BIOGRAPHICAL SKETCH

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NAME: Gullapalli, Rama R

eRA COMMONS USER NAME: rgullapalli

POSITION TITLE: Assistant Professor of Pathology, Chemical and Biological Engineering

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Completion Date	FIELD OF STUDY
Armed Forces Medical College, India	M.B;B.S.	01/1999	Medical School
The Pennsylvania State University, PA, USA	M.S.	05/2005	Electrical Engineering
The Pennsylvania State University, PA, USA	Ph.D.	12/2008	Bioengineering
University of Pittsburgh Medical Center, PA, USA	Residency	06/2011	Clinical Pathology
University of Pittsburgh Medical Center, PA, USA	Fellowship	06/2012	Molecular Genetic Pathology

A. Personal Statement

My educational background includes a PhD degree in bioengineering and a master's degree in electrical engineering from The Pennsylvania State University. The primary focus of my work at Penn State was the use of experimental and computational techniques to study diffusional processes in cell and synthetic lipid bilayers. Upon completion of my PhD, I moved to the University of Pittsburgh to pursue a residency in the field of pathology. After my residency, I completed a fellowship in molecular genetic pathology to cement my credentials as a practicing clinical molecular pathologist. Throughout my residency and fellowship, I have been the go-to person in the division of Molecular Pathology to solve analytical problems related to large genomic datasets. Prior programming experience obtained during my PhD studies has proved to be invaluable in understanding large dataset problems of next generation sequencing. I currently serve as the medical director of bioinformatics in the department of Pathology at UNM.

My academic career goal is to establish a NIH funded research program with a focus on translational genomic technologies in a clinical setting. More specifically, I am interested in the basic and applied research of gallbladder and liver cancer due to the high incidence of these cancers among the Hispanic and Native American Indian minority populations of New Mexico. The research in my lab is focused on two different areas of gallbladder and liver cancer biology: 1) Exploring the environment-microbiome-inflammation interactions in gallbladder cancer causation using a combined experimental-bioinformatics approach 2) understanding the specific phenomenon of epithelial-mesenchymal transition in hepatocellular cancer. My previous educational background in engineering and medicine provide me with a unique perspective to solve the challenges of implementation of high-throughput, personalized medicine technologies in a clinical and research setting. The long term goal of my research lab is to provide unique solutions to the challenges of personalized health care implementation in cancer diagnostics and therapeutics with a specific focus on hepatobiliary cancers.

B. Positions and Honors

Professional Appointments:

1997 - 1998 Clinical Intern, South Central Railway Hospital, Lallaguda, Hyderabad, India.
1999 - 2001 Medical Officer, Intensive Coronary Care Unit, Yashoda Superspecialty Hospitals, Hyderabad, India
2012-present Assistant Professor, Dept. of Pathology, UNM Health Sciences Center, NM, USA.
2013-present Assistant Professor, Dept. of Chemical and Biological Engineering, UNM, NM, USA.
2012-present Medical Director, Translational Pathology Research Lab, Department of Pathology, UNMHSC, NM, USA.

2012-present Medical Director of Biomedical Informatics, Department of Pathology, UNMHSC, NM, USA.

Honors and Awards:

1990 State Merit scholarship for academic achievement, India
1991 National Science Talent Scholarship, India
1995 Second in class, Microbiology, Armed Forces Medical College
1995 Col T D Chablani medal, Final Year M.B;B.S, Armed Forces Medical College
1998 Maj. Gen. P P Chowdhury silver Medal, First in Preventive medicine, Armed Forces Medical College
2001 Huck Institute of Life Sciences Fellowship, Pennsylvania State University
2003 Graduate student exhibition award, Pennsylvania State University
2004 Biomedical engineering society travel award
2008 Association of Pathology Informatics (APIII) travel award
2009 College of American Pathologists resident research award
2011 Paul L. Strandjord Young Investigator award presented by ACLPS, St Louis, MO
2014 American College of Clinical Pathologists, 40 under 40 award – International competition
Details - http://bit.ly/1pGd1NQ Media - http://bit.ly/TQpEbN

Editorial Service: Reviewer for Journal of Pathology Informatics.

Current Memberships: American Association of Cancer Research (2015-Current); Association of Molecular Pathology (2009-current); UNM Comprehensive Cancer Center (2013-Current); UNM Center for Biomedical Engineering (2012-current)

C. Contributions to Science

1. Gallbladder and Liver Cancer Translational Research: We are currently focused on developing the infrastructure to study gallbladder and liver cancer pathogenesis in my lab. NGS technology is the main platform in the Gullapalli lab to conduct basic as well as translational research. I have extensive experience in the implementation of NGS bioinformatics pipelines to analyze DNA-seq, RNA-seq and 16s Metagenomics data. Multiple NGS and molecular projects are currently underway focusing on various aspects of Hepatobiliary Cancer Biology. We are currently in the process of preparing two manuscripts focusing on 16s microbiome studies of gallbladder cancer we have conducted on samples of gallbladder cancer patients of New Mexico. To our knowledge, this is the first instance of a reported gallbladder cancer microbiome study. We have also successfully used archived paraffin embedded tissue to obtain 16s microbiome NGS data for the first time.

