



HANDS ON TRAINING PROGRAM ON ADVANCED IMMUNOTECHNIQUES

7TH TO 13TH SEPTEMBER, 2022

SPONSORED BY
**DEPARTMENT OF SCIENCE & TECHNOLOGY - SYNERGISTIC TRAINING
PROGRAM UTILIZING THE
SCIENTIFIC AND TECHNOLOGICAL INFRASTRUCTURE (DST-STUTI)**

ORGANIZED BY
DEPARTMENT OF BIOTECHNOLOGY, BHARATHIAR UNIVERSITY
JSS ACADEMY OF HIGHER EDUCATION, MYSURU



BRIEF REPORT

The Department of Biotechnology, Bharathiar University and JSS Academy of Higher Education & Research Mysuru organized 7-days hands on Training workshop on Advanced Immunotechniques from 7th to 13th September, 2022. The programme was organized with the funding support from Department of Science & Technology - Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (DST-STUTI) sponsorship. We received more than 100 applications for the workshop, among them, 33 participants were selected based on merit considering their biodata, research interest, letter of recommendation from their supervisors. The participants were provided boarding, lodging and travel assistance to attend the workshop.

Inauguration of the 7 days JSS AHER-DST STUTI workshop

Day 1:

The workshop was inaugurated on **7th September, 2022** by **Prof. Dr. P.Kaliraj, Vice Chancellor**, Bharathiar University by lighting the lamp. The Dignitaries **Dr. B. Madhu**, Deputy Director of Research, JSS AHER, Mysuru, **Dr.Kirankumar.M.N** Organizing secretary, JSS AHER, **Dr. R. Sathish kumar**, Professor and Head of the Department, Department of Biotechnology, Bharathiar University, **Dr. Dhanya B E**, Convenor, DST-STUTI, **Dr. R. Boopathy**, Former Professor and Head, Department of Biotechnology, Bharathiar University, and **Dr. V. Thirunavukkarasu**, Associate Professor, Department of Biotechnology, Bharathiar University joined for the lighting ceremony. The Welcome address was given by **Dr. R. Sathish Kumar**, Professor and Head, Department of Biotechnology and honored our Vice chancellor with a shawl and the memento. To commemorate the occasion, workshop manual was released by Dr. B. Madhu, The Guest of Honor. After felicitation, a brief introduction about DST-STUTI was given by Dr. B. Madhu and the introduction about the workshop was provided by Dr. Kiran kumar. The ceremony ended with the Vote of thanks by **Dr. S.R.Prabakaran**, Associate Professor, Dept. of Biotechnology, Bharathiar University.



Release of the workshop manual



The 7-day workshop consisted of a series of lectures from Industrial experts and faculties as well as hands- on sessions on different techniques that are generally used in research and diagnostic laboratories by Research Scholars who served as Technical Experts during the programme. The technical sessions of the workshop were scheduled at the Department of Biotechnology, Bharathiar University. Participants were subjected to a pre-workshop test comprising 40 multiple choice questions to assess their prior existing knowledge about the techniques. The participants were then divided into three groups consisting of 11 and received technical training for different immunotechniques over 7 days period.



Participants attempting the pre-workshop test MCQs

The Guest of honor for the inauguration **Dr. B. Madhu**, Deputy Director of Research, JSS AHER, Mysuru, **Dr. Kirankumar.M.N**, Organizing secretary, JSS AHER, **Dr. Dhanya B E**, Coordinator, DST-STUTI and **Dr. V. Thirunavukkarasu**, Associate Professor, Department of Biotechnology, Bharathiar University, visited the Central Instrumentation facility and took a stock of Instrumentation capabilities at Bharathiar University to foster future collaborations.



Guest's visit - Central Instrumentation Core Facility, Bharathiar University

Lecture by Resource person – Ms. Bhavani Gokulkumar, Application analyst, BD Bioscience, Chennai

In the afternoon session of first day, **Ms. Bhavani Gokulkumar, Application analyst, BD Biosciences** delivered a lecture on the topic “**Basics of flow cytometer and research applications**”. She covered the principles of Flow cytometry and its applications in industry and clinics. She explained about the types of reagents and ion indicator dyes which can be used for the flow cytometry applications.



Lab visit

The participants visited the following labs – **Translational Research lab, Translational Genomics and Proteomics lab** and **Reproductive Immunology and Molecular pathology lab**. The participants were given introduction of each lab and their thrust area of research. The participants were intimated about allotment of batch and the respective labs for attending the technical sessions arranged in parallel.



