



# NEWSLETTER- 2016-2019

Dept. of Zoology  
Cooch Behar Panchanan Barma University  
Cooch Behar, WB, INDIA



Blue Tiger



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Cover Page: Blue Tiger (*Tirumala limniace*)

Photographed by Rishab K Modi





# Science Feeds

## MITOCHONDRIAL DNA CAN BE PATERNALLY INHERITED IN HUMANS

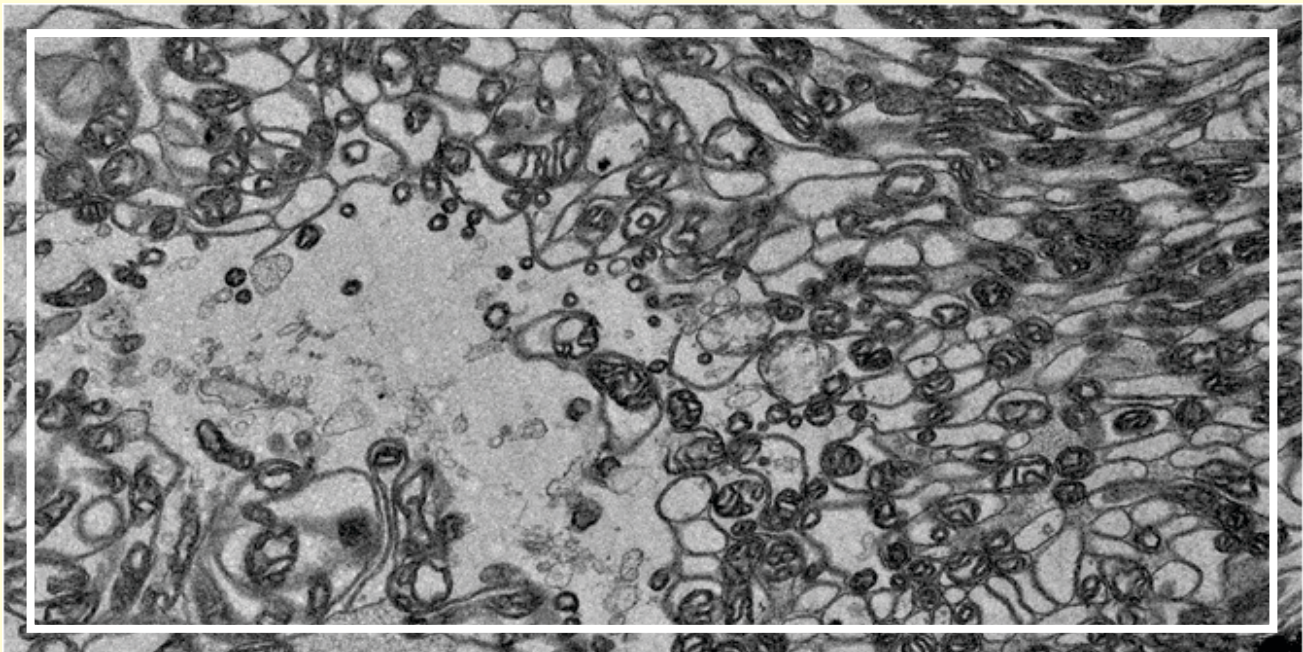
RAVIRANJAN PANDEY (Batch-2017-19)

Since the discovery of Mitochondrial DNA (mtDNA) in 1963, it has been a common notion that inheritance of this small, but very essential, piece of DNA occurs in a strict maternal manner. However, researchers led by Cincinnati Children's Hospital Medical Center's Taosheng Huang and the Mayo Clinic Hospital's Paldeep Atwal reported in the Proceedings of the National Academy of Sciences, 2018 about biparental mtDNA inheritance in three families.

They observed something unusual while analysing the mtDNA of a four-year-old boy suspected to have a mitochondrial disorder. The boy harbored a high level of heteroplasmy — nine homoplasmic variants and 31 heteroplasmic variants, of those 31 heteroplasmic variants, 10 variants had an average heteroplasmy level of 29 percent and 21 variants had the reciprocal, an average heteroplasmy level of 71 percent. After ruling out sample mix-up, the researchers obtained blood samples from the boy's family and found that his sisters and his mother had the same heteroplasmy pattern. Interestingly, on analysing the boy's grandparent's mtDNA, it was found that the boy's mother had inherited 21 maternal variants and 10 paternal variants, indicating biparental mtDNA transmission within a human family. The researchers extended their analysis to include additional family members and confirmed biparental mtDNA transmission in three lineages. This finding, the researchers added, raises the question of how such biparental mtDNA transmission takes place as these patterns appeared autosomal dominant-like.

They postulated that paternal mtDNA transmission likely involves a mutation within a nuclear gene that affects paternal mitochondrial elimination from the embryo. According to them the lysosomal pathway and the endonuclease G pathway have been linked to paternal mitochondrial elimination and alterations in them could possibly affect that process. Elucidation of the molecular mechanism by which this biparental transmission occurs will expand our fundamental understanding of the process of mitochondrial inheritance and may provide an alternative approach to minimize the consequences of the transmission of pathogenic maternal mtDNA in humans. Whatever the mechanism of this unusual phenomenon may be, it is clear that years of research will be required to fully understand and exploit the ramifications of this discovery.

