

## Ashish Ranjan, Ph.D.

Associate Professor and Kerr Chair  
Department of Physiological Sciences  
College of Veterinary Medicine  
Oklahoma State University

### Contact Information:

E-mail: [ashish.ranjan@okstate.edu](mailto:ashish.ranjan@okstate.edu)

Phone: 405-744-6292

Office: Rm 169, McElroy Hall, Oklahoma State University, Stillwater, OK 74078

### Education:

1999-2005: B.V.Sc., Veterinary Medicine, Madras Veterinary College, India

2005-2009: Ph.D., Biomedical & Veterinary Sciences/Nanomedicine, Virginia Polytechnic Institute & State University, VA

2009-2012: Postdoctoral, Imaging/Nanomedicine, National Institutes of Health, MD

### Academic Appointments:

2005-2009: Research Assistant, Virginia Polytechnic Institute & State University

2009-2012: Visiting Fellow (Dr. Bradford Wood Advisory), National Institutes of Health

2012-2016: Assistant Professor, Center for Veterinary Health Sciences, Oklahoma State University

2014-present: Member, Peggy and Charles Stephenson Cancer Center, University of Oklahoma

2016-present: Associate Professor, Center for Veterinary Health Sciences, Oklahoma State University

### Awards and Honors:

2019: National Cancer Institute ESI-Merit Award Nomination, NIH

2019: Scientific Advisory Board Member, Focused Ultrasound Foundation

2018: Regents Distinguished Research Award, Oklahoma State University

2018: Presidents Faculty Fellow Research Award, Oklahoma State University

2015-present: Kerr Chair, Center for Veterinary Health Sciences, Oklahoma State University

2013: Editorial Board Member, Nanomedicine & Biotherapeutic Discovery, OMICS

2013: Editorial Board Member, Advances in Dairy Research, OMICS

2013: OSU Outstanding Research Display, Big 12 Chief Academic Officers meeting

2012: Fellows Award for Research Excellence (FARE), National Institutes of Health

2009: GSA Exemplary Service Award, Virginia Tech

2008: Poster Award by Nobel Laureate Dr. Oliver Smithies, Virginia College of Osteopathic Med

2006: Best Poster Award by Nobel Laureate Dr. Harold Kroto, Virginia College of Osteopathic 2007 Scholar of the Month, Virginia Tech

1999-2005: National Talent Scholar, Indian Council for Agriculture Research

### Research Support:

Current

- 07/09/2019-06/30/2024: NIH/National Cancer Institute, RO1 (Selected for ESI-MERIT Award), "Focused ultrasound enhanced calreticulin-nanoparticle for immune primed melanoma immunotherapy.", Awarded: \$1,655,985, Role: PI
- 02/01/2018-01/31/2020: Focused Ultrasound Foundation, "High intensity focused ultrasound mediated targeting of solid tumors and hygroma in client owned dogs.", Awarded: \$200,000, Role: PI

- 07/01/2018-06/30/2021: OCAST, HR17-060, "Magnetic hyperthermia combined antimicrobial targeting of bone pathogens.", Awarded: \$135,000, Role: PI
- 02/01/2019-01/31/2021: PETCO, "Development of non-invasive cancer immunomodulation in Pets.", Awarded: \$500,000, Role: PI
- 02/01/2019-01/31/2021: Oklahoma Center for the Advancement of Science and Technology, OARS, "Minimally Invasive Animal Sterilization.", Awarded: \$155,000, Role: PI
- 05/01/2016-present: CVHS, Kerr Chair, Biomedical Research, Awarded: \$30,000, Role: PI  
Past
- 2013-2017: United States Department of Defense-Defense Threat Reduction Agency. "Nanocarrier-mediated Targeting of Bioscavengers to the Red Blood Cell for Prolonged Circulation and Protection", Awarded:\$3,297,545; \$589,000, Role: Co-I
- 2013-2016: Oklahoma Center for the Advancement of Science and Technology, Dual-mode ultrasound-imageable thermosensitive liposomes for Image-guided therapy (HR13-217), Awarded: \$135,000, Role: PI
- 2013-2014: OSU-CVHS, Companion Animal Equipment Proposal Grant – High Intensity Focused Ultrasound Multi-user Equipment, Awarded: \$147,720, Multi-user Facility Renovation and Core Facility Program, Division of the Vice President for Research and Technology Transfer, Oklahoma State University, Awarded: \$365,000, Role: PI
- 2013-2014: OSU Planning Grants for Establishing Creative Interdisciplinary Programs in Regenerative Medicine, Awarded: \$34,900; \$2,000, Role: Co-I
- 2013-2014: OSU Interdisciplinary Toxicology Program titled "Development of RBC targeted rBChE Encapsulated Nanoparticles (NPs) for long term circulation and Bioavailability", OSU, Awarded: \$18,516, Role: Co-I
- 2012-2013: 2012 Fall RED Account competition entitled "Targeting solid tumor by combining Proton Beam Radiotherapy (PBRT) and drug encapsulated thermosensitive liposomal nanoplatfoms". Multidisciplinary proposal with Dr. Jeremy Polf, Dept. of Physics, OSU, Awarded: \$29,200, Role: PI
- 2013-2014: 2013 RED Account Spring competition entitled "Development of RBC-targeted nanodevice for long term protection against OPs", OSU, Awarded: \$33,700, OSU Center for Innovation and Economic Development, Inc. Instrumented Impact Testing Facility;\$55,100, Role: Co-I

