

**CURRICULUM VITAE****Dr. Girish K. Radhakrishnan, PhD**

Scientist D

National Institute of Animal Biotechnology

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**Education**

<i>Institution</i>	<i>Degree Awarded</i>	<i>Year</i>	<i>Field of Study</i>
Madurai Kamaraj University, Tamil Nadu, INDIA	PhD	2000-2006	Biotechnology
Mahatma Gandhi University, Kottayam, Kerala, INDIA	MSc	1996-1999	Microbiology
Mahatma Gandhi University, Kottayam, Kerala, INDIA	BSc	1993-1996	Zoology

**Employment**

<i>Institution</i>	<i>Position</i>	<i>From (Date)</i>	<i>To (date)</i>
National Institute of Animal Biotechnology, Hyderabad.	Scientist D	3 December 2012	Till date
University of Wisconsin- Madison, Wisconsin, USA.	Research Assistant Professor	3 January 2011	30 November 2012
University of Wisconsin- Madison, Wisconsin, USA.	Post-doctoral Research Associate	15 May 2006	31 December 2010

**Research Grants:****Ongoing research projects:-**

Sl No.	Title of Project	Funding Agency	Amount	Date of completion
1	Understanding the immune mechanism of host disease resistance and development of marker vaccines and DIVA tests for Peste des Petits Ruminants (PPR).	DBT-BBSRC (UK)	38.046 lakhs	July 2018

2	Identification and characterization of host factors supporting <i>Brucella</i> replication.	DBT	47.6 lakhs	January 2019
3	Development of peptide-based anti-inflammatory drug for septicemia. (Industry collaborator: Chemveda Life Sciences Pvt. Ltd.)	DST (DPRP) & Chemveda Life Sciences.	116.86 lakhs	May 2020

**Completed:**

Sl No	Title of Project	Funding Agency	Amount	Date of completion
1	Brucella TIR protein recruits a ubiquitin ligase to TLR adaptor protein TIRAP (PI)	National Institutes of Health (NIH), USA	\$75,000	May 2013
2	TIR domain containing protein from <i>Brucella melitensis</i> (Co-PI)	NIH	\$250,000	August 2012

**Awards and Honors:**

- Post-doctoral Research Fellowship from University of Wisconsin-Madison, USA (2006-2010)
- Senior Research Fellowship by Council of Scientific and Industrial Research (CSIR), Government of India (2002-2005).
- Junior Research Fellowship by CSIR, Government of India (2000–2002).
- Awarded National Eligibility for Lectureship in Life Sciences by University Grants Commission, Government of India in 1999.
- Awarded an international travel grant by USA-ISRAEL Binational Agricultural Research & Development Fund to attend a workshop on ssDNA viruses at Eilat, ISRAEL in 2005.
- Awarded University Second Rank in MSc & College First in BSc.
- DBT nominee of IBSC of Bharat Biotech International Limited, Hyderabad and Unique Biotech, Hyderabad.

**Research Experience:****Scientist at NIAB (2012 onwards)**

- Studies on virulence determinants and immune evasion/suppression strategies of intracellular bacterial pathogen, *Brucella* using various genomics and proteomics approaches with the objectives of developing efficient preventive strategies and diagnostic tools for brucellosis.
- To understand the intrinsic cellular processes that regulate innate immune responses in eukaryotes in the context of host-pathogen interactions.

**Post-doctoral Research (2006-2012)**

- Subversion of host innate immune responses by the infectious intracellular bacteria, *Brucella*: Analyze the role of Toll-like Receptor domain-containing protein (TcpB) from *B. melitensis*.
- To develop invasive *E.coli* based *Brucella* antigen delivery system for animal and human brucellosis.
- Studies on the role of cytotoxic CD8 lymphocytes in long term *Brucella* infection and the host unfolded protein response in the intracellular persistence of *B. melitensis*.

**Doctoral Research (2000-2006)**

- Over expression, purification and functional characterization of replication initiator protein and cell-to-cell movement protein of geminivirus.
- Cloning and sequencing of geminiviruses. Bioinformatics analysis of virus sequences to investigate recombination events and phylogenetic relationship.