Schwartz M, Vissing J (2002). "Paternal inheritance of mitochondrial DNA". *N. Engl. J. Med.* 347 (8): 576–80.; Luo, Shiyu et al. (2018). "Biparental Inheritance of Mitochondrial DNA in Humans". *Proceedings of the National Academy of Sciences.* 115 (51): 13039-13044



**Fig: Transmission Electron Microscopy showing Mitochondria, image photographed at AIIMS, New Delhi. Picture Courtesy- Hadida Yasmin**

# PUTTING FEMALE MOSQUITOES ON HUMAN DIET DRUGS COULD REDUCE SPREAD OF DISEASE

ARKABRATA NEOGI (Batch 2018-2020)

Unlike humans who usually get hungry again only a few hours after eating, a female mosquito that has fed on human blood will lose her appetite for several days because movement of female mosquitoes from human to human cause infections. Researchers have theorized that reducing the frequency with which female mosquitoes feed is one way to lessen the spread of disease. *Aedes aegypti* mosquitoes obtain blood from a host to complete their reproductive life cycle. Proteins from blood trigger their egg maturation. Importantly a single female will go through multiple blood feeding and egg laying cycles in her life time. This cycling behaviour makes mosquitoes effective disease vectors. When they bite infected human viral pathogens are passed from the human to the mosquito and each subsequent bite puts the next human host at risk for infection with dengue, Zika, yellow fever and chikungunya viruses. Preventing female *Aedes aegypti* from biting humans is an important point of intervention in global public health strategy.

Earlier studies showed that injection of haemolymph from blood fed females activates G protein coupled neuropeptide Y (NPY)-like receptors that were sufficient to suppress host attraction in non-blood fed females. In both vertebrates and invertebrates extensive cross-talk occurs between NPY-like peptides and receptors, each peptide activating multiple receptors, and a given receptor responding more than one peptide. For instance, humans have 4 NPY receptors and their activation has heterogeneous effects on food intake depending upon the specificities of peptide/receptor pairing. Invertebrate NPY-like receptors show roughly 60% sequence similarity to vertebrate NPY Y2 receptors. Small molecule and peptide drugs designed to target human neuropeptide receptors are also capable of acting on insect receptors. Recently it was discovered that drugs targeting human NPY receptors modulate mosquito host-seeking. Researchers suggested role for neuropeptide Y (NPY)- related signaling in long-term behavioral suppression. To demonstrate NPYL7 as the sole *in vivo* target of drugs, CRISPR-Cas9 based technology was used to generate NPYL7 mutants. These mutants showed defects in suppression after a blood meal and are resistant to both the human NPY Y2 receptor agonist and the small molecule NPYL7 agonist. Finally, it is demonstrated that these drugs inhibit host-seeking, biting and blood feeding when mosquitoes are offered to a host suggesting a novel approach to control infectious disease transmission by controlling mosquito behaviour. More work must be done before a compound can be developed for mosquito control. Researchers need to further understand the basic biology of the receptor. In addition, future studies would need to focus on how to best get the drugs to the mosquitoes.

Duvall et al. **Novel small molecule agonists of an *Aedes aegypti* neuropeptide Y receptor block mosquito biting behavior.** *Cell*, 2019 DOI: 10.1016/j.cell.2018.12.004



Fig: Mosquito, Picture Courtesy: Rishab K Modi

# FAECAL TRANSPLANTATION

MADHURI DAS (Batch 2017-19)

Just the thought of a faecal transplant – of transplanting faecal matter from one person into another – may make a lot of people think, “yuck.” It’s an uncomfortable idea. But consider that a faecal microbiota transplant can help people with stubborn, unhealthy gut flora. These are people struggling with recurring *Clostridium difficile* infections with longstanding diarrhoea and abdominal pain. They can’t go to work or school or really function that well because of how sick they are.

Faecal microbiota transplant (FMT), also known as a stool transplant, is the process of transplantation of faecal bacteria from a healthy individual into a recipient. FMT involves restoration of the colonic microflora by introducing healthy bacterial flora through infusion of stool. FMT is the transfer of stool from a healthy donor into the gastrointestinal tract of a recipient patient, for the purpose of treating recurrent *C. difficile* colitis. When antibiotics kill off too many "good" bacteria in the digestive tract, faecal transplants can help replenish bacterial balance. Faecal transplantation is performed as a treatment for recurrent *C. difficile* colitis. *C. difficile* colitis, a complication of antibiotic therapy, may be associated with diarrhoea, abdominal cramping and sometimes fever. Subjects over the age of 65 and/or having chronic illnesses belong to high risk group and are susceptible to severe infection. Diagnosis is based on a stool DNA test that detects the organism. Faecal transplantation is usually performed by colonoscopy and less commonly by nasoduodenal tube. During colonoscopy, a long flexible tube, called the colonoscope is advanced through the entire colon. A miniature camera fitted at the tip of the tube enables the physician to view the inside of the entire colon.

