

## About ICAR-NDRI

ICAR-National Dairy Research Institute (NDRI) at Karnal, Haryana is one of the premier Institutes in the dairy sector, which has contributed immensely to the growth of the dairy industry. The R&D activities and HRD programs of the Institute mainly focus on the fundamental aspects of dairying. Quality milk production is at the fore of institute mandate. The institute has established several landmarks in the field of production and management of dairy animals for better productivity, innovating milk processing technologies and equipment, and providing the dairy farmers and entrepreneurs with updated information about existing market demands and practical solutions for making dairying a self-sustaining and profitable business. In December, in Karnal, the average high-temperature is 22.8°C (73°F), and the average low-temperature is 10.8°C (51.4°F)

## Objective of Training

Antibiotic resistance in bacterial pathogens poses a severe danger to the health of humans, animals, and the environment, which has an impact on the idea of one health. Bovine mastitis is one of the most frequently diagnosed disease of dairy cattle resulting in the complete damage of the udder. Staphylococcus aureus and ESBL producing pathogens are the most common cause of bovine mastitis with huge economic loss. Emergence of Methicillin-resistant Staphylococcus aureus (MRSA) among bovine mastitis is a matter of concern for animal health and dairy industry. The CTX-M, TEM, SHV, OXA are examples of ESBL enzymes mostly produced by Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa and Proteus mirabilis to become resistant to extended-spectrum penicillin, cephalosporins, carbapenems and monobactams.

A quick point-of-care diagnosis of pathogenic bacteria and quick interpretation of antibiotic susceptibility testing (AST) are the most crucial steps in this issues. Educating professionals adds to a greater awareness, practical insights and a better understanding of Antimicrobial resistance.

### Organizing Committee

#### Chief Patron

**Dr. Dheer Singh**

Director & Vice Chancellor  
ICAR-National Dairy Research Institute  
Karnal-132001, Haryana

#### Course Convenor

**Dr. Sachinandan De**

PS and Head of Department  
Animal Biotechnology Centre, NDRI

#### Course Director

**Dr. Sachinandan De**  
**Dr. Sudarshan Kumar**

#### Correspondence

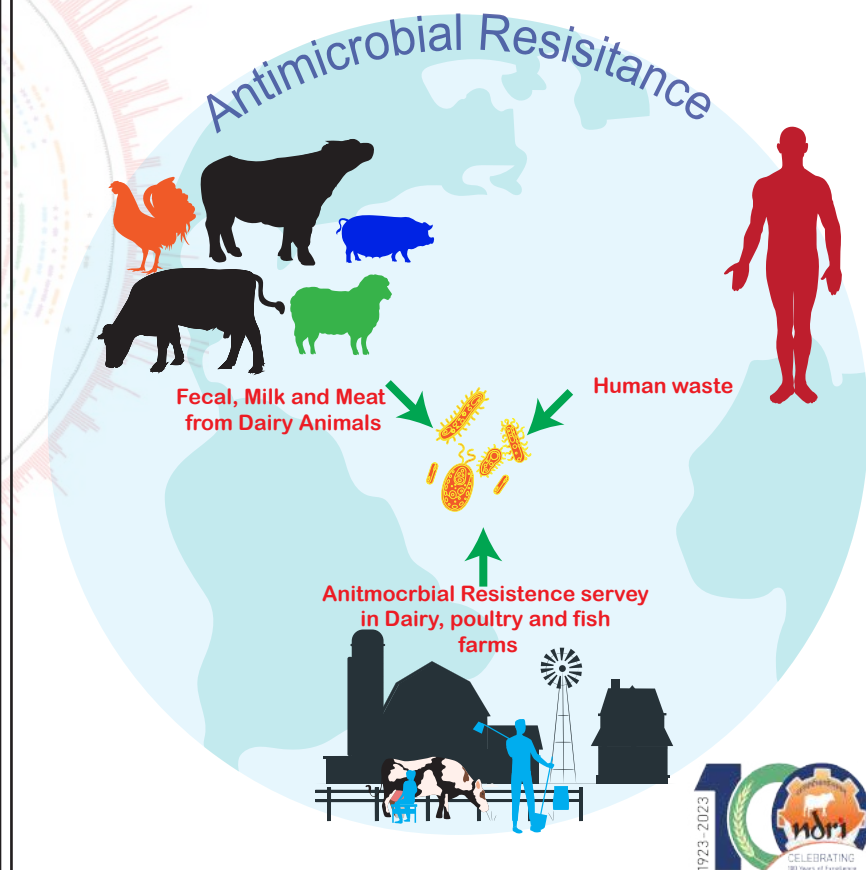
**Dr. Sudarshan Kumar**  
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ON

