# SBC(I) NEWSLETTE

Vol. No. 115 July 2022

of Biologica,

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http://www.sbcihq.in

## My Association with the Society of Biological Chemists (India)

Dear Friends,

I first heard about the Society of Biological Chemists, India or SBC(I) sometime in July 1975 when I just completed my B.Sc. from Delhi University and joined GBPUAT, Pantnagar for Masters in Biochemistry. Since my first exposure to biochemistry in a plant physiology course during my B. Sc. I literally "fell in love" with biochemistry. Here was a subject that dealt about the chemistry of biological molecules and



chemistry was my favourite subject since class 8 ! At GBPUAT in June 1975 when I entered the chamber of a faculty for registering a course entitled Elementary Biochemistry", I saw a pamphlet which had a write up about SBC. During those two years in GBPUAT I heard about SBC (I) annual meetings and that anyone and everyone interested in Biochemistry would try attend these annual meetings of SBC.

When I joined the Department of Biochemistry at IISc in 1977 for my Ph. D., I also became aware that the headquarters of SBC (I) was in Bangalore and located in IISc and literally below my laboratory in the old MCB building!

In 1979 I attended my first SBC (I) meeting in Luck now where I presented a part of my doctoral research findings. This was a memorable experience as several of us - Ph.D. students from IISc, Bangalore went to Lucknow by KK express changing at Jhansi railway station. It was a tradition in those years that a large contingent of students always went to SBC (I) annual meetings from IISc. I am afraid these days the participation is minimal. This is rather unfortunate. I have always enjoyed the Poster sessions at meetings where you get to interact with scientists. In fact, in 1992 SBC (I) meeting in Hyderabad, as a faculty I presented a poster where a number of people came to see the poster and interacted with me.

In the subsequent year, 1980, IISc Bangalore was the host for a joint FAOBMB – SBC (I) meeting which saw scientists like Albert Lehninger and others giving talks. Being a student of Prof. N. Appaji Rao who at that time who was the Secretary of SBC, I was involved in various ways in the organisation of this mega event.

Another encounter with SBC (I) was when I got a Rs 500 travel grant to attend the Pteridine and Folates meeting in St. Andrews, Scotland September 1982. I am particularly grateful to SBC (I) for this simply because the rest of my travel support from DST, INSA COSTED came through when they were told about the SBC (I) support. The SBC (I) continues to award travel fellowships to its younger members to attend meetings and conferences in India and abroad.

In January 1983 when I left for NIH, USA to pursue my postdoctoral research I enrolled as a Life

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#### OFFICE BEARERS OF SBC(I) 2022

#### PRESIDENT

Dr. D. N. Rao IISc, Bangalore president@sbcihq.in

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**Dr. Vinay K Nandicoori** CCMB, Hyderabad

#### TREASURER

**Dr. G. Subba Rao** IISc, Bangalore treasurer@sbcihq.in member of SBC (I). For some strange reason my father was insistent that I become a life member of this professional society. I am not sure if I paid the Rs 500 for life membership or was it my father who paid but I am glad that I am a life member.

In 1988 Prague, the capital city of the then Czechkoslovakia was hosting the IUBMB meeting and I went to attend it while I was in Basel doing my second stint of postdoctoral research. At that meeting, I remember Profs. G. Padmanaban and Asis Datta giving talks and were members of a SBC (I) delegation which bid for the 1994 IUBMB meeting in New Delhi.

I returned to India in 1989 as an Assistant Professor in the Biochemistry department and Io and behold the SBC (I) headquarters office was still below my old laboratory in the MCB building. I was the Treasurer of SBC (I) from 1992 to 1994 and the Society hosted the IUBMB meeting in Delhi in 1994. All bank cheques had to be signed by the Treasurer and indeed I did affix my signatures on countless cheques during those 3 years.

Dr. V. Nagaraja (MCB department) often reminds me that during my years as Treasurer, there was a period of 3 months (when I was abroad) where he affixed his signatures on my behalf. I believe he was the Secretary of SBC (I) at that time.

In 1996 the SBC (I) annual meeting was jointly organized with the Department of Biochemistry, IISc, which was celebrating its 75<sup>th</sup> year of existence (since 1921). Prof Ramesh Maheswari was the Chairman of the department and Prof. G. Padmanaban was the President of SBC (I). It so happened that I was the Treasurer again but only for this occasion.

During 2009-2010, I served as a Vice President, and Prof V. S. Chauhan of ICGEB, New Delhi as the President of SBC (I). Somewhere along SBC became SBC (India). There have been a number of discussions at EC meetings of the Society to change the society's name to make it more broad-based Society of Biological Chemistry and Molecular Biology, etc., just like what IUBMB, ASBMB FAOBMB did. I am glad we are still a Society of Biological Chemists!

Our society is 92 years and is the oldest or one of the oldest professional societies in our country. All along and even after 90 years, we run annual meetings, and from some of these meetings that I have attended in recent times (Hyderabad 1992, 2015, Madurai 1993, Delhi 1994, Bangalore 1996, 1999, 2003, 2010, Chennai 2008, Mumbai 2019, Pantnagar 2004) the quality of science discussed was high and impressive.

All aspects of biological chemistry are discussed at these meetings – oral and poster presentations. I particularly want to emphasize the uniqueness of the poster sessions. Presenting a poster in a meeting is an excellent opportunity for young scientists, particularly students to interact with fellow scientists -professionally and personally and make the necessary connections. After all, scientific associations are what matters in the end. Scientific links can lead to successful collaborations, and history has many such Nobel prize-winning collaborations to tell us about.