[https://www.hopkinsmedicine.org/gastroenterology\\_hepatology/clinical\\_services/advanced\\_endoscopy/fecal\\_transplantation.html](https://www.hopkinsmedicine.org/gastroenterology_hepatology/clinical_services/advanced_endoscopy/fecal_transplantation.html)

# LEARNING SOMETHING NEW OF ZINC IN IMMUNITY

ANUREETA ADHIKARY (Batch 2018-2020)

Ever since deficiency of Zinc (Zn) was found to be related to human disease, this essential dietary element has been recognized to play a vital role on immunity. Zinc deficient patients were found to have severe immune dysfunctions affecting activation of many zinc dependent enzymes and transcription factors.

Advances in molecular and genetic studies have revealed the biological relevance of Zn transporter in maintaining homeostasis. However, the mechanism by which Zn and its transporters are involved in immunological functions has remained unclear especially in human immunity. A very recent paper published in Nature Immunology (Anzilotti *et al.* 2019) reported an essential role for the Zn transporter ZIP7 in B cell development, mediated by SLC39A/ZIP- family Zn transporter. They have reported a novel autosomal recessive disease called agammaglobulinemia characterized by absent B cells, resulting from hypomorphic mutations of SLC39A7, which encodes the endoplasmic reticulum-to-cytoplasm zinc transporter ZIP7. Scientists used CRISPR-Cas9 mutagenesis to induce ZIP7 deficient knockout mice which showed diminished concentration of cytoplasmic free zinc in B cells, increased phosphatase activity and decreased phosphorylation of signaling molecules downstream of the pre-B cell and B cell receptors

B cell receptor (BCR) signalling is regulated by the equilibrium between kinase and phosphatases. Zn acts as negative regulator of protein tyrosine phosphatase and thus altered distribution of intracellular Zn might continuously elevate phosphate activity that down-regulate BCR signalling. This suggests a specific role for cytosolic Zn<sup>2+</sup> in modulating B cell receptor signal strength and positive selection.

The above mentioned study suggests that Zn signalling is a critical regulatory system of cellular signalling and is involved in various pathophysiological events. Research on this field requires more attention in near future to identify noble targets for therapeutic interventions in human disease.

Anzilotti, C. *et al.* Nat. Immunol. <https://doi.org/10.1038/s41590-018-0295-8> (2019)



# BUTTERFLY GARDEN- A HOPE TOWARDS CONSERVATION

RISHAB K MODI (Batch-2018-2020)

Butterflies are a large group of beautiful and brightly coloured flying insects which are fascinating to gaze at. These beautiful creatures can be brought around us by making butterfly gardens; it's a wonderful strategy to conserve butterflies. Butterfly gardens are nothing but compositions of live host plants where butterflies lay eggs, where larva consumes leaf and flowering plants, where adult butterflies can feed on nectars. Butterfly garden can be made at a place of any size provided the place gets good amount of sunlight. We should know about the common butterflies which we find in our area so that we can plan their menu for food plants.

Most of these plants occur in wild from where we can propagate them in our garden. The plants like coat buttons Lantana (*Lantana camara*), *Heliotropium indicum*, *Buddleja macrostachya*, *Chromolaena odorata* etc. attracts wide range of butterflies for their nectar. Some other garden flowering plants like marigold, *Ixora sp.*, *Zinnia peruviana*, *Clerodendrum paniculatum* etc. are also a very good attractant for butterflies. Butterflies mostly get attracted to clusters of tiny flowers where they get the opportunity to nectar for long. Butterflies specially prefer white, purple and pink flowers.

Host plants are very specific for butterflies so we need to have some basic knowledge about some common butterflies and the plants on which they feeds. *Citrus sp.* plants, *Glycosmis pentaphylla* and curry leaf (*Murraya koenigii*) are the host plants of beautiful common mormon (*Papilio polytes*) and Lime butterfly (*Papilio demoleus*) to lay eggs. *Cassias sp.* attracts emigrants (*Catopsilia sp.*). False ashoke (*Polyalthia longifolia*) plants attracts Common Jay (*Graphium doson*) as well as Tailed Jay (*Graphium Agamemnon*) butterflies. Banyan and Peepal are the host plants of common crow (*Euploea core*) and milkweeds like *Calotropis sp.* attracts Tigers (*Danaus sp.*) to lay eggs and feed on them. There are lot of plants which attracts beautiful butterflies and this butterfly gardening concept is a wholesome new method to have numerous species flying around your backyard. So, try to make one of yours.



