

**WORKSHOP REPORT
TECHNIQUES FOR MANIPULATION OF NUCLEIC
ACIDS FOR APPLICATIONS IN GENOMICS**

ORGANISED BY

**DBT Supported Genomic Facility
Centre for Innovation in Infectious Disease Research,
Education and Training (CIIDRET)
University of Delhi South Campus
And
Delhi School of Skill Enhancement and
Entrepreneurship Development (DSSEED-IoE)**



March 11-21, 2022

VENUE: UNIVERSITY OF DELHI SOUTH CAMPUS

**FUNDED BY
DEPARTMENT OF BIOTECHNOLOGY, GOVT. OF INDIA**





Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)

and

Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IOE)

Workshop Notice

Techniques for manipulation of Nucleic acids for applications in genomics

**11 March – 21 March 2022,
University of Delhi South Campus**

The coursework will include classroom lectures and hands-on exercises on various techniques for manipulation of nucleic acids. This workshop will provide hands-on exposure to methods for isolation and nucleic acid manipulation techniques for genomics. These techniques are inter-disciplinary in nature and are required in almost all areas of research.

Content:

- Introduction to the workshop and Nucleic acid isolation technology.
- Methods for DNA isolation, Hands-on isolation of Plasmid DNA by different methods.
- Agarose gel electrophoresis of DNA.
- Quantitation and storage of isolated DNA.
- Automated DNA sequencing using Sanger method and analysis of data.
- Questionnaire and submission of workshop report.

No. of seats- 20 students (First come first serve basis)

Venue: University of Delhi South Campus, New Delhi

Timing: 9:30 - 5:30 pm

Workshop Fee: There is a workshop fee of Rs. 2000 per person. This amount will be fully refunded and certificate will be issued to only those participants who successfully attend and complete the full duration of the course.

How to Apply:

Submit the registration form <https://forms.gle/YM26iYBmQ5roRY4w8>

LAST DATE for Application: 10 March 2022

DBT-supported Genomics Facility at CIIDRET, University of Delhi South Campus
udscmac@south.du.ac.in, udscdnaseq@gmail.com; 011-24117542

COURSE SCHEDULE

DATE	BATCH 1	BATCH 2
11th March (Friday)	Introduction to the workshop Introduction of faculty & participants Introduction to all the equipment Practice of Pipetting Nucleic acid isolation technology- Principles & Methods	
	Demonstration of inoculation for isolation of plasmid DNA	Demonstration of inoculation for isolation of plasmid DNA
12th March (Saturday)	Demonstration of isolation of plasmid DNA by Spin Column Method	Demonstration of isolation of plasmid DNA by Spin Column Method
	Demonstration of isolation of plasmid DNA by PEG precipitation and analysis by agarose gel electrophoresis	Demonstration of isolation of plasmid DNA by PEG precipitation and analysis by agarose gel electrophoresis
13th March (Sunday; 2 pm)		
	Hands-on inoculation for isolation of Plasmid DNA	Hands-on inoculation for isolation of Plasmid DNA
14th March (Monday)	Hands-on Isolation of plasmid DNA by PEG precipitation method and analysis by agarose gel electrophoresis	Hands-on Isolation of plasmid DNA by Spin Column Method and analysis by agarose gel electrophoresis
	Hands-on Inoculation for isolation of plasmid DNA	Hands-on Inoculation for isolation of plasmid DNA
15th March (Tuesday)	Hands-on Isolation of plasmid DNA by Spin Column Method and analysis by agarose gel electrophoresis	Hands-on Isolation of plasmid DNA by PEG precipitation method and analysis by agarose gel electrophoresis
16th March (Wednesday)	Observation of isolated DNA samples on agarose gel and compilation of results Streaking of bacterial culture	
	Demonstration of the technique for checking the quality of DNA by Nanodrop	
	DNA Sequencing- Principles & Methods	
17th March (Thursday)	Sequencing of isolated plasmid DNA (setting up of reaction)	
	Processing of samples for automated DNA sequencing	
19th March (Saturday)	Discussion/Queries and analysis of sequencing data	
	Compilation of all lab work and result	
21st March (Monday)	Answering Questionnaire on workshop experiments. Submission of workshop report.	
	Valedictory Function	

LIST OF PARTICIPANTS

S. No	Full Name	Institution /College
1.	Aakanksha Choudhary	Institute of Home economics
2.	Arya Kirone Patra	Ram Lal Anand College
3.	Himani Sareen	Shaheed Rajguru College of applied sciences
4.	Beauty Kumari	Hindu College
5.	Bhoomika Arora	Jamia Millia Islamia
6.	Anjali Roy	Bhaskaracharya college of applied sciences
7.	Madhav Gaur	Hans Raj College
8.	Nancy	Bhaskarachayra college of applied sciences
9.	Nandini S Nair	Daulat Ram College
10.	Poorvi Tangri	Jamia Millia Islamia
11.	Shelja Agarwal	Ram Lal Anand College
12.	Shivapriya N Thilakan	Institute of Home Economics
13.	Sikander Pratap Singh	Shivaji College
14.	Simra Khan	Shaheed Rajguru College of applied sciences
15.	Sonail Karmakar	Bhaskaracharya College of Applied Sciences
16.	Sudhanshu Shukla	Shivaji College
17.	Vaishnavi Singh	Daulat ram college
18.	Varun Bhardwaj	Sharda University
19.	Khushi Jain	Central university of Punjab
20.	Aehsaas Roy	Shaheed Rajguru College of Applied Sciences

A hands-on training workshop for undergraduate and graduate students was organized at CIIDRET, UDSC from 11th – 21st March 2022. The theme of the workshop was “Techniques for Manipulation of Nucleic Acids for Applications in Genomics”. The workshop was funded by Department of Biotechnology, Govt. of India. The workshop included classroom lectures and hands on training modules. Various theoretical aspects covering plasmids, their features, different methods of isolation and purification of plasmid DNA and genomic DNA were discussed by Professor Amita Gupta, Professor Vijay Chaudhary explained the theory of DNA sequencing and data analysis.

The hands-on practical training was conducted in a manner that every student performed each and every step of each experiment independently. For this, the 20 participants were divided into 4 batches with 4 instructors. The batches were swapped after completion of one module so that they could benefit from the methodologies of the different instructors and learn all the skills in a systematic manner. All the participants were able to achieve the goals of the workshop. Their enthusiasm and interest was apparent from their 100% attendance on all days, presence throughout the long working hours, constant interactions and zeal to know more, making videos of the processes with their mobile phones and their desire to continue working at CIIDRET beyond the duration of the workshop. Even the refreshment break was enjoyed by them with snacks as per their desire. In fact, they expressed the desire to attend more workshops on several topics to master the skills for becoming good researchers.

The valedictory function had Prof. Balaram Pani, Dean of Colleges of University of Delhi telling them about his scientific journey. Over lunch and subsequent photo session, it was clearly evident that all the participants had thoroughly enjoyed their entire duration of the workshop.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Khushi Jain , khushijain234@gmail.com , 8375937910 .

Course-Subject, Year of study, College/University: MSc. Microbiology , completed , Central university of punjab .

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 ⑤ |
| 2. The content is relevant to my work. | 1 2 3 4 ⑤ |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 ⑤ |
| 4. The activities in this workshop gave me good practice. | 1 2 3 ④ 5 |
| 5. The teaching level of this workshop was appropriate. | 1 2 3 4 ⑤ |
| 6. The pace of this workshop was appropriate. | 1 2 3 ④ 5 |
| 7. The instructors were good. | 1 2 3 ④ 5 |
| 8. The instructors were helpful. | 1 2 3 ④ 5 |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 ⑤ |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 ⑤ |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 ⑤ |
| 12. Would you recommend this workshop to a colleague? | ✓ Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | ✓ Yes / No |

14. Comments about the workshop:

Workshop was well planned and organised. It utilized time of every participant and helped me in getting skill with basic experiments carried out in everyday life sciences lab. It was really helpful. I got skilled in performing pipetting, DNA isolation and extractⁿ with accuracy.

15. Other topics on which you would like to attend a workshop:

protein purifications and identification, experiments of Recombinant DNA Technology such as Cloning, selection etc. and cell culture techniques such as growing cell lines, preservation etc.

Signature *Khushi Jain*

Date: 18, March, 2022 .

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: SHIVAPRIYA N THILAKAN,
shivapriyathilakan@gmail.com, 7736226650

Course-Subject, Year of study, College/University: BIOCHEMISTRY, 2020-2023,
INSTITUTE OF HOME ECONOMICS DELHI UNIVERSITY

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|-----------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me good practice. | 1 2 3 4 5 |
| 5. The teaching level of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
| 7. The instructors were good. | 1 2 3 4 5 |
| 8. The instructors were helpful. | 1 2 3 4 5 |
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

This workshop was a very good platform for students like me to
learn and get a practical experience on course related
topics like genomics to get a better understanding and
visualize the concepts of the subject.

15. Other topics on which you would like to attend a workshop:

I would like to further attend workshops on biotechnology,
biochemistry and genetics

Signature *Shivapriya* Date: 18-3-2022

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Simra Khan
email id: mail.simra@gmail.com ph no: 9990055458

Course-Subject, Year of study, College/University: Bsc(H) Biomedical Sciences, 3rd Year.
College: Shri Aurobindo College of Applied Sciences for Women, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
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| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
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| 8. The instructors were helpful. | 1 2 3 4 5 |
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

the workshop was very good and was very helpful to me.
Teachers were supportive. It was well organised. I
learnt a lot from this workshop.

15. Other topics on which you would like to attend a workshop:

I would be highly interested in attending a workshop on cloning,
gene expression, human genome, tissue culture, PCR.

