

APPLICATION FORM FOR PARTICIPATION IN TRAINING COURSE  
**DNA Cloning, Recombinant Protein Production and Purification Techniques**

(Sponsored by Scheduled Castes Sub Plan [SCSP] Scheme)  
 Organized at

ICAR-National Dairy Research Institute, Karnal-132001 (Haryana) INDIA  
**02<sup>nd</sup> to 16<sup>th</sup> March 2026**

1. Full Name (in block letters) :
2. Designation :
3. Present address :
4. Address to which reply should be sent (in block letters) (Give e-mail id, Phone/ mobile, Fax number) :
5. Permanent address :
6. Date of Birth :
7. Sex: Male/Female :
8. Previous trainings, if any :
9. Mention if you have participated in any training course during the previous years under SCSP scheme :
10. 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: \_\_\_\_\_

Signature \_\_\_\_\_  
 Designation \_\_\_\_\_  
 Address \_\_\_\_\_

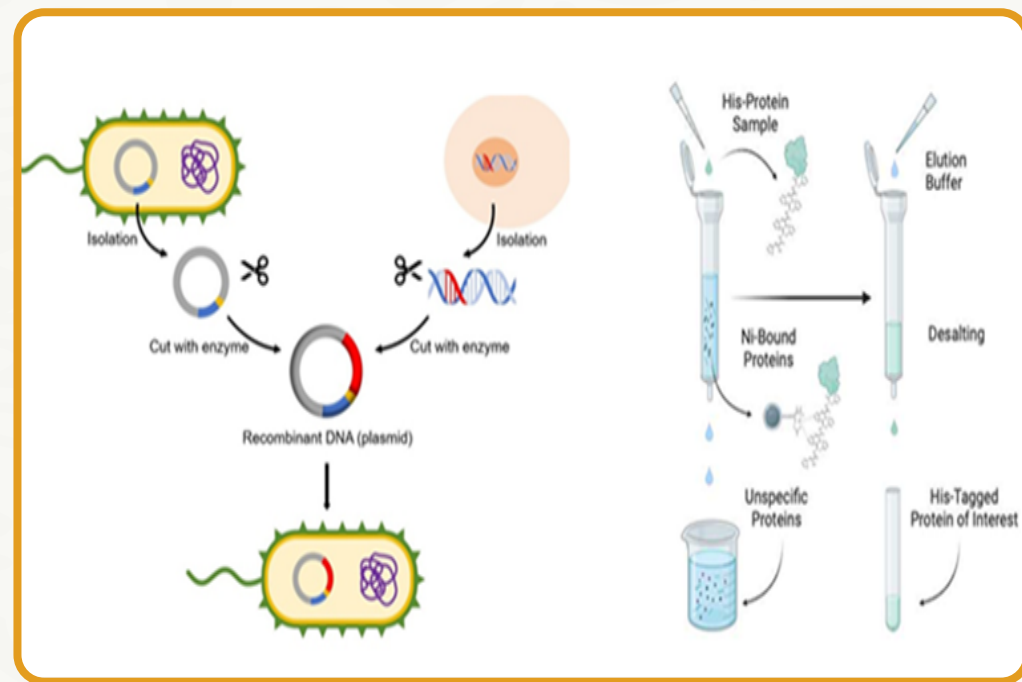
Date \_\_\_\_\_

Note: It is mandatory for applicant to submit a soft copy of SC community certificate issued by state/central government along with the filled-in application form for consideration. Submit the soft copy of application to Dr. R. K. Paul ([drrajani1980@gmail.com](mailto:drrajani1980@gmail.com)) before 20th Feb., 2026.

**National Training Programme**  
**Hands-on Training on**  
**DNA Cloning, Recombinant Protein Production and Purification Techniques**

Sponsored by Scheduled Castes Sub Plan (SCSP) Scheme

**02<sup>nd</sup> to 16<sup>th</sup> March, 2026**



Organized by

**Animal Biochemistry Division**  
**ICAR- National Dairy Research Institute**

Karnal, Haryana (INDIA)-132001

[www.ndri.res.in](http://www.ndri.res.in)



### About ICAR-NDRI:

ICAR-National Dairy Research Institute (Deemed University) is a premier research organization that provides Research and Development support to the dairy development programmes of the country. Over the years, it has gained prominence as the front-ranking research and academic organization on global basis. This year the institute is celebrating its 100 years of excellence in research and academic achievements.

### About Animal Biochemistry Division:

The Division of Animal Biochemistry came into existence in 1984 following the merger of the Discipline of Animal Biochemistry of Dairy Chemistry Division and the Division of Human Nutrition and Dietetics. In the past, the division has made significant achievements in the research on validation of health-benefits of dairy ghee and probiotic dahi in controlling coronary heart diseases, G.I. tract and mammary cancers and improvement of immune system; bioavailability of vitamins and minerals from dairy products; characterization and sequencing of milk lysozyme and detection of sub-clinical mastitis; estimation of conjugated linoleic acid levels in milk products; anti-aging attributes of an Ayurvedic preparation; immobilization of galactosidase and its application in production of low-lactose milk; elucidation of biochemical changes in sperm maturation, acrosome reaction and semen freezing; gene expression and hormonal regulation of IGF and its receptor, IGF1Rs, PAPP-A, TNF- $\alpha$  and aromatase during buffalo estrous cycle; SSCP analysis of CYP19 gene in anestrus buffaloes; elucidation of signal transduction pathways (PI3K and MAPK) in cattle granulosa cells during *in vitro* steroidogenesis and apoptosis; research on hybridomas, immunosuppressor proteins, and growth hormone receptor. The present research of the division is directed towards the development of probiotic foods, dairy nutraceuticals and their mechanism of action; ameliorative effects of probiotics on heavy metals-mediated infertility; development of estrus detection methods for buffalo by usage of salivary fern pattern and micro RNA; therapeutic potential of milk exosomes, identification of markers of post-partum anestrus in buffalo; osteoanabolic effect and therapeutic potential of milk-derived bioactive