Pic: Mass Mud Puddling by Chain Swordtail (*Graphium aristeus*) and Common Gull (*Cepora nerissa*) at Buxa Tiger Reserve Forest, Alipurduar, WB; Picture Courtesy- Rishab K Modi

# ADVANCEMENTS IN NANOPARTICLE BASED CANCER DRUG DELIVERY

SHABANA ARSHAD (Batch 2017-19)

Cancer is the second most common cause of disease – related death in the world. Most chemotherapy drugs in the market are difficult to administer directly and many are toxic to healthy tissues and produce undesirable side effects. Using high doses of drug to increase the therapeutic effect may lead to drug resistance and undesirable side effects. Gene therapy alone or in combination with chemotherapy are currently lacking in stability and tumor selectivity, affecting safe and effective delivery to the tumor site. The rationale to use combination therapies is that the therapeutics work by different mechanisms of action, which leads to reduced

resistance in cancer cells.

Nanoparticle based cancer drug delivery presents a promising strategy to achieve high therapeutic efficiency of anticancer agents by providing protection during circulation and enhancing their bioavailability. Nanoparticles may be defined as being submicronic (<1 µm) colloidal systems generally, but not necessarily, made of polymers. These are attractive vehicles for anticancer agents, because of their controlled drug release and tumor-selective properties. Nanoparticles have been developed based on liposomes/lipids, polymers of synthetic and natural origin, and inorganic particles.

Recent progress in material science and drug delivery allows controlled mechanism to be induced in nanoparticle drug delivery. Such modifications to nanoparticles can be achieved by using stimuli responsive materials. The stimuli-responses delivery systems address the issues of controlled dose release of drug in responses to various stimuli signals specifically produced tumor microenvironment.

Nanoparticles can also be used for qualitative or quantitative *in vitro* detection of tumor cells. They help the detection process by concentrating and protecting a marker from degradation, in order to render the analysis more sensitive. Poly (alkylcyanoacrylate) nanoparticles have even reached the status of phase II clinical trials for resistant cancers. The use of nanoparticles in imaging is also promising, for they allow increased conspicuity and tumor delineation. Doxorubicin-PIHCA nanoparticles had an improved antimetastatic efficacy, since their use resulted in a greater reduction of the number of metastases than when free doxorubicin was used. Additionally, it appeared to increase the life span of the metastasis-bearing mice.

Advance in nanoparticle medicine offer a new opportunities to improve the anticancer therapy. Targeted and non-targeted nanoparticles are currently in preclinical and clinical phases indicating the impact of delivery systems in the field. Nanoparticles formulations can be applied for various purposes and can be used as cancer diagnostic and therapeutic and further improve their implementations for medicine especially in the field in oncology.

Amreddy N, Babu A, Muralidharan R, Panneerselvam J, Srivastava A, Ahmed R, et al. Recent Advances in Nanoparticle-Based Cancer Drug and Gene Delivery. *Adv Cancer Res.* 2018;137:115-70; Xin Y, Yin M, Zhao L, Meng F, Luo L. Recent progress on nanoparticle-based drug delivery systems for cancer therapy. *Cancer Biol Med.* 2017;14(3):

## DESIGNER BABIES CONTAMINATING THE COURSE OF EVOLUTION

NILANJONA DEY (Batch 2017-19)

On 19 November 2018, a Chinese researcher named He Jiankui announced that he had used the gene-editing technique known as CRISPR to change the DNA of two human embryos created via *in vitro* fertilization under the claimed consent of parents Grace and Mark and also these two embryos had developed into two twin sisters, Lulu and Nana, who were born in the same month.

CRISPR which stands for clustered regularly interspaced short palindromic repeats, popularly known as the CRISPR/Cas9 system which is a bacterial defense system against phage infection and nucleic acid invasion, an adaptive immune response. Scientists are now manipulating this CRISPR-Cas9, a Class 2 type II mechanism biotechnologically in genome engineering. CRISPR system bearing the CRISPR locus consisting of the crRNA, tracrRNA and enzyme cas9 is now being used by scientists to turn on, turn off and insert genes. Where cas9 being the enzyme that chops of the target DNA, more of like a DNA “surgeon”. The first description of what would later be called CRISPR is from Osaka University researcher Yoshizumi Ishino and his colleagues in 1987. In 2012, Jennifer Doudna and Emmanuelle Charpentier showed how the defense system could be turned into a 'cut and paste' tool for editing gene sequences.

The Chinese researcher He Jiankui used CRISPR to disable a gene called CCR5 in the two-human embryo. CCR5 is involved in the Human Immune System and the HIV virus exploits it in order to infect the cells, by disabling this gene he aimed to make the babies resistant to HIV so, he edited CCR5 to mimic the natural mutation. The details of the experiment are not available as he did not publish the research in a peer reviewed scientific journal; however he drafted “5 Principles” for carrying out the procedure. He kept the bioethics aside before proceeding for the experiment as the CCR5 genes of the babies are slightly different from that in the naturally occurring mutation, it is not even known whether the mutations will have further effect.

