

Title: Advances in RNAi Technology

Date: 02/06/2021-03/06/2021

Resource Person: Prof. M. V. Rajam

Report

Two days Science Academies lecture workshop on “Advances in RNAi Technology” was jointly organized by the department of Biotechnology and Biochemistry of Maharani Lakshmi Ammanni College for women, autonomous, Bangalore,

The lecture workshop was Sponsored and Supported by Indian Academy Of Sciences, Bangalore, Indian National Science Academy, New Delhi, The National Academy of Sciences, Allahabad.

The workshop was held on 2nd and 3rd June 2021 on online mode using Google meet platform. The focus of the conference is to provide an insight on the recent advances in RNAi technology and to explore its possible diverse application in various research areas. We received an over whelming response to the lecture workshop in and outside Karnataka.

Bioenigma-PG Science association at mLAC generally conduct several student oriented activities in order to inculcate scientific inquisitive among the PG students, Under Bioenigma we conducted various intercollegiate and interclass virtual science competitions on 1st June and 31st May 2021 respectively. The events include bio-quiz, bioremix, problem solving, e-poster, e-collage and cook to cure. We got very enthusiastic participation from our students as well as other college students. Winners were awarded with the cash price.

The lecture workshop was planned for two days the day one of the workshop initiated by inaugurating the event by welcoming the entire participants and invited speaker to the lecture workshop by Dr. Gowri Neilima Department of Biotechnology, followed by the virtual Invocation. The formal welcome Address was given by Dr. Shashikala A, Principal, mLAC. A brief introduction about the Department of Biochemistry & Biotechnology was given by Dr. Kamala A, HOD, and Department of Biochemistry. The inaugural function was graced by the presence of convener Prof. M. V. Rajam, Department of Genetics, University of Delhi, Mr. K Jairaj, IAS (Rtd), Managing Trustee, mLAC, Dr. D. Rengaraj Seoul National University, South Korea, Dr. Renuka Srihari, COE, mLAC and Dr. Swetha Raghavan Post Doc Fellow, NCBI (National Centre for Biological Sciences), Bangalore and Dr. Sharmistha datta, IQAC co-ordinator mLAC. Dr. M. B. Nagaveni (Rtd) professor, mLAC.

The inaugural address was delivered by convener Prof. M V Rajam, during which he gave an over view of non-coding RNA and its significance. Mr. K Jairaj delivered Presidential Address during this occasion. The vote of thanks was proposed by Dr Renuka Srihari.

Followed by the inaugural session first technical session was started with lecture on "RNAi and miRNA-interference technology for crop improvement" delivered by Dr. M. V. Rajam. The talk was very informative and focused on mechanism of gene silencing by RNAi and siRNA, how these RNA can be used in crop impartment? He also emphasized that RNAi technology is one of the revolutionary solutions to overcome food crisis by increasing the agri crop production by 70%.

Next lecture was on “**Codes for the making of a rice flowering stem:** Uncovering roles for evolutionarily conserved transcription factors” the speaker was Dr. Usha Vijayaraghavan from Microbiology and Cell

Biology Division, Indian Institute of Sciences, Bangalore, the highlights of the lecture includes the genetic basis of plant development and role of RFL and leafy gene in regulation of reproductive development in *Arabidopsis thaliana* and also discussed the extended research on rice crops.

Post lunch technical session was started with the lecture by Dr. Deivendran Rengaraj Research Associate Professor, Department of Agricultural Biotechnology, Seoul National University, South Korea on "CRISPR/Cas9 mediated gene editing in the chicken primordial germ cells" the talk was focused on gene expression pattern at different stages of germ cell development and also give an insight on the significant application of CRISPR/Cas9 system based genome editing of germ cells.

The evening session included Paper presentation by research scholar and student participants, about 6 participants presented their scientific findings during this session. The presentations were judged by Dr. Sharadhamma, Assistant professor Mount Carmel College, Bangalore.

The second day of the conference started with the lecture by Dr. Manjula J, Lead Scientist, Bigtech Labs, Bangalore, on "**Point of Care diagnosis of viral based infections using Truenat test**" the talk exposed the participant to the recent advancement in real time PCR using Truenat which a automated device integrating auto sample prep and chip based micro PCR method. Lecture also emphasized on Truenat based diagnosis of covid 19 has played a significance role during pandemic break through situations across India..

Next speaker was Dr. Swetha Raghavan Post Doc Fellow, NCBS, Bangalore, delivered a talk on "**RNAi-acts of silencing**" the talk highlighted on the significance of PELP1 (Proline-, glutamic acid- and leucine-rich protein 1) in inflammatory responses and tumorigenesis. How one can use PELP1 as biomarkers in the early diagnosis of cancer? Si RNA against PELP1 can be used as targeted therapeutic agent to treat the cancer.

During the pre launch session the lecture was delivered by Dr. Tanushri Kaul, group leader, Nutritional Improvement of Crops, International center for genetic engineering and biotechnology. The talk provided an insight on modern methods of artificial selection of crops such as genome editing by endogenous gene modification and also Highlighted CRISPR-Cas9 mediated gene targeting for trait improvement, improving nutritional traits: from better feeding to better nutrition.

Post lunch technical session was started with the lecture by Dr. Arnab Mukhopadhyay Molecular Aging Laboratory, National Institute of Immunology, New Delhi, on "**RNAi- as a tool in studying developmental biology**" The lecture underlined the RNAi interference mediated gene knock out of target gene in *C. elegans* and Daf-16 gene Knock out through RNAi interference and mechanism underlined beneath the increased longevity in *C. elegans*.

The evening session continued with Paper presentation by research scholar and student participants, about 7 participants presented their scientific findings during this session. With this I conclude two days lecture workshop had been successful due to the enthusiastic participation and over whelming knowledge shared by the eminent speaker though out the workshop made the participants to acquire knowledge recent advancement in the field of RNAi technology. The conference was successfully concluded with the initiation of valedictory session presented by Dr. Sushil Kumar and Dr. Kamala, followed by the conference report presentation by Dr Suneetha P, PG coordinator, Department of Biochemistry. The declaration of prizes of the various competitions and e-poster events was announced by of Dr. Kamala. Finally the two days lecture workshop event was concluded by proposing vote of thanks by Dr. Gowri Neelima.