

Roman R. Ganta, M.Sc., Ph.D.: Detailed Curriculum Vitae

University Distinguished Professor and Director, Center of Excellence for Vector-borne Diseases
(CEVBD)

Department of Diagnostic Medicine/Pathobiology, College of Veterinary Medicine

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EDUCATION:

Ph.D. (Biochemistry), 1982-87, All India Institute of Medical Sciences, New Delhi, India

M.Sc. (Biochemistry), 1978-1980, Andhra University, Visakhapatnam, India

B.Sc. (Biology and Chemistry), 1975-1978 Andhra University, Visakhapatnam, India

PROFESSIONAL POSITIONS:

2022-current: University Distinguished Professor, Kansas State University (K-State),
Manhattan, KS

2015-current: Director, Center of Excellence for Vector-borne Diseases (CEVBD), Department
of Diagnostic Medicine/Pathobiology (DMP), College of Veterinary Medicine (CVM), K-
State, Manhattan, KS

2007-2022: Professor, DMP, CVM, K-State, Manhattan, KS

2003- 2007: Associate Professor, DMP, CVM, K-State

1998-2003: Assistant Professor, DMP, CVM, K-State

2005-2013: Director, Molecular Biology Core, the NIH Center Of Biomedical Research
Excellence (COBRE) at CVM, K-State

1998-current: Graduate Faculty, K-State, Manhattan, KS

1998-current: Adjunct Professor, Dept. Entomology, K-State

1998-current: Member of the Graduate Biochemistry Group, Dept. of Biochemistry, K-State

1992-1998: Assistant Scientist, Dept. Pathobiology, University of Florida, Gainesville, FL

1990-1992: Postdoctoral Associate, University of Florida, Gainesville, FL

1987-1990: Research Associate, The Scripps Research Institute, La Jolla, CA

PROFESSIONAL HONORS/AWARDS:

Selected for K-State's University Distinguished Professor title (April 2022)

International Visiting Professor (appointed; 2022): Dr. B. R. Ambedkar University, Srikakulam,
Andhra Pradesh, India

Adjunct Professor (appointed; 2021): Department of Pathobiology, School of Veterinary
Medicine, St. George's University, Grenada, West Indies

**Recipient of the title 'Fellow of the Conference of Research Workers in Animals Diseases
(2021)**

Recipient of the K-State International Collaboration award(2020)

**Recipient of two consecutive K-State professorial performance enhancement awards (2014
and 2020):** Recipient of the K-State 6-year meritorious performance awards for the two consecutive
terms for demonstrating sustained outstanding professorial performances and accomplishments

Visiting Professor: St. George's University, Grenada, West Indies. November 2012, July 2017,
March 2018 and March 2019.

Established a New Center: Established the Center of Excellence for Vector-Borne Diseases
(CEVBD) at K-State in 2015. This center received a high-level publicity from various media
channels, including news releases published in news papers from East coast to West coast and in
Northeast, Southeast and Midwest. I generated \$1,000,000 of foundation support to promote the

growth of the center-associated new research projects. Also established a new endowment fund and generated an additional \$200,000, totaling the support generated to \$1.2 million.

Recipient of the title ‘Fellow of the Association of Biotechnology and Pharmacy (FABAP)’, India in 2012: This is a prestigious award bestowed only to a very few nationally and internationally recognized scientists by the organization, the Association of Biotechnology and Pharmacy, India

Pfizer Animal Health Award (2005): Recipient of the Pfizer Animal Health Award for Excellence in Research, CVM, K-State

NATIONAL AND INTERNATIONAL RECOGNITION BY FUNDING AGENCIES:

National Institutes of Health (NIH) study sections, USA active since 2003:

2003: Ad-hoc member on the Bacteriology and Mycology 1 (BM1) panel

2004, 2018, 2020: Ad-hoc member on the Host Interactions with Bacterial Pathogens [HIBP] panel

2005, 2009-2020: Ad-hoc member on several Infectious Diseases and Microbiology (IDM) panels.

2006-2010: Appointed regular member of the Vector Biology (VB) Study Section (served as a Co-Chair at June 2009 panel meeting)

2011: Ad-hoc member on a special panel for the RFA, AI-11-014 titled ‘Partnerships for Biodefense’

2016-2017 and 2020: Chairperson, ZRG1 IDM S (81) panel (2016-17) to review R15 (academic research enhancement award, AREA) applications, NIH

USDA-NRICGP: 1998–2001: Ad-hoc reviewer for the USDA-NRICGP competition

Military Infectious Diseases Research Program (MIDRP): 2010-2020: Grants review panel of the U.S. Army Medical Research and Materiel Command, Washington, DC

Congressionally Directed Medical Research Programs (CDMRP): Tick-borne disease Research Program (TBDRP): Grant review panel held in Baltimore, MA Dec 5-7, 2018

Oklahoma Center for the Advancement of Science and Technology (OCAST), Oklahoma City, OK, USA: 2002-Present: Review panel member for the OCAST since 2002 to 2021. (In 2005, 2006 and 2013, I served as the **Chairman** for the Infectious Diseases/Immunology grants review panels)

The US-Israel collaborative initiative grants panel: Binational Agricultural Research and Development (BARD) Fund

South African research grant foundation: The National Research Foundation

French National Research Agency

LEADERSHIP OF NATIONAL AND INTERNATIONAL SOCIETIES:

American Society for Rickettsiology (ASR): The ASR is an international scientific society and includes members from numerous countries around the world.

Executive Council: Secretary/Treasurer (2003-2007); Vice-President (2007-2009); President (2009-2010); Past-President (2010-2011)

Obtained competitive NIH grant support (primarily by R13 grant mechanism and with NIH special funds) for conducting four scientific meetings held in Spain (2005), Pacific Grove, CA (2006), Colorado Springs, CO (2007), Hilton Head Island, SC (2009). All national meetings

were coordinated from the K-State following my initial establishment of meeting organizations in 2006. The meeting web hosting is also managed from the Kansas State University Global Campus until 2020.

Conference of Research Workers in Animal Diseases (CRWAD): CRWAD is a 100 year old international scientific society which annually conducts research conferences on research topics on animal health and disease, population health, and translational medicine.

Executive Council and Section Leader: *Executive Council Member* (2009-2013); *Vice-President* (2013-2014); *President* (2014-2015); *Section Leader* for the Vector-Borne & Parasitic Diseases session (2007-2017)

OTHER NOTABLE SERVICES:

Ph.D. thesis evaluations performed for various foreign country students: South Africa, The Netherlands, China, Pakistan, and India.

Served many times as an external reviewer for tenure and promotion documents: Various universities from the USA.

EDITORIAL BOARDS:

2021-current	Infectious Medicine, Elsevier (ISSN: 2772-431X)
2017-2020	Editorial Board Member, Genomics, Elsevier
2011-current	Academic Editor (Editorial Board Member), PLoS ONE
2011-current	Editorial Board member, Frontiers in Cellular and Infection Microbiology
2010-current	Regional Editor: Research Journal of Microbiology (ISSN: 1816-4935)
2009-current	Editorial Board: Current Trends in Biotechnology and Pharmacy (ISSN 0973-8916)

PATENTS:

At K-State:

Attenuated vaccines to protect against tick-borne *Ehrlichia* species infections. U.S. Patent No. 10,434,161 issued on Oct. 8, 2019. Inventors: **Roman Ganta**, Chuanmin Cheng, Arathy Nair, Deborah Jaworski and Suhasini Ganta

Attenuated vaccines to protect against tick-borne *Ehrlichia* species INFECTIONS. U.S. Patent No.: 10,751,401; Issued date: August 25, 2020. Inventors: **Roman Ganta**, Chuanmin Cheng, Arathy Nair, Deborah Jaworski and Suhasini Ganta

At University of Florida:

Nucleic acid vaccines against rickettsial diseases and methods of use. Barbet, A.F., **Ganta, R. R.**, Burrige, M.J., Mahan, S.M., Patent Number: 6,025,338. Issue date: February 15, 2000.

Nucleic acid vaccines for *Ehrlichia chaffeensis* and methods of use. Barbet, A.F., **Ganta, R. R.**, McGuire, T.C., Burrige, M.J., Nyika, A., Rurangirwa, F.R., Mahan, S.M., Bowie, M.V., Alleman, A.R. Patent Number: 6,251,872. Issue date: June 26, 2001.

Nucleic acid vaccines against rickettsial diseases and methods of use. Barbet, A.F., Bowie, M.V., **Ganta, R. R.**, Burrige, M.J., Mahan, S.M., McGuire, T.C., Rurangirwa, F.R., Moreland, A.L., Simbi, B.H., Whitmire, W.M., Alleman, A.R. Patent Number: 6,593,147. Issue date: July 15, 2003.

Nucleic acid vaccines against rickettsial diseases and methods of use. Barbet, A.F., Bowie, M.V., **Ganta, R. R.**, Burridge, M.J., Mahan, S.M., McGuire, T.C., Rurangirwa, F.R., Moreland, A.L., Simbi, B.H., Whitmire, W.M., Alleman, A.R. Patent Number: 6,653,128. Issue date: November 25, 2003.

International (World Intellectual Property Organization): Nucleic acid vaccines against rickettsial diseases and methods of use. WO/2000/065063. Barbet, A.F., Bowie, M.V., **Ganta, R. R.**, Burridge, M.J., Mahan, S.M., McGuire, T.C., Rurangirwa, F.R., Moreland, A.L., Simbi, B.H., Whitmire, W.M., Alleman, A.R.