CRISPR is still a first-generation technique and needs to undergo way lot of advancement. CRISPR based treatments are in trial and right now should be kept limited to somatic level editing rather than being bought down to germline level which may in fact change the natural course of human evolution and effect other genes in unexpected ways. Chinese government investigation has found He Jiankui “seriously violated” state laws in pursuit of “personal fame and fortune”. Many scientists have affirmed that CRISPR isn't yet safe and precise enough to be used in human embryos.

<https://www.cbinsights.com/research/what-is-crispr/>



# Departmental Feeds



## A LIFELONG EXPERIENCE OF LIVING CLOSE TO NATURE

ANUSHREE DUTTA (Batch 2018-20)

The truth that that lies in nature is not stored in books but is out there and we are the ones looking for the laws of nature. I am glad to say that I got the opportunity to experience the earthiness and pristine greenery of the nature during my stay in the nature camp organized by Alipurduar Nature Club from 26<sup>th</sup> to 31<sup>st</sup> December 2018. I am thankful to our honourable Vice Chancellor Dr. Debkumar Mukhopadhyay, CBPBU for giving me this opportunity and obviously to Dr. Hadida Yasmin who encouraged us to join the camp. I have always read about the beauty of nature several times in story and text books. Finally I have experienced it. Living so close to the nature on the Jyanti river bed for six days is just beyond description.

Those days were completely different from our regular life. Two of my classmates, Anuttama Ghatak and Rinki Barman also attended the camp as the NSS member of our University. It was my first camp. I was chosen as one of the guide for managing the kids allotted in the tent named, "OWL". So, OWL was our home for those days. They made



eight tents for the campers as well as for the guides, four tents were for girls and the

other four tents were for boys campers. We had to wake up at 5.30 am every morning, had assembly for the oath taking ceremony to protect the nature and then proceed for bird watching around 6.30am.

We had taken the vow to plant at least 25 trees in a year as we are the only ones who can save the nature from destruction and the wild life from extinction. Every day we had lectures given by experts from different fields such as Geography, Botany, Zoology etc. We learnt a lot about rocks, stones, rivers, sand, soil and the relationships that we share with the Mother Nature. We went for trekking everyday and during our trip we were taught various safety measures to protect ourselves and others in case of accidents and natural calamities. Most interesting thing was to experience life without a mobile connection. Just the nature and us, a life beyond the boundary where free oxygen was abundant and the sky seemed crystal blue. This camp taught us to be



always protective towards our mother nature as it is to us. I will never forget those twinkling stars and the shining moon looking at me above the river bed. Everything was magnificent.

## OUR STUDY TOUR TO NEW DELHI, 2K17

TORISA ROY (Batch-2015-17)

The study tour during our 4<sup>th</sup> semester was one of the most memorable and enjoyable events of my life. The various things that I experienced and all the memories I made are to be remembered throughout my entire life. The enormous amount of knowledge that I acquired was just priceless. And all of this was made possible only because of our dear teachers (Dr. Samik Bindu and Dr. Hadida Yasmin). We paid a visit to three esteemed and prestigious institutions in Delhi- All Indian Institute of Medical Sciences, University of Delhi and National Institute of Immunology. From these, I personally took a liking to the Genetics lab of Delhi University, where we were taught how to culture *Drosophila* in the lab, and also observed several mutations in it. At AIIMS we also learnt a lot about electron microscopy.

We also went out to see the historical places in Delhi. Our memories in the Delhi University guest house, where we all stayed and the evening walk, at the Delhi university garden was beautiful and unforgettable. This excursion was a great experience for all, where we enjoyed as well gathered knowledge.



## WINDOW OF KNOWLEDGE

TAMALI ROY (Batch 2017-19)

The opportunity to visualize the internal milieu of the cell is a lifetime opportunity for me. I was thrilled to know that we would be having a training session on electron microscopy at All India Institute of medical Sciences during our study tour to Delhi. On 27<sup>th</sup> March 2019, we visited the Electron Microscopy Unit; Prof. Tapas Nag of Anatomy department taught us a lot about histological





tissue preparation, staining methods (viz. Periodic acid Schiff Method that uses to detect polysaccharides such as glycogen etc.) and other trouble shoots involved during electron microscopy. Dr. Sikha Chaudhury showed us how to operate ultra microtome and to choose the best tissue section for electron microscopy. From Dr. Subhash Chandra Yadav, Assistant Professor of Anatomy department, we learnt about protein purification techniques and about nanoparticles. I was very fascinated to see the highly magnified images of cell and tissue samples under Scanning and Transmission electron microscope. By visiting to AIIMS and attending the lectures of the professors, I got huge knowledge about their area of research.

The next day 28<sup>th</sup> March 2019, we visited Jamia Hamdard Institute of Molecular Medicine, there we attended the lecture of Dr. Angamuthu Selvapandiyam and his co-workers who explained us about development of live attenuated Leishmania parasite vaccine against 'Visceral leishmaniasis disease'. This trip motivated me enough to carry out further research work in the field of Immunology. Dr. Hadida Yasmin & Dr. Samik Bindu accompanied us in our trip.



