

## **SAMARCHITH P. KURUP**

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Coverdell Center for Biomedical Research  
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## **EDUCATION**

2013	Ph.D., University of Georgia, Athens, GA, USA
2008	MVSc., Indian Veterinary Research Institute, UP, India
2006	BVSc (equivalent to DVM), Kerala Agricultural University, Kerala, India

## **RESEARCH**

My principal research interest is in innate immunity, with a focus on host-pathogen interactions. My most recent work investigated and manipulated immune responses generated against the protozoan parasite *Trypanosoma cruzi*, the agent of Chagas disease. I wish to continue my training in parasitology, focusing on host-pathogen interactions and innate immune responses generated, to ultimately be able to direct my own lab in this area.

## **RESEARCH EXPERIENCE**

2008-2013 Graduate Student, Dept. of Cellular Biology, University of Georgia

- Found that inadequate PAMPs may be one of the critical advantages *Trypanosoma cruzi* uses to maintain a persistent infection, and the innate immune responses generated via the expression of exogenous PAMPs instruct the adaptive immunity well beyond its onset, throughout the course of an infection.
- Discovered that *T. cruzi* sacrifices its flagellum by asymmetric division early in its intracellular cycle and antigens from the flagellum elicit robust CD8<sup>+</sup> T cell responses. These responses could be further enhanced by transgenically over-expressing flagellar proteins in the parasite.

2006-2008 Graduate Student, Division of Parasitology, Indian Veterinary Research Institute

- Developed cDNA and protein based vaccines against *Trypanosoma evansi*, that offered protection to mice
- Part of the team at Center for Animal Disease Research and Diagnosis (CADRAD) that developed and field-validated ELISAs for diagnosis of surra and toxoplasmosis in cattle in the Indian subcontinent.

## TEACHING EXPERIENCE

2008-2012 Teaching assistant, Dept. of Cellular Biology, University of Georgia

- Courses taught: Comparative Vertebrate Anatomy, Human Anatomy & Physiology and Neurobiology to pre-medical/ pre-veterinary students.
- Mentored undergraduate and graduate students

2006-2008 Junior Research Fellow, Indian Council for Agricultural Research

- Project guidance to undergraduate student-trainees

2005-2006 Resident, Veterinary In-Patient Facility, College of Veterinary Medicine, Kerala Agricultural University

- Mentored students in clinical medicine and post-operative care

## GRANTS AND AWARDS

- American Association of Immunologists (AAI) young investigator award, Woods Hole Immuno-Parasitology Meeting (Award for best presentation at WHIP 2013)
- Marine Biological Laboratories-FAPESP-USP grant to attend Biology of Parasitism workshop at Sao Paulo, Brazil (2012)
- The University of Georgia Graduate School 3MT Thesis award (Popular prize for best 3 minute description of dissertation research, 2012: <http://www.youtube.com/watch?v=-aXngYOGyE>)
- Junior Research Fellowship in life sciences, Council for Scientific and Industrial Research, India (2008)

- Junior Research Fellowship in Parasitology, Indian Council for Agricultural Research, India (2006)
- Honors Distinction in BVSc, Kerala Agricultural University, India (2006)
- University Merit Scholarship, Kerala Agricultural University, India (2001)
- National Merit Scholarship, Gov. of India (2000)

## BOARD CERTIFICATIONS AND PROFESSIONAL MEMBERSHIPS

- American Heart Association (AHA)
- Indian Association for Advancement of Veterinary Parasitology (IAAVP)
- Board certified to practice veterinary medicine in the state of Kerala, India
- Veterinary Council of India (VCI)
- Kerala State Veterinary Council (KSVC)