Patents application in progress (K-State):

Disc. No.	Patent Appl. No.	Appl. Date	Title	Inventors
2017-057	PCT/US2018/030302	4/30/18	Targeted Mutagenesis Methods to Disrupt and Restore Gene Activities in Obligate Intracellular Bacterium, Ehrlichia Chaffeensis with Applications to Other Obligate Intracellular Bacteria to Enable Structure-function Analyses and in Developing Methods	Roman R. Ganta Ying Wang
2017-064	PCT/US2018/042496	7/17/18	Rocky Mountain Spotted Fever (RMSF) Vaccine	Roman R. Ganta
2018-040	PCT/US2018/030302	4/30/18	Targeted Mutagenesis to Disrupt a Gene in Ehrlichia Canis to Enable the Development of Attenuated Vaccine to Prevent the Canine Ehrlichiosis	Roman R. Ganta
2018-041	PCT/US2018/030302	4/30/18	Targeted Mutagenesis to Disrupt a Gene in Anaplasma Phagocytophilum to Enable the Development of Attenuated Vaccine to Prevent the Canine Ehrlichiosis	Roman R. Ganta
2018-064	PCT/US2019/026662	4/19/19	Protein and DNA Synthesis Demonstrated in Cell-free Ehrlichia Chaffeensis Organisms in Axenic Medium	Roman R. Ganta
2018-091	PCT/US2018/042496		Ehrlichia canis Inactivated Whole Cell Vaccine	Roman R. Ganta
2018-092	PCT/US2018/042496		Anaplasma phagocytophilum Inactivated Whole Cell Vaccine	Roman R. Ganta
2018-093	PCT/US2018/042496		Ehrlichia chaffeensis Inactivated Whole Cell Vaccine	Roman R. Ganta

RESEARCH:

MAJOR IMPACTFUL RESEARCH CONTRIBUTIONS:

Despite several emerging and reemerging diseases known for causing significant morbidities and mortalities, very little research has been focused on vaccine development to contain the diseases. I have an internationally well-recognized research program in advancing research on several emerging infectious diseases of global public and animal health importance. With competitive grant funding success from the NIH continuously since 2002 with active support till 2026 and from several other funding agencies and foundations (totaling about \$20 million), I have been maintaining a high impact basic and applied research program focusing on various emerging and reemerging vector-borne diseases. Primarily, my research focus has centered on emerging rickettsial diseases caused by obligate, intracellular pathogens of the genera *Ehrlichia*, *Anaplasma* and *Rickettsia*. These pathogens are transmitted by blood-sucking ectoparasites (ticks) and impact a wide array of hosts from humans, companion animals, and food-producing animals throughout the world. My research program is multidisciplinary; I study host-vector-pathogen interactions, gene regulation, molecular genetics, and the development of molecular diagnostic tests and vaccines. Over the years, our research program has emerged as a national and internationally known entity for pursuing research on various emerging and reemerging rickettsial diseases. The diseases caused by tick transmission are vastly understudied despite posing highly significant morbidities and mortalities in people, companion animals, and agricultural animals. The NIH recently developed a strategic plan to combat emerging tick-borne diseases because of their growing impact on public health (<https://www.niaid.nih.gov/sites/default/files/NIH-Strategic-Plan-Tickborne-Disease-Research-2019.pdf>). Indeed, we had a very similar vision for over two decades in pursuing all major identified NIH goals; improving fundamental knowledge, resource development, and in advancing research in

diagnosis and prevention. Similarly, several federal agencies (CDC, DoD, DHS and USDA) have identified tick-borne diseases as a priority.

Notable funding success: Our active program has a support of about \$10 million with a lions share of support coming from the prestigious NIH funding via three R01 grants. Our research also has been continuously funded from the NIH since 2002. This is a remarkable accomplishment as on average, NIH funds about 12 percentile or less of all discussed applications. Of which, only 4.3% of all R01 funded investigators can have a record of securing three active R01s at a time:

<https://www.nature.com/articles/s41599-020-0432-5>. Thus, I rank to the top 4% of all NIH R01 funded scientists and top ~0.5% of all investigators seeking NIH R01 support taking into consideration of about 45-50% proposals do not get discussed.

Established a new research center: With a vision to promote greater advances in combating emerging vector-borne diseases, I established a new research center in 2015: The Center of Excellence for Vector Borne Diseases (CEVBD). I secured substantial foundation support for it which totals \$1.2million. It is primarily used for advancing the goals of the center by highlighting the importance of emerging diseases resulting from arthropod vector transmissions. The funds aided in launching several new research initiatives, some of which had already received significant NIH grant support. The center also has fostered faculty collaborations at K-State and several academic institutions across the nation and world, including several universities in Asia, Oceania, Central and South America, to establish and promote international research and teaching collaborations. Notably, the foundation support for the center helped greatly in establishing international and national collaborations and in initiating novel research directions.

Selected research highlights and their impact:

Background: The majority of rickettsial diseases were discovered during the last three decades. For example, HME was reported for the first time in 1986. Likewise, human granulocytic anaplasmosis (HGA) was discovered in 1993. While Rocky Mountain spotted fever is known for over a century, it remained a major public health concern due to lack of effective methods of control. Notably, the scientific community investigating rickettsial diseases has remained quite small due to difficulties of working with these pathogens. Despite this limitation, the importance of TBDs is widely recognized in recent times by several US federal agencies: NIH, CDC, DoD, DHS, and USDA. This is because of the rapid rise of TBDs impacting the health of people during the last few decades and the economic impact they cause in the USA and in many countries.

Rickettsial molecular genetics: The lack of targeted mutagenesis methods to create gene function disruption mutations and complementation of a mutagenized gene (to test molecular Koch's postulates) in obligate pathogens is a major impediment to studying microbial pathogenesis. In 2017, several lead researchers with expertise in obligate intracellular pathogens felt that developing novel genetic tools for rickettsial pathogens is a major goal for advancing research in defining novel paradigms in microbial pathogenesis and immunity

https://www.nature.com/articles/nrmicro.2017.59?WT.feed_name=subjects_microbiology). We have successfully accomplished this most significant and impactful task for the field by applying strategic and logical scientific approaches involving rationale experimental design with troubleshooting strategies that ultimately resulted in successful outcomes. This study is the foundation for extending research to both identify essential bacterial genes and vaccine development efforts in several rickettsial pathogens. Indeed, this work translated into our success in securing significant NIH R01 funding and from other agencies. This innovative research paved the way for us to be uniquely positioned in pursuing vaccine research on several emerging and reemerging TBDs impacting multiple host species.

Immunology and vaccine development: *Ehrlichia chaffeensis* is a tick-borne rickettsial bacterium responsible for causing human monocytic ehrlichiosis (HME) in the USA and many parts of the world. Using the murine host model, we first defined host responses to confer resistance to infection and how *E. chaffeensis* evades host immune response and clearance. We then developed physiologically relevant natural infection models for the HME and for several other tick-borne diseases caused by *Anaplasma*, *Ehrlichia*, and *Rickettsia* pathogens. Our animal model development

unlocked novel research directions addressing how tick-transmission and blood stream infections progress naturally in a host. Our impactful discoveries also provided strong foundations for advancements to control of several rickettsial diseases, including pursuing vaccine research on several emerging and re-emerging tick-borne diseases impacting multiple host species, including *E. chaffeensis*, *E. canis*, *E. ruminantium*, *A. marginale*, *A. phagocytophilum*, and *R. rickettsii*. Our basic, transformational, and translational research program had and will continue to exert a broader impact in driving the research on rickettsial field as well as on other arthropod-borne pathogens of public health, companion animal and food animal health importance globally.

Rickettsial gene regulation: Current knowledge of bacterial gene regulation comes primarily from the basic *E. coli* studies, while little is known about how obligate intracellular bacteria regulate gene expression. Such studies are essential for understanding how pathogens adapt to dual host environments by controlling gene expression. This research, however, is technically challenging due to the bacterial obligate parasitism. Thus, only a few investigations are pursued on this essential topic. To the best of our knowledge, we are the only scientific group pursuing this line of research for rickettsial pathogens. We developed a very innovative gene promoter mapping system to study *Ehrlichia* gene regulation from its only two sigma factors, σ^{32} and σ^{70} of RNA polymerase. (Sigma factors play essential in an RNA polymerase function in defining a gene as constitutively and differentially expressed.) We used *E. coli* strains with sigma factor mutations to express functional *E. chaffeensis* sigma factors and then the modified *E. coli* strains are used as surrogate systems to investigate *E. chaffeensis* gene expression. The *E. coli* surrogate system has been aiding to investigate gene regulation in *E. chaffeensis* and it serves as a good alternative transgenic system to define *Ehrlichia* gene regulation. Evaluation of *Ehrlichia* transcriptional machinery using the *E. coli* surrogate system is a highly innovative molecular approach for understanding gene regulation in obligate bacteria. This research has been pursued in understanding how *Ehrlichia* regulates gene expression for their intracellular survival in a vertebrate host and in an arthropod vector. This research has been continuously supported by the NIH since 2007.

Heartwater pathogenesis and vaccine development: Heartwater is an important foreign animal ruminant disease caused by the tick-transmitted pathogen, *Ehrlichia ruminantium*. Economic losses with heartwater are estimated to be huge as up to 90% of ruminants can be killed with it if introduced into a non-endemic region, such as into the USA. It affects a wide range of ruminants including cattle, sheep, goats, several species of antelope and wild ruminants. We recently initiated the first ever research program on the mainland USA to study heartwater pathogenesis, define if ticks indigenous to the US can harbor the pathogen and serve as competent vectors, and to develop a vaccine to contain the disease. This project received the USDA cooperative agreement funding recently.

RMSF vaccine project: The following is a good example underscoring the true impact of the research we have been pursuing. Despite over a century-old history of Rocky Mountain spotted fever (RMSF) in North, Central and South Americas and responsible for causing high mortalities (30-80%), very little advances were made to contain this reemerging disease caused by *Rickettsia rickettsii* infections. We recently developed a natural infection model and tested a vaccine; we demonstrated the feasibility of vaccine protection against this fatal disease (reported in 2019). The impact of our research is well recognized by the scientific peers as evidenced by our rapid success in securing a major grant of \$3.7 million from the NIH recently (September 2021) to extend investigations to further develop the vaccine.

Development of molecular diagnostic tests: An important means of controlling any disease is by the way of tracking infections rapidly. Thus, it is critical to have methods to map infections in animals. Over the years, we developed several molecular diagnostic tests:

Ehrlichia and Anaplasma molecular diagnostic tests for canine samples: We developed a multiplex quantitative, real-time molecular diagnostic test for the simultaneous detection of up to five *Ehrlichia* and *Anaplasma* species pathogens responsible for causing tick-transmitted infections in dogs.

Anaplasmosis molecular diagnostic test for bovine samples: Similarly, we developed a real-time quantitative molecular diagnostic test to monitor anaplasmosis disease in cattle.

West Nile Virus molecular diagnostic test: We established the protocols for duplex real-time quantitative RT-PCR assay to detect West Nile Virus infections in samples originating from several vertebrates and in mosquito pools.

Rocky Mountain spotted fever (RMSF) molecular test: We also developed an RMSF molecular diagnostic test.

Lyme disease molecular diagnosis: *Borrelia burgdorferi* is an important tick-borne pathogen responsible for causing Lyme diseases in people and various vertebrate animals. A molecular test for detecting the pathogen infections was developed for application to monitor infections in dogs and ticks.