**List of publications:**

1. Padmaja Jakka<sup>#</sup>, Swapna Namani<sup>#</sup>, Nivedita Rai, Subathra Murugan and **Girish Radhakrishnan**\* (2017). The *Brucella* effector protein TcpB induces degradation of inflammatory caspases and thereby subverts noncanonical inflammasome activation in macrophages. Under revision in *Journal of Biological Chemistry*.
2. Padmaja Jakka, Bindu Bhargavi<sup>#</sup>, Swapna Namani<sup>#</sup>, Subathra Murugan, Gary Splitter and **Girish Radhakrishnan**\* (2017). Cytoplasmic linker protein CLIP170 negatively regulates the TLR4 signaling by targeting the TLR adaptor protein TIRAP. Under Revision in *Journal of Immunology*.
3. Sarwar Azam, Sashi Bhushan Rao, Padmaja Jakka, Veera NarasimhaRao, Bindu Bhargavi, Vivek Kumar Gupta, and **Girish Radhakrishnan**\* (2016). Genetic Characterization and Comparative Genome Analysis of *Brucella melitensis* Isolates from India. *International Journal of Genomics*, Volume 2016, <http://dx.doi.org/10.1155/2016/3034756>.
4. Sashi Bhushan Rao, Vivek K. Gupta, Mukesh Kumar, Nagendra R. Hegde, Gary A. Splitter, Pallu Reddanna and **Girish K. Radhakrishnan**\* (2014). Draft Genome Sequence of the Field Isolate *Brucella melitensis* strain BM IND-1 from India. *Genome Announcements* 2(3):e00497-14. doi:10.1128/genomeA.00497-14.
5. Splitter G, Harms J, Petersen E, Magnani D, Durward M, Rajashekara G, **Radhakrishnan G.** (2014) Studying host-pathogen interaction events in living mice visualized in real time using biophotonic imaging. *Methods Mol Biol*; 1197:67-85.
6. Smith, J. A. Magnani. D, Kahn. M, Harms. J, Durward. M, **Radhakrishnan. G**, Liu, Y-P and Splitter, G (2013). *Brucella* Induces an Unfolded Protein Response via TcpB that Supports Intracellular Replication in Macrophages. *PLoS Pathogen*, 9(12): e1003785. doi:10.1371/journal.ppat.1003785.
7. **Radhakrishnan, G.** and Splitter, G. (2012) Modulation of host microtubule dynamics by pathogenic bacteria. *Biomolecular Concepts*. 3 (6), 571–580.

8. Gupta VK, **Radhakrishnan G**, Harms J, Splitter G. (2012) Invasive *Escherichia coli* vaccines expressing *Brucella melitensis* outer membrane proteins 31 or 16 or periplasmic protein BP26 confer protection in mice challenged with *B. melitensis*. *Vaccine*, 30, 4017-4022.
9. Durward M, **Radhakrishnan G**, Harms J, Bareiss C, Magnani D and Splitter, G. A (2012) Active Evasion of CTL Mediated Killing and Low Quality Responding CD8+ T Cells Contribute to Persistence of Brucellosis. *PLoS ONE* 7(4): e34925.
10. **Radhakrishnan, G**, Harms, J and Splitter, G (2011). Modulation of microtubule dynamics by a TIR domain containing protein from an intracellular pathogen *Brucella*. *Biochemical Journal* 439 (1) 79-83.
11. **Radhakrishnan, G** and Splitter, G. (2010). Biochemical and functional analysis of TIR domain-containing protein from *Brucella melitensis*. *Biochemical and Biophysical Research Communications* 397(1) 59-63.
12. **Radhakrishnan, G. K.**, Yu, Q., Harms, J. S., Splitter, G. A. (2009). *Brucella* TIR domain-containing protein mimics properties of the toll-like receptor adaptor protein TIRAP. *Journal of Biological Chemistry* 284(15): 9892-9898.
13. Anburaj. D. Barnabas., **Girish. K. Radhakrishnan.**, UshaRamakrishnan. (2010) Characterization of a Begomovirus causing Horsegram Yellow Mosaic disease in India. *European Journal of Plant Pathology* 127(1): 41-51.
14. Packialakshmi, R. M, Srivastava, N., **Girish, K. R.**, Usha, R.(2010) Molecular characterization of a distinct begomovirus species from *Vernonia cinerea* and its associated DNA-beta using the bacteriophage Phi29 DNA polymerase. *Virus Genes* 41(1): 135-43.
15. **Radhakrishnan, G. K.**, Splitter, G. A., Usha, R. (2008). DNA recognition properties of the cell-to-cell movement protein (MP) of soybean isolate of Mungbean yellow mosaic India virus (MYMIV-Sb). *Virus Research* 131(2):152-9.
16. Vadivukarasi, T., **Girish, K. R.**, Usha, R. (2007) Sequence and recombination analyses of the geminivirus replication initiator protein. *Journal of Biosciences* 32(1):17-29.
17. **Girish. K. R.**, Palanivelu, S., Kumar, P. D., Usha, R. (2006) Refolding, purification and characterization of replication-initiator protein from soybean-infecting geminivirus. *Journal of Virological Methods*.136 (1-2):154-9.
18. **Girish. K. R** and Usha. R (2005). Molecular characterization of two soybean-infecting begomoviruses from India and evidence for recombination among legume-infecting begomoviruses from South-East Asia. *Virus Research* 108: 167-176.

