

**Muhamuda K.**

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**Academic Background:**

2001 - To date

Doctor of Philosophy in Neurovirology  
National Institute of Mental Health and Neuro Science  
Bangalore, India.

1999 - 2001

Master of Science in Microbiology  
Sri Narayanaguru College, Bharathiar University  
Coimbatore, Tamilnadu, India.

1996 - 1999

Bachelor of Science in Microbiology  
Sri Narayanaguru College, Bharathiar University  
Coimbatore, Tamilnadu, India.

**Research Interests:**

Interested in the field of diagnostic virology, Immunology & vaccine development.

Molecular mechanisms in the pathogenesis of viral infections of CNS.

Interested in working on stem cell research.

**Thesis/Dissertation Works:****Ph.D Thesis title:**

“Production and Characterization of monoclonal antibodies to rabies virus proteins and their utility in rabies diagnosis and Immunotherapy”.

**M.Sc.dissertation work:**

"In vitro inactivation of rabies virus using Ascorbic acid..

## **Summary of the Ph.D. work:**

Developed Monoclonal antibodies against PV strain of Rabies virus and evaluated the potential of these antibodies to neutralize rabies virus in vivo in mice and guinea pigs, an attempt to replace Equine Rabies Immunoglobulin in the Passive Immuno therapy against rabies

CVS strain of rabies virus were grown on BHK-21 cell line and the virus and viral proteins were purified using standard procedure, and these proteins were used to characterize the monoclonal antibodies.

Standardized laboratory assays like Rapid rabies enzyme immunodiagnosis ( RREID), ELISA, and latex agglutination test, Fluorescent antibody test (FAT), Dot-Blot, Rapid fluorescent focus inhibition test (RFFIT), Mouse neutralization test (MNT), using these monoclonal antibodies.

Evaluated the neutralizing efficiency of both G and N Monoclonal antibodies in Passive Immunotherapy in vivo against Rabies virus and their neutralizing efficacy was investigated using different parameters in mice and guinea pigs.

Isolated Street viruses from rabid dogs, RT PCR was done and tried to sequence the complete genome.

## **Technical Skills:**

- **Course Work:** Handled different viruses like JEV, HSV, Measles, and HIV etc. Well versed with routine diagnostic methods such as JEV-IgM capture ELISA, JE sucrose acetone derived mouse brain antigen preparation, HSV and Measles ELISA. Growth and Titration of JEV, HSV; HIV diagnostic and monitoring assays such as ELISA and rapid methods, CD4 and CD8 enumeration using FACS Count; HIV western blot.
- Cell Culture. Experience in handling different cell lines like BHK-21, Vero cell, Neuro 2a, and SP2/O cells.
- Hybridoma technology. Raised hybridomas against Rabies virus and handling more than 100 different clones and their sub clones.
- Isolation and counting of spleen cells and B cells using standard procedure.
- Purification and concentration of monoclonal and polyclonal antibodies.

- Biotin and fluorescent (FITC) labeling of antibodies.
- Growth and Titration of viruses (Rabies, JEV, HSV and Measles), Plaque assay, Micro-neutralization test, Fluorescent focus inhibition assay, Virus Titration in mouse to determine LD50.
- Inactivation of virus, using BPL and also ascorbic acid.
- Growth and Purification of Rabies virus and its proteins using Sucrose gradient and Cesium chloride centrifugation techniques.
- SDS-PAGE; Native PAGE; Western blot analysis and Immunoblot.
- Standardized assays including RREID, ELISA, Latex agglutination test and Fluorescent antibody test (FAT), Immunohistochemical staining, Rapid fluorescent focus inhibition test (RFFIT), Mouse neutralization test (MNT) with the monoclonal antibodies produced against rabies virus.
- PCR, Reverse Transcriptase-PCR and Real Time PCR for detection of viral nucleic acid
- Plasmid purification, cloning, Transfection
- Handling mice, Rabbits and guinea pigs for analyzing neutralizing efficacy of antibodies produced.
- Statistical analysis of experimental data.

**Present Work:**

Currently doing a project with Dr Anitha Desai, on complete sequencing of infectious rabies virus genome from Jan 2006.

Isolated street virus from human brains, isolated RNA and RT-PCR was done. PCR product was cloned into a plasmid, and did sequencing. L region of the rabies virus sequencing was completed.

### **Presentations/Conferences:**

Oral presentation in International symposium on Prevention and Control of Rabies, March 18-19, 2005. NIMHANS, Bangalore, India. . Production of Monoclonal antibodies to Rabies N and G proteins and their utility in Rabies diagnosis.

Oral presentation in XXV1 Annual Congress Indian Association of Medical Microbiologists, NIMHANS, Bangalore, India. Nov 22-24, 2002. Development and Evaluation of a Latex agglutination test for Rabies antibodies.

### **Publications:**

Two papers from the Ph.D work are under review for publication in International journals.

1. Presence of rabies specific immune complexes can help in ante-mortem diagnosis of human rabies. (Under review in Journal of Clinical Virology)
2. Development and evaluation of a Competitive ELISA for rabies neutralizing antibodies. (Under review in International Journal of Infectious Diseases)
3. Antemortem diagnosis of human paralytic rabies by detection of rabies antigen in CSF by antigen capture ELISA (Under review in Emerging Infectious Diseases).
4. Use of Neutralizing murine monoclonal antibodies to rabies glycoprotein passive Immunotherapy against rabies. (Under preparation)
5. Production and Characterization of murine monoclonal antibodies to rabies viral proteins and their utility in immunodiagnosis against rabies (under preparation).

### **Awards/Honors/Fellowship:**

1. Best Poster presentation in National Seminar on MICROBIAL TECHNOLOGY-mt2001, Dr.G.R.Damodaran College of Science, Coimbatore, Tamilnadu. India. June 1-2, 2001. .A study on the Inactivation of rabies virus by using ascorbic acid.

2. Recipient of the National Institute of Mental Health and Neurosciences (NIMHANS) Junior Research Fellowship in 2001 through a nation wide examination.

3. Best Paper Award in Immunology in XXIX Annual Congress of Indian Association of Medical Microbiologists, Sri Ramchandra Medical College and Research institute, Chennai, India (MICROCON 2005 Oct 21-23, 2005),

Presence of Rabies specific immune complex in CSF may help in the ante-mortem diagnosis of Human rabies.

**Personal Details:**

First Name: Muhamuda K  
Father Name: Kader A  
Date of Birth: 15th April 1977  
Gender: Female  
Marital status: Single  
Nationality: Indian

**Academic Referees:**

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