

National Training Programme on “Application of Functional Genomics Tools for Improving Economic Traits in farm Animals”

**To be organized at
Animal Biotechnology Centre
National Dairy Research Institute
Karnal 132001 Haryana**

From March 3 to 12, 2012

About this Training Programme

Most of the economic traits in Livestock animals are controlled by many genes working in tandem to display the phenotype. In this context it becomes important to decide how we are going to continue to improve animals in future? To exploit the vast animal resources for their full potential it will be urgent to gain knowledge on mechanisms of genomic control for economic traits which can help developing future improvements strategies. Functional genomics approaches provide opportunity to study large numbers of genes that control physiological functions (eventually displayed as economic traits). The work in hand is to see what genes are “turned on” or “off” under specific conditions of high or low production, fertility, adaptability and nutritional efficiency. This approach presents a new way of investigating what makes an animal to perform better than others at the cellular level. From better understanding of the function we will be able to fine tune the breeding, feeding and management techniques and regulate specific genes to improve animal performance.

Fortunately, methodologies for studying a large number of ‘genes in action’, all at a time, has undergone sea change in recent past and high throughput gene expression platforms like microarray, RNA sequencing, promoter arrays are getting available in many species. The next step would be to look into other complexities involved in controlling gene action making a

gene to work for desirable functions. Eventually such information will help us to identify key genes and physiological pathways qualifying them to be used as markers for selecting superior animals or manipulating the physiological processes in most gainful way.

Keeping this in mind the present training programme is planned ***under the aegis of NICHE area of Excellence Platform at NDRI on “Buffalo Production and Reproduction Genomics”*** sponsored by Education Division of ICAR. The training is aimed at updating teaching/ research faculty at SAUs and other ICAR Institutes and to share knowledge about the basic molecular biology tools as applicable to understand better the complexities involved in functioning of different physiological systems. During the training apart from theory lectures from eminent faculty members, on-the-bench practical sessions will be arranged on recent genomic techniques to give participants on-the-bench exposure.

Training Coordinator

Dr.T.K.Datta, Principal Scientist, Animal Biotechnology Centre, National Dairy Research Institute, Karnal, Haryana 132001
Tel No. 0184-2259506/ 2259508 (Lab), 0-9416483476 (Cell), Fax: 0184-2250042. E Mail: tirthadatta@gmail.com

Joint Coordinators

- Dr. S De, Senior Scientist, Animal Biotechnology Centre, NDRI, Karnal, Haryana 132001
- Dr. Dheer Singh, Senior Scientist, Animal Biochemistry Division, NDRI, Karnal

Core Faculty of Training

- Dr.T.K.Datta, Principal Sci, Gene Expression // Epigenetics
- Dr.S.De, Senior Scientist, Structural & Evolutionary Genetics
- Dr. Dheer Singh, Senior Scientist, Molecular Reproduction
- Dr.A.K.Mohanty, Senior Scientist,Mammary Gland Proteomics
- Dr.J.K.Kaushik, Senior Scientist, Proteomics & Bioinformatics

Topics to be covered

- Genome organization
- Control of Gene Expression.
- Epigenetic Regulation of Gene Expression.
- PCR and RT-PCR.
- Parameters for Q-PCR Experiments validation.
- Gene Expression quantification using Real Time PCR.
- Gene Discovery, promoter identification/ validation.
- Microarray / NGS for high throughput gene expression quantification.
- Proteomes and protein modeling.
- Protein-Protein interaction
- Bioinformatics for sequence analysis and understanding gene function.

No. of Candidates to be selected15 (Preference will be given to mid-career Scientists from State Agriculture Universities and other ICAR Institutes).

Who Can Apply

The candidate should be a post graduate in any branch of Animal Science (Biotechnology/ Physiology/ Nutrition/ Genetics/ Reproduction) and should be engaged in teaching/ research position at a recognized university/ institute. The mid-carrer level faculties from State Agriculture Universities and ICAR institutes are especially encouraged to participate. Prior knowledge on analytical techniques used in biological research and proficiency with computer applications will be considered as a preferred but not essential qualification. Depending on the total applications received candidates from SAUs and ICAR institutes will be given preference. There is as such no age bar.

How to Apply

Please send application in the **“application format”** (appears below) (In MS Word) strictly adhering to the instructions and send it as E Mail attachment to Dr.T.K.Datta at [<tirthadatta@gmail.com>](mailto:tirthadatta@gmail.com). Please avoid sending herd copies by post. A forwarding note from your employer confirming your submission of application must reach us by the due date.

Last Date of Receiving Application

The application, along with a forwarding note from your employer must reach the training coordinator on or before **4th February 2012**. The selected candidates will be intimated confirming their participation by **6th February 2012**. Those not selected will also be informed accordingly.

Reimbursement of TA and Cost on Boarding Lodging

The participants will be paid TA from their place of work and back as per entitlement but restricted up to AC II. Candidates will be provided with free boarding and lodging at NDRI Scientist Home for the training period.

About NDRI

National Dairy Research Institute is the premier research institute, catering to the research and human resource development needs in the country dedicated to animal improvement and dairying. Established at Bangalore in 1923, the headquarters of the Institute were moved to Karnal in 1955. It has two regional stations, at Bangalore and at Kalyani (West Bengal) for providing region-specific support. The Institute has the distinction of being a Deemed University for implementing educational programmes in various disciplines of Animal and Dairy Sciences and basic and applied research. Find more about the institute please visit www.ndri.res.in

How to Reach Karnal

Karnal is situated mid-way on Grand Trunk National Highway-1 connecting Delhi and Chandigarh, about 125 km from Delhi. The city is connected through major railway routes from Delhi and Ambala.

Weather

Weather in Karnal during March would be pleasant. Light woolens may be required at night. The ambient temperature during the period would be around 22°C.

Please use this format in MS Word. Fill it in and send as E Mail attachment to tirthadatta@gmail.com

Due Date: 4th February 2012

National Training Programme on "Application of Functional Genomics Tools for Improving Economic Traits in farm Animals"

March 3-12, 2012

Application Form

1	Name
2	Affiliation
3	Designation
4	Whether in Permanent/ Tenural Job
5	Complete Postal Address
6	Valid E Mail ID (<u>You are likely to receive confirmation by E Mail only</u>)
7	Telephones: (STD Code/ Number) Off...../ Resi...../ Cell.....
8	Whether you are sending this application with the consent of your employer (Your Employer Must Confirm it by a letter to the Coordinator by due date)
9	What's your age on 1 st Jan. 2012: ----- Years ----- Months
10	Your Present Place of Working. University/ Institute ----- -----Place -----State -----
11	Anticipated Expenditure on TA from your present location (official) to Karnal and Back by entitled class (Restricted up to AC II) Rs.
12	Educational Qualification: (Degree/ Year / Univ/ Subject). Graduation: M.Sc/ M.V.Sc. Ph.D.
13	Employment Record:

13	What is your current activity in Research/ Teaching (Write in 50 Words) 1. 2. 3. 4.
14	What Research Project(s) you are handling at Present (As PI/ As Associate) 1. 2. 3.
15	Which training programmes you have attended in last 5 years 1 2 3 4
17	How do you think this training can enhance your capability towards future planned activities (Write in 100 Words, in bullets) 1. 2. 3. 4. 5. 6.

Please Sign here

Please indicate whether your application has been forwarded through proper channel:

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Signature of the Employer