## PUBLICATIONS

- Kurup SP, Tarleton RL., Perpetual expression of PAMPs necessary for optimal control and clearance of a persistent pathogen., *Nat commun* 4:2616 (2013)
- Kurup SP, Tarleton RL., *Trypanosoma cruzi* flagellar proteins are very early targets of protective CD8<sup>+</sup> T cells (to be submitted) (2013)
- Kurup, SP, Tewari AK, Sharma B., Protective immune responses with recombinant beta-tubulin from *Trypanosoma evansi.*, *Vaccine* (under review) (2013)
- Ulrich PN, Lander N, Kurup SP, Reiss L, Miranda K, Docampo R., Vacuolar transporter chaperone 4 is an acidocalcisomal polyphosphate synthase in *Trypanosoma brucei* and *Trypanosoma cruzi* (to be submitted) (2013)
- Kundu K, Tewari AK, Kurup SP, Baidya S, Rao JR, Joshi P., Sero-surveillance for surra in cattle using native surface glycoprotein antigen from *Trypanosoma evansi.*, *Vet Parasitol.*; 23;196(3-4):258-64 (2013)
- Kurup, SP, Tewari AK., Induction of protective immune responses in mice by a DNA vaccine encoding *Trypanosoma evansi* beta tubulin gene., *Vet Parasitol.*; 187 (1-2):9-16 (2012)
- Tewari AK, Rao JR, Kurup SP, Hira Ram, Mishra AK., Infection trial with *Trypanosoma evansi* on *Clarias gariepinus.*, *Indian Veterinary Journal*; 87 (3): 230-231 (2010)

- Radhakrishnan S, Kurup SP, Banerjee PS., Endoparasitism in captive wild-caught snakes indigenous to Kerala, India., *Zoo Biol.*; 28(3):253-8 (2009)
- Kurup SP, Azhahianambi P, Ghosh S., Effect of surface area to weight ratio of egg masses on the hatchability of *Boophilus microplus* eggs., *J Vector Borne Dis.* 45(2):164-9 (2008)

## CONFERENCES AND PRESENTATIONS

- Kurup SP, Tarleton RL., Perpetual expression of PAMPs necessary for optimal immune control and clearance of an otherwise persistent pathogen, *Woods Hole Immuno-Parasitology Meeting*, Woods Hole, MA (2013) (Best presentation award)
- Kurup SP, Tarleton RL., Overexpression of *Trypanosoma cruzi* flagellar protein yields protective T cell responses, *Woods Hole Immuno-Parasitology Meeting*, Woods Hole, MA (2013)
- Kurup SP, Tarleton RL., Constitutive expression of Pathogen Associated Molecular Patterns is critical to immunity against persistent pathogens, *Marine Biological Laboratories Biology of Parasitism workshop*, SP, Brazil (2012)
- Kurup SP, Tarleton RL., Enhancing immunity to *Trypanosoma cruzi* by heterologous expression of TLR-ligands, *Biology of Host-Parasite interactions Gordon Research Conference*, Newport, RI, USA (2012)
- Kurup SP, Tarleton RL., Enhancing immunity to *Trypanosoma cruzi* by heterologous expression of TLR-ligands, *60<sup>th</sup> American Society for Tropical Medicine and Hygiene Meeting*, Philadelphia, PA, USA (2011)
- Kurup SP, Tarleton RL., Enhancing immunity to *Trypanosoma cruzi*, *37<sup>th</sup> Fancy Gap Immunoparasitology Meeting*, Fancy Gap, VA, USA (2010)
- Tewari AK, Kurup SP, Rao JR., Generation of immune response in mice with a DNA construct encoding *Trypanosoma evansi* beta tubulin, *14<sup>th</sup> International Congress of Immunology*, Kobe, Japan (2010)
- Kurup SP, Tarleton RL., Enhancement of anti-*Trypanosoma cruzi* immune responses through expression of a heterologous TLR ligand, *Woods Hole Immuno-Parasitology Meeting*, Woods Hole, MA, USA (2010)
- Ulrich PN, Kurup SP, Miranda K, Docampo RD., Vacuolar Transport Chaperone 4 in *Trypanosoma brucei*, A Potential Polyphosphate Synthase?, *19<sup>th</sup> Annual Molecular Parasitology-Vector Biology Symposium*, Athens, GA, USA (2009)

## REFERENCES

Dr. Rick Tarleton (Major Advisor)

Distinguished Research Professor, Dept. of Cellular Biology

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Dr. Dan Colley

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