APPLICATION FORM FOR PARTICIPATION IN TRAINING COURSE

"Strategies in Vaccine Design Using Genome Editing Technologies"

(Sponsored under ICAR-NPGET Project)

at

ICAR- National Research Centre on Equines)

Hisar, Haryana-125001, INDIA

February 17-21, 2025

1. Full Name (in block letters)
   .....
2. Designation
   .....
3. Present employer and address
   .....
4. Contact details of applicant
   Address
   .....
   Email
   .....
   Tell / Mob No.
   .....
5. Date of Birth ☐☐☐☐☐☐☐☐
6. Sex: ☐ Male ☐ Female
7. Teaching/Research/Professional Expertise
   .....
8. Educational Qualifications

Examination Passed	Subject Main	Year of Passing	Class ranks distinctions	University of Institution
Bachelor Degree				
Master Degree				
Doctoral Degree				
Other Certificates Diploma, Degree if any				

Date.....

Place..... **Signature of Applicant**

11. Recommendation of forwarding institute :
    .....

Signature..... Date.....

Designation..... Address.....
.....

All correspondence should be addressed to:

Dr. B. C. Bera

Principal Scientist & Course Director

ICAR-National Research Centre on Equines

(Indian Council of Agricultural Research)

Hisar, Haryana-125001, INDIA

Tel: 01662-282581 (O); 9728240060 (M)

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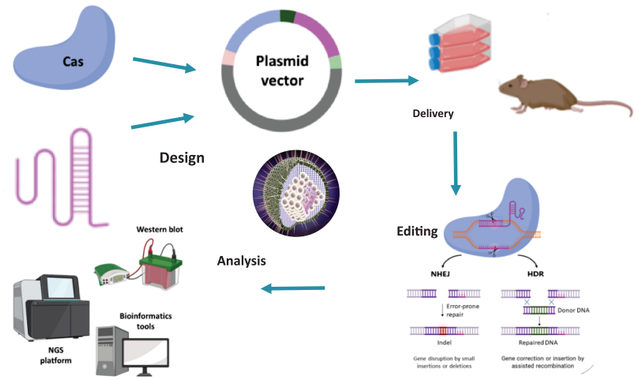
National Training Program on

"Strategies in Vaccine Design Using Genome Editing Technologies

Sponsored under

ICAR-NPGET PROJECT

February 17-21, 2025



Patron

Dr. T. K. Bhattacharya

Director

ICAR- National Research Centre on Equines, Hisar

Course Director

Dr. Bidhan Chandra Bera

Principal Scientist

National Centre for Veterinary Type Cultures

ICAR- National Research Centre on Equines

Course Coordinator

Dr. Taruna Anand

ICAR National Fellow

National Centre for Veterinary Type Cultures

ICAR- National Research Centre on Equines

Organized by

CENTRE OF EXCELLENCE IN GENOME EDITING

Equine Virology Laboratory

ICAR- National Research Centre on Equines

Hisar, Haryana-125001

ABOUT İNSTİTUTE

The Indian Council of Agricultural Research (ICAR) established the National Research Centre on Equines (ICAR-NRCE) in Hisar, Haryana, to advance research on equine health and productivity. ICAR-NRCE is a leading institute equipped with state-of-the-art laboratories and facilities dedicated to improving equine health, management, and disease control. Its research activities are supported by specialized services such as an advanced research laboratories, experimental animal facility, microbial containment laboratory, and the Info-Equine Museum, which collectively enable a comprehensive approach to equine research. Additionally, the centre is complemented by the Equine Production Centre in Bikaner, Rajasthan, which focuses on equine breeding and management.

ICAR-NRCE also houses the National Centre for Veterinary Type Cultures (NCVTC), a national repository of veterinary microbes established in 2005. Operating through 15 network units across the country, the NCVTC collects and preserves veterinary microbes crucial for research and disease management.