Day 2 to 6:

Technical sessions:

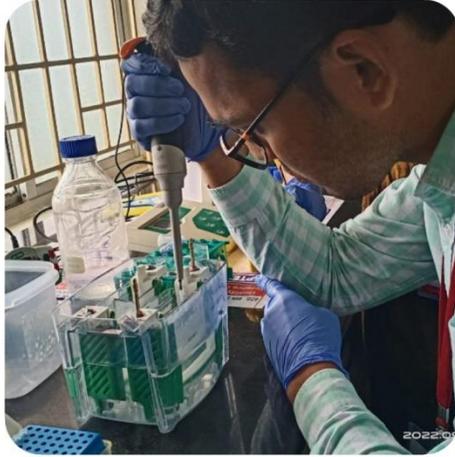
Technical sessions were handled by the technical experts in three different labs that were specialized in the techniques. The participants were split into 3 groups of 11 each. The group 1 participants attended Hands on training on **Flowcytometry and ELISA**, Group 2 attended **Animal cell culture and Western blotting** and Group 3 attended **Immunohistochemistry**. The participants were rotated in the labs for various technical sessions.

Participants were allowed to learn and tryout the experiment independently with proper instructions and guidance of the technical experts.

Western blotting:

Dr. V. Thirunavukkarasu, Associate Professor provided a brief summary of the important technical aspects of Animal Cell Culture and Western blotting. He gave a detailed account of the applications and advantages of Western blotting in experimental research.

Technical session was handled by Technical expert. The participants prepared the protein samples and loaded the SDS – PAGE gel.



Participants preparing sandwich for the transfer of proteins to the blot.



Animal cell culture:

The participants observed the morphology of cells, the culture environment and the necessary facilities needed for the animal cell culture system.



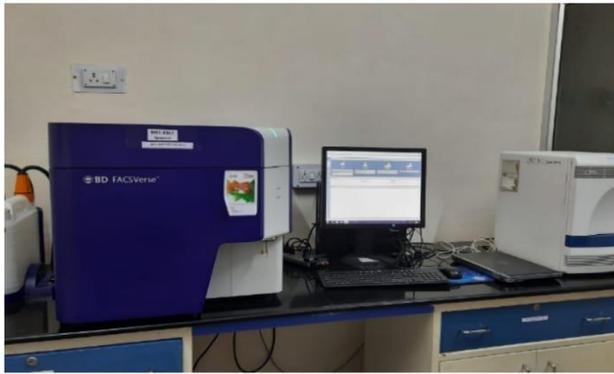
ELISA :

Samples were prepared by the participants and the antigen- antibody interactions were observed based on the antigenic concentration of the sample.



Flow cytometry:

The instrumentation and sample preparation were explained and the results were analysed.



Immunohistochemistry:

The participants were trained to prepare slides, sectioning the tissues and histopathological analysis. The results were observed under Inverted Trinocular microscope and the success of the experiment was evaluated followed by detailed trouble shooting session.



Day 3:

The technical sessions continued on Day3. The participants had intense deliberations with the technical experts of the respective labs.

Lecture by Resource person – Mr. Ajay Deepak, Senior Field application Specialist, Bio-Rad, Chennai.

On the Afternoon session of Day 3, **Mr. Ajay Deepak, Senior Field application Specialist** delivered a lecture on “**Western blotting Principles and Applications**”. He covered the entire Western blotting workflow including sample preparation, Electrophoresis, Transfer and detection. He also explained the reaction behind the Chemiluminescent reaction and Image acquisition.



Day 6:

Lecture by Resource person – Mr. Ajay Mody, Technical Engineer, Microplate reader, Medispec, India.

The special lecture was arranged in the forenoon session of Day 6. The Speaker **Mr. Ajay Mody, Technical Engineer**, gave a brief introduction on “**Synergy H1 Multimode Microplate reader and its applications**”. He mainly covered the concept of ELISA, troubleshooting and discussed in length about the the problems encountered with Data interpretation and analysis using Gen5 software.



The Technical sessions were conducted as per the programme schedule in the afternoon session after the groups were swapped between the labs.

Day 7:

Lecture by Resource person- Dr. Prabhu Meganathan, Lab director, Head and Consultant Surgical pathology, Hybrinomics Life science and Diagnostics, Bengaluru.

The lecture was conducted in the forenoon session of Day 7. The Speaker **Dr. Prabhu Meganathan, Lab Director, Hybrinomics**, presented his lecture on the topic **“Immunohistochemistry – Antigen Retrieval Insights”**. He briefly explained on Antigen retrieval and its importance in the interaction while performing IHC. He explained the applications of Immunohistochemistry in Clinical Diagnosis.



The Technical sessions were conducted as per the allotted schedule.

Planting of Saplings:

In memory of the training programme conducted at Bharathiar University, the participants who were divided into 3 groups planted saplings. The event was presided over by Dr. Dhanya, Convenor DST-STUTI and all the members involved in the workshop. This event depicts positivity and creates awareness about the importance of sustainable environment.



