Department of Veterinary Pathology

(RKVY Project Success Story)

1. **Name of the Project**
   4026-C (g)-VPT-2-OA (RKVY)
   Title: "Establishment of immunopathological diagnostic laboratory to provide quality services to the livestock and poultry owners"
2. **Budget position:** 38.5 lakhs
3. **PI's name**
   Dr. K. K. Jakhar, Professor and Head, Department of Veterinary Pathology, COVS, LUVAS, Hisar
4. **Co-Investigator (s)**
   Dr. Vikas Nehra, Dr. Babu Lal Jangir, Dr. (Mrs.) Chandratre Gauri A.
5. **Other associated members of the department**
   Dr. (Mrs.) Deepika
6. **Starting year of the project:** 2014-15
7. **Present Status:** Ongoing
8. **Objectives/Activities to be undertaken**
   - To establish immunopathology laboratory and generate immunopathological diagnostic techniques in the department.
   - To provide diagnostic services to the livestock and poultry owners regarding immunopathological disorders/diseases.
9. **Achievements**

A. Physical Achievement under objective to establish immunopathology laboratory and generate immunopathological diagnostic techniques in the department:

i. Immunopathological diagnostic laboratory was established (cost of Rs. 3.25 lakhs)

ii. Purchase of equipments worth Rs. 25.9 lakhs were undertaken

S. No.	Name of the Equipment	Quantity
i.	Fluorescent microscope along with accessories	One
ii.	B.O.D. incubator	One
iii.	Shaker	One
iv.	Magnetic stirrer	One
v.	Micro pipettes	Two
vi.	Research microscopes	Two
vii.	Refractometer	One
viii.	Centrifuge machine	One
ix.	Blood cell counter	One
x.	Digital Vernier Calliper	One
xi.	Air Conditioner with Stabilizer	One
xii.	Microscope with battery	One
xiii.	Refrigerator	One
xiv.	Tissue floatation water bath	One
xv.	Colony counter	One

iii. Purchase of the chemicals/materials was undertaken for strengthening of immunopathological laboratory.

B. Under the objectives to provide diagnostic services to the livestock and poultry owners regarding immunopathological disorders/diseases

i. A five days training on "Postmortem Examination, Dispatch of Specimens and Pathological Diagnostic Techniques with Special Reference to Immunopathological Diseases" was organized by the Department of Veterinary Pathology, LUVAS, Hisar from 25-29 February, 2016. The training was organized for twenty Veterinary Surgeons that were nominated by Dr. G. S. Jakhar, Director General, Department of Animal Husbandry and Dairying, Haryana. Dr. K.K. Jakhar, Prof. & Head acted as Training Director whereas Dr. Vikas Nehra and Dr. Babu Lal Jangir acted as Training Coordinators. This training had provided 'Hands on Training" to Field Veterinarians for postmortem examination and dispatch of specimens along with updating their knowledge on pathological diagnostic techniques with special reference to immunopathological diseases. A Training Manual on "Postmortem Examination, Dispatch of Specimens and Pathological Diagnostic Techniques with Special Reference to Immunopathological Diseases" along with CD for Field Veterinarians was also released.

Trainee Veterinarians with Worthy VC LUVAS

Maj. Gen (Dr) Shri Kant VC, LUVAS addressing the Trainees

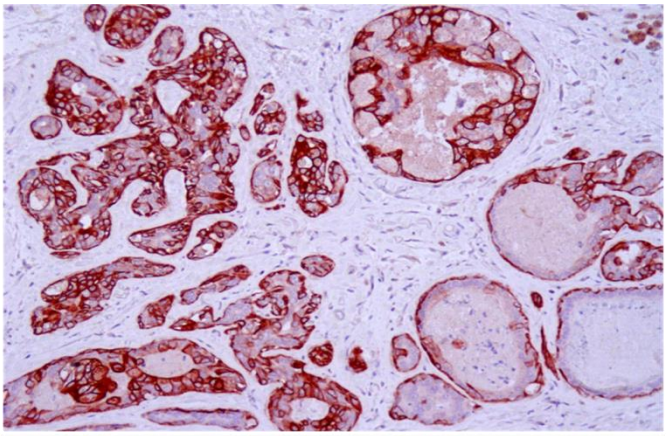
ii. A total of 120 samples plasma/serum samples were processed for determining their immune status and accordingly advice was given to the farmers/owners.

iii. M.V.Sc. (Dr. Komal, Dr. Adya Prakash Rath) and Ph.D. students (Dr. Deepika, Dr. Mamta, Dr. Ramesh) regarding immuno-pathological work was undertaken. Major immunological findings were as follows:

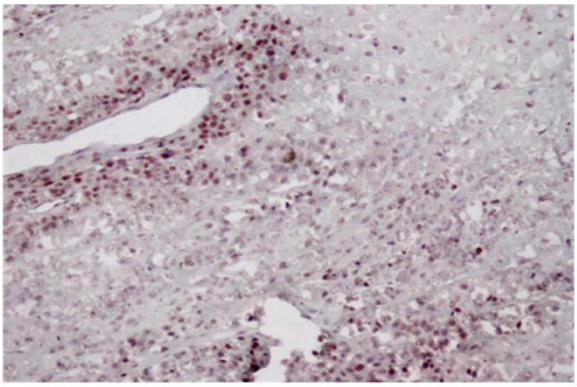
- *Tinospora cordifolia* (Giloy) extract (@1 gm/kg feed) supplementation enhanced humoral immunity in chicks suggesting its immunomodulatory effect. Probiotic *Bacillus subtilus* @109 CFU/bird/day supplementation showed immunomodulatory effect. *Tinospora cordifolia* extract and probiotic supplementation enhanced cell mediated immunity in chicks.
- Vitamin C @100 mg/kg b. wt. supplementation enhanced the humoral immune response and ameliorated the oxidative stress due to imidacloprid toxicity in chickens.
- *Emblica officinalis* (Amla) dry fruit supplementation (@10 gm/kg feed) enhanced humoral immunity in chicks suggesting the immunomodulatory effect of amla

extract. Delayed type hypersensitivity response against Dinitrochlorobenzene was significantly higher in amla supplemented groups as compared to non-supplemented groups indicating enhanced cell mediated immune response due to amla supplementation.

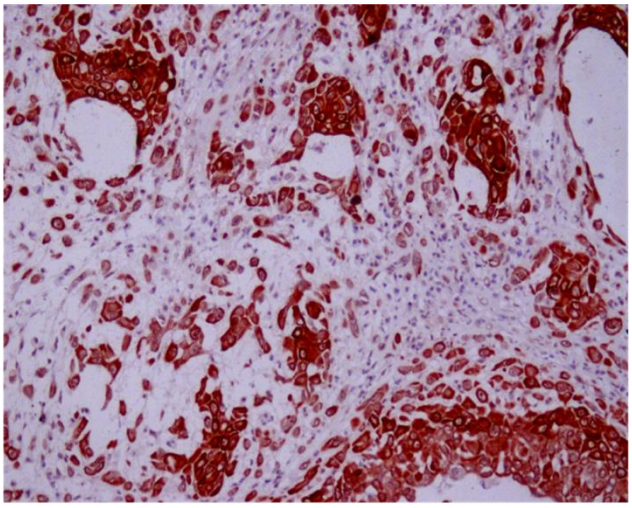
- Immunohistochemical staining of mammary tumours was undertaken successfully after standardization of the same.



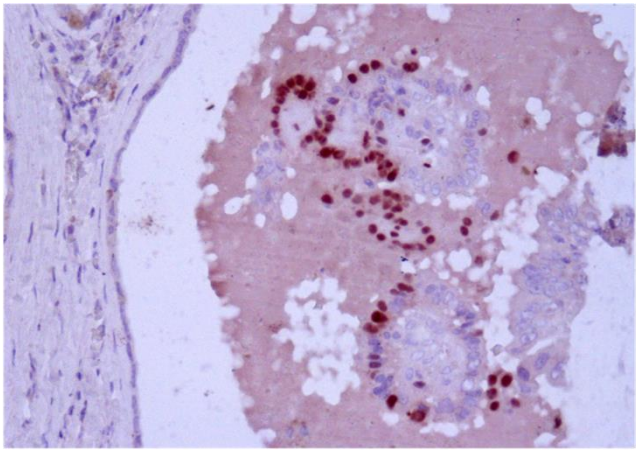
ADENOCARCINOMA (MAMMARY GLAND): CK-14 POSITIVE IMMUNOSTAINING



OSTEOSARCOMA (MAMMARY GLAND): POSITIVE NUCLEAR P53 IMMUNOSTAINING



OSTEOSARCOMA(MAMMARY GLAND): PCK STAINING



ADENOCARCINOMA (MAMMARY GLAND): POSITIVE NUCLEAR ESTROGEN ALPHA IMMUNOSTAINING

- Research work on pathological investigation and protective immunity on recombinant vaccine candidates of equine influenza virus in BALB/c mice is under progress.

Signature
Principal Investigator
(K. K. Jakhar)

Signature
Prof . & Head
(K. K. Jakhar)