### Conference Proceedings:

1. Padmaja Jakka and **Girish Radhakrishnan** (2016). Molecular mechanism of TIR domain-containing protein from *Brucella* (TcpB)-mediated suppression of Toll-like Receptor-4 signaling. International Research Conference on Brucellosis, November 17-19, New Delhi, India, Page-51.

2. Sashi Bhushan Rao, Padmaja Jakka, Bindu Bhargavi, Vivek Gupta, Mukesh Kumar and **Girish Radhakrishnan**. (2014). Whole genome sequencing and comparative genome analysis of the zoonotic pathogen *Brucella melitensis* Bm Ind1 from India. International Conference on Host-Pathogen Interactions, July 12-15, NIAB, Hyderabad. *Nature India*, ICHPI\_PP003, Page-54.
3. Mike Khan, Diogo Magnani, Jerome Harms, **Girish Radhakrishnan**, Marina Durward, Yi-Ping Liu, Gary Splitter and Judith Smith (2013). *Brucella* induces an unfolded protein response via TcpB in macrophages (P3116). *The Journal of Immunology*, 190, 186.5
4. Marina Durward, **Girish Radhakrishnan**, Jerome Harms, Gary Splitter (2011). Evasion of CTL mediated killing and low quality responding CD8+ T cells contribute to persistence of brucellosis. Brucellosis 2011, Proceedings of International Research Conference, Buenos Aires, Argentina.
5. **Girish Radhakrishnan**, Jerome Harms, and Gary Splitter (2010). Studies on a TIR domain-containing protein from *Brucella melitensis*. Proceedings of 63<sup>rd</sup> Annual Brucellosis Research Conference; Chicago, Illinois, USA.
6. Marina Durward, **Girish Radhakrishnan**, Jerome Harms, and Gary Splitter (2010). Immunological memory and *Brucella melitensis*: a match never made? Proceedings of 63<sup>rd</sup> Annual Brucellosis Research Conference, Chicago, Illinois, USA.
7. **Girish. K. Radhakrishnan**, Jerome S. Harms and Gary Splitter (2009). *Brucella* encoded TIR-like protein mimics properties of the TLR adaptor TIRAP. Proceedings of 62<sup>nd</sup> Annual Brucellosis Research conference. Chicago, IL, USA.
8. **Girish. K. Radhakrishnan** and Gary Splitter (2007) *Brucella* protein containing a TIR Domain Inhibits NF- $\kappa$ B Activation". Proceedings of 4<sup>th</sup> Annual NIAID RCE Research meeting, St. Louis, MO, USA. p135.
9. **Girish. K. Radhakrishnan** and Gary Splitter (2006) "*Brucella melitensis* protein containing a TIR domain inhibits NF- $\kappa$ B activation and a peptide antibiotic (Trifolitoxin) exhibits anti-*Brucella* properties". Proceedings of 4<sup>th</sup> Annual Great Lakes Regional Center of Excellence Conference, SC, USA.
10. **K. R. Girish** and R. Usha (2006) Molecular characterization of cell-to-cell movement protein of soybean isolate of Mungbean yellow mosaic India virus (MYMIV-Sb). Indian Virological Society XVI Annual Convention & International Symposium on Management of Vector-Borne Viruses. ICRISAT Patancheru, Hyderabad, Andhra Pradesh, INDIA. pp55 (OP9/06).
11. **K. R. Girish** and R. Usha (2004) Studies on the soybean-infecting geminiviruses from India. Abstracts of the 4<sup>th</sup> International Geminivirus Symposium. University of Cape Town, South Africa. p73 (W4-3).
12. **K. R. Girish** and R. Usha (2003) Molecular characterization of two isolates of soybean yellow mosaic virus causing Yellow Mosaic Disease of soybean in India. Proceedings of Science Day & Aqua-Terr Annual Symposium, INDIA p15.
13. **K. R. Girish** and R. Usha (2002) Molecular characterization of soybean yellow mosaic virus. Proceedings of Annual conference of Indian Virological Society, Bangalore, INDIA p20.

## Scientific Presentations:

### International

1. Presentation at the Pirbright Institute, UK during annual progress meeting of DBT-BBSRC funded project. June 24, 2016.
2. Delivered a talk on “Studies on a TIR domain-containing protein from *Brucella melitensis*” at 63<sup>rd</sup> Annual Brucellosis Research Conference; Chicago, Illinois, USA. December 4-5, 2010
3. Delivered a talk on “Brucella protein containing a TIR Domain Inhibits NF- $\kappa$ B Activation” at 4<sup>th</sup> Annual NIAID Regional Centers of Excellence for Biodefense and Emerging Infectious Diseases (RCE) meeting, St. Louis, MO, USA. April 15-17, 2007.
4. Delivered a talk on “*Brucella melitensis* protein containing a TIR domain inhibits NF- $\kappa$ B activation and a peptide antibiotic (Trifolitoxin) exhibits anti-Brucella properties” at 4<sup>th</sup> Annual Great Lakes Regional Center of Excellence for Biodefense and Emerging Infectious Diseases Research (GLRCE) Conference, SC, USA. 30 November - 2 December 2006.