SBC (I) has been recognizing its outstanding members and has several awards that are given out every year at the Annual meeting. Over the years generous contributions from its members (family members) have enabled the society to institute these awards, some of which have acquired the distinction of "prestigious".

Another year has come and gone. Thanks to the wide availability of effective COVID-19 vaccines, we can return to some in-person activities. We are slowly inching towards something resembling our pre-pandemic lives. Six months from now, the SBC(I) will meet in person in Kolkata.

This year- in December 2022 the Kolkata chapter of SBC (I) is hosting the annual scientific meeting. Kolkata in the past has organized several such annual meetings (1932, 1952, 1975, 1991, 2000, and 2012) and I believe this year's meeting will be, as usual, a good one to attend. The theme of the Kolkata meeting will be "Biology and Chemistry at the confluence of life. Biological chemistry encompasses a wide range of research areas- truly an interdisciplinary subject.

The Kolkata December 2022 meeting will be the first such meeting of SBC (I) -physical meeting since 2019. Covid-19 pandemic during the years 2020 and 2021 prevented us from holding annual scientific conferences in person. However, both in 2020 and 2021, Dr. Sathyamurthy and Rajendra Prasad successfully held the SBC (I) annual meetings ONLINE.

As a collective responsibility, all of us - students, faculty, and staff members- should ensure that we induct more members into this prestigious society. Again, I urge all of you to attend the annual scientific meetings and participate in all society events. We should ensure that SBC (I) crosses 100 years of existence and beyond.

## 90th SBCI ANNUAL MEETING REPORT

#### 90th Virtual Annual Meeting of The Society of Biological Chemists India(SBCI), held at Amity University Haryana, Gurugram.

Amity University Haryana (AUH), organized the 90<sup>th</sup> annual meeting of The Society of Biological Chemists (SBC), under the theme "Metabolism to Drug Discovery: Where Chemistry and Biology Unite" from 16<sup>th</sup> to 19<sup>th</sup> December 2021. The Amity Institute of Biotechnology (AIB), and Amity Institute of Integrative Sciences and Health (AIISH) worked hand in hand to successfully organize this meeting. Due to the continuing COVID-19 pandemic, the meeting was held entirely on a virtual platform.

The scientific sessions were spread across four days (16-19 December. 2021) which included 75 invited talks, 3 award lectures, as well as 4 plenary lectures from eminent scientific figures, 138 scholars presented posters and more than 900 delegates participated online.

The organizing committee of 90<sup>th</sup> SBCI meeting decided to have not only thematic scientific sessions but also held a very contemporary session dedicated on 'Covid-19: an Indian Perspective' focusing on real perspective of Covid pandemic and vaccine development by leading stakeholders.

At the inauguration, Dr. D.N Rao, distinguished scientist, from IISc, and President-Elect of SBCI delivered a welcome address expressing the vision and mission of the society. Dr. Utpal Nath, Secretary, SBCI, and Dr. Usha Vijayaraghavan, Vice President, SBCI were the other panellists in the inaugural session.





Chief Guest Dr Shekhar C. Mande, DG, CSIR, while speaking on "CSIR for New AatmaNirbhar Bharat" during the occasion, said, "Pandemics like SARS-Covid 2 have been predicted for a long time in history. It was expected to be just around the corner for the last 25 years or so. In my own lab, we realized in July or Aug 2020 that the mortality rate around the world appeared to have a strange dichotomy. More died in richer countries than poorer countries. All components of a kit must be locally made. Everything you do, the basic thing that is required must be available in the closer geographical neighbourhood. The AatmaNirbhar Bharat is a powerful concept. It is imperative that we embrace the concept of AatmaNirbhar Bharat" added Dr Mande.



Guest of Honor Dr. Ram Vishwakarma, Advisor, CSIR & Chairman, COVID Strategy Group of CSIR while expressing his thoughts on "COVID Mitigation Strategies of CSIR" said, "Pandemics of this nature come once in 250 or 300 years. Training of human resources is essential. This country's Scientific and Medical community rose to the challenge remarkably well. The 38 CSIR National Institutes were well-positioned to strengthen India's preparedness and response to covid-19. Covid Strategy Group (CSG) was constituted with 5 Technology verticals to be led by the directors, added Dr Vishwakarma.

Dr. Ashok K. Chauhan, Founder President, Amity Education Group delivered his word of wisdom on "Way Ahead and Future Roadmaps". He also shared his vision of how scientists from different Amity campuses can contribute to the biochemical bloom in India. While sharing his vision and mission, Dr. Aseem Chauhan, Chancellor, Amity University Haryana, emphasized the importance of biochemistry in the era of drug discovery revolution. Prof. P.B. Sharma, Vice-Chancellor, Amity University Haryana explained the importance of 'Life Tech' in the next decade. Prof Rajendra Prasad, President SBCI & Convenor, Dean Faculty of Engineering, Science & Technology, and Director, AlB & AlISH, highlighted the R &D efforts of life science programmes of Amity University Haryana.

The four well-attended Plenary Lectures delivered by distinguished scientists Drs. Partha P. Majumder, NIBMG, Kolkata; V. Nagaraja, IISc, Bangalore; R. Sankaranarayanan, CCMB, Hyderabad; and Gaiti Hasan, NCBS, Bangalore.