## “POWER IS GAINED BY SHARING KNOWLEDGE, NOT HOARDING IT”

RAVIRANJAN PANDEY (Batch 2017-19)

Life teaches us many things. Our knowledge also dies with us if we do not pass it on to others. There is a saying “Power is gained by sharing knowledge, not hoarding It.” and we too got a noble opportunity to share our knowledge with the undergraduate students of Berhampore Girls College, Murshidabad, WB.

On 29<sup>th</sup> of November of 2019, they had come to visit our university. I still remember the evening prior to their visit when our teacher, Hadida Ma'am



informed us that we were supposed to demonstrate the various instruments installed in our department and interact with the students. We demonstrated the working principal of several instruments such as, Phase-contrast microscopy, ELISA, Cryomicrotome, PCR, RT-PCR, Column Chromatography, BOD incubator, laminar air flow etc. We



also showed them how to handle mice and the precautions that are needed to be taken care of in an animal house. I was asked to demonstrate the Phase Contrast Microscopy which though I was familiar with but was a bit anxious about my presentation, since it was my first such demonstration. I first explained its working principle, uses and utility of different parts of the instrument. My junior Rishab

Kumar Modi showed them the steps required to visualize the specimen under the microscope. Their sparkling eyes and interactive behaviour was the confirmation of their growing interest and curiosity on the subject.

These kinds of visits ignite the curious minds of youngsters. They serve to bridge the literature, imagination and practical use of our curriculum which is a very important step in today's learning process. I believe many such visits are yet to come in the future and we will get this opportunity to teach and learn in the process.



## BALANCE BETWEEN EDUCATION AND FUN

ABHISHEK CHAKRABORTY (Batch 2016-18)

An excursion is an educational tour that is an essential part of student's life. As an alumnus of the department of Zoology, CBPBU, I can vividly recall the last excursion of our batch to Institute of Life Sciences, Bhubaneswar, Odisha under the guidance and supervision of Dr. Pradip Kumar Kar. It was held in the month of May in 2018. It was certainly the best experience I have ever had. I was quite thrilled to see the DNA sequencing machine at ILS, Bhudneshwar. The balance between the knowledge we acquired and the fun we had was perfect. Pradip Sir's zeal throughout the excursion was something we all mimed. There was not a single moment we were nonchalant. We were thankful to Sir for his flawless management and absolute guidance. I ought to remember this rollercoaster ride for the rest of my days.



## A TRIP TO GUWAHATI & MEGHALAYA

SUPRIYO GOSH (Batch 2016-18)

"To see a World in a Grain of Sand And a Heaven in a Wild Flower, Hold Infinity in the palm of your hand And Eternity in an hour"  
— William Blake.

Education is not an isolated exercise here at Cooch Behar Panchanan Barma University. The department of Zoology encourages us to be equipped with hands-on experience by touring the top institutes of India. We have been taken to IIT Guwahati and ICAR



Shilong where I had the opportunity to witness the state of art research facilities capable of standing on the shoulders of the global giants of research. To participate in the foreground of cutting edge breakthroughs that will bolster our understanding of the world was an immense privilege that I am bestowed upon. Coochbehar Panchanan Barma University offers students like me to become global learners and not just little 'frogs' stuck in the well.



## MAJESTIC GOPALPUR AND ITS RIDLEY TURTLE

NILANJONA DEY (Batch 2018-19)

During our departmental excursion, we did a beach scrutiny at the Gopalpur-on-sea, almost every day. We came across various marine animals, of which one was the olive ridley turtles.

Olive ridley sea turtle (*Lepidochelys olivacea*), getting its name from its olive-green colored carapace, which is heart-shaped. It is second smallest and most abundant sea turtles found in the world and occur mostly in warm and tropical waters of the Pacific and Indian Oceans. They can also be found in Atlantic Ocean.



The best feeding ground of sea turtles may not always be the best nesting ground for them. Olive Ridley sea turtles migrate from the coastal water of Sri Lanka in the Indian Ocean to the coastal water of Gahirmatha in the north. The uncanny ability to orient itself in the open sea helps the sea turtles to migrate over long distance without getting lost in the vast sea. They usually migrate in the month of November every year and immediately indulge in mating activities after reaching the coastal waters of Gahirmatha. At the beach, we were lucky enough to witness one of the turtles lay its eggs in a self-scooped burrow in the soft sand in the dark of the night. It seemed that it had an intense urge to lay the eggs, unbothered of its surroundings. However, the numbers of turtles migrating to these coasts have declined over years due to narrowing of the beach area, encroachment of hotels and shops and overcrowding of tourists. Confirming our suspicions, we saw some fellow tourists were irking the animal while she was laying eggs, by filming a video with a

glaring flash light and poking and prodding it with sticks, causing the creature to flee from the site. There are some moments in life when the scenery in front our eyes is worthy of only being captured in our minds and stored deep down the memory lane.

If such imbecile and inhumane acts prevail then the day is not far when the declining number of migrating turtles will turn into nil. Such acts are heinous and punishable, they not only bring forth distress to the animals, which in turn does not allow them to carry out their natural behaviour but also play a major role in endangering the species.