#### **Selected Publications:**

1. Hoopes PJ, Moodie KL, Petryk AA, Petryk K, Sechrist S, Gladstone DJ, Steimetz NF, Veliz FA JD, Bursey AA, Wagner RJ, Ranjan A, Dugat D, Burney MC, Fiering SN. Hypo-fractionated radiation, magnetic nanoparticle hyperthermia and a viral immunotherapy treatment of spontaneous canine cancer; Proceedings Volume 10066, Energy-based treatment of tissue and assessment IX, 1006605 (2017); doi: 10.1117/12/2256213.
2. VanOsdol J, Ektate K, Ramasamy S, Maples D, Collins W, Malayer J, Ranjan A, Sequential HIFU heating and nanobubble encapsulation provide efficient drug penetration from stealth and temperature sensitive liposomes, J Control Release. 2016 Dec 30;247:55-63.
3. Ektate K, Kapoor A, Maples D, Tuysuzoglu A, VanOsdol J, Ramasami S, Ranjan A. Motion compensated Ultrasound imaging allows thermometry and image guided drug delivery, Theranostics. 2016 Aug 14;6(11):1963-74.
4. Sethuraman SN, Ranjan A. Neoantigen activation, protein translocation and targeted drug delivery in combination with radiotherapy. Therapeutic Delivery, 2016 Jun;7(6):377-85.
5. Ranjan A, Benjamin CJ, Negussie AH, Chokshi S, Chung PH, Volkin D, Yeram N, Linehan WM, Dreher MR, Pinto PA, Wood BJ. Biodistribution and efficacy of low temperature sensitive liposome encapsulated docetaxel combined with mild hyperthermia in a mouse model of prostate cancer, Pharm Res. 2016 Jun 24.
6. Wardlow R, Bing C, VanOsdol J, Maples D, Wodzak M, Harbeson M, Nofiele J, Staruch R, Ramachandran A, Malayer J, Chopra R, Ranjan A, Targeted antibiotic delivery using temperature sensitive liposomes and magnetic resonance guided high intensity focused ultrasound hyperthermia, International Journal of Hyperthermia, 2016 May;32(3):254-64.
7. Chenchen Bing, Joris Nofiele, Robert Michael Staruch, Michelle Ladouceur-Wodzak, Yonatan Chatzinoff, Ashish Ranjan, Rajiv Chopra, Localized hyperthermia in rodent models using an MRI-compatible high-intensity focused ultrasound system, International Journal of Hyperthermia, 2015 Dec;31(8):813-22.
8. Maples D, Newhardt R, Kapoor A, Ranjan A. Ultrasound-imageable low temperature sensitive liposomes for image guided tumor drug delivery, International Journal of Hyperthermia, 2015 Sep;31(6):674-85.
9. Fernando R, Senavirathna LK, Maples D, Zheng Y, Polf, JC, Piao D, Bartels K, Benton E, Ranjan A, Hyperthermia sensitization and proton beam guided liposomal drug delivery for targeted tumor therapy, Pharm Res. Nov;31(11):3120-6.