The molecular tests we developed are now offered as fee-for-service at the K-State Veterinary Diagnostic Laboratory (KSVDL) at CVM, K-State.

Patents: Our research has led to 10 patent application filings and two of which were granted patents recently. The patents have been instrumental in identifying industry partners for the purpose of promoting the rapid control of TBDs in cattle and dogs, where the diseases are also a major concern.

PROMOTING DEVELOPING NEW GENERATION SCIENTISTS AND OTHER DISTINGUISHED PROFESSIONAL SERVICES:

I mentored and continue to mentor many graduate students, postdoctoral scientists, and young faculty members. Most of my mentored scientists have advanced extremely well. When I actively served on the executive committees of the international scientific society; American Society for Rickettsiology (ASR), I secured three competitive NIH R13 conference grants and used the funds primarily to support graduate students, postdoctoral scientists, and junior level faculty members to foster research mentoring and collaborations and by facilitating their active participations at the ASR scientific meetings. I also served on the executive council of another scientific society; the Conference of Research Workers in Animal Diseases (CRWAD) with various roles, including as the President. For over 100 years, CRWAD is engaged in promoting cutting-edge animal health and disease research. I continue to serve on various grant review panels nationally and internationally in promoting to greater science advancements.

FUNDED RESEARCH GRANTS:

Generated about \$19 million of extramural research support, \$350,000 support from intramural sources after coming to K-State and \$1.2 million foundation funding. Succeeded in securing nearly 25 years of continuous NIH support with currently having **three** active R01 grants to pursue investigations focused on basic and applied research in combating several important rickettsial diseases.

List of extramural funded grants:

Funding agency	Title of the Project	Project period	Total funds
USDA (\$250,000) + NBAF Transition fund (\$75,000)	Building foundations for <i>E. ruminantium</i> vaccine development	09/01/2021-08/30/2023	\$325,000
NIH R01	Rocky Mountain spotted fever vaccine development	09/01/21 – 08/31/26	\$3,681,358
Russell L. Rustici Rangeland and Cattle Research Endowment, University of California, Davis, CA	Bovine anaplasmosis vaccine development	01/01/21 – 12/31/22	\$110,000
	Vaccines against Ehrlichia and Anaplasma species	06/01/20 – 05/31/25	\$3,125,325

NIH R01	infections		
NIH R01 (competing renewal)	Vector and host contributions to the regulation of <i>E. chaffeensis</i> gene expression	08/01/19-07/31/24	\$2,681,555
Merial, Inc. (Boehringer Ingelheim Animal Health); Research Agreement	Evaluation of clinical protection afforded by prototypes PNAG vaccines in an Ehrlichia canis laboratory model in dogs	12/01/2018 11/31/2019	\$72,000
Elanco; Research Agreement	Modifying Ehrlichia attenuated vaccine constructs	10/25/2018-10/24/2020	\$266,265
Elanco; Research Agreement; new supplement	Modifying Ehrlichia attenuated vaccine constructs	July, 2020	\$50,000
Abaxis, Inc., Union City, CA; Research agreement	Antibody assessment of Ehrlichia, Anaplasma and Borrelia species infections in dogs	03/06/18 - 03/05/21	\$375,573
St. George's University, Grenada, West Indies	Postdoctoral Scholars Program (PSP) Training Grant	12/31/16 - 12/30/20	\$180,000
Merial, Inc. (Boehringer Ingelheim Animal Health); Research Agreement	Evaluation of clinical protection afforded by prototype vaccines in an Ehrlichia canis laboratory model in dogs	12/01/2017-11/31/2018	\$66,386
National Bio and Agro Defense Facility transition funding from the State of Kansas	Pathogenesis of Heartwater disease	11/01/16-10/31/2020	\$400,000
NIH P20 (K-INBRE; bridge award) (multiple PI funding with M. Zolkiewski)	Molecular chaperones of <i>Ehrlichia chaffeensis</i>	05/01/15-04/30/16	\$40,000
NIH P20 (KU-COBRE) ((mentoring support for Jodi McGill, DMP)	Alternative functions for gamma delta T cells in the immune response to <i>Mycobacterium bovis</i> infection	07/01/15-06/30/16	\$10,000
NIH R01 (competing renewal)	Vector and host contributions to the regulation of <i>E. chaffeensis</i> gene expression	08/01/14-07/31/19	\$1,764,016
NIH R56	Vector and host contributions to the regulation of <i>E. chaffeensis</i> gene expression	08/12/13-07/31/14	\$473,141
NIH P20 (KU-COBRE) (mentoring support for R. Govind, Div. Biol.)	Toxin secretion mechanism in Clostridium difficile	11/01/11-04/30/13	\$15,000
NIH P20 (K-INBRE) (mentoring support for R. Govind, Div. Biol.)	Role of TcdR, the alternate sigma factor in Clostridium difficile virulence	12/03/12-07/31/13	\$15,000
Abaxis, Inc., Union City, CA	Clinical and diagnostic assessment of Ehrlichia and Anaplasma species infections in dogs	09/01/12-08/31/13	\$156,905
NIH R13	American Society for Rickettsiology conference 2009	04/01/09 to 3/31/10	\$15,349
NIH R01	Vector and host contributions to the regulation of <i>E. chaffeensis</i> gene expression	12/15/07 to 08/11/13	\$1,825,000
KDDE-CDC&P	West Nile virus surveillance	7/01/08 to 6/30/09	\$20,000
KDDE-CDC&P	West Nile virus surveillance	7/01/05 to 6/30/06	\$29,250
KDHE-CDC&P	West Nile virus surveillance	7/01/04 to 6/30/05	\$34,000
KDHE-CDC&P	West Nile virus surveillance	7/01/03 to 6/30/04	\$19,000
KDHE-CDC&P	West Nile virus surveillance	7/01/02 to 6/30/03	\$43,085
KDHE-CDC&P	West Nile virus surveillance	7/01/01 to 6/30/02	\$25,000
NIH special fund	ASR Conference 2007	07/15/07 -06/30/08	\$20,000
NIH P20, KU-COBRE(mentoring support for K.C. Chang, DMP)	University of Kansas COBRE project on infectious diseases	09/01/06-08/31/09	\$55,014
NIH R13	ASR Conference 2006	07/15/06 -06/30/07	\$30,000
NIH R13	American Society for Rickettsiology (ASR) Conference 2005	06/01/05-5/30/06	\$15,000

NIH R01	Cellular immunity against <i>Ehrlichia chaffeensis</i>	9/30/03 to 1/31/09	\$1,566,333
NIH P20, K-State COBRE (mentoring support for K.C. Chang, DMP)	Interactions between pathogens and arthropod midgut epithelial cells	9/01/02 to 8/30/05	\$632,925
NIH R21	Cellular immunity against <i>Ehrlichia chaffeensis</i>	8/01/02 to 7/31/04	\$352,375
Morris Animal Foundation	Molecular detection of single or co-infections with five known canine ehrlichiosis agents	9/01/01 to 8/31/03	\$70,978
Total support			\$18,544,928

Foundation support generated for the CEVBD:

Funding agency	Title of the project	Dates of funding	Total funds
Abaxis, Inc., Union City, CA	To promote the growth of CEVBD	April 2018	\$250,000
Abaxis, Inc., Union City, CA	To promote the growth of CEVBD	April 2017	\$250,000
Abaxis, Inc., Union City, CA	To promote the growth of CEVBD	April 2016	\$250,000
Abaxis, Inc., Union City, CA	To promote the growth of CEVBD	April 2015	\$250,000
Clin Severson	To promote growth of CEVBD	2020	\$100,000
Kenneth Aron	To promote growth of CEVBD	2020	\$100,000
Total support			\$1,200,000

Intramural funded grants:

Funding agency	Title of the project	Dates of funding	Total funds
K-State -CVM and DMP special fund	Tick rearing facility development	05/20/14-05/19/15	\$90,000
SMIEL– program (CVM)	Vector and host contributions to the regulation of <i>E. chaffeensis</i> gene expression	09/01/12-08/31/13	\$40,000
SMIEL– program (CVM)	Molecular and proteomic approaches in understanding <i>Ehrlichia</i> pathogenesis	12/01/05-11/30/06	\$20,000
BRI- Transitional Minigrant (K-State)	Development of a project on Heartwater disease agent, <i>Ehrlichia ruminantium</i>	10/01/05-09/30/06	\$60,000
Cancer Research Award (K-State)	Proteomes in normal and stressed macrophages (Undergraduate student support award)	11/01/04 to 10/31/05	\$1,000
Cancer Research Award (K-State)	Proteomes in normal and stressed macrophages (Undergraduate student support award)	11/01/03 to 10/31/04	\$1,000
Cancer Research Award (K-State)	Gene expression in normal and stressed macrophages (Undergraduate student support award)	11/01/03 to 10/31/04	\$1,000
NIH K-BRIN (K-State)	Proteomes in normal and stressed macrophages (undergraduate student award to Kyle Weaver to work in my laboratory)	04/04 to 03/06	\$8,000
Parallellpaths funding (K-State)	Support for integrating International dimension	2006	\$1,000
Faculty Development Award (from K-State)	To develop fruitful collaborations with two universities in India: Global initiative for Veterinary Education program with S.V.V. University, Tirupati and twin program to establish a joint graduate study course(s) with Andhra University, Waltair, India	May-July, 2006	\$1,200
Parallell paths funds (CVM)	Conference support	2005	\$1,000
Faculty Development Award (from K-State)	To attend the 4th international conference on Ticks and Tick-borne Pathogens held in Banff, Canada	July 21-26, 2002	\$1,000

Cancer Research Award (K-State)	Molecular evaluation of the 28 kDa outer membrane protein multigene locus of <i>Ehrlichia canis</i> in a vertebrate host (Undergraduate student support award)	12/01/01 to 12/31/02	\$1,000
Faculty Development Award (from K-State)	To attend the STVM meeting in Pilanesberg, South Africa	July 21-26, 2001	\$1,000
AES 1433 project supported by USDA	Modulation of host immune response by tick feeding and pathogen transmission, a model study	10/1/01 to 9/30/03	\$30,000
Dean's Fund	Modulation of host immune response by tick feeding and pathogen transmission of <i>Ehrlichia</i> spp.	8/1/01 to 7/31/02	\$5,000
Dean's Discretionary fund (non-competitive)	To support in establishing a research program on <i>Ehrlichia</i>	4/1/00 to 3/31/01	\$25,000
Dean's Fund	Animal Model for <i>Ehrlichia chaffeensis</i>	8/1/00 to 7/31/01	\$5,000
Dean's Fund	Molecular Basis for persistent <i>E. chaffeensis</i> infections	8/1/99 to 7/31/00	\$5,000
AES 1433 project supported by USDA	Development and evaluation of a multiplex molecular diagnostic test for rickettsial diseases: anaplasmosis, ehrlichiosis and cowdriosis	10/1/98 to 9/30/01	\$48,000
Dean's Fund	Antigenic variation in <i>Ehrlichia chaffeensis</i>	8/1/98 to 7/31/99	\$5,000
Total support			\$350,200