peptides in metabolic diseases; characterization of sperm-quiescent proteins and signal transduction mechanism in sperm functions etc. The division has bagged Rafi Ahmed Kidwai Memorial Award (03), Jawahar Lal Nehru Award (02), Dr. P. G. Nair Award, Young Scientist Awards, IUIS/FIMSA Travel Bursary Award, Best publication award and several paper presentation awards. In addition, the division has filed more than 10 patents and developed several technologies including a computer-based estrus detection app (Mahishee Mitra) for buffalo.

### Course Contents (theory and on-bench practical):

- » Designing of PCR Primer for cloning in to expression vector
- » Isolation of total RNA and cDNA synthesis
- » PCR amplification of target gene and sequence analysis
- » Restriction endonuclease (RE) digestion of cloning vector and PCR amplicon and purification
- » Preparation of competent E. coli BL21(DE3) cells
- » Ligation of target DNA with plasmid and transformation
- » Culture of transformed colonies, plasmid isolation and RE digestion analysis
- » Optimization of protein expression by use of variable temperature and IPTG levels
- » Assessment of protein expression by SDS-PAGE analysis
- » Purification of recombinant protein by Ni-NTA affinity chromatography
- » Confirmation of the protein by Western blot analysis
- » Protein purification by adsorption and size exclusion chromatography
- » Purification of protein by ion-exchange chromatography
- » Purification of protein by HPLC
- » 2D electrophoresis of proteins and mass spectrometric identification

### Eligibility:

Researchers belonging to the Scheduled Caste (SC) community including faculty, Masters and PhD students, research staffs (RA/SRF/JRF/YP etc.) of ICAR/SAUs and CAUs and other Universities/institutes.

### How to Apply:

Interested candidate should submit his/her application through email to the Course Director ([rajani.paul@icar.org.in](mailto:rajani.paul@icar.org.in); [drrajani1980@gmail.com](mailto:drrajani1980@gmail.com)). The application needs to be approved by the competent authority of his/her organization (mentor/HOD/Dean/Director/Vice-chancellor). There is no need to submit the hardcopy of the application.

**Registration Fee:** There is no registration fee

### Certificate:

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

### Financial Assistance:

The participants will be paid T.A. for to and fro journey by rail/ bus/ public transport by the shortest route up to 3<sup>rd</sup> AC or, up to 2<sup>nd</sup> AC for entitled candidates in train (on production of documentary evidence).

### Organizing Committee

#### CHIEF PATRON

**Dr. Dheer Singh**, Director cum Vice-chancellor, ICAR-NDRI, Karnal

#### PATRONS

**Dr. Rajan Sharma**, JD (Res.), ICAR-NDRI, Karnal

**Dr. A.K. Singh**, JD (Aca.), ICAR-NDRI, Karnal

#### CO-PATRON

**Dr. Suneel Kr. Onteru**, Head, Animal Biochemistry Division, ICAR-NDRI, Karnal

#### COURSE DIRECTOR

**Dr. Rajani Kr. Paul**, Sr. Scientist, Animal Biochemistry Division, ICAR-NDRI, Karnal

### Boarding and Lodging:

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

### How to Reach:

NDRI, Karnal is well connected by rail and roadways. Several trains run between New Delhi railway station and Karnal. Besides you can also travel in a bus from ISBT bus stand, New Delhi.

### Weather during the period:

The weather is generally pleasant and sunny, making it a good time to visit, with temperatures typically ranging between 16°C and 30°.

### Nearby places of tourist attraction:

Karna lake, Karan Taal park in Karnal; Brahma Sarovar, Srikrishna Museum and Kurukshetra Panorama & Science Centre in Kurukshetra etc.

#### FACULTIES

**Dr. Dheer Singh**, Director, ICAR-NDRI, Karnal

**Dr. Rajiv Kapila**, Pr. Scientist, ABC, ICAR-NDRI, Karnal

**Dr. S. K. Onteru**, Pr. Scientist, ABC, ICAR-NDRI, Karnal

**Dr. Varij Nayan**, PS, ABC, ICAR-NDRI, Karnal

**Dr. Rajani Kr. Paul**, Sr. Scientist, ABC, ICAR-NDRI, Karnal

**Dr. Jai Kr. Kaushik**, Head, ABTC, ICAR-NDRI, Karnal

**Dr. Sudarshan Kumar**, Sr. Scientist, ABTC, ICAR-NDRI, Karnal

**Dr. GVPPS Ravi Kumar**, Head, ABT, ICAR-NBAGR, Karnal

### All correspondence should be addressed to:

#### Dr. Rajani Kr. Paul

Sr. Scientist & Course Director  
Animal Biochemistry Division,  
ICAR- National Dairy Research Institute  
Karnal- 132001 (Haryana) INDIA  
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