, ISSN 0168-1656.
- Mukherjee A., Mazumder M., Jana J., Srivastava A. K., Mondal B., De A., Ghosh S., Saha U., Bose R., Chatterjee S., **Dey N.**, and Basu D.: Enhancement of ABA sensitivity through conditional expression of ARF10 gene in *Brassica juncea* exhibit fertile plants with tolerance against *Alternaria brassicaceae*, *Molecular Plant-Microbe Interactions* (June 2019). DOI: 10.1094/MPMI-05-19-0132-R.
- Borah S., Vasudevan D. and **Swain R. K.** (2019) C-type lectin family XIV members and angiogenesis, *Oncology Letters* (in press)

- Jena KK, Mehto S, Kolapalli SP, Nath P, Chauhan S, Chauhan S. TRIM16 employs NRF2, ubiquitin system and autophagy for safe disposal of stress-induced misfolded protein, **Cell Stress**, Vol. 2, No. 12, pp. 365 – 367.
- Subha Saha†, Krushna Chandra Murmu†, Mayukh Biswas, Sohini Chakraborty, JhinukBasu, Swati Madhulika, Srinivasa Prasad Kolapalli, Santosh Chauhan, AmitavaSengupta, and **Punit Prasad*** (2019) Transcriptomic Analysis Identifies RNA Binding Proteins as Putative Regulators of Myelopoiesis and Leukemia. **Front. Oncol.** August 2019, Volume 9, Article 692 p1-15.
- Inducible Costimulator Expressing T Cells Promote Parasitic Growth During Blood Stage Plasmodium berghei ANKA Infection. Jogdand GM1, Sengupta S1, Bhattacharya G1, Singh SK1, Barik PK1, **Devadas S.** Front Immunol. 2018 May 28;9:1041.
- Dey D, Siddiqui SI, Mamidi P, Ghosh S, Kumar CS, **Chattopadhyay S**, Ghosh S, Banerjee M. The effect of amantadine on an ion channel protein from Chikungunya virus. **PLoS Negl Trop Dis.** 2019 Jul 24;13(7):e0007548. doi:10.1371/journal.pntd.0007548. eCollection 2019 Jul. PubMed PMID: 31339886.
- Sekhar, S., Panda, D., Kumar, J., Mohanty, N., Biswal, M., Baig, M. J., Kumar, A., Ngangkhan, U., Samantaray, S., Pradhan, S., **Shaw, B. P.**, Swain. P., Behera L.: Comparative transcriptome profiling of low light tolerant and sensitive rice varieties induced by low light stress at active tillering stage. **Scientific Report** (2019); 9:5753
- Ahad A, Stevanin M, Smita S, Mishra GP, Gupta D, Waszak S, Sarkar UA, Basak S, Gupta B, Acha-Orbea H, **Raghav S K.** (2019) NCoR1: putting the brakes on the dendritic cell immune tolerance. **iScience (Accepted: in cell press)**.
- Mehto S, Jena KK, Nath P, Chauhan S, Kolapalli SP, Das SK, Sahoo PK, Jain A, Taylor GA, **Chauhan S.** The Crohn's disease risk factor IRGM limits NLRP3 inflammasome activation by impeding its assembly and by mediating its selective autophagy. **Molecular Cell.** 2019 Feb 7;73(3):429-445.e7.
- Mehto S, Chauhan S, Jena KK, Chauhan NR, Nath P, Sahu R, Dhar K, Das SK, Chauhan S. IRGM restrains NLRP3 inflammasome activation by mediating its SQSTM1/p62-dependent selective autophagy. **Autophagy.** 2019 Jun 20:1-3.
- Jena KK, Kolapalli SP, Mehto S, Chauhan S, **Chauhan S.** TRIM16 controls turnover of protein aggregates by modulating NRF2, ubiquitin system, and autophagy: implication for tumorigenesis. 22 Oct 2018, **Molecular & Cellular Oncology.** 2018 Oct 22;5(6):e1532251
- Genome-wide expression analysis reveals six contravened targets of EZH2 associated with breast cancer patient survival. Kanchan Kumari, Biswajit Das, Amit K. Adhya, Arabinda K. Rath & **Sandip K. Mishra** Scientific Reports, volume 9, Article number: 1974 (2019). doi.org/10.1038/s41598-019-39122-4.
- Kundu P, Singh D, Acharya S and **Sahoo S K** "Cancer Nanotheranostics: A Nanomedicinal Approach for Cancer Therapy and Diagnosis" Review article Accepted in Anti-Cancer Agents in Medicinal Chemistry.