## Molecular Diagnosis of AMR (Anti Microbial Resistant) pathogen causing Mastitis in Cattle and Buffalo

09 to 31 December, 2022



Organized by:

पशु जैव प्रौद्योगिकी केंद्र  
Animal Biotechnology Centre  
भा.क. अनु.प.-राष्ट्रीय डेयरी अनुसंधान संस्थान  
ICAR-National Dairy Research Institute  
करनाल -132001 (हरियाणा), भारत  
Karnal-132001 (Haryana), India





*Duration : 21 days  
(09 Dec 2022 to 31 Dec 2022)  
Venue: Animal Biotechnology Centre  
ICAR-NDRI, Karnal*

## Animal Biotechnology Centre



### About Animal Biotechnology Centre

The Animal Biotechnology Centre holds the distinction of producing world's first IVF buffalo calf, world's first buffalo calf produced through Hand-made cloning and India's first goat kid produced by IVF. Research in various laboratories at the Animal Biotechnology Centre is focused on three main areas namely animal genomics and proteomics, embryo biotechnology & structural biology. The focus of research in animal genomics is on understanding animal reproduction at molecular level, studying the role of miRNAs and remodeling sperm surface for improving reproductive efficiency in buffalo. The focus in proteomics is on development of diagnostic kits for early pregnancy detection and identification of subclinical mastitis, and understanding proteomics of milk production and lactation. Major areas of interest in embryo biotechnology include in vitro embryo production, animal cloning, and production of transgenic animals, embryonic and adult stem cells and cryopreservation of gametes. The structural biology research is aimed at development of bioactive recombinant proteins for human use. In addition to these, the Centre has a laboratory on Bioinformatics and a Mass Spectrometer facility.

### Course Details

- The emergence of AMR in bovine mastitis and Phenotypic Antimicrobial Susceptibility Testing (AST).
- Molecular methods for AMR genes detection.
- Virulence and endotoxin gene profile of MRSA and ESBL bacteria.
- Role of integrons in the spread of AMR across microbiomes.
- DNA isolation from Gram-positive and Gram negative bacterial pathogens.
- Prokaryote genome organization and complexity.
- Purification and quantification of bacterial genomic / plasmid DNA.
- Cloning and expression of DNA molecules in bacterial host.
- CRISPR based genome editing in animal etc.
- Metagenomics applied to AMR pathogens surveillance.

### How to Apply?

As per the ICAR instructions, the interested participants should register and apply online through 'Capacity Building Program (CBP)' by the Agricultural Education Division, ICAR nomination portal as below:

1. Visit the website <https://cbp.icar.gov.in> or click on Capacity Building Program link under <https://www.icar.org.in>
2. Log in using your user ID and Password. To create user ID use "Create New Account" link.
3. After login, click on "Participate in Training" link and fill the Performa and send the duly signed copy through proper channel to The Course Director.

The advance scanned copy of the nomination may be sent by email to the Course Director, [sachinandan@gmail.com](mailto:sachinandan@gmail.com)

### Eligibility

Assistant Professors and above / Scientists / Researchers who are employed in Central / State Government SAUs/KVK/CAU are eligible for the training program. The applications must be forwarded by the Head of the Institution.

### Mode of Selections

The candidates will be selected based on the evaluation criteria set by the evaluation committee. The maximum number of participants who can attend the workshop is limited to 25.

### How to reach NDRI, Karnal?

Karnal is well connected with major cities of India by road and rail. The distance from New Delhi Airport is around 150 Km, which can be covered by road in about 2.5 h. Frequent train services are available from New Delhi/Delhi railway stations. State run bus ply round the clock from Inter State Bus Terminus, New Delhi. NDRI is located very near to the Karnal bus stand and railway station. Auto rickshaw services are available from both bus stand and railway station to the NDRI.

### Accommodation and Travel

Participants will be paid to and from fare for journey performed by the shortest route by rail or bus or other means of transport. The payment will be made as per their entitlement but restricted to the maximum of AC II tier train fare. Participants will be provided rent-free accommodation, wholesome meals and refreshments. Local participants will be provided lunch and inter-sessions tea only.

Participants are advised to depart to ICAR-NDRI, Karnal, Haryana only after the receipt of participation confirmation email from the Course Director.

### Registration Details

The participants are required to pay a sum of Rs. 50/- (Rupees Fifty only) as registration fee (Non-refundable).

### Important Dates

Deadline to register : Dec 03 2022

Date of notification of selection: Dec 05, 2022