Post evaluation test

At the conclusion of 7 days training, the participants were assessed with the post evaluation test at the Department of Biotechnology, Bharathiar University. The pre and post-training test comprising 40 multiple choice questions was used to assess the extent to which the training has enabled the participants to improve the domain knowledge. The grades of the participants significantly increased compared to the pre-evaluation test, which clearly shows the effectiveness of the training program and the involvement of participants to gain new skills.



Valedictory program

The Valedictory program of 7 days Hands on training workshop on Advanced Immunotechniques was conducted at Seminar hall, Department of Biotechnology, Bharathiar University. The programme started with Tamizh thai vaazhthu followed by welcome address by **Dr. S.Girija, Associate Professor**, Department of Biotechnology, Bharathiar University. The Valedictory function was felicitated by Hon'ble Registrar in-charge of Bharathiar University **Dr. K. Murugavel**. The Organizing secretary Dr. V. Thirunavukkarasu, Associate professor, Department of Biotechnology, honored the Registrar with shawl and memento. Honorable registrar honored Dr. Dhanya BE, Convener of DST – STUTI, JSS AHER with shawl and certificate and felicitated the Organizing members Dr. S. Velayuthaprabhu and Dr. M. A. Shibu with memento.

The participants were requested to submit a feed-back form (session wise and overall) and they gave their valuable opinion about the programme in the presence of the Chief Guest. The participants provided a positive feed-back in general.

The organizing secretary **Dr. V. Thirunavukkarasu, Associate professor** delivered the brief summary of the workshop.

The Chief-Guest **Dr. K. Murugavel , Registrar (i/c) Bharathiar University** delivered Valedictory address.



Announcement of the winners:

The toppers of the evaluation test were given prizes as a token of appreciation from Honorable Registrar, Dr. K. Murugavel. The Prize winners were Dr. S. Aravindh, Assistant Professor, Rathinam College of Arts and Science and Mrs. Ramya, Research Scholar, Bharathiar University.



Certificate distribution:

The certificates for the 7 days Hands on training workshop on “**Advanced Immunotechniques**” were issued for the participants.



Finally, the vote of thanks was delivered by **Dr. P.Ekambaram, Associate professor,** Department of Biotechnology, Bharathiar University. At the end of the valedictory session, the 7 days Hands-on training programme on Advanced Immunotechniques was officially concluded.



LIST OF PARTICIPANTS

NAME	DESIGNATION	INSTITUTION
Puneeth V G	Student	Sahyadri Science college, Kuvempu University, Karnataka
Nagendra K	Ph.D Scholar	Kasturba Medical college, Manipal Academy of Higher Education
Karan Kumar B	PG student	Annamalai University, Chidambaram
Rucha S Dafale	Ph.D Scholar	Kasturba Medical college, Manipal Academy of Higher Education
Kiran N S	Student	REVA University, Bangalore
Gaonkar Lowkesh Ratnakar	Student	REVA University, Bangalore
Sachin shetty	Research Scholar	Manipal Academy of Higher education , Manipal
Zeeshan Hyderi	ICMR - SRF	Alagappa University
Dr. Bhupendra Gopalbhai Prajapati	Professor	Shree. S.K.Patel college of Pharmaceutical education and Research, Ganpat University, Gujarat
Ganapati Yadav	Ph.D Research scholar	Kuvempu University
Selvendran T	Research Scholar	Srimad Andavan Arts and Science college, Trichy
Tejo Rajitha Ramalakshmi	Research Scholar	Pondicherry University
Yashwanth D	Student	University of Mysore
Yogeshwari A	Student	Madurai Kamaraj University, Madurai
Santhosh kumar H M	Student	University of Mysore
Madan Kumar C A	Student	Sahyadri Science college, Kuvempu University, Karnataka
Veerendra M	Student	Sahyadri Science college, Kuvempu University, Karnataka
Mounika Mummadi	Student	Osmania Medical college, Telangana
Stessy Ann Punnen	Technical staff	Bioline Laboratory
Atheena Menon	Student	Pondicherry University
Dr. S. Aravindh	Assistant Professor	Rathinam college of Arts and Science, Eachanari
Mrs. S. Ramya	Research Scholar	Bharathiar University
Dr. P. Vasanth Raj	Assistant Professor	JSS, Ooty
Sourav C R	Student	Mangalore University
Apeksha suvarna	Student	Mangalore University
Ilanhit Chennai	Research Scholar	Annamalai University
Pavan kumar S V	Student	Pondicherry University
Muhasina M	Student	JSS, Ooty
Lipi S	Student	Krea University, Andhra Pradesh
Sandhya S	Student	Avinashilingam University
Archana R	Student	Avinashilingam University
Shantha Kumar	Student	Madurai Kamaraj University, Madurai
M D Nematullah	Student	JSS CAS, Mysuru