Signature Date: 19/03/22

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Aakanksha choudhary, aakankshachoudhary133@gmail.com, 8929641450

Course-Subject, Year of study, College/University: Biochemistry (hons), 2nd year, Institute of Home Economics, Hans Khaz, Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|-------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 ✓ |
| 2. The content is relevant to my work. | 1 2 3 4 5 ✓ |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 ✓ |
| 4. The activities in this workshop gave me good practice. | 1 2 3 4 5 ✓ |
| 5. The teaching level of this workshop was appropriate. | 1 2 3 4 5 ✓ |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 ✓ |
| 7. The instructors were good. | 1 2 3 4 5 ✓ |
| 8. The instructors were helpful. | 1 2 3 4 5 ✓ |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 5 ✓ |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 ✓ |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 ✓ |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

Very well organised with excellent trainers and relevant content. Sufficient hands-on practice of various wet lab skills as well as analysis of sequencing data.

15. Other topics on which you would like to attend a workshop:

Bioinformatics, immunology, Protein purification

Signature Aakanksha Date: 19/3/22

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Anjali Roy, anjaliray8178@gmail.com.
8178507263

Course-Subject, Year of study, College/University: Bsc(H), Microbiology, IIIrd Year,
Bhaskaracharya College of Applied Sciences, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
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| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me good practice. | 1 2 3 4 5 |
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| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
| 7. The instructors were good. | 1 2 3 4 5 |
| 8. The instructors were helpful. | 1 2 3 4 5 |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 5 |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

One of the best workshop I have ever joined for hands-on
training. It gives students the opportunity to enhance & boost
their skills. The environment of the workshop is very good and
it is well equipped with modern machines and instruments.

15. Other topics on which you would like to attend a workshop:

Molecular biology techniques like SDS-PAGE, Southern blotting, Protein
Reaffirmation etc.

Signature Anjali Roy Date: 19/03/2022

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: POORVI TANGRI poorvi.tangri2@gmail.com
9315006972

Course-Subject, Year of study, College/University: M.Sc. Biochemistry
Jamia Millia Islamia, Department of Biosciences

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 <u>5</u> |
| 2. The content is relevant to my work. | 1 2 3 4 <u>5</u> |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
| 4. The activities in this workshop gave me good practice. | 1 2 3 4 <u>5</u> |
| 5. The teaching level of this workshop was appropriate. | 1 2 3 <u>4</u> 5 |
| 6. The pace of this workshop was appropriate. | 1 2 3 <u>4</u> 5 |
| 7. The instructors were good. | 1 2 3 4 <u>5</u> |
| 8. The instructors were helpful. | 1 2 3 4 <u>5</u> |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 <u>5</u> |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 <u>5</u> |
| 12. Would you recommend this workshop to a colleague? | <u>Yes</u> / No |
| 13. I would like to participate in other hands-on workshops organized. | <u>Yes</u> / No |

14. Comments about the workshop:

Overall it was a very enriching experience. I got to learn a lot about the experimental details of DNA isolation & sequencing of the same.

15. Other topics on which you would like to attend a workshop:

Protein purification, cell culture, animal model handling.

Signature Poorvi Tangri Date: 19/03/22.

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: ARYA KIRONE PATRA, patra00aryya@gmail.com
+91-9667294357

Course-Subject, Year of study, College/University: Microbiology (H), 3rd year,
Ram Lal Anand college, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
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| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

State-of art devices with modern techniques were blissfully
taught with fairly open and viable approach. Instructors
rich in knowledge ready to serve your curiosity.

15. Other topics on which you would like to attend a workshop:

Protein isolation and sequencing / genome editing techniques

Signature Arya Date: 18 March 2022

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: NANDINI S. NAIR, spiritbae711@gmail.com
+91 7838886795

Course-Subject, Year of study, College/University: B.Sc BIOCHEMISTRY (HONS.), IInd Year,
DAULAT RAM COLLEGE, DELHI UNIVERSITY

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
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| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

This is the first time I attended a workshop & was in awe how great it is to learn everything practically. Theory was also taken but it was the hands-on practice of techniques that will always help me. To mention the instructors they were quite talented & knew their work & helped us in each step.
Thank you for conducting this workshop! Hope to see you all again!

15. Other topics on which you would like to attend a workshop:

There is a list of topics on which I would like to attend a workshop. But the most interested ones are toxicology & forensic sciences techniques.

Signature Nandini S. Nair

Date: 19th March 2022

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: SHELJA AGARWAL
sheenaacran742@gmail.com 8827041371

Course-Subject, Year of study, College/University: B.Sc.(H) Microbiology (11 year)
Ram Lal Anand College, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

The Hands on Workshop on Techniques for manipulation of Nucleic acids for applications in Genomics was a very worth workshop for me. It has included all the topics in the curriculum & had given the hands on experience for the same as well.

15. Other topics on which you would like to attend a workshop:

High Performance Liquid Chromatography (HPLC) & related topics.

Signature *Shelja Agarwal* Date: 18-March-22

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Madhav Gaur gaurmadhav033@gmail.com
(+91)8449771944

Course-Subject, Year of study, College/University: B.Sc. life Science, IIIrd year,
Hansraj College/ Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
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| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

The workshop was carried out in a very neat and proper method, ensuring smooth workflow and dissemination of lectures. The apparatus provided was state-of-the-art as were the lab facilities. The instructors led the demonstrations very nicely in a student-friendly manner.

15. Other topics on which you would like to attend a workshop:

Protein isolation & purification, ELISA, Mass Spectroscopy, and techniques in immunology.

Signature Date: 18/03/2022

Your feedback is sincerely appreciated. Thank you.



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University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: AEHSAAS ROY, aehsaasroy@gmail.com,
8240824408

Course-Subject, Year of study, College/University: B.Sc. (Hons.) Biomedical Sciences,
2nd Year, Shaheed Rajguru College of Applied Sciences
for Women, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 <u>5</u> |
| 2. The content is relevant to my work. | 1 2 3 4 <u>5</u> |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
| 4. The activities in this workshop gave me good practice. | 1 2 3 4 <u>5</u> |
| 5. The teaching level of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 7. The instructors were good. | 1 2 3 4 <u>5</u> |
| 8. The instructors were helpful. | 1 2 3 4 <u>5</u> |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 <u>5</u> |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 <u>5</u> |
| 12. Would you recommend this workshop to a colleague? | <u>Yes</u> / No |
| 13. I would like to participate in other hands-on workshops organized. | <u>Yes</u> / No |

14. Comments about the workshop:

I really liked how the workshop started with the basics
and then built on. Having done these experiments for the
first time it was a lot of fun and a bit challenging
as well. Looking forward to upcoming workshops.

15. Other topics on which you would like to attend a workshop:

Bioinformatics, Cancer Biology, CRISPR

Signature Arey Date: 19/03/2022
19/03

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Vaishnavi Singh,
vaishnavi.9.singh@gmail.com 9873235055

Course-Subject, Year of study, College/University: Biochemistry honours. II year
Daulat Khan college / Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|-----------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me good practice. | 1 2 3 4 5 |
| 5. The teaching level of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
| 7. The instructors were good. | 1 2 3 4 5 |
| 8. The instructors were helpful. | 1 2 3 4 5 |
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

The workshop was very insightful. It not only taught me the methods to isolate & manipulate the nucleic acid but also how to plan for future research.

15. Other topics on which you would like to attend a workshop:

Bioinformatics and genomics

Signature Vaishnavi Date: 18/03/2022.

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Varun Bhardwaj
Varumbhardwaj99@gmail.com , 9212346939 .

Course-Subject, Year of study, College/University: Msc. Microbiology, 1st Year,
Sharda University.

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

Workshop was great, learned a lot from here. The things that
I had heard in the books, I did it here with my own hands like pipette
handling techniques, also how to isolate plasmid DNA, DNA sequencing
technique etc. Overall experience was so good faculty and facilities are top notch.

15. Other topics on which you would like to attend a workshop:

Gene cloning, Immunology, Proteome analysis.

Signature Varun Date: 19/03/22

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Beauty Kumari
dubeybeauty01@gmail.com, 9319065343

Course-Subject, Year of study, College/University: M.Sc. Zoology, Second year,
Hindu College / University of Delhi.

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | | | | | |
|--|----------|---|---|---|---|
| 1. The workshop facilities were suitable and appropriate | 1 | 2 | 3 | 4 | 5 |
| 2. The content is relevant to my work. | 1 | 2 | 3 | 4 | 5 |
| 3. The workshop activities stimulated my learning. | 1 | 2 | 3 | 4 | 5 |
| 4. The activities in this workshop gave me good practice. | 1 | 2 | 3 | 4 | 5 |
| 5. The teaching level of this workshop was appropriate. | 1 | 2 | 3 | 4 | 5 |
| 6. The pace of this workshop was appropriate. | 1 | 2 | 3 | 4 | 5 |
| 7. The instructors were good. | 1 | 2 | 3 | 4 | 5 |
| 8. The instructors were helpful. | 1 | 2 | 3 | 4 | 5 |
| 9. I accomplished the objectives of this workshop. | 1 | 2 | 3 | 4 | 5 |
| 10. I will be able to use what I learned in this workshop. | 1 | 2 | 3 | 4 | 5 |
| 11. The workshop was a good way for me to learn this content. | 1 | 2 | 3 | 4 | 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No | | | | |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No | | | | |

14. Comments about the workshop:

Thank You! " Workshop was very good and met my expectations". I
think all the students should benefit from this workshop. I
learned a lot, and as a budding scientist am excited to
implement these concepts to my own research.