Though we had a wondrous experience, being bestowed with the opportunity of seeing marine animals such as sea anemones, crabs, starfish and many more live in action, it was heart shattering to see so many turtle carcasses lying on the beach side.



## FEW WORDS ON OUR TRIP TO INDIAN INSTITUTE OF TECHNOLOGY, MANDI

ANUREETA ADHIKARY (Batch 2019-2020)

We, the students of Zoology Dept. CBPBU visited IIT Mandi this year with our respected teachers, Prof. Pradip Kumar Kar and Rachita Saha. We visited some of the labs and came to know about various instruments and among all I was greatly fascinated by the Minibioreactor machine as this machine could bioconvert cellulose into industrial valuables using synthetic microbes. Now days when plastic is banned everywhere, research in this field would be very beneficial and exciting for India. Visiting those labs made my mind more inquisitive and seeing all the research scholar working so hard on their respective projects motivated me at every bit to pursue my carrier in this field. At IIT Mandi most of the research works were associated to national welfare. Major research on Zika virus, nanoparticle medicine tops the chart. Seeing all these current research works on the life science field made me realize that there are so many things that are still unknown and needs to be discovered for the mankind. Being a student of life science, I would definitely try to nurture my ideas and views regarding this field in future. We also visited Prashar Lake, Serolsar Lake. We trekked upto 10,800 km at Jalori Pass and spent the beautiful night in the lap of that mountain. Solang valley, Hidimba temple were also part of our beautiful journey.





# Workshop and Important Events

**27<sup>th</sup> to 30<sup>th</sup> September 2016** : Flowcytometry workshop was organised, supported by the Department of Biotechnology, Government of West Bengal in collaboration with BD Biosciences. Mr. George Banik from BD Biosciences conducted the technical session.



**28<sup>th</sup> February, 2017** : Celebration of National Science Day. Prof. Syamal Roy, Professor and Dean, NIPER, Kolkata; Former Honorable Vice-Chancellor, CBPBU; FASc., FNAsc. FNA, J.C. Bose National Fellow, delivered a lecture on "Definition of Normal Science and its foundation in prosperity". Inter-college poster competition was also organized (Theme: Science and Technology for specially-abled persons). Students from different departments of the University as well as from various affiliated colleges participated in the competition.





**4<sup>th</sup> December, 2017** : U.N. Brahmachari 1<sup>st</sup> Oration Award to Prof. Ashim Kumar Chakravarty, Visiting Professor, Dept. of Biotechnology, NBU; Former Emeritus Professor, NBU; FNASc.; WBFSc., in collaboration with Chemical Biology Society, WB. Prof. Ashim K Chakravarty delivered a popular science lecture to the participants in his oration lecture.



**5<sup>th</sup> & 6<sup>th</sup> December, 2017** : Workshop on Immunological Techniques, sponsored by DBT, West Bengal. Prof. Ashim K Chakravarty, gave an introductory lecture on the basic techniques used in Immunology. Dr. Hadida Yasmin and Dr. Samik Bindu conducted the hands-on-training session for the students.

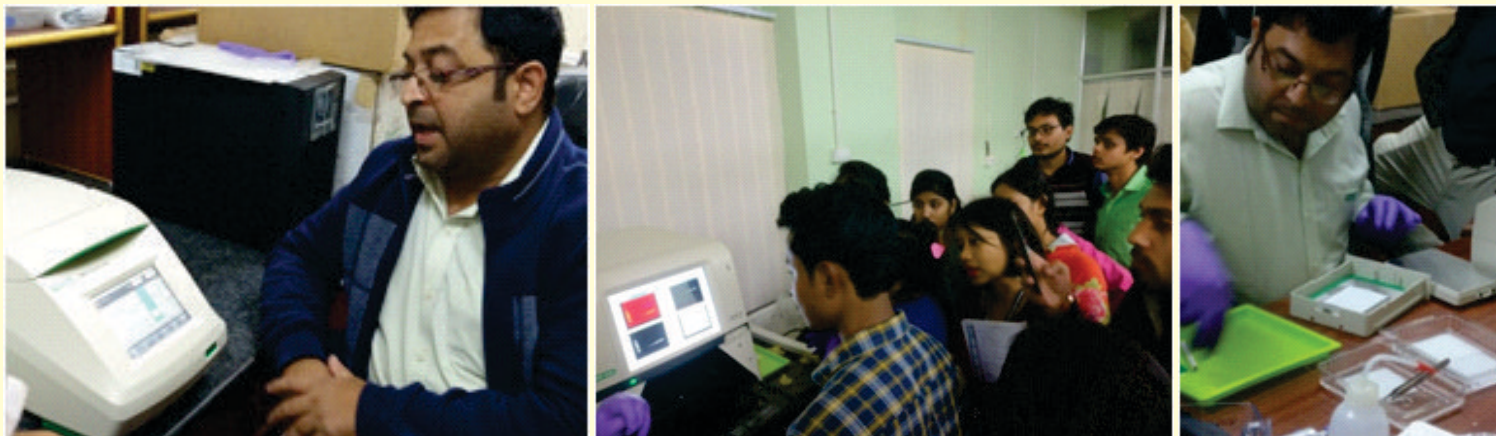


**15<sup>th</sup> November, 2018** : Awareness Program cum interactive session on the State Animal 'Fishing Cat' (*Prionailurus viverrinus*) in collaboration with Dept. of Zoology, University of Calcutta.





