APPICATION FORM FOR PARTICIPATION IN TRAINING COURSE

"Practical Guide to CRISPR/Cas9-based Multivalent Vaccine Development"

(Sponsored under ICAR-NPGET Project)

at

ICAR- National Research Centre on Equines

Hisar, Haryana-125001, INDIA

October 27-31, 2025

1. Full Name (in block letters) _____
2. Designation _____
3. Present Employer and address _____
4. Correspondence address _____
5. Permanent address _____
6. DOB _____
7. Sex _____
8. Any professional experience and duration _____
9. Previous relevant trainings (if any) _____
10. Academic record

Examination Passed	Subjects	Year of Passing	Class Ranks Distinction	University or Institute
Bachelor's degree				
Master's degree				
Doctoral degree				
Other Certificates				

11. Signature of Applicant (with date and place) _____
12. Recommendations of forwarding Institute _____
13. Designation _____
14. Signature (with date and place) _____

Note: Please attach valid copy of Category/Cast and Aadhaar/Voter card/PAN Card.

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)

E-mail: bcbpatent@gmail.com

National Training Program

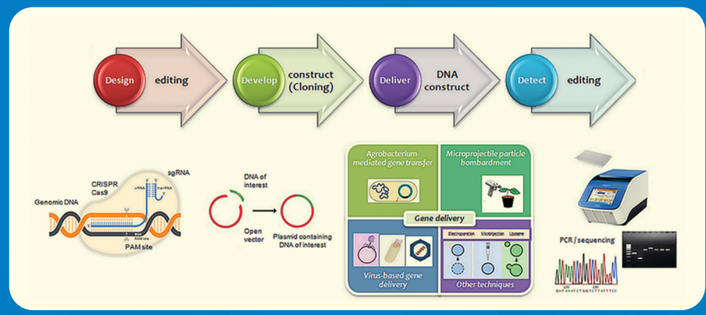
on

Practical Guide to CRISPR/Cas9-based Multivalent Vaccine Development

Sponsored under

ICAR-NPGET PROJECT FOR SCHEDULED CASTE

October 27-31, 2025



Patron

Dr. T. K. Bhattacharya
Director
ICAR-National Research Centre on Equines, Hisar

Course Director

Dr. B.C. Bera
Principal Scientist
ICAR-National Research Centre on Equines, Hisar

Course Coordinator

Dr. Taruna Anand
National Fellow
Principal Scientist, ICAR- NRCE, Hisar

Organised by

CENTRE OF EXCELLENCE IN GENOME EDITING

Equine Health Division

ICAR- National Research Centre on Equines

Hisar, Haryana-125001

ABOUT INSTITUTE

The Indian Council of Agricultural Research (ICAR) established the National Research Centre on Equines (ICAR-NRCE) at Hisar, Haryana, with the objective of promoting advanced research on equine health and productivity. Today, ICAR-NRCE stands as a premier institute equipped with state-of-the-art laboratories and modern facilities dedicated to improving equine health, management, and disease control. It is supported by specialized resources such as advanced research laboratories, an experimental animal facility, a microbial containment laboratory, and the Info-Equine Museum, which together enable a comprehensive approach to equine research. Complementing this infrastructure is the Equine Production Centre at Bikaner, Rajasthan, which focuses on equine breeding and management.

The centre also houses the National Centre for Veterinary Type Cultures (NCVTC), established in 2005 as a national repository of veterinary microbes. Through its 15 network units spread across the country, NCVTC collects and preserves valuable microbial resources that play a vital role in research and in the development of strategies for disease management.

With its advanced infrastructure and a team of highly skilled scientists, ICAR-NRCE has emerged as a leader in vaccine research and development. The institute conducts cutting-edge research in the fields of immunology, biotechnology, and genetic engineering, with a strong emphasis on designing innovative vaccines for equine and livestock diseases. Its scientific programmes focus on addressing challenges posed by emerging infectious diseases and zoonotic threats, while also exploring novel vaccine platforms to enhance immune responses in animals. In addition, the use of modern genome editing technologies such as CRISPR-Cas9 is being pursued to design targeted vaccines that are both safe and highly effective.

As part of its mission to promote innovation and knowledge dissemination, ICAR-NRCE regularly organizes specialized training programmes. A key initiative in this regard is the forthcoming national-level hands-on training programme on “Practical Guide to CRISPR/Cas9-based Multivalent Vaccine Development”, which will be held from 27th to 31st October, 2025. This intensive five-day programme will provide participants with a strong conceptual foundation in vaccine design strategies, combined with practical training in genome editing and molecular biology techniques.The training is carefully structured to ensure that participants not only develop a clear theoretical understanding but also gain competence in practical workflows employed in modern vaccine development. By combining scientific concepts with real-world applications in veterinary virology and equine health, the programme will offer participants a well-rounded learning experience.

ABOUT COURSE

The rapid advancements in genome editing technologies such as CRISPR/Cas systems, base editing, and synthetic biology, the landscape of vaccine development is evolving significantly. This training program is aimed at empowering young researchers, academicians, and biotechnology professionals with both theoretical knowledge and practical skills in the field of multivalent vaccine design, focusing on vaccines capable of targeting multiple pathogens or strains simultaneously. The hands-on training program will provide participants with a strong conceptual foundation in vaccine design strategies, along with hands-on experience in genome editing and molecular biology techniques. Special emphasis will be placed on the application of CRISPR/Cas9 tools, bioinformatics-driven epitope prediction, and in-silico construct design, as well as laboratory techniques like gene cloning, vector construction, and vaccine delivery systems.

Key highlights of the training include sessions on CRISPR-Cas9 fundamentals and its role in vaccine development, computational prediction of multivalent epitopes, genome editing approaches for viral vector engineering, and the construction of expression vectors tailored for multivalent vaccines. Hands-on modules will cover guide RNA (gRNA) design, vector assembly, cassette design, molecular cloning techniques, and cell culture electroporation. The program is structured to ensure that participants not only understand the theoretical aspects but also gain competence in practical workflows used in modern vaccine development.

COURSE OBJECTIVES

- Provide conceptual understanding of CRISPR/Cas9 in vaccine development.
- Train participants in epitope prediction and in-silico construct design.
- Offer hands-on practice in gRNA design, cloning, and vector construction.
- Develop skills in cassette assembly, cell culture, and electroporation.
- Introduce real-world case studies in veterinary virology and equine health.
- Build competence in experimental workflows for vaccine research.

ELIGIBILITY

Applications are invited from the scientist/faculty including research staff (RAs and SRFs) of ICAR/SAUs/CAUs and other universities/Institutes and veterinary officers of state departments. Basic Qualification: M.V.Sc./ M.Sc. (Life Sciences) or equivalent.

Note: It is mandatory for applicants to submit a soft copy of the SC community certificate issued by the state/ central government and an Aadhaar card with the filled application form for consideration.

REGISTRATION FEE

There is no registration/course fee for the training programme. Travel cost has to be borne by the participants.

HOW TO APPLY

Interested candidates are required to submit their application in the prescribed format via email to the course coordinator at **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).

Please note, applications sent without proper institutional approval or through unofficial channels will not be considered for screening. Ensure that all required documents and the approval from your organization are included for your application to be processed.

The application must reach by 10 October, 2025.

MODE OF SELECTION

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 **15 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.

BOARDING AND LODGING

Accommodations will be provided **free of cost** at the institute's accommodation facilities on a **sharing basis if available.** 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.