15. Other topics on which you would like to attend a workshop:

I would like to attend Hands-on workshop on "Recombinant
DNA Technology - cloning, Protein Expression & protein Purification"

Signature Beauty Kumari Date: 19/03/22

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: BHOOMIKA ARORA, arora0567bhoomika@gmail.com,
91-8800861677

Course-Subject, Year of study, College/University: MSc. BIOCHEMISTRY, JANIA MILLIA
ISLAMIA UNIVERSITY, Department of BIOSCIENCES

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
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| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

I gained a lot of knowledge from this workshop, not only practical knowledge but principles & other aspects of research were also taught. Aunty sir explained the concepts of experiments & also taught to troubleshoot the problems. Shreyas Mom was very patient & helpful to taught to load the samples very well on gel.

15. Other topics on which you would like to attend a workshop:

Protein purification, cell culture, animal model handling, genetic engineering like RT-PCR and cloning.

Signature Bhoomika Date: 19-03-22

Your feedback is sincerely appreciated. Thank you.



Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022

Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021

Participant Name, e-mail, phone number: SUDHANSHU SHUKLA
sudhanshushukla2206@gmail.com 8422900888

Course-Subject, Year of study, College/University: BSc CH) Biochemistry
IInd Year (IVth sem) Shivaji College University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop facilities were suitable and appropriate 1 2 3 4 (5)
2. The content is relevant to my work. 1 2 3 4 (5)
3. The workshop activities stimulated my learning. 1 2 3 4 (5)
4. The activities in this workshop gave me good practice. 1 2 3 4 (5)
5. The teaching level of this workshop was appropriate. 1 2 3 4 (5)
6. The pace of this workshop was appropriate. 1 2 3 (4) 5
7. The instructors were good. 1 2 3 4 (5)
8. The instructors were helpful. 1 2 3 4 (5)
9. I accomplished the objectives of this workshop. 1 2 3 4 (5)
10. I will be able to use what I learned in this workshop. 1 2 3 4 (5)
11. The workshop was a good way for me to learn this content. 1 2 3 4 (5)
12. Would you recommend this workshop to a colleague? (Yes) / No
13. I would like to participate in other hands-on workshops organized. (Yes) / No

14. Comments about the workshop:

The workshop provided me a very good hands on experiment about how to isolate DNA and how to sequence it. Overall it added a great touch to skills.

15. Other topics on which you would like to attend a workshop:

Bioinformatics, Technique like SDS PAGE, ELISA etc

Signature Sudhanshu Shukla

Date: 19 / March / 2022

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Sikander Pratap Singh,
Sikanderpratapsingh@gmail.com, 7827964105

Course-Subject, Year of study, College/University: B.Sc Hons Biochemistry,
II year, Shivaji College, University Of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
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| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

I had a very great time in this workshop. It enhanced my confidence and my passion about science. It was very informative, interesting and knowledgeable. My scientific aptitude has been totally changed.

15. Other topics on which you would like to attend a workshop:

I want workshop related to this topic only but on further extent, like continuing it further as I have interest in DNA, like in terms of Biotechnology.

Signature Sikander Date: 19/03/2022

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Himani Sareen, sareen.himani2001@gmail.com
7009703563

Course-Subject, Year of study, College/University: B.Sc. (H) Biochemistry, 3rd year,
University of Delhi (Shahid Rajguru College of Applied Sciences
for Women)

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|-------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 (5) |
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| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 (5) |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

The 10-days taught me about nucleic acids and
its estimation. The instructors supported us in all
the experiments and boosted our morale. All in all,
it was a never-forgetting experience that helped
me in improving my wet lab skills.

15. Other topics on which you would like to attend a workshop:

I would definitely interested in a workshop
centred around bioinformatics and genomics in
the future that would enhance my in-vitro abilities.

Signature Date: 19/03/2022

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: Nancy , nancymalik918@gmail.com ,
7053480126

Course-Subject, Year of study, College/University: B.Sc. (hons.) Microbiology , IIIrd
year, Bhaskaracharya College of Applied sciences, University of Delhi.

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
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| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

This is one of best workshop for hands-on training. It gives
the opportunity to enhance # skills in a short time period
and exposure with various machines and instruments
which are not available in a normal laboratory.

15. Other topics on which you would like to attend a workshop:

Molecular biology techniques like SDS-PAGE, Southern Blotting, PCR
etc. , different types of chromatography & centrifugation etc.

Signature Malik Date: 19/03/2022.

Your feedback is sincerely appreciated. Thank you.



**Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics,
March 11-21, 2022**

**Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
and Delhi School of Skill Enhancement and Entrepreneurship Development (DSSEED-IoE)
University of Delhi South Campus, New Delhi 110021**

Participant Name, e-mail, phone number: SONAIL KARMAKAR, karmakarsnail777@gmail.com
7717757614

Course-Subject, Year of study, College/University: Microbiology, Second Year,
Mhaskaracharya College Of Applied Sciences, Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop facilities were suitable and appropriate | 1 2 3 4 5 |
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| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in other hands-on workshops organized. | Yes / No |

14. Comments about the workshop:

It was an amazing experience. Helped me in learning
the basic techniques in detail. Also broadened
the depth of my hands on experience beyond
the mere theoretical part.

15. Other topics on which you would like to attend a workshop:

Protein purification techniques

Signature Sonail. Date: 19/03/22

Your feedback is sincerely appreciated. Thank you.

TECHNIQUES FOR MANIPULATION OF NUCLEIC ACIDS FOR APPLICATIONS IN GENOMICS

ORGANISED BY

**DBT Supported Genomic Facility
CIIDRET, UDSC**

JUNE 10-22, 2019

VENUE: UNIVERSITY OF DELHI SOUTH CAMPUS

**COORDINATOR: Prof. V. K. CHAUDHARY
CONVENOR: Dr. AMITA GUPTA**



Techniques for manipulation of Nucleic acids for applications in genomics

10 June – 22 June 2019

University of Delhi South Campus

The coursework will include classroom lectures as well as hands-on exercises on various aspects to give the participants good training in the techniques for manipulation of nucleic acids. This workshop will provide hands-on exposure to methods for isolation and nucleic acid manipulation techniques for genomics. These techniques are interdisciplinary in nature and are required in almost all areas of research.

Content

- Introduction to the workshop and Nucleic acid isolation technology.
- Methods for DNA isolation, Hands-on isolation of Plasmid DNA and chromosomal DNA.
- Agarose gel electrophoresis of isolated DNA.
- Quantitation of DNA, storage of isolated DNA.
- Automated DNA sequencing and analysis of data.
- Questionnaire and submission of workshop report.

No. of seats- 15 students (First come first serve basis)

Venue: University of Delhi South Campus, New Delhi

Timing: 10:00 - 5:30 pm

Workshop Fee: There is a workshop fee of Rs. 2000 per person. This amount will be fully refunded and certificate will be issued to only those participants who successfully attend and complete the full duration of the course.

How to Apply: Fill in the registration form and submit along with the registration fee at the following address:

Dr. Amita Gupta

CIIDRET

First floor Engineering department,

University of Delhi South campus, New Delhi 110021

LAST DATE for Application: 30 MAY 2019

Organised by: *DBT-supported Genomics Facility at CIIDRET,
University of Delhi South Campus*

udscmac@south.du.ac.in, udscdnaseq@gmail.com; **011-24117542**

COURSE SCHEDULE

DATE	BATCH 1	BATCH 2
10th June (Monday)	Introduction to the workshop Introduction of faculty & participants Introduction to all the equipment Practice of Pipetting Nucleic acid isolation technology- Principles & Methods	
	Demonstration of inoculation for isolation of plasmid DNA	Demonstration of inoculation for isolation of Genomic DNA
11th June (Tuesday)	Demonstration of isolation of plasmid DNA by PEG precipitation and analysis by agarose gel electrophoresis	Demonstration of isolation of genomic DNA by Phenol-Chloroform Extraction method and analysis by agarose gel electrophoresis
	Hands-on inoculation for isolation of Plasmid DNA	Hands-on inoculation for isolation of Genomic DNA and analysis
12th June (Wednesday)	Hands-on Isolation of plasmid DNA by PEG precipitation method and analysis by agarose gel electrophoresis	Hands-on Isolation of genomic DNA by Phenol-Chloroform extraction method and analysis by agarose gel electrophoresis
	Demonstration of inoculation for isolation of Genomic DNA	Demonstration of inoculation for isolation of plasmid DNA
13th June (Thursday)	Demonstration of isolation of genomic DNA by Phenol-Chloroform Extraction method and analysis by agarose gel electrophoresis	Demonstration of isolation of plasmid DNA by PEG precipitation and analysis by agarose gel electrophoresis
	Hands-on Inoculation for isolation of genomic DNA	Hands-on Inoculation for isolation of plasmid DNA
14th June (Friday)	Hands-on Isolation and analysis of genomic DNA by phenol-chloroform extraction method and analysis by agarose gel electrophoresis	Hands-on Isolation of plasmid DNA by PEG precipitation method and analysis by agarose gel electrophoresis
15th June (Saturday)	Observation of isolated DNA samples on agarose gel and compilation of results	
	Demonstration of the technique for checking the quality of DNA by Nanodrop	
	DNA Sequencing- Principles & Methods	
17th June (Monday)	Sequencing of isolated plasmid DNA (setting up of reaction)	
	Processing of samples for automated DNA sequencing	
18th June (Tuesday)	Discussion/Queries and analysis of sequencing data	
	Demonstration of inoculation for isolation of plasmid DNA	
19th June (Wednesday)	Demonstration of isolation of plasmid DNA by Spin Column Method and analysis by agarose gel electrophoresis	
	Hands-on inoculation for isolation of Plasmid DNA	
20th June (Thursday)	Hands-on Isolation and analysis plasmid DNA by spin column method	
	Analysis of isolated DNA samples by agarose gel electrophoresis	
21st June (Friday)	Compilation of all lab work and result; Submission of workshop report. Feedback on workshop	
22nd June (Saturday)	Valedictory Function	