Funded team projects as a Co-PI:

AES-1433 (K-State) (PI: T. van Ohlen)	Determination of host genes required for <i>Ehrlichia</i> growth	9/01/06 to 8/31/07	\$30,000
AES-1433 (K-State) (PI: H. Coetzee)	Development of a diagnostic testing strategy to assess <i>Anaplasma marginale</i> disease status in cattle following infection and chemosterilization.	9/01/06 to 8/31/07	\$22,500
Target Excellence (K-State) (PI: Dr. S. Brown)	Center for Genomic Studies on Arthropods Affecting Human, Animal and Plant Health	7/1/06 to 6/30/11	\$2,000,000
Total funds			\$2,052,500

Pending grant:

Funding agency	Title of the project	Project period	Total funds
NIH R01 administrative supplement	Vector and host contributions to the regulation of <i>E. chaffeensis</i> gene expression	07/01/2022-06/30/2023	\$150,000

PUBLICATIONS (Note: Name appears as G. R. Reddy in publications until 2001):

Research Articles:

1. Targeted mutagenesis in *Anaplasma marginale* to define virulence and vaccine development against bovine anaplasmosis. Hove P., Madesh S., Nair A., Jaworski D., Liu H., Ferm J., Kleinhenz M.D, Highland M.A., Curtis A.K., Coetzee J.F., Noh SM, Wang Y, Genda D., and **Ganta R.R.** PLoS Pathog , 2022, 18(5): e1010540. <https://doi.org/10.1371/journal.ppat.1010540>
2. Functional Characterization of Multiple *Ehrlichia chaffeensis* Sodium (Cation)/Proton Antiporter Genes Involved in the Bacterial pH Homeostasis. Wei L., Liu H., Alizadeh K., Juarez-Rodriguez M.D., **Ganta R.R.** Int J Mol Sci. 2021 Aug; 22(16): 8420. Published online 2021 Aug 5. doi: 10.3390/ijms22168420. PMID: PMC8395091 (<https://www.mdpi.com/1422-0067/22/16/8420>)
3. Mutations in *Ehrlichia chaffeensis* genes ECH_0660 and ECH_0665 cause transcriptional changes in response to Zinc or Iron limitation. Torres-Escobar A, Juárez-Rodríguez MD, and **Ganta RR.** J. Bacteriol., 2021 (<https://jb.asm.org/content/early/2021/04/16/JB.00027-21>)
4. Molecular detection and characterization of *Anaplasma platys* and *Ehrlichia canis* in dogs from the Caribbean. Alhassan A, Hove P, Sharma B, Matthew-Belmar V, Karasek I, Lanza-Perea M, Werners AH, Wilkerson MJ, and **Ganta RR.** Ticks and Tick-borne Diseases, 2021, 12, 101721. <https://doi.org/10.1016/j.ttbdis.2021.101727>
5. Experimental infection of North American sheep with *Ehrlichia ruminantium*. Nair A, Hove P, Liu H, Wang Y, Cino-Ozuna AG, Henningson J., Ganta CK, and **Ganta RR.** Pathogens. 2021; 10(4):451. <https://doi.org/10.3390/pathogens10040451>
6. Development of a Multiplex PCR and Magnetic DNA Capture Assay for Detecting Six Species Pathogens of the Genera Anaplasma and Ehrlichia in Canine, Bovine, Caprine and Ovine Blood Samples from Grenada, West Indies. Sharma B, **Ganta RR**, Stone D, Alhassan A, Lanza-Perea M, Belmar VM, Karasek I, Cooksey K, Butler CM, Gibson K, Wilkerson MJ. Pathogens 2021, 10, 192. <https://doi.org/10.3390/pathogens10020192>
7. Protein and DNA biosynthesis demonstrated in host cell-free phagosomes containing *Anaplasma phagocytophilum* or *Ehrlichia chaffeensis* in axenic media. Zhang Y, Chen L, Kondethimmanahalli C, Liu H, and **Ganta RR.** Infect Immun. 2021 Mar 17;89(4):e00638-20. doi: 10.1128/IAI.00638-20 (<https://iai.asm.org/content/89/4/e00638-20>)
8. Multiple *Ehrlichia chaffeensis* genes critical for its persistent infection in a vertebrate host are identified by random mutagenesis coupled with *in vivo* infection assessment. Wang Y, Nair ADS, Alhassan A, Jaworski DC, Liu H, Trinkl K, Hove P, Ganta CK, Burkhardt N, Munderloh UG and **Ganta RR.** Infect Immun. (2020) 88(10) DOI: 10.1128/IAI.00316-20. (Note: This article was selected by the editors for inclusion in the "Spotlight" feature of the journal that highlights research articles of significant interest.)
9. AMP-activated protein kinase (AMPK) regulates autophagy, inflammation and immunity and contributes to osteoclast differentiation and function. Tong X, **Ganta RR**, Liu Z. Biol Cell. 2020 May 23. doi: 10.1111/boc.202000008. Online ahead of print. PMID: 32445585
10. Assessing the current and future potential geographic distribution of the American dog tick, *Dermacentor variabilis* (Say) (Acari: Ixodidae) in North America. Raghavan RK, Yadhav GBD, Peterson AT, Foley D and **Ganta RR.** PLoS One (2020) 15(8): e0237191. <https://doi.org/10.1371/journal.pone.0237191>.
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14. Proteome analysis revealed changes in protein expression patterns caused by mutations in *Ehrlichia chaffeensis*. Kondethimmanahalli C, Liu H and **Ganta RR**. *Front. Cell. Infect. Microbiol.*, 2019 Mar 18;9:58. doi: 10.3389/fcimb.2019.00058. eCollection 2019. PMID: 30937288
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77. A repetitive DNA probe for sensitive detection of *Fasciola hepatica* infected snails. R. M. Kaplan, John B. Dame, **G. R. Reddy** and C. H. Courtney. *Int J. Parasitol.*, 25, 601-610, (1995).
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81. Gene sequence tags from *Plasmodium falciparum* genomic DNA fragments prepared by the "genease" activity of mung bean nuclease. **G. R. Reddy**, D. Chakrabarti, S. M. Schuster, R. J. Ferl, E. C. Almira and John B. Dame. *Proc. Natl. Acad. Sci. (USA)*. 90, 9867-9871, (1993).
82. Cloning and characterization of the human muscle phosphofructokinase gene. P. A. Vasanen, **G. R. Reddy**, P. M. Sharma, R. Kohani, J. L. Johnson, A. K. Raney, B. M. Babior and A. McLachlan. *DNA and Cell Biology* 11, 461-470, (1992).
83. Ribosomal RNA based method for sensitive detection of *Babesia bigemina* in bovine blood. **G. R. Reddy** and J. B. Dame. *J. Clin. Microbiol.* 30, 1811-1814, (1992).
84. Sequence microheterogeneity of the three small subunit ribosomal RNA genes of *Babesia bigemina*: Expression in erythrocyte culture. **G. R. Reddy**, D. Chakrabarti, C. A. Yowell and J. B. Dame. *Nucl. Acids Res.* 19, 3641-3645, (1991).
85. Alternative splicing of the transcript encoding the human muscle isozyme of phosphofructokinase. P. M. Sharma, **G. R. Reddy**, B. M. Babior, and A. McLachlan. *J. Biol. Chem.*, 265, 9006-9010, (1990).
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Reviews:

89. Engineering of obligate intracellular bacteria: progress, challenges and paradigms. E. E. McClure, A. S. Oliva Chávez, D. K. Shaw, J. A. Carlyon, **R. R. Ganta**, S. M. Noh, D. O. Wood, P. M. Bavoil, K. A. Brayton, J. J. Martinez, J. W. McBride, R. H. Valdivia, U. G. Munderloh and J. H.F. Pedra. *Nat Rev Microbiol*15(9):544-558. doi: 10.1038/nrmicro.2017.59. Epub 2017 Jun 19
90. Molecular characterization of *Ehrlichia* interactions with tick cells and macrophages. **Ganta R. R.**, Peddireddi L, Seo G., DeDonder S.E., Cheng C. and Chapes S.K. *Front. Biosci.* 14, 3259-73 (2009).
91. Defining the immune response to *Ehrlichia* species using murine models. S. K. Chapes and **R. R. Ganta**. *VetParasitol.* (2008)158:344-359. Epub 2008 Oct 17.
92. Isolation and molecular detection of *Ehrlichia* from vertebrate animals. C. Cheng, K. R. sirigireddy and **R. R. Ganta**. *CurrProtocMicrobiol.* 2008 May;Chapter 3:Unit 3A.3.
93. Laboratory maintenance of *Ehrlichia chaffeensis* and *Ehrlichia canis* and recovery of organisms for molecular biology and proteomics studies. C. Cheng and **R. R. Ganta**. *CurrProtocMicrobiol.* 2008 May;Chapter 3:Unit 3A.
94. Mouse infection models for space flight immunology. S. K. Chapes, and **R. R. Ganta**.*Adv.In SpaceBiol. and Med.*10, 81-104 (2005).
95. Determining the sequence of parasite DNA (Review article). **G. R. Reddy**. *Parasitology Today*, 11, 37-42 (1995).