With advanced laboratories and a team of skilled scientists, ICAR-NRCE is at the forefront of vaccine research and development. The centre conducts cutting-edge research in immunology, biotechnology, and genetic engineering, with a strong focus on designing vaccines for equine and livestock diseases. The important work of the institute includes developing vaccines for emerging infectious diseases, zoonoses, and strengthening immune responses in animals through novel vaccine platforms. Additionally, genome editing technologies such as CRISPR-Cas9 are explored to create more effective, targeted vaccines with improved safety profiles.

As part of its mission to drive innovation and knowledge exchange, the centre offers specialized training programmes. One such initiative is the National Hands-on Training Programme on Strategies in Vaccine Design Using Genome Editing Technologies, which equips participants with the skills to utilize CRISPR-Cas9 and Bacterial Artificial Chromosome (BAC)-based strategies in the development of vaccines. This training programme aims to support the researchers working on innovative solutions to combat diseases in equines, livestock, and other animals, contributing to advancements in animal health and vaccine biotechnology.

ABOUT COURSE

The field of genome editing has revolutionized veterinary and agricultural research, offering precise and efficient methods to modify genetic material. Among these, CRISPR-Cas9 technology has emerged as a powerful tool with significant applications in livestock vaccine development. This hands-on training course is designed to provide researchers, scientists, and professionals with in-depth knowledge and practical experience in advanced genome editing techniques for vaccine development. Participants will explore the application of CRISPR-Cas9 and Bacterial Artificial Chromosome (BAC)-Based Strategies for viral gene deletion, focusing on livestock vaccine development. The training course covers the mechanism of CRISPR-Cas9 and BAC technologies, designing and optimization of guide RNAs (gRNAs) using bioinformatics tools, critical for efficient and accurate genome editing, selection of target genes for vaccine development, generating CRISPR constructs and its delivery. In addition to theory, the course offers practical, hands-on sessions where participants will apply their learning to design gRNAs, perform genome editing in viral genomes, and explore BAC-based strategies for modifying large DNA fragments.

COURSE OBJECTİVES

- **CRISPR-Cas9 Mechanism:** Understand the principles of CRISPR-Cas9 genome editing and its application for viral gene modification in vaccine development.
- **Guide RNA (gRNA) Design:** Learn to design efficient gRNAs for accurate gene editing using bioinformatics tools like CRISPOR and CHOP-CHOP, etc.
- **Vaccine Development Strategies:** Discover how to select target genes and design strategies for pathogen-specific gene deletion to achieve viral attenuation.
- **BAC-Based Gene Deletion:** Explore the use of BAC technology to manipulate viral genomes for vaccine development.

ELİGİBİLİTY

Applications are invited from the scientist/faculty including research staff (RAs, SRFs, JRFs, YPs, PHD Students) of ICAR/SAUs / CAUs and other universities/Institutes. Basic Qualification: M.V.Sc./ M.Sc (Life Sciences) or equivalent.

REGİSTRATİON FEE

There is no registration/course fee for the training programme TA has to be borne by the Participant.

HOW TO APPLY

Interested candidates are required to submit their application in the prescribed format via email to the course coordinator at bidhan.bira@icar.gov.in,bcbpatent@gmail.com. The application must be duly approved by the competent authority of the applicant's organization (such as the HOD, Dean, Director, or Vice-Chancellor).

Applications sent without proper institutional approval or through unofficial channels will not be considered. Ensure that all required documents and the approval from your organization are included for your application to be processed. **Applications must reach by Feb 8,2025.**

MODE OF SELECTİON

The selection of candidates for the National Hands-on Training Programme will be based on the relevance of the candidate's research interests and institutional requirements. Priority will be given to applicants whose current research focuses on areas where genome editing technologies, such as CRISPR-Cas9 and BAC-based strategies, can be directly applied to vaccine development. A total of **10 candidates** will be selected for this training. The selection process will ensure that the chosen participants are best positioned to benefit from the programme and to apply the acquired knowledge to their research and institutional needs.

BOARDİNG AND LODGİNG

Boarding And Loadging will be provided free of cost. Accommodation will be provided at the institute's accommodation facilities on a sharing basis. Participants are kindly requested not to bring any family members along, as the accommodation is intended for the trainees only. Further details regarding the accommodation will be shared with the selected candidates.