LIST OF PARTICIPANTS

<u>S.No</u>	<u>NAME</u>	<u>COURSE AND COLLEGE</u>
1.	Harsh Mahawar	B.Sc (H) Biochemistry 3 rd year, Shivaji College, University of Delhi
2.	Devika Maggo	B.Sc (H) Biochemistry 3 rd year, Shivaji College, University of Delhi
3.	Mansi Tanwar	B.Sc (H) Biochemistry 2 nd year, Shivaji College, University of Delhi
4.	Harsh Raheja	B.Sc (H) Biochemistry 3 rd year, Shivaji College, University of Delhi
5.	Shruti Khandelwal	B.Sc (H) Biochemistry 3 rd year, Shivaji College, University of Delhi
6.	Sparsh Singh	B.Sc (H) Biochemistry 2 nd year, Shivaji College, University of Delhi
7.	Niharika Jain	B.Sc (H) Biochemistry 3 rd year, Shivaji College, University of Delhi
8.	Hardik Singhal	B.Sc (H) Biochemistry 2 nd year, Shivaji College, University of Delhi
9.	Himanshi	B.Sc (H) Biochemistry 2 nd year, Shivaji College, University of Delhi
10.	Simran Kardam	B.Sc (H) Biochemistry 3 rd year, Shivaji College, University of Delhi
11.	Sakshi Saini	B.Sc (H) Biochemistry 2 nd year, Sri Venkateswara College, University of Delhi
12.	Sushmita Sahoo	B.Sc (H) Biochemistry 2 nd year, Sri Venkateswara College, University of Delhi
13.	Shubham Aggarwal	B.Sc (H) Microbiology 3 rd year, Swami Shradhanand College, University of Delhi
14.	Ahmed Hussain	B.Tech Biotechnology, 3 rd year, Netaji Subhash Institute of Technology, Delhi
15.	Deepak Khatri	B.Tech Biotechnology, 3 rd year, Netaji Subhash Institute of Technology, Delhi
16.	Sagar Saini	B.Tech Biotechnology, 3 rd year, Netaji Subhash Institute of Technology, Delhi

A hands-on training workshop for undergraduate students was organized by CIIDRET at UDSC from 10 June – 22 June 2019. The theme of the workshop was “Techniques for Manipulation of Nucleic Acids for Applications in Genomics”. The workshop included classroom lectures and hands on training modules. Various theoretical aspects covering plasmids, their features, different methods of isolation and purification of plasmid DNA and genomic DNA were discussed by Professor Vijay K Chaudhary, Director CIIDRET and Dr. Amita Gupta, Core member CIIDRET. Prof. Chaudhary also gave the participants a glimpse of his scientific journey and how from humble beginnings he went on to accomplish great feats. Another inspirational lecture-cum-interaction was with Prof. Rakesh Bhatnagar, Vice Chancellor, BHU. Prof. Bhatnagar illustrated how from simple beginnings and numerous hardships, he went on to achieve things in his professional career. He addressed the importance of perseverance and hard work for success in life.

The hands-on practical training was conducted in a manner that every student performed each and every step of each experiment independently. For this, the 16 participants were divided into 2 batches with 2 instructors. The batches were swapped after completion of one module so that they could benefit from the methodologies of both the instructors and learn all the skills in a systematic manner. All the participants were able to achieve the goals of the workshop. Their enthusiasm and interest was apparent from their 100% attendance on all days, presence throughout the long working hours, constant interactions and zeal to know more, making videos of the processes with their mobile phones and their desire to continue working at CIIDRET beyond the duration of the workshop. Even the refreshment break was enjoyed by them with snacks as per their desire. In fact, they expressed the desire to attend more workshops on several topics to master the skills for becoming good researchers.

The valedictory function was organized on the last day of the workshop. The participants listened to Prof. Anil K Tyagi telling them about his scientific journey. Another lecture was by Dr. Pradip Desai, the founder chairman of the company Span Diagnostics Ltd., the industry leader in Indian diagnostic market. Dr. Desai told the students how from very ordinary beginnings he went to medical school and topped every exam. He could have become a great doctor but he wanted to do research. So with his medical education, he also carried out research and went on to establish Span diagnostics with 2 more friends. He told how he managed the expenses and gradually got the company to become the diagnostic industry leader. This entrepreneurial

journey was a great inspiration for the young participants. Over lunch and subsequent photo session, it was clearly evident that all the participants had thoroughly enjoyed their entire duration of the workshop.

The photos from the workshop and participant feedback are enclosed. CIIDRET is holding another workshop on Recombinant proteins: Expression, Purification, Characterization from 2-16 July 2019 for teachers and scientists from Delhi University and other Universities and Institutions.

**Interaction with Prof Rakesh Bhatnagar,
Vice Chancellor BHU**



Lecture by Prof. Vijay K Chaudhary



Hands-on training in the workshop



Valedictory Function

Interaction with Teachers/Scientists



**Prof. Anil K Tyagi, Former Vice Chancellor GGSIPU
Prof. Vijay Chaudhary, Incharge, CIIDRET**



Dr. Pradip Desai, Chairman, Span Divergent Ltd. Surat



Certificate Distribution



Interaction over refreshments



Group Photograph



WORKSHOP FEEDBACK BY PARTICIPANTS



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: Ahmed Hussain, ahmedh.bt.16@nsit.net.in,
9717200726

Course, Year of study, Institute: B.E, 2016-2020, NSIT

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 <u>5</u> |
| 2. The content is relevant to my work. | 1 2 3 4 <u>5</u> |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 <u>5</u> |
| 5. The difficulty level of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 7. The instructors were well prepared. | 1 2 3 4 <u>5</u> |
| 8. The instructors were helpful. | 1 2 3 4 <u>5</u> |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 <u>5</u> |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 <u>5</u> |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | Yes / No |

14. Comments about the workshop:

Good location & environment, teachers & instruc-
tors were really helpful.

15. Other topics on which you would like to attend a workshop:

Data Mining, Bioinformatics, RDT.

Signature

Date:

21/6/19

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: Sushmita Sahoo
sushmitasahoo64@gmail.com 9354208733

Course, Year of study, Institute: Bsc. Biochemistry (hons). completed IV-semester
Sri Venkateswara College

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 |
| 5. The difficulty level of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
| 7. The instructors were well prepared. | 1 2 3 4 5 |
| 8. The instructors were helpful. | 1 2 3 4 5 |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 5 |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | Yes / No |

14. Comments about the workshop:

The workshop activities enhanced my learning, hence, it was a
good workshop. Location was also appropriate.

15. Other topics on which you would like to attend a workshop:

I would like to attend a workshop related to proteins

Signature Sushmita

Date: 21st June 2019

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: Simran Kadam , skrdaam22@gmail.com
7292062061

Course, Year of study, Institute: Bsc (hons) Biochemistry , IInd year ,
Seivaji College Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 <u>4</u> 5 |
| 2. The content is relevant to my work. | 1 2 3 <u>4</u> 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 <u>5</u> |
| 5. The difficulty level of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 7. The instructors were well prepared. | 1 2 3 <u>4</u> 5 |
| 8. The instructors were helpful. | 1 2 3 <u>4</u> 5 |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 <u>5</u> |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 <u>4</u> 5 |
| 12. Would you recommend this workshop to a colleague? | <u>Yes</u> / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | <u>Yes</u> / No |

14. Comments about the workshop:

Overall it was good , Time was properly managed , none of
the reagents or experiments were out of the topic we can
easily co-relate the practice with learning

15. Other topics on which you would like to attend a workshop:

I wish if we can work on "food preservation" as also
we can utilize the campus for harvesting some crops or
vegges to try out some experiments for their preservation

Signature Simran Kadam Date: 21 June 2019

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: SHUBHAM AGGARWAL
aggarwaleshubham247@gmail.com , 8744086979 , 8800746935

Course, Year of study, Institute: MICROBIOLOGY , IIIrd year , Swami Shroaddhanand
college

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 |
| 5. The difficulty level of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
| 7. The instructors were well prepared. | 1 2 3 4 5 |
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | Yes / No |

14. Comments about the workshop:

The workshop is very good. I learnt a lot from the workshop which would help me in my future. The instructors were good, helpful and well prepared.
Thank you.

15. Other topics on which you would like to attend a workshop:

Gene cloning , Protein purification and DNA fingerprinting and hybridisation

Signature Shubham Date: 21/6/2019

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: Mansi Tanwar
mansi.tanwar055@gmail.com , 9560366826

Course, Year of study, Institute: B.Sc (Hons.) Biochemistry, IInd year,
Shivaji College, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
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| 6. The pace of this workshop was appropriate. | 1 2 3 4 5 |
| 7. The instructors were well prepared. | 1 2 3 4 5 |
| 8. The instructors were helpful. | 1 2 3 4 5 |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 5 |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | Yes / No |

14. Comments about the workshop:

It was a great experience as we got to learn and perform various experiments about DNA isolation and also, learnt about working of various other new equipment like Speed-Vac, Gel-doc, etc.

15. Other topics on which you would like to attend a workshop:

Gene, genomics and bioinformatics.

Signature Mansi

Date: 21st June 2019

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: Himanshi, kajalkaur2200@gmail.com
8920811767

Course, Year of study, Institute: BSC(H) Biochemistry, IInd year Shivaji colleg
Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
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| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 12. Would you recommend this workshop to a colleague? | Yes / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | Yes / No |

14. Comments about the workshop:

It was a good experience for me. The instructors were so helpful and really nice to us. The lab was ~~so~~ well managed and it feel really good to work in a lab whose environment is so peaceful and really clean. It will be definitely help me.

15. Other topics on which you would like to attend a workshop:

Cloning and expression of Animal Gene

Signature Himanshi

Date: 21-06-2019

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: Harish Mahawax, harishmahawax98@gmail.com
+91 9818441116

Course, Year of study, Institute: B.Sc(H)-Biochemistry - 3rd year, Shreeji College
University of Delhi.