Over 75 speakers invited from all over the country participated in the four-day meeting. A special session on 'COVID 19 – An Indian Perspective', was chaired by Dr. Sudhanshu Vrati, Executive Director, Regional Centre of Biotechnology (RCB), Faridabad. The first speaker Dr Anurag Agrawal, Director CSIR – Institute of Genomics and Integrative Biology (IGIB), New Delhi delivered a very informative talk on 'COVID19: Genome Surveillance, followed by Dr Sanjay Singh, CEO Gennova Biopharma who gave an insight on the development of mRNA vaccine against Covid-19: A paradigm shift in vaccinology. Dr. R. Varadarajan, IISc, highlighted the Immunogen design for COVID-19 and Dr Lalith Kishore, CCAMP, Bangalore who presented the Indian scenario of the Indigenization of Diagnostics-CCAMP- InDx Journey in India. The entire session focused on the recent scientific updates and strategies to combat the COVID-19 pandemic in society at large.

A special session on the History of Biochemistry was organized and chaired by Prof. Umesh Varshney, IISc, Bangalore. The octogenarian stalwart speakers were Prof. GP Talwar, Talwar Research Foundation, New Delhi, who spoke on 'Evolution of Biochemistry in Medical Institutions', Prof. G Padmanabhan, CUTN, IISc., Bangalore on 'Known Molecules: New Applications Stand on Shoulders of Giants'. Prof. D.J. Chattopadhyay, SNU, Kolkata, described the History of Biochemistry in Eastern India.

The three award lectures included the P. B. Rama Rao Memorial Award, Dr M Shadaksharaswamy Endowment Lecture Award, and the C. R. Krishna Murti Lecture Award. Dr Samir K. Maji, IIT Bombay, talked on 'Prion-like p53 amyloids in cancer pathogenesis'; Dr. Suman K. Dhar, JNU, New Delhi on Unique biology and possible interventions for therapy against human malaria parasite *Plasmodium falciparum* and by Dr Kausik Chattopadhyay, IISER Mohali, on The (w)hole story of the  $\beta$ -barrel pore-formation mechanism of *Vibrio cholerae* cytolysin, respectively. The four-day scheduled scientific program was followed as planned. The Executive Council (EC) meeting of the society and the Annual General Body meeting of the society was also conducted during this conference.

at Biswa Bangla Convention Center Kolkata

91st Annual Meeting of the

Society of Biological Chemists (India)

SNL

8 - 11 December, 2022

Jointly organized by Society of Biological Chemists (I) Kolkata Chapter & Sister Nivedita University, Kolkata

**Theme:** 

LIFE AT THE CONFLUENCE OF BIOLOGY & CHEMISTRY

Registration Fee Student: Rs. 6000/- Faculty: Rs. 8000/-Abstract submission deadline 31st August, 2022 Registration deadline 30th September, 2022 Mode: Offline Details will be updated soon

## 90th ANNUAL MEETING OF SBC(I): BEST POSTER AWARDS 2021

<b>Akanksha Bhardwaj</b> NIPGR, Delhi	Understanding the Transcriptional Regulation during the Symbiosome Development of Medicago truncatula Nodules		
<b>Deevita Srivastava</b> NIPGR, Delhi	Transcription factors duo in Medicago peripheral vasculature organization and nutrient transportation		
<b>Priyanka Verma</b> RCB, Faridabad	Gemini Lipid Nanoparticle (GLNP)-mediated Oral Delivery of TNF- $\alpha$ siRNA Mitigates Gut Inflammation via Inhibiting the Infiltration and Differentiation of CD4 + T Cells		
<b>Himani Saxena</b> ShivNadar University	PfMYST/RUVBL complex plays role in immune evasion of malaria parasite by regulating var genes in sub telomeric region		
<b>Praveen Kumar</b> Amity University, Haryana	Insights into the mechanism of directed evolution of drug resistance in Candida auris		
<b>Arkita Bandyopadhyay</b> JNU, Delhi	Structural and functional characterization of EccCb1 of M.		
<b>Animesh Kar</b> RCB, Faridabad	A Localized Docetaxel-Carboplatin Hydrogel Therapy Causes Apoptotic and Immunogenic Cell		
<b>Asmita Gupta</b> CDFD, Hyderabad	Transcriptome analyses reveal novel gene fusion events in Early-Onset Sporadic Rectal Cancer		
<b>Garima Yadav</b> IIT, Delhi	Investigating the role of hypoxia regulated long non-coding RNAs in glioblastoma		
Nadeem Khan G MSLS, Manipal	Regulation of Mitochondrial Structure and Functions by Bisphenol A in Cervical Cancer		
<b>Paramita Gayen</b> IISER, Kolkata	Peptide-Based Wound Care for Faster Blood-Clotting and Diabetic Wound Healing		
<b>Rebecca Kristina Edwin</b> MSLS, Manipal	PRIP-interacting protein with methyl transferase domain (PIMT) regulates lipid metabolism and adipogenesis		
<b>Priya Das</b> CSIR-IICB, Jadavpur	Glyceraldehyde-3-phosphate dehydrogenase present in extracellular vesicles from Leishmania major suppresses host TNF-alpha expression		
<b>Kajal Rana</b> RCB, Faridabad	Hydrogel-mediated Delivery of Steroids can Alleviate Psoriasis via Altering the Th17 and $\gamma\delta$ Cells		
<b>Aswathy S Nair</b> MSLS,MAHE, Manipal	Homocysteine and its chemical modifications induce bidirectional activation of neutrophils and platelets during pathogenesis of stroke		
Gautam Chandra Sarkar NII, Delhi	A cell non-autonomous signalling of FOXO/DAF-16 ensures germline quality control in response to somatic DNA damage		

## NOMINATIONS FOR 2022 SBC (I) AWARD

This year P.S. Sarma Memorial Award, P A Kurup Endowment Lecture Award, D P Burma Memorial Award and A. Krishnamurthy Award (best paper published in Indian Journal) will be given at the Annual Meeting of SBC(I) to be held at Kolkata. Please send nominations in a single consolidated PDF including cover letter addressed to Hon. Secretary, SBC(I) along with membership status and brief resume of the nominee to sbcihq@gmail.com

The complete application should reach the SBC(I) office on or before 30st September 2022.

