



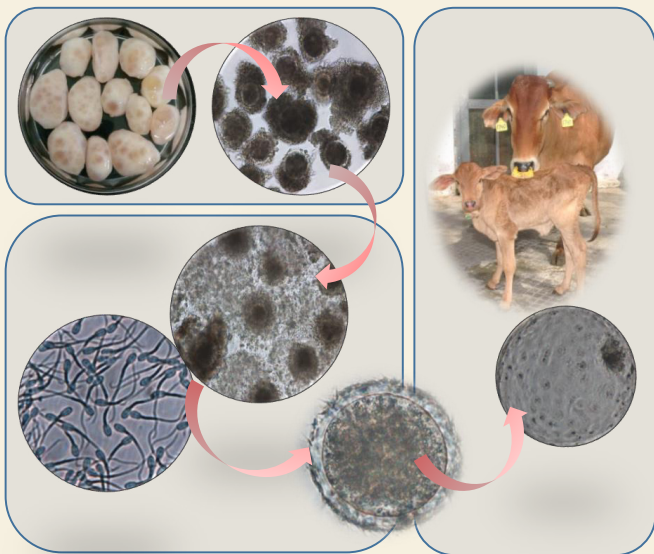
## National Training Programme on

# Ovum Pick-Up - In Vitro Fertilization (OPU-IVF) Technology

*Sponsored under*

**ICAR's Development Action Plan for Scheduled Caste (DAPSC)**

**September 11-20, 2023**



*Organized by*

**Animal Biotechnology Division**

**ICAR-National Dairy Research Institute**

**Karnal- 132001 (Haryana) INDIA**

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



## About Institute and Animal Biotechnology Division

ICAR-National Dairy Research Institute (Deemed University) is the premier organization that provides Research and Development support for dairy development programmes of the nation. Over the years, it has gained prominence as the front-ranking research organization on a global basis. Animal Biotechnology Division (ABTD) is one of the prestigious divisions of the Institute. Activities on biotechnology research at NDRI were initiated during the mid-eighties under a UNDP 'Centre of Excellence Programme on Biotechnology'. In 1987, on the recommendation of the National Task Force of the Department of Biotechnology, Government of India, a National Project on Embryo Transfer Technology was initiated at NDRI which was also supported by ICAR/ USAID bilateral cooperation in its initial stages. At NDRI, more than 10 calves from a single cow in one calendar year have been produced using Embryo Transfer Technology. The *in vitro* fertilization (IVF) technique was successfully used to produce the world's first IVF calf in buffalo named 'PRATHAM'. The IVF technique has also been used to produce goat kids for the first time in India. Further India's first cattle calf 'HOLI' was produced using OPU-IVF technology. World's first clone buffalo calf was produced on Feb 6, 2009, and India's First cattle clone 'GANGA' was produced on March 16, 2023, by hand-guided cloning technique. At present the division has developed various impressive facilities for research and teaching in the area of animal tissue culture, *in vitro* embryo production, somatic cell cloning, embryonic stem cell, genome editing, transgenesis, genome analysis, expression genomics and proteomics etc.

## Ovum Pick-Up-In Vitro Fertilization (OPU-IVF) Technology

Ovum Pick-Up (OPU) is one of the recent and remarkable technologies in the field of reproductive biotechnology which allows the collection of oocytes from the ovaries of live animals of known pedigree and additionally decreases the interval between generations. It has the potential of replacing previous procedures of conventional superovulation and traditional embryo transfer technologies. This procedure can be performed on pregnant animals less than 100 days in gestation. In addition, this approach provides a highly efficient source of oocytes for the production of embryos for research purposes or for certain commercial applications which require zygote/embryo manipulation. Since cattle slaughter is banned in India, thus OPU is the only technique to obtain bovine oocytes for *in vitro* production of embryos. In OPU, ovarian follicles



are punctured in a live animal with the help of a needle attached to a vacuum pump after visualizing them through ultrasonography. The oocytes obtained are then subjected to *in vitro* maturation (IVM), *in vitro* fertilization (IVF) and culture (IVC) for embryo production. The embryos thus produced can then be transferred to suitably synchronized recipients for producing offspring of known pedigree.

## Course Contents (theory and practical)

- » Basics of ultrasonography.
- » Media preparation.
- » Oocytes recovery from live animal (Ovum pick-up).
- » Searching and grading of isolated oocytes.
- » *In vitro* maturation of oocytes.
- » Assessment of *in vitro* maturation of oocytes.
- » *In vitro* fertilization.
- » *In vitro* culture of fertilized oocytes.
- » Assessment of cleavage, and embryonic development.
- » Assessment of health of OPU-IVF embryos.
- » Gene expression study related to the development of oocytes/embryos.