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 <u>4</u> 5 |
| 2. The content is relevant to my work. | 1 2 3 4 <u>5</u> |
| 3. The workshop activities stimulated my learning. | 1 2 3 <u>4</u> 5 |
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| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 4 <u>5</u> |
| 12. Would you recommend this workshop to a colleague? | <u>Yes</u> / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | <u>Yes</u> / No |

14. Comments about the workshop:

A very ^{good} exposure to highest research equipments & techniques. Good
Mentorship & answers to queries.

15. Other topics on which you would like to attend a workshop:

Gene cloning, Recombinant DNA technology, Computer &
Integrated Sciences - Bioinformatics, Proteonomics & Protein purification
assays

Signature Harish Date: 21st June 2019

Your feedback is sincerely appreciated. Thank you.



**Summer Workshop on
Techniques for manipulation of Nucleic acids for applications in Genomics, June 10-22, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, e-mail, phone number: HARDIK SINGHAL; 99.9ardik.s@gmail.com
9990611707

Course, Year of study, Institute: B.Sc BIOCHEMISTRY (H), II year, SHIVAJI COLLEGE,
DELHI UNIVERSITY

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 <u>4</u> 5 |
| 2. The content is relevant to my work. | 1 2 3 <u>4</u> 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
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| 5. The difficulty level of this workshop was appropriate. | 1 2 3 <u>4</u> 5 |
| 6. The pace of this workshop was appropriate. | 1 2 3 <u>4</u> 5 |
| 7. The instructors were well prepared. | 1 2 3 4 <u>5</u> |
| 8. The instructors were helpful. | 1 2 3 4 <u>5</u> |
| 9. I accomplished the objectives of this workshop. | 1 2 3 4 <u>5</u> |
| 10. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 11. The workshop was a good way for me to learn this content. | 1 2 3 <u>4</u> 5 |
| 12. Would you recommend this workshop to a colleague? | <u>Yes</u> / No |
| 13. I would like to participate in a hands-on workshop of longer duration. | <u>Yes</u> / No |

14. Comments about the workshop:

This workshop taught me a lot about the DNA sequencing and Genomics techniques, I can use these techniques in my future platform. The environment was very friendly and working. I am really very happy to be a part of this workshop.

15. Other topics on which you would like to attend a workshop:

I would like to explore myself on this topic. As this workshop was for 2 weeks all the genomic techniques were not taught. I would like to have further knowledge about this topic.

Signature *Hardik Singhal*

Date: 21/6/19

Your feedback is sincerely appreciated. Thank you.

**STUDENTS' WORKSHOP ON
EXPRESSION OF RECOMBINANT PROTEINS**

**DECEMBER 17-21, 2019
VENUE: UNIVERSITY OF DELHI SOUTH CAMPUS**

**COORDINATOR: Prof. V. K. CHAUDHARY
CONVENOR: Dr. AMITA GUPTA**



Expression of Recombinant proteins

17 - 21 December 2019

CIIDRET, University of Delhi South Campus

The coursework will include classroom lectures as well as hands-on exercises on various aspects to give the participants good training in the expression of recombinant proteins in *E. coli*. This workshop will provide hands-on exposure to methods for inducible and regulated expression of proteins in *E. coli*. These techniques are inter-disciplinary in nature and are required in almost all areas of research.

Content

- Introduction to the workshop and methods for expression of recombinant proteins.
- Inoculation, expression, localization and analysis of expressed recombinant protein.
- Polyacrylamide gel electrophoresis of expressed proteins.
- Questionnaire and submission of workshop report.

No. of seats- 15 students (First come first serve basis)

Venue: University of Delhi South Campus, New Delhi

Timing: 9:30 - 5:30 pm

Workshop Fee: There is a workshop fee of Rs. 2000 per person. This amount will be fully refunded and certificate will be issued to only those participants who successfully attend and complete the full duration of the course.

How to Apply:

Submit the registration form along with the fee at:

Dr. Amita Gupta,

First floor Engineering department,

University of Delhi South campus, New Delhi 110021

(Find more details on <http://ciidret.du.ac.in/>)

LAST DATE for Application: 15 DECEMBER 2019

Organised by: CIIDRET, University of Delhi South Campus
udscmac@south.du.ac.in, udscdnaseq@gmail.com; **011-24117542**

COURSE SCHEDULE

DATE	BATCH 1	BATCH 2
17th December (Tuesday)	Introduction to the workshop Lecture: Expression of recombinant proteins in prokaryotic systems (E. coli), vector systems, fusion tags, Constitutive and inducible systems	
	Preparation of reagents for protein expression	
	Practice of SDS PAGE	Primary Inoculation for protein expression by auto-induction
18th December (Wednesday)	Lecture: Auto-induction method for protein expression.	
	Demonstration of IPTG based expression and SDS PAGE	Demonstration of Protein expression in E. coli using auto – induction and its localization; Demonstration of SDS PAGE
	Primary Inoculation for IPTG and autoinduction based expression	Secondary Inoculation for protein expression by autoinduction
19th December (Thursday)	Protein expression in E. coli using IPTG induction	Protein expression in E. coli using auto - induction and its localization
	Secondary Inoculation for protein expression by autoinduction	Primary Inoculation for IPTG based expression
20th December (Friday)	Protein expression in E. coli using auto - induction and its localization; Analysis of expressed protein by SDS polyacrylamide gel electrophoresis	Protein expression in E. coli using IPTG induction; Analysis of expressed protein by SDS polyacrylamide gel electrophoresis
	Setting up of western blot	
21st December (Saturday)	Immunoblotting to check the expressed protein	
	Analysis and Compilation of results; Discussion and Feedback; Conclusion of the course	
	Valedictory Function and distribution of certificates	

LIST OF PARTICIPANTS

S.No	Name	Affiliation	Batch
1	Shubham Aggarwal	M.Sc Biophysics AIIMS	1
2	Kritika Jha	B.Sc Microbiology; Swami Shraddhanand College DU	2
3	Harsh Mahawar	B.Sc Biochemistry Shivaji College DU	2
4	Mihir Vardhan Singh	B.Sc Microbiology; Swami Shraddhanand College DU	1
5	Neelima Byahut	B.Sc Microbiology; Swami Shraddhanand College DU	2
6	Niharika Jain	B.Sc Biochemistry Shivaji College DU	1
7	Sparsh Singh	B.Sc Biochemistry Shivaji College DU	2
8	Hardik Singhal	B.Sc Biochemistry Shivaji College DU	1
9	Aayush Srivastava	B.Sc Biochemistry Shivaji College DU	2
10	Sakshi Saini	B.Sc Biochemistry Sri Venkateswara College DU	2
11	Manjulika Bharti	B.Sc Biochemistry Sri Venkateswara College DU	1
12	Sushmita Sahoo	B.Sc Biochemistry Sri Venkateswara College DU	1
13	Sweta Negi	B.Sc Botany; Swami Shraddhanand College DU	2
14	Shitij Gupta	M.Sc Plant Molecular Biology DU	1
15	Sana Khan	M.Sc Zoology DU	2
16	Nidhi	M.Sc Life Sciences Central University of Punjab	2
17	Manisha Gyawali	M.Sc Microbiology Jamia Millia Islamia	1
18	Ayushi Rana	M.Sc Microbiology Jamia Millia Islamia	2
19	Piyush Goel	B.Sc Life Sciences Deshbandhu College DU	1
20	Charvi Lakhani	B.Sc Microbiology; Swami Shraddhanand College DU	2
21	Bharmjeet	B.Sc Microbiology; Swami Shraddhanand College DU	1
22	Anshu Baldia	Ph.D Biochemistry Sri Venkateswara College DU	1

A hands-on training workshop for undergraduate and post-graduate students was organized was organized by Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET) at University of Delhi South Campus from 17-21 December 2019.

The theme of the workshop was “**Expression of Recombinant Proteins**”.

The workshop included classroom lectures and hands on training modules.

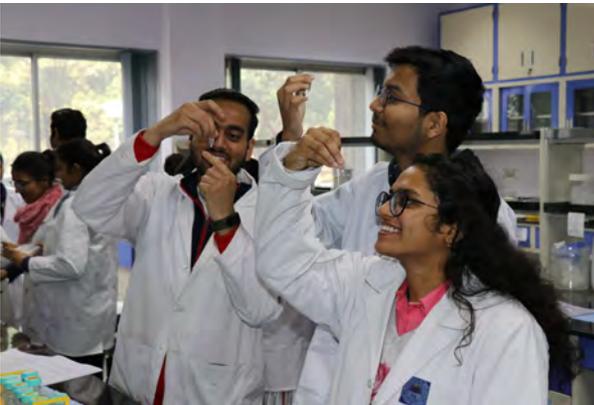
The theory lectures were taken by CIIDRET members including Professor V. K. Chaudhary, Dr. Amita Gupta and Dr. Garima Khare. Various theoretical aspects covering bacterial expression vectors, expression strategies, fusion tags, inducible and constitutive exporession systems were discussed.

- The hands-on practical training was conducted in a manner that every participant performed every step of each experiment independently.
- For this, the 22 participants were divided into 2 batches to learn all the skills in a systematic manner.
- The participants were trained for Bacterial Protein Expression by different methods. They also practiced SDS-Polyacrylamide Gel Electrophoresis and were demonstrated Western blotting for proteins.
- All the participants were able to achieve the goals of the workshop.