## **CRITERIA FOR 2022 AWARDS**

Year of Commencement : 1973		
Frequency	: Once in three years	
Value	: Rs.10,000/- with a citation	
<ol> <li>Eligibility:</li> <li>The award is for the second secon</li></ol>	the best work done in the field of Biochemistry and Allied Sciences in India the award should not have completed 50 years before January 1st in the re award is announced. In has to be nominated by life member of the society and self-nomination scheduled at the Annual Meeting of SBC(I) and presentation will be made en to all Indian Scientist who must be Life member of Society of Biological	
	Year of Commencer Frequency Value Eligibility: 1. The award is for 2. The recipient of year for which th 3. The eligible perso is not accepted. 4. A lecture will be at that time. 5. The Award is op Chemist India.	

	Year of Commencement : 1991		
	Frequency :	Once in three years	
P A KURUP ENDOWMENT LECTURE AWARD	Value :	Rs.10,000/- with a citation	
	<ul> <li>Eligibility:</li> <li>1. The recipient of the award should be below 60 yrs of age on January 1st of the year of the award</li> <li>2. The award is given for Biomedical Research</li> <li>3. The eligible person has to be nominated by life member of the society and self-nomination</li> </ul>		
	is not accepted.		
	4. The awardee should give a lecture during the Annual Meeting of SBC(I)		
	5. The Award is open to all Indian Scientist who must be Life member of Society of Biological		
	Cnemist India.		

	Year of Commencement : 2007			
	Frequency	: Once in three years		
	Value	: Rs. 20,000/- with a citation		
D P BURMA MEMORIAL AWARD				
	Eligibility:			
	I. An eminent scient	ist for outstanding life time contribution in the field of Biological Sciences.		
	2. No age limit.			
	3. The eligible person has to be nominated by life member of the society and self-nomination is not accepted.			
	4. A lecture will be scheduled at the Annual Meeting of SBC(I) and presentation will be made at that time.			
	5. The Award is open to all Indian Scientist who must be Life member of Society of Biological			
	Chemist India.			

	Year of Commencement : 1976
	Frequency : Annually
	Value : Rs. 2,000/- with a citation
A. KRISHNAMURTHY AWARD	<ol> <li>Eligibility:         <ol> <li>The recipient of the award should be below 30 years of age on January 1st of the year of the award.</li> <li>The paper should be in the area of Biological Chemistry and Allied Sciences and the work should have been carried out in India.</li> <li>The paper published in any Indian Scientific Journal in the previous year will be considered for the award.</li> <li>In the case of multiple authorship, the senior author can nominate one of the authors or could be shared by all the eligible authors.</li> <li>The Award is open to all Indian Scientist who must be Life member of Society of Biological Chemist India.</li> </ol> </li> </ol>

#### Here's is an opportunity to be very creative and show your Talent!

Put your creations in the form of cartoons, science comics, comic strips, limericks, excerpts from the conference you attended! Anything to do with Science, commentaries on new exciting developments is also welcome.

We are looking for young talents who can contribute to the SBC(I) Newsletter, which we are planning to bring every few months. Submit your contributions to us, and of course, the best contribution will be rewarded!

We will accept the contributions throughout the year but hurry up to see your contribution in the next Newsletter.

Don't wait! Pen down your excellent creative thoughts and reach us at

Society of Biological Chemists (India) Indian Institute of Science Bangalore 560 012 Phone 91-080-23601412, Email sbcihq@gmail.com Send us a hard copy by post and a soft copy by an E-mail

#### 2021 ANNUAL AWARDS

The Society announced the Annual Awards for the year 2021 at its Annual Meeting Held at Amity University Gurugram, during December 16<sup>th</sup> to 19<sup>th</sup> 2021. This year three awards were given and the society congratulates all the awardees and wishes them good luck in perusing their goals. A brief description of the research interests, as provided by the awardees, is given below.

## M SHADAKSHARASWAMY Endowment Lecture Award



Prof. Suman Kumar Dhar SCMM, JNU, New Delhi

**Research highlights:** Prof. Suman Kumar Dhar's pioneering research has (a) illuminated new targets to interfere with DNA replication and cell-cycle control in two important pathogens, *H. pylori* and *P. falciparum*, and (b) identified unexpected paradigms of cell biology in pathogens, paradigms that may become applicable in other bacteria and higher eukaryotes.

The above pathogens are immensely important for human health, but their biology is poorly understood. *H. pylori* is a bacterium that is critical for the development of gastric ulcers and gastric adenocarcinoma. *P. falciparum* is the pathogen behind a very malignant form of malaria. In both cases, disease control is hampered due to drug resistance and the non-availability of vaccines. Dr. Dhar's main aim is to understand the complex DNA replication and cell cycle mechanisms in these pathogens to identify novel targets for therapy.

He identified a DnaB replicative helicase in *H. pylori* and a novel, non-canonical helicase loader, Hp0897. He has done cell biology and molecular biology research on the replisome in *H. pylori*, that will allow the development of drugs to inhibit the proliferation of this pathogen.