Ph.D Awarded



- **Dr. Tanuja Saswat.** Molecular characterisation of the genomic variation in dengue and chikungunya virus. (Supervisor - Dr. S. Chattopadhyay).



- **Dr. Kanchan Kumari.** EZH2-mediated molecular signalling in ER +ve/-ve breast cancer cell lines. (Supervisor - Dr. S.K.Mishra).

Pre PhD Examination Award

2017-18	2018-19	Work Presentation	Journal Presentation
1 st Premlata Kumari	1 st Jeky Chanwala	1 st Amber Gupta	1 st Suchismita Behera
1 st P.M. Vaishali	1 st Rohila Jha	2 nd Ashish Kumar	2 nd Ruchir C. Bobde
2 nd Soumya Sengupta	2 nd Sanghamitra Dash	3 rd Sourav Ghosh	3 rd Soumya Sengupta
2 nd Suchismita Behera	2 nd Bibhudev Barik		

AWARDS

- **Dr. Subhash Mehto** Post-Doctoral Fellow, ILS has been selected for **NASI-Young Scientist Platinum Jubilee Award 2019** in the field of Bio-medical, Molecular Biology and Bio-technology.
- **Dr. Sagarika Mishra** of ILS received the **best poster award** at *Neglected and Underutilized Crop Species for Food, Nutrition, Energy and Environment (NUCS-FNEE 2019)* held at NIPGR, New Delhi on 2nd August 2019.
- **Mr. Ashish Kumar** from the Macromolecular Crystallography Laboratory bagged the **best poster award** at the *47th National Seminar on Crystallography (NSC47)* held at BARC, Mumbai from 19-22 June 2019.
- **Dr. Nuzhat Ahsan**, DST WOS has been selected for **AWSAR DST Award** in pdf category for her popular science story entitled “*A Hope for Brain Cell Death in Parkinson’s Disease -Modified Curcumin (Haldi)*”.
- **Priya Singh and Gargee Bhattacharya** received **Dr. Awtar Krishan award** for flow cytometry quiz in *20th Indo-US flow cytometry workshop* held in IIT-Guwahati from 13-16 March 2019.
- **Deepika Singh** was selected among the 16 international students for **EMBO-EMBL practical course** on ‘*Single Cell Omics*’ held at *EMBL Heidelberg, Germany* from 12 - 18 May 2019 and also received a travel grant of 1000 euros to attend the same.
- **Dr. Amresh Panda** has been selected to receive the **Intermediate Fellowship grant of the Wellcome Trust/DBT India Alliance** for the project entitled “*Analysis of the impact of mRNA-mRNA/circRNA interactions in pancreatic β -cell physiology.*” The Wellcome Trust/DBT India alliance research fellowships are considered as one of the most prestigious research grants awarded to a few most promising scientists.

Best Employee Award- 2019



Shri Santosh Kumar Patra



Shri Rajiv Lochan Rout



Shri Biswajit Patra



Shri Prakash Kumar Sahoo

Student's Corner



WITHIN...

When the mind is unstable
 Going through puzzle
 Growing through struggle
 Then a tune from heart whispers in my
 brain
 Keep calm, keep calm within.

Time makes me mature
 but I'm a child within
 though pretending grownup and
 responsible
 I love to be remain within.

Searching for a heart, who can identify
 me
 allow me to grow and to be with me
 Say me to go ahead, you are my flying jet
 be within you as you always wanted to be
 within.

-Suchismita

When you are stiched at the corners that
 leaked the most vulnerable part of you
 into the the ocean of naked and
 shameless eyes waiting to churn it into
 false headlines and slowly eat away like
 vultures feeding on rotten piece of flesh.
 When the blood that made ridges on the
 skin, flowing like a river, has clotted like a
 dry rose pressed under the poetic pages..