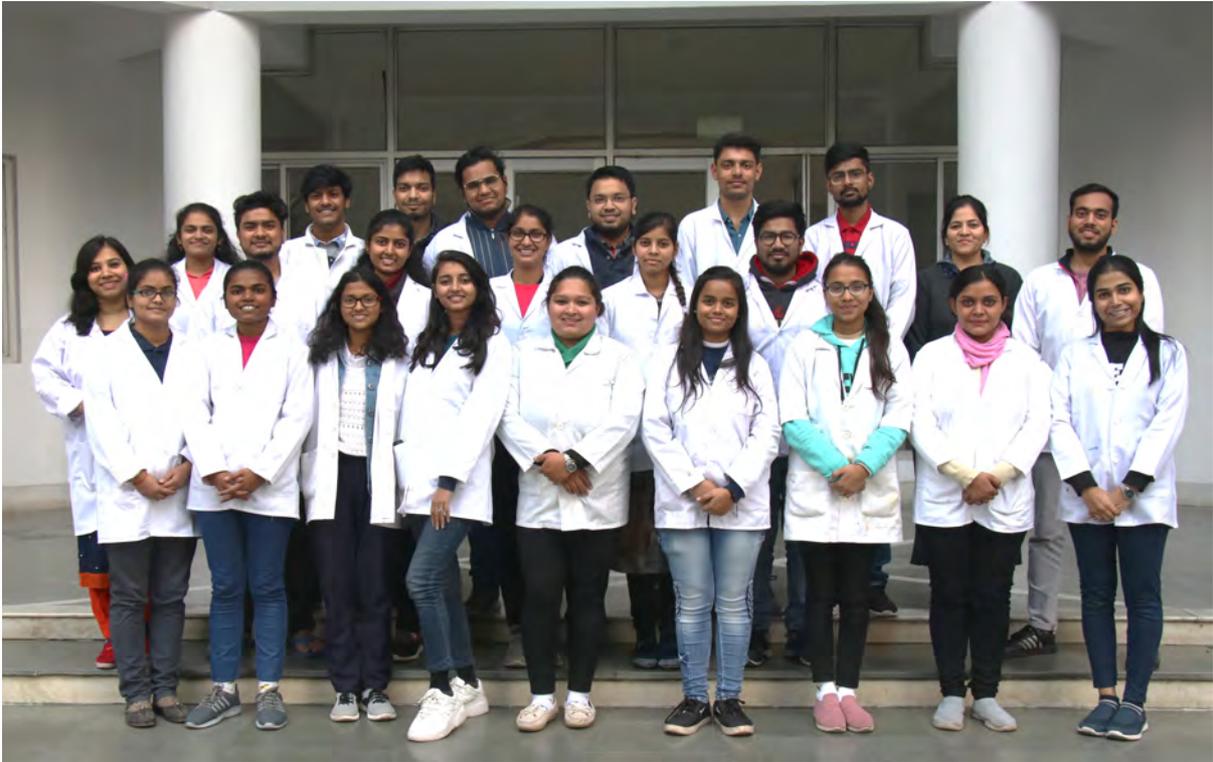
Their enthusiasm and interest was apparent from their 100% attendance on all days, in spite of some transport issues in Delhi NCR, their presence throughout the long working hours and their desire to continue working at CIIDRET beyond the duration of the workshop. They expressed the desire to attend more workshops on several topics to master the skills for becoming good researchers.

The valedictory function was organized on the last day of the workshop. The photos from the workshop and participant feedback are enclosed.

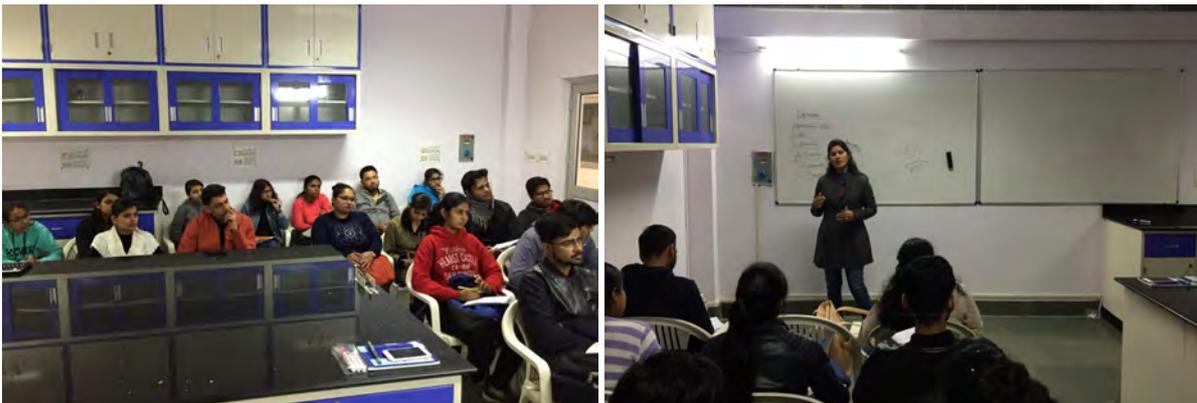
Hands-on training



Group Photograph



Lecture by Dr. Garima Khare



WORKSHOP FEEDBACK BY PARTICIPANTS



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Mihir Vardhan Singh,
mihirvardhan1999@gmail.com, 8700612279

Current designation, Organization: Student, Swami Shradhdhanand college,
Delhi University. (Microbiology, 3rd Year)

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 4 5
2. The content is relevant to my work. 1 2 3 4 5
3. The workshop activities stimulated my learning. 1 2 3 4 5
4. The activities in this workshop gave me sufficient practice. 1 2 3 4 5
5. The level and pace of this workshop was appropriate. 1 2 3 4 5
6. The instructors were well prepared and helpful. 1 2 3 4 5
7. I will be able to use what I learned in this workshop. 1 2 3 4 5
8. The workshop was a good way for me to learn this content. 1 2 3 4 5
9. Would you recommend this workshop to a colleague? Yes / No
10. I would like to participate in more hands-on workshops at CIIDRET. Yes / No

11. Comments about the workshop:

I have learned so much through this workshop, especially performing SDS-PAGE. Faculty is so much supporting & helping. level of their teaching is up to the mark. Professor made us clear all the things very appropriately audience is very much excellent. Lab is very clean & all the instruments are easily accessible. Demonstration of western blotting was very awesome. Learn the loop holes which may worsen the results.

12. Other topics on which you would like to attend a workshop:

I ~~would~~ will like to attend some more workshops on :-
Recombinant DNA Technology (RDT), Genetics, Molecular biology,
cell biology & techniques like - PCR, ELISA, Southern blotting, Recombinant
of proteins & so on.

Signature Date: 20/12/19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: SHUBHAM AGGARWAL 8744086979
aggarwalshubham247@gmail.com

Current designation, Organization: Student MSC Biophysics
AIIMS Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 4 5
2. The content is relevant to my work. 1 2 3 4 5
3. The workshop activities stimulated my learning. 1 2 3 4 5
4. The activities in this workshop gave me sufficient practice. 1 2 3 4 5
5. The level and pace of this workshop was appropriate. 1 2 3 4 5
6. The instructors were well prepared and helpful. 1 2 3 4 5
7. I will be able to use what I learned in this workshop. 1 2 3 4 5
8. The workshop was a good way for me to learn this content. 1 2 3 4 5
9. Would you recommend this workshop to a colleague? Yes / No
10. I would like to participate in more hands-on workshops at CIIDRET. Yes / No Yes

11. Comments about the workshop:

It gives about the exposure to new techniques
and food/snacks were good.
we are hoping CIIDRET would organise
more workshops and we would be very
motivated and encouraged to be the part of
more workshops in future also
Thank You

12. Other topics on which you would like to attend a workshop:

ELISA, Enzyme mobility shift Assay, X ray Crystallography,
Purification techniques

Signature Shubham Date: 20/12/2019

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: KRITIKA JHA ; 9716985320
KRITIKA 5 JHA @ gmail . com .

Current designation, Organization: STUDENT , Swami Shradhmand
College , Delhi University

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 4 **5**
2. The content is relevant to my work. 1 2 3 4 **5**
3. The workshop activities stimulated my learning. 1 2 3 4 **5**
4. The activities in this workshop gave me sufficient practice. 1 2 3 4 **5**
5. The level and pace of this workshop was appropriate. 1 2 3 4 **5**
6. The instructors were well prepared and helpful. 1 2 3 4 **5**
7. I will be able to use what I learned in this workshop. 1 2 3 4 **5**
8. The workshop was a good way for me to learn this content. 1 2 3 4 **5**
9. Would you recommend this workshop to a colleague? Yes / No
10. I would like to participate in more hands-on workshops at CIIDRET. Yes / No

11. Comments about the workshop:

My first day in workshop was on 17th Dec and I was a part
of Gaurav Sir's group. I was taken aback by the way he conducted
the workshop, not only he made sure that we get enough of
practice but also made sure that we didn't return home with a
single doubt in mind. I got enough of practice and gained much
experience, so hopefully this would give me an edge over other
students who didn't attend).

My experience is more than just satisfactory. The labs were
well conducted and I would really like to attend more
such workshops! In last, I would like to thank CIIDRET,
Biotechnology department and all the involved authorities
for organizing such a valuable workshop.

12. Other topics on which you would like to attend a workshop:

ELISA, Purification . etc .

Signature Kritika Jha

Date: 20th Dec '19 .

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Ayushi Rana, 9873290757
ayushirana96@gmail.com

Current designation, Organization: Student (Msc), Jamia Millia Islamia

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 5
2. The content is relevant to my work. 1 2 3 4
3. The workshop activities stimulated my learning. 1 2 3 4
4. The activities in this workshop gave me sufficient practice. 1 2 3 4
5. The level and pace of this workshop was appropriate. 1 2 3 4
6. The instructors were well prepared and helpful. 1 2 3 4
7. I will be able to use what I learned in this workshop. 1 2 3 4
8. The workshop was a good way for me to learn this content. 1 2 3 4
9. Would you recommend this workshop to a colleague? Yes / No
10. I would like to participate in more hands-on workshops at CIIDRET. Yes / No

11. Comments about the workshop:

Everything about workshop was excellent, it
enhance my learning and gave me opportunity
to stimulate my lab practices and handling.
The instructors were very helpful and explained
each and every query.