Turning to *P. falciparum*, Dr. Dhar studied the control of both organellar apicoplast DNA and nuclear DNA replication. He identified and functionally characterized key molecules essential for nuclear DNA replication like the subunits of PfORC (origin recognition complex: the replicative helicase loading complex), PfPCNA (the clamp that keeps the replicative polymerase on the DNA) and subunits of PfMCM (the replicative helicase). He also identified a bacterial type II topoisomerase, gyrase (A and B), and single-stranded DNA binding protein (SSB) homolog, all essential for apicoplast DNA replication. The discovery of the gyrase and its importance for the parasite's life cycle was important, because chemical inhibitors of the gyrase, ciprofloxacin and coumermycin and acriflavin, kill the *Plasmodium* parasites *in vitro* and the last, also *in vivo* in animal models. The effectiveness of acriflavin has resulted in an Indian and International patent on the use of acriflavine as an anti-malarial. Finally, he has identified unique trafficking pathways to the nucleus for one replication protein and one chromatin remodeling protein in *P. falciparum*, and a novel mechanism using a food-vacuole associated cysteine-protease to process the latter. This last also identifies a novel target for anti-malarial therapy.

He has published several research articles in internationally peer-reviewed journals (**Nucleic Acid Research**, 2003,2007, 2010,2012,2016; **Molecular Microbiology**, 2008,2015; **Journal of Bacteriology**, 2013, 2014, **Journal of Cell Science**, 2020 etc.). He has also been credited with national and international patents (2016, 2020).

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### P. B RAMA RAO MEMORIAL AWARD



Dr. Samir K Maji IIT, Mumbai

Dr. Samir K Maji is currently a Professor in the Department of Biosciences and Bioengineering at IIT Bombay. He obtained his Ph.D. in peptide chemistry in 2003 from the Indian Association for the Cultivation of Science, Kolkata. After his Ph.D., he pursued extensive postdoctoral research at Harvard Medical School, UCLA, Salk Institute, and ETH Zurich before joining as a faculty member at the Department of Biosciences and Bioengineering at IIT Bombay in 2009.

Dr. Maii's research group at IIT Bombay encompasses areas of chemical biology, including, but not limited to, protein chemistry, peptide biology, smart biomaterials, and biophysics. His group is mostly involved in unravelling the mechanisms underlying amyloid formation by protein/peptides associated with human diseases and native biological functions (functional amyloids). For example, his group is studying the aberrant behavior of  $\alpha$ -synuclein responsible for Parkinson's disease (PD) pathogenesis and also its structure-function relationship at the molecular level. Moreover, his group actively investigates the physical and chemical cues that lead to p53 amyloid formation in cancer. Apart from this, at the junction of chemistry and biology, Dr. Maji's group is also working on developing smart biomaterials using peptide chemistry and molecular biology, with application in medicine. The smart hydrogel technology developed in his lab has led to the foundation of a start-up, namely Convalesce Inc. (San Francisco, California) by one of the lab's former Ph.D. students. Recently, his work on the liquid-liquid phase separation of  $\alpha$ -synuclein and its involvement in PD pathogenesis was published in Nature Chemistry. The research work at his lab at IIT Bombay has led to more than 70 publications in peer-reviewed journals, including | Cell Science, Cell Death and Differentiation, Angewandte Chemie, Advanced Healthcare Materials, Biomaterials, NPG Asia Materials.

He has received numerous awards in recognition of his scientific activities, including IIT Bombay impactful research award 2020, TATA Innovation fellowship (2020), IIT Bombay Excellence in Teaching Award 2020, and NASI-Reliance Platinum Jubilee Award (2019) by The National Academy of Sciences, India. Dr. Maji is also the recipient of the National Bioscience Award (2016) for Career Development by the Department of Biotechnology, Government of India, IIT Bombay research publication award 2016, Young researcher award (2013) from Lady Tata Memorial Trust, International short visit fellowship from Swiss National Science Foundation (SNF, 2013), Young Investigator Travel Award by Protein Society and Finn World. He is elected as the Fellow of the National academy of Science, India (FNASc), Royal Society of Chemistry (FRSC), and Royal Society of Biology (FRSB). He was appointed as an Editorial Board Member of the Journal of Biological Chemistry in 2018.

#### C.R. KRISHNA MURTI AWARD



Dr. Kausik Chattopadhyay IISER, Mohali

The plasma membrane is one of the most crucial defining features of cellular systems. The plasma membrane acts as a semi-permeability barrier for the compartmentalized architecture of the cells. The integrity of the plasma membrane is extremely important for the cellular physiology and functions. Any damage to the plasma membranes is detrimental to the cells, and it can even lead to the cell-death. Pore-forming toxins (PFTs) are the unique class of membrane-damaging proteins. PFTs damage cell membranes by forming oligomeric pores in the membrane lipid bilayer. PFTs are documented in the diverse life forms, and they exert crucial functions in a variety of biological processes that include bacterial virulence mechanisms as well as the effector functions of the vertebrate immune system. Many pathogenic bacterial use PFTs as their potent virulence factors. In fact, more than one third of the known bacterial protein toxins belong to the family of PFTs. The overall objective of our ongoing research is to elucidate the structure-function mechanisms associated with the membrane-damaging pore-

