

RESEARCH SCIENTIST

Summary

Research scientist with 8 years of wet-lab experience in molecular biology and diagnosis assay development research and managing 1-4 member teams comprised of scientists, postdocs and research technicians.

Highlights

Molecular Biology	• Cell culture
Cell Biology	• Immunobiology
Genetics	• Next generation sequencing
Microbiology	• Assay development

Accomplishments

Generated and applied new tests and protocols for the diagnostic assay.

Created new diagnosis for BSL3 and BSL2 organisms.

Discover anticancer (sold in the USA) and anti-tuberculosis drug.

Prepare and implement new protocols for diagnostic labs.

Discover antigens as vaccine candidates and their immune mechanism.

Experience

Jacobs Engineering Group Inc. Las Cruces , NM RESEARCH SCIENTIST 07/2012 to Current

Identified the immune-mediated function of genes in operon by creating knockout and complement using BSL3 bacteria.

Discovered the compensatory mutation and mechanism of drug resistance using whole genome sequencing in BSL3 bacteria.

Develop RT-PCR based diagnostic test for BSL3 bacteria.

Discover the Clostridium difficile diagnosis discrepancy in ELISA and RT-PCR based assays.

Conceive the hypothesis, collaborate with different labs, collect clinical samples, run experiments, troubleshoot, collected data and analyse; manuscript preparation and presentation. Wrote project for further study (funded by Spark at Stanford).

Education

Microbiology 2012 Stanford University , City , State , USA

Discover the association of innate immunity-triggering molecule in T cell based latent TB diagnosis.

Discover role of the microbiome in altering functional T cells for latent TB diagnosis.

Cancer Biology LSUHSC , City , State , USA

Discover combination of anti-cancer Phyto-antioxidants, currently sold in USA. Discover the molecular pathway in human skin cancer.

Discover adverse effect of processed food on pre- and post-birth.

Develop fluorescent cancer cells for diagnosis of breast cancer metastasis (in-vivo).

Ph.D. : Immunology 2007 Central Drug Research Institute , City , State , India

Discovery of vaccine candidate proteins and anti-parasitic drug.

Vaccine candidate proteins, anti-parasitic drug discovery, novel drug formulations.

Master of Science : Microbiology 2000 CCS University , City , State , India

Studied various aspects of microbiology and biotechnology in detail.

Completed dissertation on topic 'Decolorization of distillery effluent by microbial consortium'

Skills

Great organizational skills and laboratory practices.

Enthusiastic communicator.

Excellent capacity for teamwork in multi-national environments with multi-education/experience level (undergraduate, MSc, Ph.D., visiting scholars) workers.

Comfortable working on various projects simultaneously.

Publications

1. Anikst VA, Gaur RL, Schroeder LF, Banaei N (2016). Organism burden, toxin concentration, and lactoferrin concentration do not distinguish between clinically significant and insignificant diarrhea in patients with Clostridium difficile. Diagn Microbiol Infect Dis. 84(4):343-6. PMID: 26778484

2. Banaei N, Gaur RL, Pai M (2016). Interferon- γ release assays for latent tuberculosis: what are the sources of variability? J Clin Microbiol. 54(4):845-50. PMID: 26763969

3. Gaur RL, Banaei N (2014). Inoculation of QuantiFERON-TB Tubes with Skin Microbiota Causes False-Positive Results. Am J Respir Crit Care Med. 1;190(7):834-7. PMID: 25271749

4. Luo RF, Gaur RL, Banaei N (2014). Using cerebrospinal fluid for the diagnosis of tuberculous meningitis with GeneXpert. Eur Respir J. 44(4):1094-5. PMID: 25271229

5. Rajiv L Gaur, Kangning Ren, Antje Blumenthal, Suresh Bhamidi, Sara Gibbs, Mary Jackson, Richard N Zare, Sabine Ehrt, Joel D Ernst, Niaz Banaei (2014). LprG-mediated surface expression of lipoarabinomannan is essential for Mycobacterium tuberculosis virulence. PLoS Pathog. 18;10(9):e1004376. PMID: 25232742

6. Rajiv L Gaur, Pai M, Niaz Banaei (2013). Impact of blood volume, tube shaking, and incubation time on the reproducibility of QuantiFERON-TB Gold In-Tube assay. J Clin Microbiol. ;51(11):3521-6. PMID: 23966505

7. Ouhitit A, Ismail MF, Othman A, Fernando A, Abdraboh ME, El-Kott AF, Azab YA, Abdeen SH, Gaur RL, Gupta I, Shanmuganathan S, Al-Farsi YM, Al-Riyami H, Madhwa HG Raj (2014). Chemoprevention of rat mammary carcinogenesis by spirulina. American Journal of Pathology Am J Pathol. 184(1):296-303. PMID: 24269837