12. Other topics on which you would like to attend a workshop:

ELISA, Protein purification, DNA sequencing,

Signature Ayushi Rana Date: 20/12/19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Sakshi Saini
Saini.sak3@gmail.com, 7838 662022

Current designation, Organization: Student, BSc. Biochemistry (Hons.)
III - Year, Sri Venkateswara college

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 4 **5**
2. The content is relevant to my work. 1 2 3 4 **5**
3. The workshop activities stimulated my learning. 1 2 3 **4** 5
4. The activities in this workshop gave me sufficient practice. 1 2 3 4 **5**
5. The level and pace of this workshop was appropriate. 1 2 3 4 **5**
6. The instructors were well prepared and helpful. 1 2 3 4 **5**
7. I will be able to use what I learned in this workshop. 1 2 3 4 **5**
8. The workshop was a good way for me to learn this content. 1 2 3 4 **5**
9. Would you recommend this workshop to a colleague? **Yes**/ No
10. I would like to participate in more hands-on workshops at CIIDRET. **Yes**/ No

11. Comments about the workshop:

The workshop was very effective and will help me to enhance my skills which ultimately will help me in future.
It was very helpful and got a exposure of as in how to work in labs following the protocol and gave me enough practice. The instructors were well prepared and looking forward to participate in more such workshops in future.

12. Other topics on which you would like to attend a workshop:

- Recombinant DNA technology
- Clinical Biochemistry

Signature Sakshi

Date: 20 Dec 19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: NEELIMA BYAHUT,
neelinabyahut75@gmail.com, 9643683561

Current designation, Organization: Student (Microbiology 3rd year),
Swami Shradhdhanand college, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 4 **5**
2. The content is relevant to my work. 1 2 3 4 **5**
3. The workshop activities stimulated my learning. 1 2 3 4 **5**
4. The activities in this workshop gave me sufficient practice. 1 2 3 4 **5**
5. The level and pace of this workshop was appropriate. 1 2 3 4 **5**
6. The instructors were well prepared and helpful. 1 2 3 4 **5**
7. I will be able to use what I learned in this workshop. 1 2 3 4 **5**
8. The workshop was a good way for me to learn this content. 1 2 3 4 **5**
9. Would you recommend this workshop to a colleague? **Yes** / No
10. I would like to participate in more hands-on workshops at CIIDRET. **Yes** / No

11. Comments about the workshop:

The workshop helped me to gain more and more information and also hands-on-practice on protein expression. I can easily do the SDS-PAGE without any confusion. Because of this workshop I can easily do this technique without any problem.
In this workshop, I ~~also~~ understand ~~the~~ every content without slipping it from our mind because of regular hands-on-practice here. ~~Southern~~ Western blotting was also demonstrated to us which ~~also~~ clear ~~the~~ some of our confusion. I will definitely attend this workshop again.

12. Other topics on which you would like to attend a workshop:

- 1.) Protein purification, 2.) DNA sequencing
3.) Southern blotting, 4.) Recombination of DNA
5.) Western blotting, 6.) Chromatography techniques (HPLC)
7.) Surface plasma resonance

Signature Byahut Date: 20/12/19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Nidhi bharedwaynidhi698@gmail.com
7988453953

Current designation, Organization: Student M.Sc Ist year (sp. in human genetics)
Central University of Punjab

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|-------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 ✓ |
| 2. The content is relevant to my work. | 1 2 3 4 5 ✓ |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 ✓ |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 ✓ |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 5 ✓ |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 5 ✓ |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 5 ✓ |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 5 ✓ |
| 9. Would you recommend this workshop to a colleague? | ✓ Yes / No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | ✓ Yes / No |

11. Comments about the workshop:

By this workshop I am able to learn and hands on
SDS Page technique. It is very helpful and knowledgeable
to me. I would like to attend more workshop at
this place. Please improve refreshment menu.

12. Other topics on which you would like to attend a workshop:

ELISA, Western Blotting, HPLC and other blotting technique,
X Ray crystallography

Signature Nidhi

Date: 20 Dec 2019

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Niharika Jain, niharikajain@gmail.com, 9643975772

Current designation, Organization: Undergraduate (student), Shriyaji college (University of Delhi)

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 5 |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 9. Would you recommend this workshop to a colleague? | Yes / No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | Yes / No |

11. Comments about the workshop:

The workshop was very interactive. It would really help me in the various disciplines in future. I would like to participate in more such workshops

12. Other topics on which you would like to attend a workshop:

ELISA, genetics, immunology

Signature *N. Jain*

Date: 20.12.19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: SANA KHAN, khansana786154@gmail.com,
9818316065

Current designation, Organization: Pursuing MSc Zoology from Department
of Zoology, University of Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 5 |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 9. Would you recommend this workshop to a colleague? | Yes / No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | Yes / No |

11. Comments about the workshop:

Workshop was nice, instructors were very helpful and I would
like to attend this workshop ^{again} but on different topic in
my summer holidays. Hopefully, when I ~~start~~ would start
my own research after completion of MSc, this workshop would
be great and much more helpful.
Overall, this workshop was excellent.

P.S. → Please conduct the summer workshop in month
of June after 15 June 2020. Because on 15 June 2020,
NTA is conducting CSIR-NET exam for JRF for
postgraduate students.

12. Other topics on which you would like to attend a workshop:

Blotting Techniques, Practicals on Molecular Biology,
Recombinant DNA Technology or Immunology

Signature [Signature] Date: 20/12/19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Bharmjeet, bharmjeetsingh1@gmail.com
9873278102

Current designation, Organization: Student, Swami Shradhdharam College

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 5 |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 9. Would you recommend this workshop to a colleague? | Yes / No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | Yes / No |

11. Comments about the workshop:

Workshop was very helpful, instructors are specially
helping and take care at every point. Tea snacks can
be more better. Being the most junior one, it's ^{not} easy to
grab everything but the instructors made it so easy
for me to grab it, understand it and learn it.
Thank you for this workshop and I want to attend such
in future also.

12. Other topics on which you would like to attend a workshop:

Gene Manipulation, hybridisation, southern blotting,
sequencing and other reliable hands on.

Signature Bharmjeet Date: 20/12/19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: ANSHU BALDIA, anshubaldia@gmail.com
7292008066

Current designation, Organization: PhD Scholar, Department of Biochemistry
Sri Venkateshwar College, Delhi

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 <u>5</u> |
| 2. The content is relevant to my work. | 1 2 3 4 <u>5</u> |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 <u>5</u> |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 <u>5</u> |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 <u>5</u> |
| 9. Would you recommend this workshop to a colleague? | <u>Yes</u> / No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | <u>Yes</u> / No |

11. Comments about the workshop:

- It provide me knowledge about various techniques and practical work.
- It should include the construction of recombinant plasmid and then expression of recombinant protein.

12. Other topics on which you would like to attend a workshop:

- Proteomics
- Construction of recombinant plasmid and expression and purification of recombinant protein

Signature Anshu Baldia. Date: 20 Dec, 2019

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Piyush goel, piyushgoel40@gmail.com
8368404092

Current designation, Organization: Student, Bisc-Life Sc (III yr), Deshbandhu
College

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|---------------------------------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 <u>5</u> |
| 2. The content is relevant to my work. | 1 2 3 4 <u>5</u> |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 <u>5</u> |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 <u>4</u> 5 - 4 |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 <u>5</u> |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 <u>5</u> |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 <u>5</u> |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 <u>5</u> |
| 9. Would you recommend this workshop to a colleague? | Yes / No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | Yes / No |

11. Comments about the workshop:

Workshop provides me enough knowledge and understanding.
The lecture of Dr Gurima gives insight to what we are
going to have hands on practice for the first day. The
Manual content is to the point and gives description
of all the experiments.

More Practice ^{should} be given if and workshop should ~~be~~
also include other subjects and topics.

12. Other topics on which you would like to attend a workshop:

σDNA technologies, Blotting techniques, rDNA Sequencing etc.

Signature Piyush goel

Date: 20/12/19

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: Shitij Gupta, gshitij.15@gmail.com
7982046281

Current designation, Organization: Msc (P), Plant Molecular Biology & Biotechnology,
Department of plant Molecular Biology, University of Delhi, South Campus

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

1. The workshop location and facilities were suitable and appropriate 1 2 3 4 **5**
2. The content is relevant to my work. 1 2 3 4 **5**
3. The workshop activities stimulated my learning. 1 2 3 4 **5**
4. The activities in this workshop gave me sufficient practice. 1 2 3 **4** 5
5. The level and pace of this workshop was appropriate. 1 2 3 4 **5**
6. The instructors were well prepared and helpful. 1 2 3 4 **5**
7. I will be able to use what I learned in this workshop. 1 2 3 4 **5**
8. The workshop was a good way for me to learn this content. 1 2 3 4 **5**
9. Would you recommend this workshop to a colleague? Yes / No
10. I would like to participate in more hands-on workshops at CIIDRET. Yes / No

11. Comments about the workshop:

Workshop provides great hands on training, great instructors,
valuable information was provided in this workshop.

12. Other topics on which you would like to attend a workshop:

Metabolomics, @ Epigenomics,

Signature *Shitij Gupta*

Date: 20/12/2019

Your feedback is sincerely appreciated. Thank you.