forming action of some of the prominent bacterial PFTs. We also explore the implications of the pore-forming functionality of the PFTs for the host-pathogen interaction processes and immunity. The major part of our research remains focused on one such archetypical bacterial PFT, Vibrio cholerae cytolysin (VCC). Through our study we have elucidated the distinct steps of the membrane pore-formation mechanism employed by VCC. For the first time, we have been able to show that VCC, as a prototype PFT, can recognize the membrane phospholipids through a distinct structural motif. We have also characterized the mechanistic basis of a lectin-like activity conferred by a specific structural domain present within the molecular architecture of VCC, and how it can facilitate the binding of the toxin toward the cell surface glycans present in the target cells. In another study, we have shown how membrane cholesterol plays a crucial role in regulating the poreformation mechanism of VCC. Another remarkable feature of the pore-formation mechanism of any PFT is the structural rearrangement of the pore-forming motif that inserts into the membrane lipid bilayer to create the transmembrane pore scaffold. In a very recent study, we have elucidated the structural constraint in the VCC structure that may act to sense the membrane binding event, and eventually trigger the conformational rearrangement of the pore-forming motif toward the functional pore-formation process. This study has provided novel insight regarding the mechanistic basis of the poreformation mechanism that is not only employed by VCC, but may also be operational in the structurally-related bacterial PFTs. Apart from VCC, our studies have also provided critical new insights regarding the structure-function mechanisms of some of the other prominent bacterial PFTs that include Thermostable direct hemolysin of Vibrio parahaemolyticus and TlyA hemolysin of Helicobacter pylori.

PFTs act as the potent virulence factors of the bacterial pathogens. Also, they are the unique class of dimorphic proteins that are synthesized as the water-soluble monomeric entities, and upon encountering the target eukaryotic cell membranes they assemble into the transmembrane oligomeric pores. The conversion of the PFT monomers into the oligomeric pore structures in the membrane environment remains an enigma, and it poses numerous questions regarding the structure, folding, and assembly dynamics of the proteins in the membranes. In this context, our research has provided answers to some of the long-standing unsolved issues pertaining to the membrane pore-formation mechanisms of some of the prominent bacterial PFTs, and how their functionalities are implicated in the host-pathogen interaction processes.

## INTERNATIONAL TRAVEL FELLOWSHIPS

GUIDELINES FOR AWARDING INTERNATIONAL TRAVEL FELLOWSHIPS FOR Ph.D. STUDENTS BY THE SOCIETY OF BIOLOGICAL CHEMISTS (INDIA)

One travel fellowship of Rs. 15,000/- per quarter (Two awards per year) will be awarded

\* Award period

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\*\* Last Date for receipt of application Jan- Mar .....Dec 31 Previous Year Apr-June .....Mar 30 III. July-Sept .....June 30 IV. Oct-Dec .....Sept 30

For example, those who wish to attend an International meeting scheduled to be held during July-Sept 2022, should submit the application by 30 June 2022.

\*Award period refers to the period during which the meeting is scheduled. \*\* The Committee will meet on these days to decide on the award. This award is meant for Ph.D. students only.

> The applicant should currently be a SBC(I) member and should have been a member for at least two consecutive years.

## Report on 2021 International Conference of the Korean Society of Molecular and Cellular Biology (KSMCB)



#### DR. KAUSTUV SANYAL JNCASR, Bangalore

I was honoured to represent SBC (I) at the International Conference of the 2021 Korean Society for Molecular and Cellular Biology (KSMCB) which was held from November 3-5 in Jeju, Korea. Even under strict restriction due to the COVID-19 pandemic situation, the International Conference of the KSMCB was successfully held as a hybrid event. About 3,000 participants from 15 countries attended at the conference. With 4 plenary lectures, 20 symposia, and 1,071 poster presentations, even though only limited numbers of audiences were allowed into lecture rooms, 2,648 attendants were present on-site during the

conference. International Conference of KSMCB had 6,712 views on symposia, 3,820 views on the poster abstract, 25,500 total views on the program, supporting very active participation by all attendants.

My talk was scheduled for the Global Network Session on November 4, 2021. The session was chaired by Ja-hyun Baik, Ph.D. (Korea University, Korea). Five speakers from India, China, Malaysia, Philippines, and New Zealand presented their work in this session. I spoke about the various genetic and epigenetic determinants of centromere identity in a 15-min presentation. The session was well attended. The symposium was very well organized. I am thankful to SBC(I) for giving me this opportunity. I hope that the Covid I9 pandemic ends soon so that all participants can travel to Korea to attend this wonderful conference physically.

Kaustuv Sanyal with input from Conference Secretariat, KSMCB





#### **BRANCH ACTIVITIES 2021**

## NORTH EAST CHAPTER

Convener: Dr. B G Unni

Activities (April -2021 to March -2022)

Speaker	Place	Title
Prof. Dr. Dhiraj Bora *	Assam	Fusion: The Path to Harness Clean Energy
Prof. Dhruba J Saikia *	Mumbai	Exploring the Universe at radio wavelengths
Dr. Uma Ramakrishnan *	Bangalore.	Using Genomics to Understand and Conserve Biodiversity
Prof. Rowena Robinson *	Mumbai	Imagining a democracy: Fraternity, horizontal rights and society
Major Ravi Khanna *	Lucknow	Time out
Dr. Swapnav Borthakur *	Assam	Emergencies outside the Hospital
Prof. Pranab Goswami *	Assam	Current from Living Systems: Inspiration from nature to generate power and develop sensors
Prof. Deep Medhi *	USA	Domain Science Applications, Huge Data, and Opportunities in Computer Networking and Systems Research
Dr. BG Unni	Assam	Environmental Pollution: Impact of Environmental Pollutants on Human health: Case Studies
Professor Surjya Kanta Pal *	Kharagpur	Evolution of Cognitive Intelligence in Manufacturing
Dr. A. C. Panda *	New Delhi	Challenges with Vaccine Development
Dr. Kamalesh K. Gulia	Kerala	Sleep for good health and happiness: Nature's Samurai
Dr. Akan Das *	Assam	The world of micro RNAs
Dr. BG Unni	Kerala	Research is the backbone for good start ups and that is the best way to build Atmanirbhar Bharat
Prof. Nashreen S. Islam *	Assam	Theme of the talk : Integrated Approach in Science and Technology for Sustainable Future"
Prof. Nayandeep Deka Baruah	Assam	National Science day
Prof. Bhupendra Nath Goswami	Assam	Climate Emergency: Science of Adaptation Challenges for the NEI