Book Chapters:

94. R. Raghavan and **R.R. Ganta**. Considerations for predicting climate change implications on future spatial distribution ranges of ticks in 'Climate, Ticks and Disease' 1st edition. Edited by Pat Nuttall University of Oxford, UK, 2022.
95. **R. R. Ganta**. Book Chapter: 'Chlamydiaceae' in 'Veterinary Microbiology, 4th Edition' (Wiley-Blackwell Publishing, 2021). Edited by D. S. McVey and M.M. Chengappa. (In press)
96. **R. R. Ganta**. Book Chapter: 'Rickettsiaceae: *Rickettsia* and *Coxiella* species' in 'Veterinary Microbiology, 4th Edition' (Wiley-Blackwell Publishing, 2021). Edited by D. S. McVey and M.M. Chengappa. (In press)
97. **R. R. Ganta**. Book Chapter: 'Anaplasmataceae: *Anaplasma* species' in 'Veterinary Microbiology, 4th Edition' (Wiley-Blackwell Publishing, 2021). Edited by D. S. McVey and M.M. Chengappa. (In press)
98. **R. R. Ganta**. Book Chapter: 'Anaplasmataceae: *Ehrlichia* and *Neorickettsia* species' in 'Veterinary Microbiology, 4th Edition' (Wiley-Blackwell Publishing, 2021). Edited by D. S. McVey and M.M. Chengappa. (In press)
99. **R. R. Ganta**. Book Chapter: 'Borrelia' in 'Veterinary Microbiology, 4th Edition' (Wiley-Blackwell Publishing, 2021). Edited by D. S. McVey and M.M. Chengappa. (In press)
100. J. W. McBride, **R. R. Ganta**, and D. H. Walker. Book Chapter titled 'Rickettsiales' in 'Pathogenesis of Bacterial Infections in Animals, 5th edition (in press).
101. **R. R. Ganta**. Mutagenesis in *Ehrlichia* and *Anaplasma* species: it's application for studies focused on understanding the pathogenesis and vaccine development. Springer Publishers; Book title: Rickettsiales: Biology, Epidemiology, Molecular Biology and Vaccine Development, Ed. Sunil Thomas (Ed.) (2016)
102. S. K. Chapes, M. Teresa Ortega, C. Cheng, and **R. R. Ganta**. Identification of T cell epitopes in the murine host response to *Ehrlichia chaffeensis*. Springer Publishers; Book title: Rickettsiales: Biology, Epidemiology, Molecular Biology and Vaccine Development, Ed. Sunil Thomas (Ed.) (2016)

103. **R. R. Ganta.** Book Chapter: 'Chlamydiaceae' in 'Veterinary Microbiology, Third Edition' (Wiley-Blackwell Publishing, 2013). Edited by D. S. McVey, M. Kennedy and M.M. Chengappa. ISBN: 978-0-470-95949-7
104. **R. R. Ganta.** Book Chapter: 'Rickettsiaceae: *Rickettsia* and *Coxiella* species' in 'Veterinary Microbiology, Third Edition' (Wiley-Blackwell Publishing, 2013). Edited by D. S. McVey, M. Kennedy and M. M. Chengappa. ISBN: 978-0-470-95949-7
105. **R. R. Ganta.** Book Chapter: 'Anaplasmataceae: *Anaplasma* species' in 'Veterinary Microbiology, Third Edition' (Wiley-Blackwell Publishing, 2013). Edited by D. S. McVey, M. Kennedy and M. M. Chengappa. ISBN: 978-0-470-95949-7
106. **R. R. Ganta.** Book Chapter: 'Anaplasmataceae: *Ehrlichia* and *Neorickettsia* species' in 'Veterinary Microbiology, Third Edition' (Wiley-Blackwell Publishing, 2013). Edited by D. S. McVey, M. Kennedy and M. M. Chengappa. ISBN: 978-0-470-95949-7

Book Review:

106. **R. R. Ganta.** All you need to know about nematodes (Book review). Trends Parasitol. 18, 517 (2002).

INVITED SPEAKER PRESENTATIONS SINCE JOINING K-STATE (1998-current):

- 1) The American Society for Rickettsiology (ASR) Historical lecture. Plenary opening talk invitee for the upcoming 31st ASR meeting on Advances in the Biological and Molecular Mechanisms of Rickettsial Pathogenesis. Greenville, SC, June 23-28, 2022 (<https://www.rickettsiology.org/page-18079>)
- 2) Tick-borne rickettsial disease research program; building the puzzle from research to application, Department of Pathology and Microbiology, University of Nebraska Medical Center, Omaha, NE, May 18, 2022
- 3) Tick-borne rickettsial disease research program; building the puzzle from research to application, THE university of Tennessee College of Veterinary Medicine, University of Tennessee, Knoxville, TN, April 18, 2022
- 4) Bovine anaplasmosis vaccine conferring protection against virulent infection challenge. 105th California Cattlemen's Association meeting; Reno, NV, Dec 2-3, 2021.
- 5) Tick-borne rickettsial disease research program; building the puzzle from research to application. Guest seminar at College of Veterinary Medicine, University of California, Davis, CA; November 30, 2021.
- 6) Tick-borne rickettsial disease research program; building the puzzle from research to application. Invited guest speaker seminar at the Golden Jubilee Celebrations & International Conference on Biochemistry - Unfolding New Horizons of Life (BUNHL-2021), Biochemistry Department, Andhra University, Visakhapatnam, India.
- 7) Tick-borne rickettsial disease research program; building the puzzle from research to application. Invited speaker seminar at the Department of Biochemistry and Molecular Biophysics, K-State. April 28, 2021.
- 8) *Ehrlichia chaffeensis* RNA polymerase function assessed with its only two sigma factors: σ_{32} and σ_{70} . Invited speaker seminar at the Virtual International Conference on Recent Trends in Biochemistry and Molecular Biology, 7th - 8th January 2021, Andhra University, India.
- 9) The first *Ehrlichia ruminantium* experimental infection study in North American sheep. The NBAF Lunch and Learn seminar. December 17, 2020.

- 10) Insights about how reviewers view a grant and how PIs should read the hidden messages. Invited speaker. Research forum, K-State-CVM, November 18, 2020.
- 11) Sequence determinants spanning -10 and -35 motifs and spacer regions implicated in unique *Ehrlichia chaffeensis* RNA polymerase activity with its only two sigma factors: σ_{32} and σ_{70} . **Keynote speaker** at the Biosangam 2020 (Biotechnology conference), February 21-23, Prayagraj, India
- 12) Sequence determinants spanning -10 and -35 motifs and spacer regions implicated in unique *Ehrlichia chaffeensis* RNA polymerase activity with its only two sigma factors; σ_{32} and σ_{70} . **Invited speaker** at the International Conference on Current Trends in Pharmaceutical and Medical Sciences (CTPMS) 2020, February 26-29, Kashipur, India
- 13) Mutagenesis in *Ehrlichia* and *Anaplasma* species aids in studying pathogenesis and vaccine development. **Guest speaker** at Biochemistry Department, Andhra University, Visakhapatnam, India, March 6, 2020
- 14) Mutagenesis in *Ehrlichia* and *Anaplasma* species aids in studying pathogenesis and vaccine development. **Keynote speaker** at the conference; "Recent Advances In Chemical, Pharmaceutical And Biological Sciences" (RACPABS-2020) Guntur, India March 5-7
- 15) Mutagenesis in *Ehrlichia* and *Anaplasma* species aids in studying pathogenesis and vaccine development, January 31, 2020. **Invited speaker**, The School of Biological, Environment, and Earth Sciences, The University of Southern Mississippi, Hattiesburg, MS, USA
- 16) Mutagenesis in *Ehrlichia* and *Anaplasma* species aids in studies focused on pathogenesis and vaccine development. November 8, 2019, **Invited speaker**, Faculty of Veterinary Technology, Kasetsart University, Bangkok, Thailand
- 17) *Rickettsia rickettsii* Whole Cell Antigen Vaccine Offers Protection Against Virulent Pathogen Infection Challenge. November 3-6, 2019. **Invited speaker**, 2nd Asia Pacific Rickettsia Conference, Chiang Rai, Thailand
- 18) Gene regulation in *Ehrlichia chaffeensis* assessed to understand differential gene expression, June 6, 2019, Northwest A&F University, Yangling, Xi'an, China
- 19) Gene regulation in *Ehrlichia chaffeensis* assessed to understand differential gene expression, June 4, 2019, Huazhong Agricultural University, Wuhan, China
- 20) Gene regulation in *Ehrlichia chaffeensis* assessed to understand differential gene expression, June 4, 2019, Wuhan University at Wuhan, China
- 21) Tractable mutagenesis to study pathogenesis and vaccine development tick-borne rickettsial bacteria of the genus *Ehrlichia*, May 31, 2019, College of Veterinary Medicine, Yangzhou University, Yangzhou, China.
- 22) Mutagenesis in *Ehrlichia* and *Anaplasma* Species Aids in Studies Focused on Pathogenesis and Vaccine Development. East Carolina University, Greenville, NC, April 16, 2019
- 23) Vector and host contributions of *Ehrlichia chaffeensis* assessed by employing the newly developed mutagenesis system. 93rd Annual Meeting of the Southeastern Branch of the Entomological Society of America, March 3-6, 2019, Mobile, AL
- 24) Rickettsial diseases; prevalence and methods of control. January 17, 2019. Manipal Academy of Higher Education (MAHE), Manipal, Udipi, Karnataka

- 25) Genetic system to study *Ehrlichia* and *Anaplasma* species pathogenesis and vaccine development. January 10, 2019. College of Veterinary and Animal Sciences, Kerala Veterinary University, Pookode, Kozhikode, Kerala, India
- 26) Genetic system for creating targeted mutations in tick-borne *Ehrlichia* and *Anaplasma* species to study pathogenesis and vaccine development. November 6, 2018. International Symposium in Veterinary Sciences, Federal Rural University of Rio de Janeiro, Brazil.
- 27) Genetic system for creating targeted mutations in *Ehrlichia chaffeensis* and its application to study pathogenesis and vaccine development. AITVM-STVM Congress meeting, September 23-28, 2018
- 28) Genetic system for creating targeted mutations in *Ehrlichia* and *Anaplasma* species. 29th Meeting of the American Society for Rickettsiology, June 16-19, 2018, Milwaukee, Wisconsin
- 29) Tick-borne disease research at the CEVBD to prevent Ehrlichiosis, Anaplasmosis and Rocky Mountain spotted fever. May 5, 2018, CEVBD National Conference on Tick-borne Diseases, Manhattan, KS
- 30) A. Genetic System for Creating Targeted Mutations in Tick-borne Pathogens, *Ehrlichia* and *Anaplasma* species; B. CEVBD's Goals and Its Synergy with the SGU's Research Mission. March 16, 2018. St. George's University, Grenada, West Indies
- 31) A genetic system for creating targeted mutations to disrupt and restore genes in *Ehrlichia chaffeensis* that is broadly applicable to other obligate bacteria. TTP9 Conference, Sep 1, 2017, Cairns, AU
- 32) *Ehrlichia chaffeensis* mutagenesis: pathogenesis and vaccine development. James Cook University, Cairns, AU, Aug 29, 2017
- 33) Tick-borne disease, mutagenesis, pathogenesis and vaccine development, with particular reference to *Ehrlichia chaffeensis*, Massey University, Palmerston North, NZ, Aug 23, 2017
- 34) Mutagenesis exploited in developing vaccines against *Ehrlichia* species infections in dogs, Zoetis, Kalamazoo, MI. July 16, 2017
- 35) Opportunities for a young scientist in the US vs India, my perspectives. Maharaja's Postgraduate College, Vizianagaram, Andhra Pradesh, India, January 5, 2017
- 36) *Ehrlichia chaffeensis* mutagenesis aids in defining pathogenesis and vaccine development. December 29, 2016. Madurai Kamaraj University, Madurai, India
- 37) *Ehrlichia chaffeensis* mutagenesis aids in defining pathogenesis and vaccine development. December 27, 2016. Pondicherry University, Pondicherry, India
- 38) Tick-borne rickettsial and other emerging diseases; challenges and opportunities. December 27, 2016. Pondicherry Veterinary Institute, Pondicherry, India
- 39) Tick-borne rickettsial and other emerging diseases; challenges and opportunities. December 26, 2016. National Institute of Epidemiology, Chennai, India
- 40) Invited speaker at the Beijing Institute of Microbiology and Epidemiology, China, June 30, 2016. Title: *Ehrlichia chaffeensis* Pathogenesis and Vaccine Development
- 41) Invited speaker at Shandong University, Jinan, China, June 28, 2016. Title: *Ehrlichia chaffeensis* Pathogenesis and Vaccine Development
- 42) Invited speaker at Yangzhou University, Yangzhou, China, June 25, 2016. Title: *Ehrlichia*