**14<sup>th</sup> December to 16<sup>th</sup> December, 2018** : Hands-on- Training workshop was organized in collaboration with BioRad. Various modern techniques such as immunoelectrophoresis, western blotting, PCR, Real Time PCR, Gel documentation were demonstrated to PhD scholars and MSc. students by Dr. Rajesh Saha from BioRad. Students were also given the opportunity to carry out the experiments by themselves.



**14<sup>th</sup> March, 2019** : Awareness Program on drug demand reduction, sponsored by Ministry of Social Justice and Empowerment, GoI, New Delhi. Sri Bikash Bhattacharjee, Secretary, New Life Foundation, Siliguri was the speaker. Smt. Rima Mazumder, research scholar, Dept. of Zoology, CBPBU also delivered a lecture on side effects of drug abuse. More than 100 students from different departments of CBPBU participated in the program. Poster competition was also organized for the college and University students.



**Date: 18<sup>th</sup> and 19<sup>th</sup> March, 2019** : Two days training program on drug demand reduction was organized, sponsored by Ministry of Social Justice and Empowerment, GoI, New Delhi. Sri Pijush Chakraborty, District Psychologists, MJN Hospital, Cooch Behar; Sri Sukanta Bhattacharya, District Social Worker, Cooch Behar; Sri Bikash Bhattacharjee, New Life Foundation, Siliguri; Dr. Sourab Sil, Asstt. Chief Medical Officer & Health, Cooch Behar and Ms. Shalmoli Dutta, Food Safety Officer, Cooch Behar were the resource persons. This program was attended by 50 teaching and non-teaching staff of colleges and of CBPBU.





## Special Lectures by Eminent Researchers/Scientists

**14<sup>th</sup> December, 2017:** Dr. Gausal Azam Khan (Associate Professor, Dept. of Physiology, Fiji School of Medicine, Fiji) delivered special lecture on the topic, "Stress induced sterile inflammation is the key in development of cardiovascular disease: New insight".

**8<sup>th</sup> January 2018:** Special lecture delivered by Prof. Uday Bandyopadhyay (Director, Bose Institute, Kolkata; J.C. Bose National Fellow; FNA, FASc, FNASc, INSERM Fellow, Humboldt Fellow) on "Gastric Ulcer/gastropathy: cause and correction".

**7<sup>th</sup> May, 2018:** Prof. Anando Mukhopadhyay (Retired Professor, Entomology Unit, Dept. of Zoology, University of North Bengal), delivered lecture on " Changing Tea Pest scenario under Environmental Stress".

**8<sup>th</sup> May, 2018:** Prof. Jogen C Kalita (Professor, Dept. of Zoology, Guwahati University) shared his research experiences on the topic, "Impact of environment on health and endocrine disruption issue".



## ABOUT THE DEPARTMENT

Dept. of Zoology began its journey with 10 students in 2015 at Pundibari Campus. Dr. Syamal Roy (Former Vice Chancellor, CBPBU) and Dr. Deb Kumar Mukhopadhyay (Present Vice Chancellor, CBPBU) contributed enormously during the inception of this department. In 2016 the students began their 2<sup>nd</sup> semester classes at the present CBPBU campus. Dr. Samik Bindu joined as the first permanent faculty of this department in September 2016 followed by Dr. Hadida Yasmin and then Prof. Pradip K Kar. Since then the department never turned back.

The students and faculty of this department has always been working as a team and within these three years of its establishment have achieved several feathers on its cap. Be it the funding for sophisticated instruments or for conducting research projects & workshops from West Bengal / Central Govt., to establishing well furnished research laboratories and animal house, the department did all. Prof. Pradip K Kar and Dr. Hadida Yasmin also served the University as Controller of Examinations (acting) for 6 months each.

Being the first established Bioscience department of this University, we had more responsibilities. As we all know digging the first hole takes enormous effort and so we had to, rest things follow accordingly. The department took the initiative in getting the DSIR certificate for the University, played quite a vital role in executing the Convocation of the University as well as University Sports. The department also designed the University Sports Board logo, manages one of the NSS unit and even helped in transforming the central library into smart ambience and many more. Our honourable Vice Chancellor Dr. Deb Kumar Mukhopadhyay and our respectable Registrar, Dr. Abdul Kader Safily were immensely supportive in our every endeavour.

Department of Zoology, CBPBU always strives for excellence and will always be.

**Hadida Yasmin (Head)**  
Associate Professor  
Dept. of Zoology, CBPBU