Then can you please wipe it and get up all
 by yourself
 and tell the world how you were martyred
 in a body that still breathes a galaxy
 mixed with comets and meteors
 passionate enough to burn everything
 away?

A request to the mirror.

-Shaheerah.

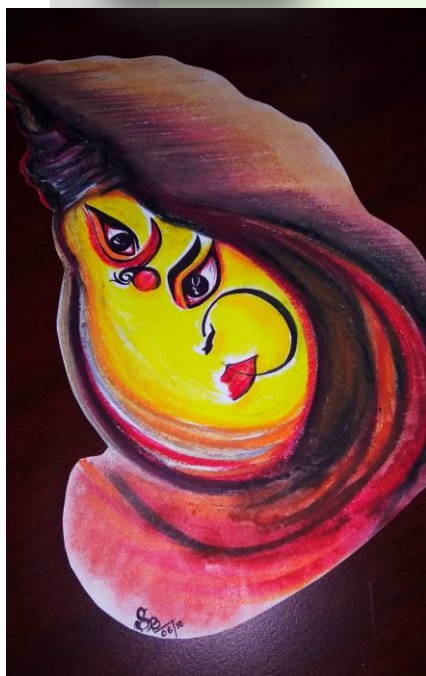


Kaun kehta Hai mohabbat me
 bandisein hoti Hai,
 Mai pehle se zada Azad hu,
 mutmaeen hu.
 Pehle khawahisein khud-parsthi
 thi aur nazariya mehdood.
 Unse mohabbat Kya hui "khud",
 "eham" jaise labzon se Azad ho
 gyi hu. Unki mohabbat ka ehsaas
 Hume Yun chhota Hai jaise ye
 hawayein, jo har waqt hamare
 wajood ko tahafuzz to karti Hai
 lekin qaid nahi karti..
 Ishq ek labz nahi poori taleem
 Hai.

-Priya Singh



Swagata says "Art is not what you see, but
 what you make others see. So just paint
 your dreams.





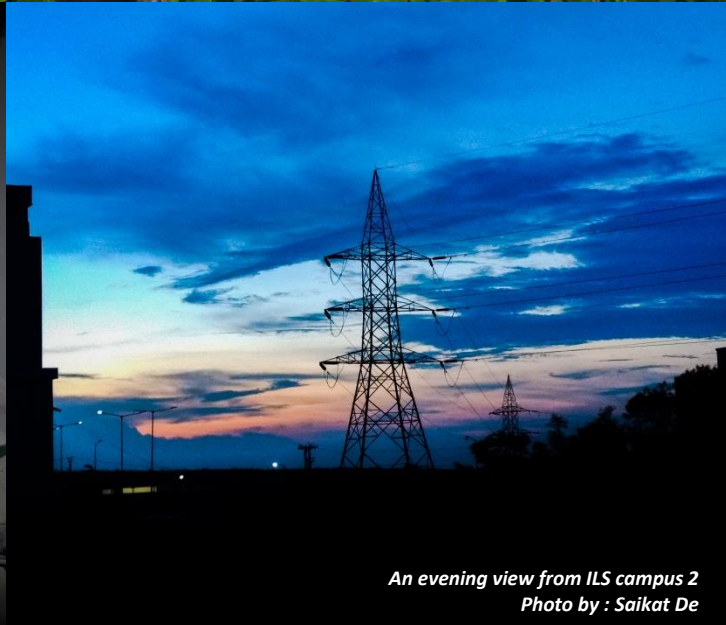
Common Crow Butterfly
Photo by : Alankrita Rani



Squirrel-ing around!
Photo by : Shamim Akhtar Sufi



The enchanting lily!
Photo by : Pratikshya Sa



An evening view from ILS campus 2
Photo by : Saikat De



Symmetrically Unsymmetrical.
Photo by : Shaheerah Khan



Woman at work!
Photo by : Shaheerah Khan



The raindrops could not extinguish the light within.
Photo by : Shaheerah Khan