chaffeensis Pathogenesis and Vaccine Development

- 43) Invited speaker at the 28th meeting of the American Society for Rickettsiology, June 11-14, 2016. Title: Metabolic and biosynthetic activity of *Ehrlichia chaffeensis* in a host cell-free medium
- 44) Invited speaker for the A. L. Bortree Lecture Series at Department of Veterinary and Biomedical Sciences, Pennsylvania State University, State College, PA. Title: *Ehrlichia chaffeensis* Pathogenesis and Vaccine Development. March 23, 2016
- 45) Keynote Speaker Presentation at the Conference of Research Workers on Animal Diseases (CRWAD) annual meeting, December 6-8, 2015, Chicago, IL. Title: Molecular approaches in understanding *Ehrlichia* pathogenesis, host-pathogen interactions and in developing vaccines
- 46) Animal Health Research Symposium; The Growing Risk of Vector-Borne and Zoonotic Diseases. August 30-31, 2015 Kansas City Area Life Sciences Institute, Kansas City, MO. Title: Tick-borne diseases impacting the health of people, companion and agricultural animals
- 47) The 27th meeting of the American Society for Rickettsiology, June 20-23, 2015, Village at Squaw Valley Olympic Valley, CA. Title: Attenuated mutants of *Ehrlichia chaffeensis* in inducing protection against wild-type infection challenge in the reservoir host and in an incidental host
- 48) ESCCAR International congress on Rickettsia and other intracellular bacteria. June 13-16, 2015, Auditoire César Roux University Hospital – CHUV, Lausanne, Switzerland. Title: *Ehrlichia chaffeensis* mutagenesis to identify genes critical for persistent infection and for vaccine development
- 49) Manhattan Rotary Club, April 23, 2015. Title: Tick-borne diseases impacting the health of people, companion and agricultural animals
- 50) Department of Biochemistry, All India Institute of Medical Sciences, New Delhi, July 15, 2015. Title: I: Center of Excellence for Vector-Borne Diseases (CEVBD); II: Animal Models and Vaccine Development against *Ehrlichia chaffeensis*
- 51) Distinguished Scientist Seminar at the University of South Alabama College of Medicine, March 26, 2015. Title: *Ehrlichia chaffeensis* mutagenesis to identify genes critical for persistent infection and vaccine
- 52) Attenuated transposon mutants of *Ehrlichia chaffeensis* induce protective host response against wild-type infection challenge. Global Summit on Emerging Science and Technologies: Impact on Environment and Human Health Special Symposia on Cancer Therapy and Environmental Toxicology. Vikramasimhapuri university, Nelluru, AP, India, August 1-3, 2014
- 53) Progress in Overcoming Challenges with a Tick-borne Disease, Human Monocytic Ehrlichiosis, Caused by *Ehrlichia chaffeensis*. International Conference on Environmental Impact on Human Health and Therapeutic Challenges (ICEHT-2012), Sri Venkateswara University, India, December 20-22, 2012
- 54) Progress in Overcoming Challenges with a Tick-borne Disease, Human Monocytic Ehrlichiosis, Caused by *Ehrlichia chaffeensis*. International seminar on Current Trends in environmental toxicology and Experimental Therapeutics. Vikramasimhapuri university, Nelluru, AP, India, December 18-19, 2012
- 55) Targeted and Random Mutagenesis of *Ehrlichia chaffeensis* for the Identification of Genes Required for *In vivo* Infection, CRWAD, Chicago, December 2-4, 2012

- 56) Tick-borne infections in an animal or in a human blood: A challenge for diagnosis. St. George's University, Grenada, November 28, 2012
- 57) Tick-borne Rickettsial Diseases in Animals and People, An Emerging Concern: How to Overcome the Challenge? St. George's University, Grenada, November 23, 2012
- 58) *Ehrlichia chaffeensis* mutants established by mariner transposase Himar1-based mutagenesis. 25th Meeting of the American Society of Rickettsiology, July 29-Aug 1, 2012
- 59) *Ehrlichia chaffeensis*, an intra-phagosomal bacterium responsible for human monocytic ehrlichiosis: Challenges and opportunities in understanding the pathogenesis. Department of Biochemistry, K-State, April 16, 2012
- 60) Mutational analysis of *Ehrlichia chaffeensis*, The 6th International meeting on Rickettsiae and Rickettsial Diseases, Heraklion, Crete, Greece, 5-7 June 2011
- 61) Differential growth and gene expression of *Ehrlichia chaffeensis* in tick and vertebrate host cells. Department of Biochemistry, All India Institute of Medical Sciences, New Delhi, India. June 13, 2011
- 62) Impact of macrophage and tick cell environments on *Ehrlichia chaffeensis* molecular structure. Department of Biotechnology, Andhra University, Waltair, India. July 4, 2011
- 63) Impact of macrophage and tick cell environments on *Ehrlichia chaffeensis* molecular structure. Department of Biochemistry, Bullayya College, Andhra University, Waltair, India. July 5, 2011
- 64) Impact of macrophage and tick cell environments on *Ehrlichia chaffeensis* molecular structure. AGH Seminar Consortium, Obihiro University of Agriculture and Veterinary Medicine, Obihiro, Hokkaido 080-8555, Japan, March 15, 2010
- 65) Impact of macrophage and tick cell environments on *Ehrlichia chaffeensis* molecular structure. National Institute of Infectious Diseases, Shinjuku-ku, Tokyo 162-8640, Japan. March 16, 2010
- 66) Impact of macrophage and tick cell environments on *Ehrlichia chaffeensis* molecular structure. University of Shizuoka, Shizuoka 422-8526, Japan, March 19, 2010
- 67) Evaluation of macrophage- and tick cell-specific differentially expressed *Ehrlichia chaffeensis* genes. University of Maryland, Virginia-Maryland Regional College of Veterinary Medicine, College Park, MD. March 25, 2010
- 68) Genomic and proteomic variability in *Ehrlichia chaffeensis*: may it be a major contributor for pathogen adaptation to vertebrate and tick hosts? Meharry Medical College, Nashville, TN. April 30, 2010
- 69) Impact of macrophage and tick cell environments on *Ehrlichia chaffeensis* molecular structure and pathobiology, April 29, 2009. Department of Pathobiological Sciences, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA
- 70) Impact of Tick and Vertebrate Host Environments on the *Ehrlichia* Molecular Structure; Implications for Diagnosis and Control. March 28, 2008. Medical Diagnostic Laboratories L.L.C., Hamilton, NJ
- 71) Impact of macrophage and tick cell environments on the molecular structure and pathogenicity of *Ehrlichia chaffeensis*, the human monocytic ehrlichiosis pathogen. 3-7 January, 2008, 95th Indian Science Congress, Visakhapatnam, India. (Also served as a moderator for a session at this meeting.)
- 72) Diseases in Animals and People with a Special Reference to *Ehrlichia chaffeensis* Molecular Structure and Pathobiology. Seoul National University, Seoul, South Korea, December 20, 2007
- 73) Diseases in Animals and People with a Special Reference to *Ehrlichia chaffeensis* Molecular Structure and Pathobiology. Chonbuk National University, Seoul, South Korea, December 18, 2007
- 74) *Ehrlichia* Species in Ticks: Influence of Tick Cell Propagation on Pathogen Molecular Structure and Infectivity. ASTMH 56th Annual Meeting, Philadelphia, PA, November 4-8, 2007