8. Allal Ouhitit*, Rajiv L Gaur*, Mohamed Abdraboh*, Shubha Ireland, Prakash N Rao, Augusta Fernando, Hamad Al-Riyami, Sonya Shanmuganathan, Ishita Gupta, Subramanyam N Murthy, Andrew Hollenbach, and Madhwa H G Raj (2013). Simultaneous inhibition of cell-

cycle, proliferation, survival, metastatic pathways and induction of apoptosis in breast cancer cells by a phytochemical super-cocktail: genes that underpin its mode of action. *J Cancer*. 14;4(9):703-15. (*equal first author) PMID: 24312140

9.Â Â Â Rajiv L. Gaur, Megan M. Suhoski, and Niaz Banaei (2012). In vitro immunomodulation of a whole blood IFN- γ release assay enhances T cell responses in subjects with latent tuberculosis infection. *PLoS One*. 2012;7(10):e48027. PMID: 23144722

10.Â Taylor N, Gaur RL, Baron EJ, Banaei N (2012). Can a simple flotation method lower the limit of detection of *M. tuberculosis* in extra pulmonary samples by the GeneXpert MTB/RIF assay? *J Clin Microbiol*. Jul; 50 (7): 2272-2276. PMID: 22553234

11.Â Koo CK, Wang S, Gaur RL, Samain F, Banaei N, Kool ET (2011). Fluorescent DNA chemosensors: identification of bacterial species by their volatile metabolites. *Chem Commun (Camb)*. Nov 7;47 (41): 11435-11437. Â PMID: 21935547

12.Â El-Sayyad HI, El-Gammal HL, Habak LA, Abdel-Galil HM, Fernando A, Gaur RL, Ouhtit A (2011). Structural and ultrastructural evidence of neurotoxic effects of fried potato chips on rat postnatal development. *Nutrition*. Oct; 27 (10): 1066-1075. PMID: 21907898

13.Â Abdraboh ME, Gaur RL, Hollenbach AD, Sandquist D, Raj MH, Ouhtit A (2011). Survivin is a Novel Target of CD44-Promoted Breast Tumor Invasion. *Am J Pathol*. Aug; 179 (2): 555-563. PMID: 21718681

14.Â Doberne D, Gaur RL, Banaei N (2011). Preanalytical Delay Reduces Sensitivity of QuantiFERON-TB Gold In-Tube Assay for Detection of Latent Tuberculosis Infection. *J Clin Microbiol*. Aug; 49 (8): 3061-3064. PMID: 21697332

15.Â El-Sayyad HI, Abou-Egla MH, El-Sayyad FI, El-Ghawet HA, Gaur RL, Fernando A, Raj MH, Ouhtit A (2011). Effects of fried potato chip supplementation on mouse pregnancy and fetal development. *Nutrition*. Mar; 27 (3): 343-350. PMID: 21329872

16.Â Trappey A, Fernando A, Gaur R, Raj M, Ouhtit A (2010). The shady side of sunlight: current understanding of the mechanisms underlying UV-induction of skin cancers. *Front Biosci (Schol Ed)*. Jan 1;2:11-17. PMID: 20036925

17.Â Abd Elmageed ZY, Gaur RL, Williams M, Abdraboh ME, Rao PN, Raj MH, Ismail FM, Ouhtit A. (2009). Characterization of Coordinated Immediate Responses by p16(INK4A) and p53 Pathways in UVB-Irradiated Human Skin Cells. *J Invest Dermatol*.Â 129(1):175-83. PMID: 18719612

18.Â El-Sayyad HI, Ismail MF, Shalaby FM, Abou-El-Magd RF, Gaur RL, Fernando A, Raj MH, Ouhtit A (2009). Histopathological effects of cisplatin, doxorubicin and 5-fluorouracil (5-FU) on the liver of male albino rats. *Int J Biol Sci*.28;5(5):466-473. PMID: 19584954

19.Â Ismail MF, Ali DA, Fernando A, Abdraboh ME, Gaur RL, Ibrahim WM, Raj MH, Ouhtit A (2009). Chemoprevention of rat liver toxicity and carcinogenesis by Spirulina. *Int J Biol Sci*. 2;5(4):377-387. PMID: 19521547

20.Â Hassan HA, El-Agny SM, Gaur RL, Fernando A, Raj MH, Ouhtit A (2009). In vivo evidence of hepato- and reno-protective effect of garlic oil against sodium nitrite-induced oxidative stress. *Int J Biol Sci*. 5(3):249-255. PMID: 19305642

21.Â Johnson T, Ouhtit A, Gaur R, Fernando A, Schwarzenberger P, Su, Ismail MF, El-Sayyad HI, Karande A, Elmageed ZA, Rao P, Raj M. (2009). Biochemical characterization of riboflavin carrier protein (RCP) in prostate cancer. *Frontiers in Bioscience* 14, 3634-3640. PMID: 19273299