### National

1. Delivered a talk on “Applications in Animal Biotechnology” at Academic Staff College, University of Hyderabad as a resource person during UGC Refresher Course in Life Science on 19 November 2013.
2. Invited presentation at the Annual Review Meeting of DBT Network Project on Brucellosis on 29-30 October, 2013 at Guru Angad Dev Veterinary and Animal Sciences University (GADVASU), Ludhiana, Punjab.
3. Invited talk on “Molecular studies on the intracellular bacterial pathogen, *Brucella melitensis*” at the National Research Center on Mithun, Nagaland, India on 12 March 2013.
4. Invited talk on “Subversion of innate immune response by pathogenic microorganisms: Studies on a TIR domain containing protein from the intracellular bacteria, *Brucella melitensis*” at Center for Cell and Molecular Biology, CSIR, Hyderabad, INDIA on 15 Feb 2011.
5. Invited talk on “Microbial Subversion of Innate Immune Response: Role of a TIR Domain-Containing Protein from *Brucella melitensis*” at School of Biotechnology, Madurai Kamaraj University, INDIA on 31 July 2009.
6. Delivered a talk on “Molecular characterization of two soybean-infecting geminiviruses from India” at Indo-Swiss Collaboration in Biotechnology (ISCB) Workshop on Plant Geminivirus held in School of Biotechnology, Madurai Kamaraj University, INDIA during August 25-26, 2004.
7. Presented a poster at Aqua-Terr Annual Symposium at School of Biological Sciences, Madurai Kamaraj University, INDIA on 28 February 2003.
8. Delivered a talk on “Molecular characterization of soybean yellow mosaic virus” at Annual conference of Indian Virological Society held in Indian Veterinary Research Institute, Hebbal, Bangalore, INDIA on 19 January 2002.

9. Presented a poster at National Symposium on 'Biotechnology at the turn of the Millennium', held in Anna University, Chennai, Tamil Nadu, INDIA during February 4-5, 2002.
10. Presented a poster at Aqua-Terr Annual Symposium at School of Biological Sciences, Madurai Kamaraj University, INDIA on 4 April 2001.

**Conferences organized/attended:**

1. Involved in organization of an International Conference on Host-Pathogen Interactions at NIAB during July 12-15, 2014. (Venue: School of Life Sciences, University of Hyderabad).
2. Organized a workshop on "Eradication of Peste Des Petits Ruminants Virus in India" in collaboration with the Pirbright Institute, UK and College of Veterinary Sciences, Sri Venkateswara Veterinary University at Rajendranagar, Hyderabad on March 4, 2013.
3. Attended "Culture of Responsibility Train the Trainers workshop" organized by the American Society for Microbiology in partnership with JNU School of Biotechnology and the Society for Biosafety, India held at Jawaharlal Nehru University on 13-14 October 2014.
4. Attended a workshop on "Bio-safety Procedures for Recombinants and Genetically Modified (GM) Crops" at the National Institute of Nutrition, Hyderabad, 26<sup>th</sup> March, 2014.
5. Bio-security and Outbreak Analysis Network 2013. Ramanujan Building, CR RAO AIMSCS, University of Hyderabad Campus, November 13, 2013.
6. Discussions on scientific directions of DBT aided autonomous institutions on June 1 and June 2, 2013, Kochi, Kerala.
7. Multi-stakeholders workshop on Opportunities, Challenges and Strategies in Animal Biotechnology, Second Regional workshop in Kochi, Kerala on 19 to 20 February, 2013.
8. Multi-stakeholders workshop on Opportunities, Challenges and Strategies in Animal Biotechnology, First regional workshop in Hyderabad on 18 to 19 January, 2013.
9. 16<sup>th</sup> ADNAT Convention. Conference on "Animal Genetics and Genomics" at C. R. Rao Advanced Institute of Mathematics, Statistics and Computer Science (AIMSCS) on 6<sup>th</sup> to 19<sup>th</sup> December, 2012.
10. 15<sup>th</sup> Annual Midwest Microbial Pathogenesis conference, University of Wisconsin-Madison, USA. September 26-28, 2008.
11. Workshop on "Inter- and intracellular dynamics of ssDNA plant pathogens: Implications for improving resistance", Eilat, ISRAEL, November 6 - 9, 2005.
12. Workshop on 2-Dimensional gel electrophoresis held in School of Biotechnology, Madurai Kamaraj University, INDIA, January 17-19, 2005.