(\* Chancellor's lecture Series, Assam Downtown University)

## MUMBAI CHAPTER

#### Convener: Dr. Hari S Misra, Prashant Phale

Mumbai chapter of the Society of Biological Chemists, India along with SBCI members of Pune region organized one day webinar on "Protein function: in isolation and in groups under the banner of "Azadi Ka Amrit Mahotsav" on February 5, 2022. Eminent faculties and Ph.D. scholars from IITB, TIFR, IISER Pune, NCCS, ACTREC and BARC delivered talks as detailed below. Webinar begins with a brief introduction about Mumbai Chapter of SBCI by Prof. Hari S Misra, BARC and

Convener of the Mumbai Chapter of SBCI, followed by a detailed introduction about the Society of Biological Chemists, India and mandate of the society by Prof. D N Rao and the President of SBCI. Webinar was attended in large numbers by both members and non-members of SBCI in both Mumbai ad Pune regions. Total deliberations were categorized into 3 sessions. A plenary session by Prof. D N Rao and Chaired by the immediate Past President Prof. Rajendra Prasad, Amity University, Haryana, and 2 scientific sessions, one each was chaired by past



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presidents of the SBCI, Professor V. Nagaraja and Prof. Umesh Varshney IISc Bangalore. Webinar was concluded with an expectation for organizing frequent meetings on behalf of Mumbai Chapter of SBCI and Vote of Thanks by Prof. Prashant Phale, IITB and co-convener of the Mumbai Chapter of SBCI. Conveners thank Head Office, SBCI for sharing Zoom link for the meeting.

Name	Торіс	Time		
Opening remarks	Prof. Hari Misra, Convener, Mumbai Chapter of SBC(I)	9.45 - 9.50		
An introduction about SBCI	Prof. D N Rao, President, SBCI	9.50 - 10.00		
Plenary Session. Chairperson: Prof. Rajendra Prasad, Amity University, Haryana & Immediate Past President, SBCI				
Prof. D N Rao, IISc Bangalore	Role of Acetylation on Natural Transformation in Helicobacter pylori	10.00 - 10.45		
Session	Session I. Chairperson: Professor Umesh Varshney, IISc Bangalore			
Dr Debasis Das, TIFR	Protein homeostasis and presynaptic plasticity	10.45 - 11.10		
Dr Prasenjit Bhaumik, IITB	Structures of plasmepsin X from <i>P. falciparum</i>	11.10 - 11.35		
Ms Hiral Mistry, BARC-HBNI	Structure-function insights of human UVSSA, a transcription coupled repair protein	11.35 - 11.55		
Ms Lipi Das, ACTREC-HBNI	Serum Proteomics of Head and Neck Squamous Cell Carcinoma (HNSCC)	11.55 - 12.15		
Ms Jaya Srivastava, IITB	Criticality and limitations of experimental data for computational functional genomics	12.15 - 12.35		
Session	II. Chairperson: Prof. Valakunja Nagaraja, IISc Bangalore	·		
Dr. Sorab Dallal, TMC-ACTREC	Regulation of centrosome duplication by 14-3-3 proteins.	14.00 - 14.30		
Dr Vasudevan Seshadri, NCCS	PIP4K2A - Moonlighting as an RNA binding protein	14.30 - 15.00		
Dr Siddhesh Kamat, IISER, Pune	Phagosomal maturation: a sphingolipid story	15.00 - 15.30		
Dr Pooja Gupta, BARC	WRN role in NF-kB pathway activation by removal of TOPI-DNA complex	15.30 - 15.50		
Ms Rituparna Das, BARC-HBNI	Regulation of R-Loop dynamics in mammalian cells	15.50 - 16.10		
Dr Reema Chaudhary, BARC	DivIVA phosphorylation affects its dynamics and essentiality in Deinococcus radioddurans	16.10 - 16.30		
Vote of Thanks	Prof. Prashant Phale, Convener, Mumbai Chapter, SBC(I)	16.30 - 16.40		

## MANIPAL CHAPTER

#### Convener: Dr. K Satyamoorthy

#### Annual Meeting of Society of Biological Chemists (India) organized at Manipal School of Life Sciences, MAHE, Manipal

The 9<sup>th</sup> Annual Symposium of the Coastal Karnataka Chapter of the Society of Biological Chemists (India) (SBC(I)) was virtually inaugurated by Dr PLNG Rao (Pro-Vice-Chancellor - Faculty of Health Sciences, MAHE, Manipal) in the presence of Dr Rajendra Prasad; President, SBC(I)) and Dr K Satyamoorthy (Director, Manipal School of Life Sciences (MSLS), MAHE, Manipal) on October 23, 2021. The annual meeting was organized and hosted virtually by MSLS jointly with MAHE, Manipal and the Society.



In his presidential address, Dr Rao spoke about the importance of such local meetings that help in motivating youngsters to pursue their goals through interactions with the eminent experts in varied fields of science. He also urged the society to explore the possibilities of holding future meetings through a blended mode to encourage wider participation. Dr Rajendra Prasad lauded the Coastal Karnataka chapter for being one of the active chapters in the country through regular events. He also provided insights into the activities of SBC(I) and its chapters. Dr Satyamoorthy welcomed the gathering, while Dr Guruprasad KP (Associate Director, MSLS) proposed the vote of thanks.