10. Fernando R, Downs J, Ranjan A, MRI-guided Hyperthermia for Drug Delivery: Combining The Properties Of Imaging and Therapy, *Pharm Res.* 2013 Nov;30(11):2709-17.
11. Fernando R., Downs J., Maples L., Ranjan A. MRI-Guided Monitoring of Thermal Dose and Targeted Drug Delivery for Cancer Therapy, *Pharmaceutical Research.* 2013, 30(11):2709-17.
12. Senavirathna L.K., Fernando R., Maples D., Zheng Y., Polf J.C., Ranjan A. Tumor Spheroids as an In vitro Model for Determining the Therapeutic Response to Proton Beam Radiotherapy and Thermally Sensitive Nanocarriers, *Theranostics*,2013, 3 (9): 687-91.
13. Kasimanickam R.K., Ranjan A., Asokan G.V., Kasimanickam V.R., Kastelic J.P. Prevention and treatment of biofilms by hybrid- and nanotechnologies. *Int J Nanomedicine.* 2013;8:2809-1.
14. Partanen A., Yarmolenko P.S., Viitala A., Appanaboyina S., Haemmerich D., Enholm J., Ranjan A., Jacobs G., Woods D., Wood B.J., Dreher M.R, Mild hyperthermia with magnetic resonance guided high-intensity focused ultrasound for drug delivery, *Int J Hyperthermia.* 2012;28(4):320-36.
15. Ranjan, A. Pothayee N., Seleem M., Boyle SM., Kasimanickam R, Riffle J. S., Sriranganathan N. Nanomedicine for Intracellular therapy, *FEMS Microbiol Lett.* 2012 Jul;332(1):1-9.
16. Ranjan A, Jacobs GC, Woods DL, Negussie AH, Partanen A, Yarmolenko PS, Gacchina CE, Sharma KV, Frenkel V, Wood BJ, Dreher MR, Image-guided drug delivery with magnetic resonance guided high intensity focused ultrasound and temperature sensitive liposomes in a rabbit Vx2 tumor model, *J Control Release.* 2012 Mar 28;158 (3):487-94.
17. Negussie A.H., Yarmolenko P.S., Partanen A., Ranjan A., Bryant H., Thomasson D., Dewhirst M.W., Dreher M.R., Wood B.J. Formulation and characterization of Magnetic Resonance Imageable thermally sensitive liposomes for use with magnetic resonance guided high intensity focused ultrasound, *International Journal of Hyperthermia*, 2011; 27(2):140-55. (Cover Page).
18. Ranjan, A., Seleem M.N., Pothayee N., Restis E., Sriranganathan N., Riffle J. S., Kasimanickam R. Efficacy of amphiphilic core-shell nanostructures encapsulating gentamicin in an in-vitro Salmonella and Listeria intracellular infection model , *Antimicrobial Agent & Chemotherapy.* 2010; Aug; 54(8):3524-6.
19. Ranjan A., Seleem M., Jain N., Pothayee N., Sriranganathan N., Riffle J. S., Kasimanickam R., Drug delivery using novel nanoplexes against a Salmonella mouse infection model, *Journal of Nanoparticle Research.* 2010; 12:905-914.
20. Ranjan, A., Seleem M., Jain N., Pothayee N., Sriranganathan N., Riffle J. S., Kasimanickam R., Invitro trafficking and efficacy of core-shell nanostructures fortreating intracellular Salmonellosis, *Antimicrobial Agents and Chemotherapy.*2009; Vol.53 (9); 3985-3988.
21. Kasimanickam. Antibacterial efficacy of core-shell nanostructures encapsulating gentamicin against an in-vivo intracellular Salmonella model, *International Journal of Nanomedicine.* 2009; Vol.4:289-97.
22. Seleem M., Munusamy P., Ranjan A., Alqublan H., Pickrell G., Sriranganathan N. Silica-antibiotic hybrid nanoparticles for targeting intracellular pathogens. *Antimicrobial Agent and Chemotherapy*, 2009; Vol. 53(10): 4270-4274.
23. Seleem M., Jain N., Pothayee N., Ranjan A., Sriranganathan N., Riffle J. S. StreptomycinDoxycycline nanoparticles for targeting Brucella melitensis infection. *FEMS Microbiology Letters.* 2009; Vol.294:24-31.
24. Pothayee, N., Vadala M., Ranjan A., Jain N., Seleem M., Sriranganathan N., Riffle J.S. Aminoglycoside-ionopolymeric nanoplexes for treating intracellular bacterial pathogens. *Abstracts of papers of the American Chemical Volume.* 2008; Vol.236:237.
25. Pothayee N., Vadala M. L., Ranjan A., Jain N., Seleem M., Sriranganathan N, Riffle J.S. Aminoglycoside-ionopolymeric nanoplexes for treating intracellular pathogens intracellular pathogens, *Polymer Preprints* 2008; Vol. 49:1037.