



## DD Upadhyaya Veterinary University and Cattle Research Institute

Mathura 281 001, Uttar Pradesh

### Courses

1. Regulation of Cytokines in Host Defense Mechanism
2. Techniques for management of long bone fractures in animals

#### Contact Person:

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Pandit Deen Dayal Upadhyaya Pashu-Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan, Mathura was established in the year 2001 to provide quality education and a strong leadership to the research activities related to veterinary and animal sciences in the state of Uttar Pradesh. More than half a century old College and Veterinary Science & Animal Husbandry, Mathura became its first constituent faculty. Conducting graduate and post-graduate level teaching in veterinary science, conducting research in clinical, para-clinical and livestock production related subjects and conducting extension oriented programmes to educate the livestock owners and to disseminate the knowledge related with modern veterinary and animal husbandry practices is the mandate of the university. It is also mandated to conduct basic, strategic and applied research to improve the livestock productivity and to find solutions to health related problems in order to make the animal husbandry more economically viable.

Since 2001 department of microbiology has been working on cytokines and host defense. In 2004-05 DST Project was sanctioned for 3 years to investigate "The effect of medicinal plants on cytokine induction". During these 7 years period, up and down regulation of cytokines, role of macrophages, subpopulation of lymphocytes have been studied and developed a practical concept for induction and detection of biomolecules and their confirmation by mRNA expression, cloning of cytokines genes and their expression and medicinal values of herbal plants.

# 1.

## Regulation of Cytokines in Host Defense Mechanism

### Training Programme

The programme is designed to make the trainees well versed with biomolecules, cytokines expression techniques and also to strengthen their knowledge regarding complexity and networking of immune system, haematopoiesis, inflammation and embryogenesis. This training will enlighten them on biomolecules in relation to health and disease.

### Faculty

Well qualified and trained 15 scientists of the department and invited speakers from the different institutions of veterinary science, medical science, biotechnology and experts from ICAR, ICMR, DBT and DST and pharmaceutical institution will be the faculty.

Course Director	: Dr A K Bhatia
Duration	: 2 Week (March/Nov. 09)
Course fee	: US \$ 1000 /trainee
No of Trainees	: 10-15
Accommodation	: At University guest house and hotels in the city on twin sharing basis.
Transport	: Will be provided by the University.
Eligibility	: Masters Degree or higher with subject knowledge and scientists, research scholars nominated by the appropriate authorities and/or by the government.

### Course Contents

#### A: Courses of Theory

1. Biomolecules and Host defense mechanism.
2. Cells involved in host defense and cytokine secretion.
3. History, origin and post, present and future scenario of

cytokines and other biomolecules.

4. Role of cytokines in Homeostasis of the host.
5. Effect of cytokines on functions of different tissue systems of the host.
6. Cytokines as markers of disease and to disease progression.
7. Evaluation of impact of cytokines on different therapies.
8. Role of cytokines in stem cell activation and malignancy etc.
9. Role of cytokines in mycobacterium infections.
10. Role of cytokines in viral infections (IBR, FMD etc.)
11. Cytokine Assays.
12. Cytokines and their Pharmacokinetics.
13. Cytokines as Immuno regulatory tool.

#### B: Practicals

1. Splenocytes, lymphocytes and macrophage proliferation assay .
2. Identification and quantitation of subsets of T-lymphocytes.
3. Cytokines induction and measurement.
4. Assay of cytokines by mRNA expression
  - a. RNA extraction from cell cultures
  - b. cDNA Synthesis
  - c. PCR for cDNA
  - d. Agarose gel electrophoresis of PCR product
  - e. Densitometry
5. Effect of herbal drugs/chemical agents in up and down regulation of cytokine (s) and their comparative induction.
6. Immunoglobulin studies under the influence of cytokines.
7. Cloning of cytokine(s) gene(s).
8. Expression of cytokine(s) gene(s).
9. Analysis of different herbal plant components by HPLC.



## 2. Techniques for management of long bone fractures in animals

### Training Programme

The course is designed to strengthen the knowledge and skill of the participants involved in veterinary care specially trauma management in animals.

### Faculty

Five well qualified, skilled and trained experts of Department of Veterinary Surgery & Radiology of the university and invited experts from SAUs and Indian Veterinary Research Institute (IVRI) will constitute the faculty.

Course Director	: Dr R P Pandey
Duration	: 2 weeks (April 15-29 2009)
Course fee	: US \$ 1000 per trainee
No. of trainees per course	: 10
Accommodation	: To be arranged at the University Guest House or hotels in the city (on twin sharing basis). Transport will be provided from the place of stay to University and back.
Eligibility	: Master's degree in Veterinary Surgery or officers nominated by Government with minimum of Graduate Degree in Veterinary Science.

### Course Contents

- Long bone fractures in animals - Importance of the problem
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- Incidence and classification of fractures
- Fracture healing, complications of fracture and complications of healing of fracture
- Diagnosis of fracture - Imaging methods
- Principles of fracture treatment
- External Immobilization methods for fracture treatment
- Internal immobilization methods - Intramedullary devices
- Internal immobilization methods - Extramedullary devices
- Technique and use of linear and ring fixator for fractures
- Technique and principles of tension bend wiring
- Management of complications of fracture in animals
- Rehabilitation and management of disability associated with fractures in animals.