## Eligibility

Applications are invited from the Scheduled Caste (SC) community Faculty, including research staff (RAs and SRFs) of ICAR/ SAUs and CAUs and other Universities/ Institutes and veterinary officers of state departments. The basic qualification of the candidates must be M.Sc. (Life Sciences) equivalent.

## How to Apply

Interested candidates submit the filled application through email to the Course Director (manoj.singh@icar.gov.in; training.abtd@gmail.com). The application needs to be approved by the competent authority of your organization (mentor/HOD/Dean/Director/Vice-chancellor). The hard copy of the complete application is to be sent to the course director on or before August 10, 2023. The application sent without a proper channel will not be considered for screening.

## Mode of Selection

The selection will be made according to the need of the candidate's research and institutional requirements. A total of 10 candidates will be selected for the said training.

## Financial Assistance

There is no bench fee. The participants will be paid T.A. for to and fro journey by rail/ bus/ public transport by the shortest route as per entitlement, restricted to AC-II (on producing documentary evidence). Participants should produce a certificate from the parent institute that they are not being paid any allowances for this training.

## 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 will not be possible to arrange for their accommodation at Karnal during the period).



## Chief Patron

**Dr. Dheer Singh**

Director & Vice-Chancellor  
ICAR-NDRI, Karnal

## Patron

**Dr. A. K. Singh**

Joint Director (Acad.)  
ICAR-NDRI, Karnal

## Co-Patron

**Dr. J. K. Kaushik**

Head, ABT Division  
ICAR-NDRI, Karnal

## Course Director

**Dr. Manoj Kumar Singh**

Senior Scientist, ABTD  
ICAR-NDRI, Karnal

## Nodal Officer (DAPSC)

**Dr. Gopal Sankhala**

PS & Head, D. Ext. Division  
ICAR-NDRI, Karnal

## Co-Course Director

**Dr. N. L. Selokar**

Scientist (SS), ABTD  
ICAR-NDRI, Karnal

**Dr. Rubina K Baithalu**

Sr. Scientist, ARGO  
ICAR-NDRI, Karnal

## Course Faculty

**Dr. T. K. Mohanty**, Principal Scientist  
ARGO, ICAR-NDRI, Karnal

**Dr. D. Malakar**, Principal Scientist  
ABTD, ICAR-NDRI, Karnal

**Dr. Satish Kumar**, Principal Scientist  
ABTD, ICAR-NDRI, Karnal

**Dr. Rakesh Kumar**, Principal Scientist  
ABTD, ICAR-NDRI, Karnal

**Dr. Suneel Kumar Onteru**, PS & Head  
Animal Biochemistry, ICAR-NDRI, Karnal

**Dr. Nishant Kumar**, Senior Scientist  
Incharge, ABRC, ICAR-NDRI, Karnal

**Dr. Gopal Gawane**, Senior Scientist  
AGB, ICAR-NDRI, Karnal



# APPLICATION FORM FOR PARTICIPATION IN TRAINING COURSE

*National Training Programme on  
Ovum Pick-Up - In Vitro Fertilization (OPU-IVF) Technology*

*Sponsored by ICAR's Development Action  
Plan for Scheduled Caste (DAPSC)*

*Organized at*

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

**September 11-20, 2023**

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 .....

Date .....

Address .....

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. Submit the soft copy of the application to Dr. M.K. Singh (manoj.singh@icar.gov.in; training.abtd@gmail.com) before 10<sup>th</sup> August 2023. The confirmation of participation will send by 15<sup>th</sup> August 2023.



## ABTD, NDRI, KARNAL – Milestone



*World 's first IVF  
buffalo calf 'PRATHAM'*



*India's first OPU-IVF  
cattle calf 'HOLI'*



*India's first IVF  
goat kid*

All correspondence should be addressed to

**Dr. M.K. Singh**

Senior Scientist & Course Director

Animal Biotechnology Division

ICAR- National Dairy Research Institute  
(Indian Council of Agricultural Research)

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Tel. 0184- 2259544 (O), 9896213121 (M), Fax: 0184-2250042

E-mail: [manoj.singh@icar.gov.in](mailto:manoj.singh@icar.gov.in), [training.abtd@gmail.com](mailto:training.abtd@gmail.com)