This one-day symposium included a series of lectures and discussions on various topics related to biological sciences, delivered by renowned researchers from different part of India and the coastal Karnataka region. The virtual symposium was attended by more than 200 researchers and students predominantly from coastal Karnataka.

## PANTNAGAR CHAPTER

#### Convener: Dr. Ashutosh Dubey

- I. For the year 2020 the membership at Pantanagar chapter of SBC(I) was as followed:
  - 4 new life members
  - 22 life members
- 2. Due to the COVID 19 situation, organization of any offline activity was avoided. Instead following online activities were organized by Society of Biological Chemists (India): Pantnagar chapter at the Department of Biochemistry, G. B. Pant university of Agriculture and Technology, Pantnagar
  - An online Students' science conclave of two days (15th and 16th March 2021) entitled "Genome editing: Rewriting genome" was organized.
    - i. Total 52 students participated
    - ii. Flyer for the same is enclosed
    - iii. The topics for the discussion were as followed: Basics of Genome Editing Zinc Finger Nucleases (ZFN) Transcription Activator Like Effecter Nucleases (TALEN) Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)
  - A webinar entitled "Nutrigenomics: A way forward to personalized nutrition" by Dr. Sneh Narwal, Principal Scientist, Division of Biochemistry, ICAR Indian Agricultural Research Institute, New Delhi, was organized.
    - i. This webinar was attended by 74 students / research scholars and faculty members.
    - ii. Flyer for the same is enclosed
- RAMACHANDRAN DAY was celebrated on 9th October 2021, with deliberations on life and works of Prof. G. Ramachandran with present significance and advancements in protein strucutre were also discussed by Biochemistry students.

## CAMA MEMORIAL TRAVEL GRANT

Scientists attending and presenting a paper in an International Congress or FAOBMB meeting held once in 2 years or at infrequent intervals may apply for the award.

The candidate should be a member of SBC(I) for at least two consecutive years.

The candidate should have obtained partial support from other agencies and there should be a proof to that effect.

Applicants are invited to respond appropriately to the details informed in the advertisement. The application should reach the following address before I<sup>st</sup> April of the year of the award.

Hon Secretary Society of Biological Chemists, Indian Institute of Science, Bangalore 560 012 A tribute to my Revered teacher Dr.H D SINGH, <u>Founder of SBC-I Jorhat chapter</u>, Former Chief Scientist, Head of the Department Biochemistry & Acting Director RRL Jorhat (CSIR NEIST)



Dr. H.D SINGH 8<sup>th</sup> July 1930- 8<sup>th</sup> Feb 2022

I heard the news regarding the passing away of Dr. H.D. Singh from his son. Dr. Singh was born on 8<sup>th</sup> July 1930 at Manipur. I started my job (Scientific research career) in 1979, first time appearing for an interview at CSIR NEIST (then RRL Jorhat) and then appointed at RRL Jorhat in March 1980 to work with Dr.Singh in a project on water hyacinth funded by commonwealth council. London. & seven countries were involved in the project, and our lab RRL Jorhat coordinated the project by former Director Dr.G.Thyagarajan. I have no words to express the wonderful research experiences I received from Dr.Singh. He was a very good and systematic and methodical observer at all levels, and his observations were always very accurate. He used to take every step in research work very seriously, and the way he explained the most complicated matters in a very simple and lucid manner. He was a very good observer and never pretended that he knew everything. In fact, the energy sector's contribution to utilizing the water hyacinth , sugar cane press mud, and other waste during those days was highly remarkable. Our contribution was very well explained at all levels. In addition, his research contributions in single-cell protein, microbial biochemistry, and enzymology were also published in some of the leading journals like Biotechnology and Bioengineering etc. Dr.Singh initiated and completed many projects funded by CSIR, DST, DBT, NEC, MNES, DNES and commonwealth science council etc. Dr.Singh and former Director Dr. J.N. Baruah were the main contributors to setting up the Biochemistry Department at RRL Jorhat. For a few months, Dr.Singh was the acting Director of RRL Jorhat. Dr.Singh has produced several Ph.D scholars from RRL Jorhat, and they all are in very good positions in India and Abroad.

Dr.Singh was very active and founder Convenor of SBC-I Jorhat chapter, one of the oldest chapters and founder Executive members of SBC-India until his retirement. Then, he handed over his charge to me, the Convenor of the chapter and EC member of SBC-I. I had the opportunity to work with him very closely till he retired from CSIR service in 1990 from RRL Jorhat. After his retirement, he was very actively associated with Manipur University where Dr. Singh established a Biochemistry department. Currently, the Department of Biochemistry at Manipur University is one of the very best, and he used to teach there for many years after his retirement.

I met Dr. H.D. Singh during the last part of 2014 at his residence and the Incharge of Manipur center, and that RRL Manipur center is also the brainchild of Dr.HD Singh. Dr.H D Singh's contribution is immense for the Biochemistry Department of RRL Jorhat, and it is impossible to explain in very few words. It is really a sad day for the family of CSIR, and I lost a great friendly teacher who taught me all the time. He died on 8<sup>th</sup> Feb 2022 and survived by his wife and children. His contribution in the area of Biochemistry will always be remembered by the scientific community of CSIR NEIST- Jorhat (then RRL Jorhat)

#### Dr. BG Unni

Former Chief Scientist CSIR NEIST Jorhat Assam EC Member SBC-I and Convenor SBC-I North East Chapter Email:adviser.research@adtu.in





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