**Students' Workshop on
Expression of Recombinant proteins, December 17-21, 2019
Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET)
UNIVERSITY OF DELHI SOUTH CAMPUS, NEW DELHI 110021**

Participant Name, E-mail, Phone number: HARSH MAHAWAR
harshmahawar98@gmail.com, 9818441116

Current designation, Organization: B.Sc. (H.) - Biochemistry (Final year) Shivaji college

INSTRUCTIONS

Please circle your response to the items. Rate aspects of the workshop on a 1 to 5 scale with 5 being the highest, most positive impression.

- | | |
|--|-----------|
| 1. The workshop location and facilities were suitable and appropriate | 1 2 3 4 5 |
| 2. The content is relevant to my work. | 1 2 3 4 5 |
| 3. The workshop activities stimulated my learning. | 1 2 3 4 5 |
| 4. The activities in this workshop gave me sufficient practice. | 1 2 3 4 5 |
| 5. The level and pace of this workshop was appropriate. | 1 2 3 4 5 |
| 6. The instructors were well prepared and helpful. | 1 2 3 4 5 |
| 7. I will be able to use what I learned in this workshop. | 1 2 3 4 5 |
| 8. The workshop was a good way for me to learn this content. | 1 2 3 4 5 |
| 9. Would you recommend this workshop to a colleague? | Yes/ No |
| 10. I would like to participate in more hands-on workshops at CIIDRET. | Yes/ No |

11. Comments about the workshop:

• Good exposure to various techniques.
• Provided the required skill set.
• Good instructors ; in depth concepts made more clear

12. Other topics on which you would like to attend a workshop:

Cloning & extraction of Proteins

Signature [Signature] Date: 20th Dec 19.

Your feedback is sincerely appreciated. Thank you.



*Centre for Innovation in Infectious Disease Research, Education
and Training (CIIDRET), University of Delhi South Campus
and
Wellcome Trust/DBT India Alliance*

Workshop Notice

One-day Science Communication Workshop

On

**Monday, the 15th July 2019
Biotech Center Auditorium, 3rd Floor Biotech Block,
University of Delhi South Campus**

Programme:

9.00 – 9.30 am	Registration
9.30 – 10.15 am	Research Ethics
10.15 – 11.00 am	Basics of Science Communication
11.00 – 11.20 am	Tea Break
11.20 am – 1.00 pm	Writing a Manuscript
1:00 – 1:45 pm	Break
1.45 – 3.00 pm	Writing Grants; India Alliance Funding Opportunities
3.00 – 5.00 pm	Lecture on IPR by Dr. Malathi Lakshmikumaran
5.00 – 5.30 pm	Discussion over High Tea

**Prof. V. K. Chaudhary (9811800434)
Dr. Amita Gupta (9811509609)
Email: ykchaudhary@south.du.ac.in;
amitagupta@south.du.ac.in**

All are cordially invited to join for discussion over High tea after the workshop.



*Centre for Innovation in Infectious Disease Research,
Education and Training (CIIDRET),
University of Delhi South Campus*

Seminar Notice

Inventions and Intellectual Property Protection: India and abroad

**Monday, the 15th July 2019 at 3.00 P.M.
Biotech Center Auditorium, 3rd Floor Biotech Block,
University of Delhi South Campus**



By

DR. MALATHI LAKSHMIKUMARAN
Executive Director & Practice Head of Patents
Lakshmi Kumaran and Sridharan Attorneys,
New Delhi

Dr. Malathi Lakshmi Kumaran has more than 30 years of experience in the field of biochemistry and Molecular Biology with an expertise in plant genomics, DNA fingerprinting and genetic transformation. She has successfully supervised several Ph.D. students in the area of Plant Molecular Biology. She has more than 100 publications to her credit in various International and Indian journals. She is a Fellow of the National Academy of Sciences (FNASc).

Prior to joining the firm, she served as the Head, Centre for Bioresource & Biotechnology Division in The Energy and Resource Institute (TERI) for a period of 17 years. At present, she serves as an Executive Director and heads the IP division of the firm. She is a registered patent agent and has been actively engaged in preparing, filing and prosecuting of patent applications, both in India and abroad. She mainly works on pharmaceutical, chemical and biotechnological patent applications. She advises clients on plant variety protection and registration. Dr. Malathi also undertakes extensive work for Start-ups and Incubates, especially with incubates in C-CAMP and IIT Delhi, advising them on Patents and Freedom to operate opinions.

She is recipient of several awards including the prestigious Fogarty Visiting Research Associateship from National Institute of Health, Bethesda, USA and the National Young Women Scientist Award by Department of Biotechnology in March 2000.

Prof. V. K. Chaudhary
Chair, IPR Cell,
University of Delhi

Tel: 011-24115883; 9811800434 (9811509609- Amita Gupta)
Email: vkchaudhary@south.du.ac.in; amitagupta@south.du.ac.in

All are cordially invited to join for discussion over High tea after the seminar.

FIRST NATIONAL WORKSHOP ON PROTEIN PURIFICATION AND CHARACTERISATION

FEBRUARY 6-8, 2018
VENUE: UNIVERSITY OF DELHI SOUTH CAMPUS

COORDINATOR: Prof. V. K. CHAUDHARY
CONVENOR: Dr. AMITA GUPTA





1st National Workshop on Protein Purification and Characterization, February 6-9, 2018

Organized by Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET), University of Delhi South Campus

This workshop is specifically designed for Biologists interested in learning chromatographic techniques suitable for laboratory/ analytical and production-scale protein purification. You will learn about techniques, screening and optimization strategies, scale-up issues, column maintenance and process hygiene, regulatory requirements, and column packing. During practical sessions, you will apply these concepts to understand how to screen and optimize the purification of a target protein from a crude feed stream. This course also offers an introduction to membrane separation techniques used in bioprocessing – Crossflow Filtration

The workshop comprises of TWO days of extensive hands on experience on GE Healthcare Lifesciences scalable Protein Purification system “AKTA AVANT” widely used in Biopharma & Biotech Industry.

Each theory session is followed by hands-on session. Two slots are available for registration, Participants can opt for the slot as per the dates convenient to them at the time of registration.

Each slot will comprise of 6/7 candidates

Dates	SLOT 1: February 6-7, 2018 SLOT 2: February 8-9, 2018
Timing	9:30AM - 5:30 PM
Venue	University of Delhi South campus, New Delhi

DAY 1

PURIFICATION TECHNIQUES

- 1) Introduction to chromatography
- 2) Purification Techniques: Gel Filtration (Theory & Practical)
- 3) Introduction to ÄKTA & UNICORN (Theory & Practical)
- 4) Gel Filtration – Desalting (Theory & Practical)
- 5) Affinity Chromatography (Theory & Practical)

DAY 2

PURIFICATION STRATEGIES

- 1) Ion exchange chromatography (Theory & Practical)
- 2) Ion exchange chromatography - Step Optimization (Theory & Practical)
- 3) Purification Strategies (Theory & Practical)
- 4) Basics of crossflow filtration
- 5) Experimental results analysis & Discussions

Application Procedure: A total of 15 trainees will be accepted based on first-come basis. Registration form and fee (cheque/draft in favor of Director, University of Delhi South Campus) must be submitted for confirmation of registration.

Workshop Fee:

FOR ACADEMIC REGISTRANTS: Rs. 5000.00

FOR INDUSTRY REGISTRANTS: Rs. 10000.00

Registration and Fee Deadline- 1st Feb, 2018

Training partners: GE Healthcare

For more details and registration kindly contact us at the below mentioned details:

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1st National Workshop on Protein Purification and Characterization, February 6-7, 2018 and February 8-9, 2018
Organized by Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET), University of Delhi South Campus

Day1

Start	End	Time	Type	Topic Name
9:00	9:30	0:30	Intro	Introduction to the course / Program / Objectives
9:30	10:15	0:45	Lecture	Introduction to chromatography
10:15	11:15	1:00	Lecture	Purification Techniques: Gel Filtration
11:15	11:30	0:15	Break	
11:30	12:15	0:45	Lecture	Introduction to ÄKTA & UNICORN
12:15	13:15	1:00	Practical	Gel filtration - desalting
13:15	14:00	0:45	Lunch	
14:00	15:15	1:15	Lecture	Affinity Chromatography
15:15	15:30	0:15	Break	
15:30	16:30	1:00	Practical	Affinity Chromatography
16:30	17:00	0:30	Video	GE Technical videos
17:00	17:30	0:30	Intro	Open Discussion & Day Summary
17:30				Day End
Total		8:30		

Day2

Start	End	Time	Type	Topic Name
9:00	9:30	0:30	Intro	
9:30	10:15	0:45	Lecture	Ion exchange chromatography
10:15	11:15	1:00	Practical	Ion exchange chromatography
11:15	11:15	0:00	Break	
11:15	12:15	1:00	Practical	Ion exchange chromatography Step Optimization
12:15	13:15	1:00	Lecture	Purification Strategies
13:15	14:00	0:45	Lunch	
14:00	14:30	0:30		results & Discussion
14:30	15:15	0:45	Lecture	Basics of crossflow filtration
15:15	15:30	0:15	Break	
15:30	16:30	1:00		Open Discussion
16:30	17:00	0:30		Day Summary
17:00				Day End
Total		8:00		

A hands-on training workshop for research scholars was organized by Centre for Innovation in Infectious Disease Research, Education and Training (CIIDRET) at University of Delhi South Campus from February 6-8 2018. GE Healthcare were the industry partners in the workshop.

The theme of the workshop was **“PROTEIN PURIFICATION AND CHARACTERISATION”**.

The workshop included classroom lectures and hands on training modules.

Various theoretical aspects covering expression strategies, fusion tags, purification systems and strategies, different types of chromatography and their applications were discussed. The hands-on practical training was conducted in a manner that every participant got hands on experience with the AKTA platform and the chromatography runs. For this, the participants were divided into 2 batches to learn all the skills in a systematic manner. All the participants were able to achieve the goals of the workshop.