a) Berry R.S., **Gullapalli R.R.**, Wu J., Morris K.T., Hanson J.A., "Diffuse Glutamine Synthetase Overexpression Restricted to Areas of Peliosis in a β-Catenin Activated Hepatocellular Adenoma: A Potential Pitfall in Glutamine Synthetase Interpretation", Virchows Archiv Virchows Arch. 2014 Aug;465(2):241-5. doi: 10.1007/s00428-014-1620-8. PMID: 24997695.

b) "16s Microbiome Analysis Shows Ethnicity Dependent Differences in Gallbladder Cancer Patients of New Mexico" (Journal Article, Manuscript in preparation), **Gullapalli R.R**., Sanchez K.G., Pomo J.M., Tsewang T., Joshua Hanson J.A., Chabot-Richards D., Wu J.,

c) 16s Microbiome Analysis Using Archived Formalin Fixed Paraffin Embedded Tissue, (Journal Article, Manuscript in Preparation), Sanchez K.G., Wu J., Pomo J.M., **Gullapalli R.R.,**

d) Pomo J.M., Taylor R.M., **Gullapalli R.R**., "Influence of TP53 and CDH1 genes in hepatocellular cancer spheroid formation and culture: a model system to understand cancer cell growth mechanics", Cancer Cell International, 2016, 16:44, PMID:27303212; PMCID:PMC4907104

2. Clinical Next Generation Sequencing: I have extensive experience in the implementation of next generation sequencing (NGS) analysis in a clinical setting for the implementation of Personalized Medicine Approaches to Cancer treatments. I enabled the bioinformatics implementation for clinical NGS at TriCore reference laboratories.

a) ***Gullapalli R.R.,** *Desai K.V., Santana-Santos L, Kant J.A., Becich M.J., "Next Generation Sequencing in Clinical Medicine: Challenges and Lessons for Pathology and Biomedical Informatics", J Pathol Inform 2012;3:40 PMID: 23248761; PMCID: PMC3519097

b) **Gullapalli R.R.,** Lyons-Weiler M, Petrosko P, Dhir R, Becich MJ, LaFramboise WA. Clinical integration of next-generation sequencing technology. Clin Lab Med. 2012 Dec;32(4):585-99. doi: 10.1016/j.cll.2012.07.005. Review. PubMed PMID: 23078661; PMCID: PMC3479671.
c) Broehm C.J., Wu, J., **Gullapalli R.R.,** Bocklage T., "First Case Report of an Extraskeletal Myxoid Chondrosarcoma with a t(9;16)(q22;p11.2) Resulting in Fusion of FUS and NR4A3", Cancer Genetics, 2014. Jun;207(6):276-80. doi: 10.1016/j.cancergen.2014.06.024. PMID: 25130955.

3. Mechanobiology and Fluorescence Spectroscopy: During my PhD, I established single molecule spectroscopy infrastructure to study the mechanical properties of model lipid bilayers. The highlight of the work was the integration of fluorescence correlation spectroscopy methodology with fluorescence lifetime equipment in a single instrument. I also performed molecular dynamics simulations of lipid bilayer membranes to complement the experimental work. The simulation was one of the first instances of a simulation of a fluorescence dye molecule in a lipid bilayer enabling experimental insights into fluorescence spectroscopy data used commonly in cell membrane studies.

a) Tabouillot, T., **Gullapalli R.R.,** Butler, P.J., "Monitoring cellular mechanosensing using time- correlated single-photon counting", Proceedings of SPIE Volume:6732, Advanced Photon Counting Techniques, Nov 2006, ISBN: 0-8194-6470-8.
b) ***Gullapalli R.R.,** *Tabouillot, T., Mathura, R., Dangaria, J., Butler, P.J., "Integrated multimodal microscopy, time resolved fluorescence, and optical-trap rheometry: toward single molecule mechanobiology", J Biomed Opt. 2007 Jan-Feb; 12(1):014012. PubMed PMID: 17343487; PMCID: PMC3251961.
Selected for the special edition of Virtual Journal of Ultrafast Science.
c) **Gullapalli R.R.,** Demirel, M., Butler, P.J., "Molecular dynamics simulations of DiI-C18(3) in a DPPC lipid bilayer", Phys Chem Chem Phys., 2008 Jun 28;10(24):3548-60. PMID: 18548161; PMCID: PMC3251217.
Selected for the cover of the June 2008 issue of Physical Chemistry and Chemical Physics.
d) Muddana H.S., **Gullapalli R.R.,** Manias E, Butler P.J., "Atomistic simulation of lipid and DiI dynamics in membrane bilayers under tension", Phys Chem Chem Phys. 2011 Jan 28;13(4):1368-78. PMID: 21152516; PMCID: PMC3267629.
e) Taylor R.M., Monson T.C., **Gullapalli R.R.**, **"**Influence of carbon chain length on the synthesis of fatty amine-coated iron-platinum nanoparticles". *Nanoscale Research Letters* 2014, **9**:306 PMID: 25006334; PMCID: PMC4078006.

Complete List of Published Work in MyBibliography

http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/47242145/?sort=date&direction=descending

D. Research Support

P20GM103451 **Gullapalli, R.R. (PI)** 07/01/14/-07/01/17
Full grant award, New Mexico – Idea Networks for Biomedical Research Excellence (NM-INBRE), "Molecular and Microbiome Analysis of Gallbladder Cancer in New Mexican Populations".

New faculty departmental start-up funds, **Gullapalli, R.R. (PI)** 09/05/2012-Current
Department of Pathology,
University of New Mexico.