- 75) Impact of Tick Cell and Macrophage Environments on *Ehrlichia chaffeensis* Molecular Structure and Pathobiology. Department of Infectious Diseases, University of Florida, Gainesville, FL, September 25, 2007
- 76) Molecular diagnostic test development and application for multipathogen detection. Bangalore Veterinary University, Bangalore, India, July 31, 2007
- 77) Molecular diagnostic test development and application for multipathogen detection. Department of Biochemistry, Andhra University, Visakhapatnam, India, July 27, 2007
- 78) Host cell-specific protein expression by *Ehrlichia chaffeensis*: How may it help to persist in a vertebrate host? Department of Veterinary Microbiology/Pathology, Washington State University, Pullman, WA, March 26, 2007
- 79) Impact of tick and vertebrate host cell backgrounds in *Ehrlichia chaffeensis* gene expression and its persistence in a vertebrate host. Department of Microbiology & Molecular Genetics, Oklahoma State University, Stillwater, OK. April 9, 2007
- 80) *Ehrlichia chaffeensis* host cell-specific antigen expression; How may it help the pathogen to persist? WHO Collaborating Center for Tropical Diseases Infectious Disease & Immunity Colloquium. University of Texas Medical Branch, Galveston, TX. January 31, 2006
- 81) Macrophage and tick cell-specific protein expression by *Ehrlichia chaffeensis*: How may it help the pathogen to persist? Department of Entomology, Kansas State University, Manhattan, KS. March 3, 2006
- 82) Host cell-specific antigen expression by *Ehrlichia chaffeensis*: How may it help the pathogen to persist? Department of Veterinary Pathobiology, University of Missouri, Columbia, MO. March 15, 2006
- 83) Impact of tick and vertebrate host cell backgrounds in regulating *Ehrlichia chaffeensis* gene expression. Department of Microbiology & Molecular Genetics, Oklahoma State University, Stillwater, OK. December 4, 2006
- 84) Proteomic approaches in understanding *Ehrlichia* pathogenesis. Department of Infectious Diseases, College of Veterinary Medicine, University of Georgia, Athens, GA. April 06, 2005
- 85) Genomic and Proteomic approaches in understanding *Ehrlichia* pathogenesis Department of Biological Sciences, Emporia State University, Emporia, KS. April 27, 2005
- 86) Immunity and pathogen evasion mechanisms of a macrophage-tropic rickettsial pathogen, *Ehrlichia chaffeensis*. A guest seminar delivered at the VI National conference of Indian Academy of Allergy held from 1/21/2005 to 1/23/2005
- 87) Host-specific antigen expression by *Ehrlichia chaffeensis*: Can it be a strategy for survival? Guest lecture delivered at the Department of Biochemistry, Geetham College, Andhra University, Waltair, India. January, 22, 2005
- 88) Proteomic approaches in understanding *Ehrlichia* pathogenesis. 4th International Conference on Rickettsiae and Rickettsial Diseases (A joint meeting with the American Society for Rickettsiology), Logrono, Spain, June 18-21, 2005
- 89) The agent of human monocytic ehrlichiosis, *Ehrlichia chaffeensis*, Expresses unique macrophage and tick cell-specific antigens. Department of Biochemistry, K-State. 08/25/2004
- 90) Host-specific antigen expression by *Ehrlichia chaffeensis*: Can it be a strategy for survival? The Johns Hopkins Medical Institutes, Baltimore, MA. 10/13/2004. Rickettsial diseases caused by *Ehrlichia* species: Molecular biology and proteome analysis. Invited lecture at the ANGRA University, Tirupati campus, India, 12/14/2003
- 91) Over view of ehrlichiosis. Biochemistry Department, Andhra University, Waltair, India 01/02/2004.
- 92) Research focus on rickettsial diseases at the Kansas State University: Opportunities for graduate study. Invited lecture at the ANGR Agricultural University, Hyderabad, India, 01/09/2004

- 93) Rickettsial Diseases Caused by *Ehrlichia* species: Molecular Biology and Proteome Analysis. International Symposium and 10th Convention on Biotechnology - Production, Productivity, Health and Value Addition, Madras Veterinary College, Chennai, INDIA. December 18-20, 2003.
- 94) Genetic Heterogeneity of *Ehrlichia chaffeensis* Isolates Based on the Restriction Fragment Length Polymorphism and Sequence Analysis of Outer Membrane Protein Genes. The 4th International Conference on Ticks and Tick-borne Pathogens, Banff, Alberta, Canada, 21-26 July 2002
- 95) Emerging infection with tick-transmitted agent, *Ehrlichia chaffeensis*: our studies on host-pathogen interactions using the tools of molecular biology and immunology. The Great Plains Infectious Disease Meeting, University of Kansas Lawrence campus on September 28-29, 2002
- 96) *Ehrlichia chaffeensis* Persistent Infection: Impact of Host and Pathogen Genes. The Viral and Rickettsial Zoonosis Branch, CDC, Atlanta, GA. March 21, 2002
- 97) Human Ehrlichiosis: Host -Pathogen Interactions and the Disease Prevalence in Kansas. The Lyme Association of Greater Kansas City. January 24, 2002
- 98) Persistent infection of the tick-borne pathogen, *Ehrlichia chaffeensis*: Impact of Host and Pathogen Genes. College of Veterinary Medicine, Oklahoma State University. November 1, 2001
- 99) Seminar on Ehrlichiosis at the 3rd Annual Conference of the Emerging Infections in the Central States (EICS) to be held at St. Louis, MO on October 12, 2001 (Canceled due to September 11 episode)
- 100) Overview of the emerging tick-borne diseases in the USA. Central States Agricultural Health & Safety Conference, KU Medical center, Kansas City, Sept 20 to 22, 2000
- 101) Prevalence of Human and Canine Ehrlichiosis Agents in Ticks and White-tailed Deer in Kansas. Department of Entomology, K-State. November 9, 2000
- 102) Emerging ehrlichial diseases: A new challenge to health care workers, veterinarians, and researchers. The 60th Annual Conference for Veterinarians, June 7-10, 1998. CVM, K-State, Campus
- 103) Variable surface antigen genes of the pathogens causing ehrlichiosis: Could they play a role in immune evasion? September 28, 1998. Department of Biochemistry, K-State, Campus
- 104) Role of a major surface antigen gene family in the emerging tick-borne disease, ehrlichiosis. October 2, 1998. Department of Entomology, K-State, Campus.
- 105) Molecular reevaluation of the taxonomy of the tribe Ehrlichieae. Ehrlichiosis Minisymposium organized by the CRWAD, Chicago, IL. November 9, 1998

CONTRIBUTIONS TO GRADUATE EDUCATION:

GRADUATE COURSES TAUGHT/TEACHING AT K-STATE:

- 1) **DMP871. Molecular Diagnostics of Infectious Diseases (3 credits) (Instructor). 1999 to corrent.** This is an innovative graduate class where I teach critical thinking skills to be applied in molecular biology and molecular diagnostics applications.
- 2) **DMP812: Veterinary Bacteriology and Mycology (4 credits) (Co-instructor): 1999-current** Actinomycetes, Spirochetes (*Leptospira* and *Borrelia*), Mycoplasma, Mycobacteria, Rickettsiales (*Anaplasma*, *Ehrlichia*, *Rickettsia*, *Coxiella*, and *Bartonella* spp) and Chlamydiales

List of students, post-doctoral mentees and faculty mentored or co-mentored

Name	Year graduated	Current position
Post-Doctoral Associates		
Gamel Salem	1994	Chairman, Biotechnology Research Department, Animal Health Research Institute, Dokki, Giza, Egypt
Vijay Singu	2004	Director and Institutional Bio-Safety Officer, Central States Research Center, Inc., Oakland, NE

Hong He	2007	Microbiologist (Research Associate), Dept. Anatomy and Physiology, CVM, K-State
Gwi-Moon Seo	2008	Research Associate, Dept. Anatomy and Physiology, CVM, K-State; Currently working in Florida at a pharmaceutical company
BontoFaburay	2009-2011	Section Head, Scientific Liaison Services at Foreign Animal Disease Diagnostic Laboratory, USDA APHIS
Huitao Liu	2009-current	Postdoctoral scientist for several years and now a Microbiologist III in our team.
Tonia von Ohlen (Research Assistant Professor)	2011-2013	Accepted a faculty position at a community college
Arathy D. S. Nair (Res. Assist. Prof.)	2011-2015 2018-2021	2015 appointed as Research Assistant Professor; this year, she joined as a faculty at the University of California, Davis, CA and returned to our program in 2018. Currently working at the Southern Research Institute, Birmingham, AL
Vijay Eedunuri	2015-2016	Scientist at the University of Texas Health Science Center at San Antonio, TX
L. Uma MaheswaraJakkula	2014-2017	Scientist, DMP, CVM, K-State
Ying Wang (Res. Assist. Prof.)	2015-current	Scientist, GeneGoCell, San Diego, CA
Chandra Kondithimmanahalli	2015-2018 2019-current	Joined a Biotech diagnostics company, San Jose, CA
Andy Alhassan	2016-2018	Associate Professor, St. George's University, Grenada
Yuntao Zhang (Research Assistant Professor)	2016-2018	Research Associate Professor, Department of Anatomy and Physiology, CVM, K-State
Debbie Jaworski (Res. Assistant Professor)	2013-2015 2018-current	
Ascencion Torres-Escobar	2017-2019	Returned to Mexico
Maria D Juarez-Rodriguez	2017-2019	Returned to Mexico
Paidashe Hove	2018-current	
Anamika Gupta	2020-current	
Visiting Scientists		
Anna Mashchenko	2008-09	Russian scientist
Dorota Kuczynska-Wisnik	2016-17	Poland scientist
Ph.D. students (*refers to the students for whom I contributed significantly as a committee member)		
Jennifer Calder* (She is from Jamaica)	1994	Assistant Professor, Colombia University Mailman School of Public Health, New York, NY
Ray Kaplan*	1995	Professor, College of Veterinary Medicine, University of Georgia, Athens, GA
Michael Bowie*	1997	Director of Recruitment, Retention & Multicultural Affairs, College of Education, University of Florida
Kelly Watts*	1998	Molecular Biologist, Miller Brewing Company, Milwaukee, WI
Kamesh Sirigireddy (M.S. and Ph.D.)	2008	Associate Director - Replicon RNA Particle (RP) Technology, Merck Animal Health
Lalitha Peddireddi	2009	Clinical Associate Professor, K-State Veterinary Medicine Diagnostic Laboratory, Department of Diagnostic Medicine/Pathobiology, CVM, Manhattan, KS Recently moved; Assistant Director of Laboratories, North Carolina
Li Chen	2019	Yangzhou University-K-State collaboration student; graduated
Xishuai Tong	2019	Yangzhou University-K-State collaboration student; graduated
Dominica Genda	2020	Active
Swetha Madesh	2021	Active