22.Â Allal Ouhtit, Rajiv L. Gaur, Zakaria Y. AbdElmageed, Augusta Fernando, Rajesh Thouta, Alison K. Trappey, Mohamed E. Abdraboh, Hassan I. El-Sayyad, Prakash Rao and Madhwa G.H. Raj. (2009). Towards understanding the mode of action of the multifaceted cell adhesion receptor CD146. *Biochim Biophys Acta*. Apr; 1795 (2): 130-136. PMID: 19356677

23.Â H.G. Raj, Zakaria Y. AbdElmageed, Jing Zhou, RL Gaur, Lan Nguyen, Ghazala A Azam, Patricia Braley, Prakash N. Rao, Ismail M. Fathi, Allal Ouhtit. (2008). Synergistic action of dietary phyto-antioxidants on survival and proliferation of ovarian cancer cells. *Gynecol Oncol*. Sep; 110 (3): 432-438. PMID: 18603286 Doctoral work:

24.Â Saini V, Jain V, Sudheesh MS, Dixit S, Gaur RL, Sahoo MK, Joseph SK, Verma SK, Jaganathan KS, Murthy PK, Kohli D (2010). Humoral and cell-mediated immune-responses after administration of a single-shot recombinant hepatitis B surface antigen vaccine formulated with cationic poly(L-lactide) microspheres. *J Drug Target*. Apr; 18 (3): 212-222. PMID: 19883203

25.Â Sahoo MK, Sisodia BS, Dixit S, Joseph SK, Gaur RL, Verma SK, Verma AK, Shasany AK, Dowle AA, Murthy PK (2009). Immunization with inflammatory proteome of *Brugia malayi* adult worm induces a Th1/Th2-immune response and confers protection against the filarial infection. *Vaccine*. 9;27 (32):4263-4271. PMID: 19450648

26.Â Gaur RL, Sahoo MK, Dixit S, Fatma N, Rastogi S, Kulshreshtha DK, Chatterjee RK, Murthy PK (2008). Antifilarial activity of *Caesalpinia bonducella* against experimental filarial infections. *Indian J Med Res*. 128(1):65-70. PMID: 18820361

27.Â R. L. Gaur, M. K. Sahoo, S. Dixit, S. K. Joseph, P. K. Murthy. (2008). Identification of *Brugia malayi* adult worm molecules immunoreactive with sera of infected animals treated with antifilarial and re-infected with homologous infection and their role in establishment of infection in *Mastomys coucha*. *Med. Chem. Res*. 17:445-461. Web link

28.Â Singh BK, Mishra M, Saxena N, Yadav GP, Maulik PR, Sahoo MK, Gaur RL, Murthy PK, Tripathi RP (2008). Synthesis of 2-sulfanyl-6-methyl-1,4-dihydropyrimidines as a new class of antifilarial agents. *Eur J Med Chem*. 43(12):2717-2723. PMID: 18339456

29.Â Murthy PK, Dixit S, Gaur RL, Kumar R, Sahoo MK, Shakya N, Joseph SK, Palne S, Gupta S. (2008). Influence of *Brugia malayi* life stages and BmAFII fraction on experimental *Leishmania donovani* infection in hamsters.Â *Acta Trop*. May; 106 (2): 81-9. PMID: 18329620

30.Â R. L. Gaur, S. Dixit, M.K Sahoo, M. Khanna and P.K. Murthy. (2007). Anti-filarial activity of novel formulations of albendazole against experimental brugian Filariasis. *Parasitology*, Nov; 134: 537-544. PMID: 17078904

31.Â S. Dixit, R. L. Gaur, M. K. Sahoo, S. K. Joseph, P. S. R. Murthy, P. K. Murthy. (2006). Protection against L3 induced *Brugia malayi* infection in *Mastomys coucha* pre-immunized with BmAFII fraction of the filarial adult worm. *Vaccine*, 24, 5824-5831. PMID: 16757067

32.Â M. A. Khan, S. Dixit, R. L. Gaur, J. K. Saxena, P. S. R. Murthy, P. K. Murthy (2005). *Brugia malayi* infection correlation between chronicity of infection and host's lymphoid cell proliferation and DNA damage. *Current science*. 88, 1469-1473. Web link

33.Â S. Dixit, R. L. Gaur, M. A. Khan, J. K. Saxena, P. S. R. Murthy, P. K. Murthy. (2004). Inflammatory antigens of *Brugia malayi* and their effect on rodent host *Mastomys coucha*. *Parasite Immunology*, 26, 397-407. PMID: 15752117

34.Â M. A. Khan, R. L. Gaur, S. Dixit, M. Saleemuddin, P. K. Murthy (2004). Responses of *Mastomys coucha* that have been infected with *Brugia malayi* and treated with diethylcarbamazine or albendazole, to re-exposure to infection. *Annals. Tropical Medicine and Parasitology*, 98, 8, 817-830. PMID: 15667714