



National Training Programme

on

**“Genome Editing Technology
in Farm Animals”**

Sponsored under

(ICAR-NPGET Project)

February 8-17, 2025

Organized by

**Centre of Excellence on Genome Editing
Animal Biotechnology Division
ICAR-National Dairy Research Institute
(Deemed University)**

Karnal- 132001 (Haryana) INDIA

www.ndri.res.in



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About Institute (NDRI)

The ICAR-National Dairy Research Institute is a leading research organization dedicated to advancing dairy development in the country through research, education, and extension activities. As a national institute, it focuses on fundamental and applied research to boost animal productivity and create cost-effective technologies that benefit dairy farmers. Additionally, the institute plays a key role in training skilled professionals to address the human resource needs of the dairy sector. Over the years, it has consistently enhanced its research to contribute to food security, human resource development, technology dissemination, and the economic upliftment of dairy farmers.



About Animal Biotechnology Division (ABTD)

Animal Biotechnology Division (ABTD) is one of the prestigious divisions of the institute, which focuses on three main areas namely reproductive biotechnology, animal genomics and proteomics and structural biology. This training is under the reproductive biotechnology area, which has major interest in production of genome edited and cloned animals, embryonic and adult stem cells, and cryopreservation of gametes and embryos. In recent years, genome editing tools, such as CRISPR/Cas9, have revolutionized livestock improvement by tailoring the production and health traits. For instance, knockout of the β -Lactoglobulin (BLG) gene enables the production of





hypoallergenic milk, ablating the myostatin (MSTN) gene boosts muscle mass, and inducing mutations in the FGF5 gene results in longer wool production. Additionally, genome editing has been instrumental in creating disease-resistant animals. A notable example is the production of piglets resistant to Porcine Reproductive and Respiratory Syndrome (PRRS) by manipulating the CD163 receptor gene. In the field of genome editing, NDRI has achieved early success by successfully producing MSTN and BLG gene knockout buffalo embryos.

About the Training

Genome editing techniques are used in modern livestock research and development, and veterinary diagnostics. This training course is intended for the Scientists, Assistant Professors and Technical Staff who are seeking basic and advanced-level genome editing training to participate in biotechnological research in livestock sciences. Thus, this training will help to fill a skill gap between technical skill and actual applications and those seeking new career opportunities in the biotechnology field.


This training will provide hands-on training in standard gene editing techniques, including production of gene-edited embryos. Participants will acquire laboratory knowledge and skills for the application of genome editing in livestock, as well as experimental design and execution for the production of more productive and healthier animals.

Candidates are limited to 10 to ensure low trainee-instructor ratios and a rich educational experience.

Major Topics

- Basics of genome editing, including CRISPR design
- Bioinformatic tools for genome editing
- Cell culture and embryo production
- Transfection methods



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- Detection and validation of edits in targeted cell types
 - Genome analysis
 - Embryo transfer technology
 - Setting of genome editing experiments in livestock species

Eligibility

Applications are invited from the Scientist, Assistant professor and Technical staff of ICAR/ SAUs and CAUs and other Universities/Institutes. The applicant needs to have M.Sc (life sciences) / M.V.Sc (veterinary sciences) educational qualifications.

How to Apply

Interested candidates submit the filled application through email to the course coordinator (training.ebl@gmail.com). The application needs to be approved by the competent authority of applicant's organization (HoD/Dean/Director/Vice-chancellor). There is no need to submit the hardcopy of application.

Registration Fee: There is no registration fee

Certificate

A certificate will be awarded to participants on the successful completion of the training.

Financial Assistance

The participants will be paid T.A. for to and fro journey by rail/bus/public transport by the shortest route as per entitlement (on producing documentary evidence), restricted to AC-II.

Boarding and Lodging

Accommodation will be arranged free of cost in the institute's accommodation facilities on sharing basis. (Please do not bring your family members along with you. It is not possible to arrange for their accommodation at Karnal during this period).





APPLICATION FORM

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Organized at

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ICAR-National Dairy Research Institute (Deemed University),
Karnal-132001 (Haryana) INDIA**

February 8-17, 2025

1. Full Name (in block letters) :
2. Designation :
3. Employment status :
4. Present address :
E-mail id, Phone/ mobile
5. Permanent address :
6. Date of birth :
7. Sex: Male/Female :
8. Previous trainings, if any :
9. Academic record :

Sr. no.	Examination passed	Subject main/subsidiary	Year of passing	Class ranks distinctions etc.	University or Institution	Other Information
1.	Bachelor degree					
2.	Master degree					
3.	Doctoral degree					
4.	Other certificates, Diploma, Degree, if any					

Signature of the applicant

Date

Place.....

11. Recommendation by forwarding authority :

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Signature

Designation

Date

Address

Note: Submit the softcopy of application to Course Director at the training.ebl@gmail.com before 25th Jan. 2025. The confirmation to selected participants will be sent before 1st Feb. 2025.





Chief Patron

Dr. Dheer Singh

Director & Vice-Chancellor
ICAR-NDRI

Patrons

Dr. AK Singh

Joint Director (Academic)
ICAR-NDRI

Dr. Rajan Sharma

Joint Director (Research)
ICAR-NDRI

Co-Patron

Dr. JK Kaushik

HoD & Principal Scientist,
Animal Biotechnology Division, ICAR-NDRI

Course Director

Dr. Naresh L Selokar, Senior Scientist,
Animal Biotechnology Division, ICAR-NDRI

Course Coordinator

Dr. MK Singh, Senior Scientist,
Animal Biotechnology Division, ICAR-NDRI

Faculty

Dr. Sachinandan De, National Fellow,
Animal Biotechnology Division, ICAR-NDRI, Karnal.

Dr. D. Malakar, Principal Scientist,
Animal Biotechnology Division, ICAR-NDRI, Karnal.

Dr. Rakesh Kumar, Principal Scientist,
Animal Biotechnology Division, ICAR-NDRI, Karnal.

Dr. Satish Kumar, Principal Scientist,
Animal Biotechnology Division, ICAR-NDRI, Karnal.

Dr. Sudarshan Kumar, Senior Scientist,
Animal Biotechnology Division, ICAR-NDRI, Karnal.

Dr. Bharati Pandey, Scientist,
Animal Biotechnology Division, ICAR-NDRI, Karnal.