Jonathan Ferm	2021	Active
<i>M.S. students</i>		
Chuanmin Cheng	2002	Worked as a Microbiologist III, Department of Diagnostic Medicine/Pathobiology, K-State (2003-16)
Kamesh Sirigireddy	2003	Then progressed to PhD (listed above)
Kalyan Nannuru	2005	Completed Ph.D. at University of Nebraska Medical Centre, Omaha, NE and currently working at Regeneron Pharmaceuticals, Inc., New York
Sarah deDunder	2006	Microbiologist/Feed Safety Grant Coordinator at Kansas Department of Agriculture, Topeka, KS
Shanzhong Gong	2010	Graduate student doing Ph.D. at the University of Texas at Austin, TX
Chakri Katragadda	2011	PhD student in Canada
GangadaarThotakura	2011	Research scientist at Mayo Clinic, Jacksonville, FL
Vijaya V Indukuri	2013	PhD student at the Penn. State University since 2015
Lanjing Wei	2018	Graduated
Hannah White	2018	Graduated
Swetha Madesh	2021	Graduated
Cheyenne Knox	2019	Active
Kimia Alizadeh	2020	Active
Muyun Cui	2021	Active
<i>DVM Residency program student (research)</i>		
Jocelyn Johnsrude	1995	Veterinary Clinical Pathologist, Idexx Corporation, CA
<i>DVM summer scholars</i>		
Jean Anne Cauwenbergh	2005	Clinical Investigator, Central States Research Centre, Inc., Oakland, NE
Eva Restis	2010	Clinical research veterinarian at Merck Animal Health
Jennel Scott	2009	College of Veterinary Medicine and Biomedical Sciences, Colorado State University
<i>Undergraduate student trainees</i>		
Brian Thompson	2001	Ph.D. Student, University of Missouri, Columbia, MO
Ozan Kumru	2006	Ph.D. Student, University of Kansas Medical Center, Kansas City, KS
Kyle Weaver	2007	Research Tech, The Stowers Institute for Medical Research, Kansas City, MO
Jesus Garcia	2008	Minority undergraduate student pursued research
Emma Winkley	2016	DVM graduate, CVM, K-State; now in practice
Kathleen Trinkl	2019	DVM student, CVM, K-State
Jensen Herron	2019	DVM student, CVM, K-State
Alexis Schlieper	2021	Undergraduate student pursuing research
<i>Faculty mentored</i>		
Annelise Nguyen	Tenure-track faculty at CVM, K-State (tenured)	
Kyong C. Chang	Tenure-track faculty at CVM, K-State (tenured)	
Revathy Govind	Tenure-track faculty at Division of Biology, K-State (tenured)	
Jodi McGill	Tenure-track faculty at CVM, K-State (recently moved to Iowa State University and she is now one of my collaborators)	
Ram Raghavan	Tenure-track faculty, University of Missouri, Columbia, MO; he is one my collaborators as well.	
Berlin Londono	Tenure-track faculty at Department of Entomology, K-State	

ADDITIONAL GRADUATE STUDENT COMMITTEE PARTICIPATION AT K-STATE:

<u>Graduate students</u>	<u>My role</u>	<u>Student status</u>
1. Joong-Chul Lee	Committee member	Ph.D.: graduated (2003)
2. K. Shanmukhappa	Committee member	Ph.D.: graduated (2003)
3. Xuyong Wang	Committee member	Ph.D.: graduated (2005)
4. Jinnxin Gao	Committee member	Ph.D.: graduated (2004)
5. Suping Zhang	Committee member	Ph.D.: graduated
6. Muhittin Onderci	Committee member	M.S.: graduated
7. Mojun Zhao	Committee member	M.S.: graduated (2003)
8. Walter Braga	Committee member	M.S.: graduated (2006)
9. Chanran K. Ganta	Committee member	Ph.D.: graduated (2006)
10. Vijaya Nareddy	Committee member	M.S.: graduated (2007)
11. Mermagya Dhakal	Committee member	M.S.: graduated (2007)
12. Vinai Thomas	Committee member	Ph.D.: graduated (2009)
13. Melody Kaliff	Committee member	M.S.: graduated (2010)
14. James Reinbold	Committee member	Ph.D.: graduated (2010)
15. Alison Fedrow	Committee member	Ph.D.: graduated (2011)
16. Vijayalaxmi Iyer	Committee member	Ph.D.: graduated (2013)

Summer Training Program Students Trained:

- 1) Eva Restis, 2nd Year DVM student (2001)
- 2) Jean Anne Cauwenbergh, 3rd Year DVM student (2004)
- 3) Jannel Scott, 3rd Year DVM student (2011)

INTERNATIONAL COLLABORATIONS/ACTIVITIES:

At K-State:

St. George's University, Grenada, West

Indies: We initiated collaborations with several faculty members on projects related to vector-borne diseases (collaborators listed on the next page).

We also established collaboration with the St. George's University (SGU), Grenada, West Indies. (Recently appointed as a Visiting Professor (2021)).

Massey University, Palmerston North,

New Zealand: We initiated a major collaboration with colleagues from Massey University, Palmerston North, New Zealand.

Yangzhou University, China: We have initiated an active collaboration with the Yangzhou University in China. As part of this initiative, a visiting scientist with a one-year Chinese government fellowship has joined the CEVBD to actively engage in collaborative research.

Universidad Nacional de Asunción, Asuncion, Paraguay: Recently, we have initiated a three-university collaboration by involving the Universidad Nacional de Asunción, Asuncion, Paraguay and St. George's University, Grenada. The far-reaching goals of this collaboration

are to initiate tick-borne disease research program. This is timely and important because of many new diseases in South America beginning to impact the health of animals and people in the US. The spread of tick-borne and other vector-borne diseases are not only expanding their boundaries from both North and South America's, but also to Central America.

Universidade Federal Rural do Rio de Janeiro, Seropedica, Brazil: Efforts are now under way initiating another collaboration with this Brazilian university. This collaboration will be similar in expanding tick-borne disease research to other regions of South America. This is also timely and important in generating additional reagents needed for investigating basic research. The collaboration will also have implications in extending the research in controlling vector-borne diseases of importance to companion and agricultural animals and in humans.

Andhra University-Kansas State University Collaboration: Instrumental in establishing collaborations between Andhra University, Visakhapatnam, India and Kansas State University which include setting up a Twinning Graduate Degree program at M.S. level. This is the first of its kind graduate program offered from K-State. Two batches of students came to the K-State in 2008 and 2010 and all of them completed their graduate education and some progressed to further studies and others obtained employment. We also established a student exchange program with this university.

Sri Venkateswara Veterinary University-Kansas State University Collaboration: Coordinator for the Global Initiative for Veterinary Education (GIVE) program between Sri Venkateswara Veterinary University, Tirupai, India and the College of Veterinary Medicine, Kansas State University. The goal of this collaboration is to foster collaborations that promote strong veterinary education having global impact. As part of this initiative, we sent DVM students and a faculty member to visit the companion college in India in 2007 and 2011. The MOU was established in 2009.

International Visiting Professor (2022): Dr. B. R. Ambedkar University, Srikakulam, Andhra Pradesh, India. (To offer insights in promoting the university mission.)

At University of Florida prior to arriving to K-State:

University of Florida-Egypt collaboration: The United States Agency for International Development (USAID) funded collaboration to promote improved research infrastructure in Egypt. In 1994, I spent three weeks at the Animal Health Research Institute, Giza, Cairo, Egypt to facilitate in establishing Molecular Biology/Molecular Diagnostic laboratories (for rapid multi pathogen diagnosis). I also mentored two scientists from Egypt at the UF in obtaining post-doctoral training.

SERVICE:

Non-directed scholarly service includes reviewing manuscripts and grants for scientific journals and funding agencies, giving invited lectures at scientific meetings and at research organizations, offering technical advices in the area of specialization, and writing news articles related to the research where and when appropriate.

We developed quantitative real-time PCR/RT-PCR based molecular diagnostic tests as part of the research program. The molecular test technology for the following tests was transferred to the KSVDL:

Ehrlichia and Anaplasma molecular diagnostic tests for canine samples

Anaplasmosis molecular diagnostic test for monitoring bovine samples

West Nile Virus molecular diagnostic test to detect infections in vertebrates and mosquito pools

Rocky Mountain spotted fever (RMSF) molecular test

Canine Lyme disease molecular diagnostic test

JOURNAL ARTICLE REVIEW: Reviewed manuscripts for the following international scientific journals

- | | |
|---|---|
| 1) <i>Acta Tropica</i> | 18) <i>Journal of Clinical Microbiology</i> |
| 2) <i>Animal Health Research Reviews</i> | 19) <i>Journal of Infectious Diseases</i> |
| 3) <i>Applied and Environmental Microbiology</i> | 20) <i>Journal of Veterinary Diagnostic Investigation</i> |
| 4) <i>Cellular Microbiology</i> | 21) <i>Korean Journal of Parasitology</i> |
| 5) <i>Molecular Microbiology</i> | 22) <i>Microbial Pathogenesis</i> |
| 6) <i>Clinical Diagnostic and Laboratory Immunology</i> | 23) <i>Parasitology Research</i> |
| 7) <i>Clinical and Vaccine Immunology</i> | 24) <i>Parasitology Today</i> |
| 8) <i>FEMS Immunology and Medical Microbiology</i> | 25) <i>Pathogens</i> |
| 9) <i>Gene</i> | 26) <i>Proteomics</i> |
| 10) <i>Genomics</i> | 27) <i>Vaccine</i> |
| 11) <i>Infection and Immunity</i> | 28) <i>Vaccines</i> |
| 12) <i>Journal of Bacteriology</i> | 29) <i>Veterinary Microbiology</i> |
| 13) <i>PLoS One</i> | 30) <i>Vector-borne and Zoonotic Diseases</i> |
| 14) <i>PLoS Pathogens</i> | 31) <i>mBio</i> |
| 15) <i>Veterinary Parasitology</i> | 32) <i>Frontiers in Microbiology</i> |
| 16) <i>BMC Microbiology</i> | 33) <i>Frontiers in Cellular Microbiology</i> |
| 17) <i>Infection, Genetics and Evolution</i> | 34) <i>Ticks and Tick-Borne Diseases</i> |

COMMITTEE ACTIVITIES AT K-STATE:

- 1) Diversity Committee, College of Veterinary Medicine, Campus (1999-2000).
- 2) President's Commission for the Multi Cultural Affairs, K-State, Campus (1999-2000).
- 3) Ad-hoc Childcare Committee, College of Veterinary Medicine, Campus (1999-2000).
- 4) Search Committee for a faculty position in the Division of Biology for Microbiologist (2004).
- 5) Search Committee for a faculty position in the Division of Biology for Immunologist (2004).
- 6) Search Committee for a Parasitologist faculty position in the DMP, CVM, K-State (2004-2005).
- 7) Search Committee KSVDL Director position, CVM, K-State (2004-2005).
- 8) Search Committee for the Associate Dean for Research and Graduate Studies (2005).
- 9) Member of the Institutional Biosafety Committee, Kansas State University (2005-current).
- 10) Technical Advisory Committee, College of Veterinary Medicine, Campus (2004-2005).
- 11) Research committee, College of Veterinary Medicine, Campus (2005-current).
- 12) Scholarships and Awards Committee, College of Veterinary Medicine Campus (2005-2014).
- 13) Member of the CVM Dean's administrative review committee, Kansas State University (2008).
- 14) Member of the Search Committee, Dean of Graduate School, Kansas State University (2008-9).
- 15) Served on the K-State General Grievance Board

- 16) Served on the K-State Faculty Senate
- 17) Served on the K-State-CVM Dean's search (2015-16)
- 18) CVM Dean's Tenure and Promotion committee (2016-20)