BIOGRAPHICAL SKETCH

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NAME: Chaudhari, Sarika

eRA COMMONS USER NAME (credential, e.g., agency login): SARIKACHAUDHARI

POSITION TITLE: Postdoctoral Research Associate

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD OF STUDY
Govt. Medical College, Nagpur, India	MBBS	05/1995	07/2001	Medicine
Govt. Medical College, Nagpur, India	MD	05/2004	04/2007	Clinical/ Experimental Physiology
University of North Texas Health Science Center (UNTHSC), Fort Worth	PhD	08/2011	08/2016	Integrative Physiology
UNTHSC, Fort worth.	Postdoc	09/2016	present	Physiology and Anatomy

A. Personal Statement

My long term career goal is to be established as an independent principal investigator and educator in the field of biomedical sciences. My long term research interest is to understand the mechanisms of pathophysiological processes at cellular and subcellular level along-with the complexity of the integrated physiological systems. During medical education, I felt that the focus was more on clinical signs /symptoms of a disease and the treatment of the patients with varying prognosis. I also participated (as a part of team of investigators) in designing and implementing a controlled, longitudinal, follow up, clinical study to understand the effect of selective serotonin re-uptake inhibitors and their correlation with altered endogenous antioxidants in terms of improvement in sign/symptoms in patients with depression. I realized that continuous research is what aids the clinicians in treating the patients with advanced therapeutic options. Opting for PhD in in Dr. Ma's lab at UNTHSC, provided me with the excellent background in renal research. As a PhD student, not only I got trained in disciplines like physiology, biochemistry, immunology, molecular biology, genetics, biostatistics etc but the advanced physiology courses offered at the Dept. of Physiology and Anatomy also trained me in literature review, manuscript preparation, hypothesis generation, and study designing, in addition to advanced knowledge about the physiological systems. My PhD research focused on the implications of Ca^{2+} channels, specially store-operated calcium channels(SOC), in the regulation of renal function in normal and disease states (diabetes mellitus). I was trained in different modalities needed for this research application. I gained expertise in the fields of cell culture and animal studies involving various molecular, biochemical, and pharmacological tools in the context of renal pathophysiology, Ca^{2+} imaging, confocal microscopy, renal functional and histological assessment, gene silencing techniques in vitro as well as using targeted nanoparticle delivery system in vivo., electrophysiology etc. I received intramural grant and a grant form Sigma-xi Society to support my research. Apart from my project, I also contributed, as a team, in various experiments in several ongoing projects in the lab. The outcome of my Ph.D. dissertation project, demonstrated for the first time, the protective role of SOCE in mesangial cells of the kidneys against the fibrotic proteins like fibronectin and collagen IV and a compensatory rise in SOCE in late stages of diabetes. I published two first author papers, one first author mini-review and several co-author papers in peer reviewed journals during my PhD.

I joined Dr. Mathis's lab with the curiosity in the role of inflammation and immune cells in relation to cardiovascular morbidities particularly hypertension in lupus mice. To analyze various immune cells in different tissues, I independently set up and started the flow cytometry experiments in Dr Mathis's lab. I also worked with Dr. S Goulopoulou studying the role of placenta in hypertension in preeclampsia. I started and set up the protocols for cell culture experiments in her lab. As a postdoc, I trained other PhD students, visiting undergraduate scholars, lab technicians and medical students in these labs. With the new focus and skillset, I became interested in the idea of renal inflammation in diabetic nephropathy. After my tenure in these labs and through discussion with Dr. Ma, I accepted the postdoc position in Dr Ma's lab to work on diabetic nephropathy and inflammation project. I was also involved with the ongoing project in his lab demonstrating the decrease in the SOCE with short term exposure to high glucose. Increasing evidence shows that diabetes is an inflammatory condition with kidneys being under the immune attack. Hence, for my further postdoctoral training in Dr Ma's lab, I will combine my experience of immunology with the renal pathophysiology in studying the effect of SOCE on renal inflammation in diabetes. Diabetic nephropathy is the leading cause of CKD which is also a major risk factor for cardiovascular mortality. Understanding the renoprotective pathways in diabetic kidney disease will inform interventions that target at enhancing the protective pathways and reducing the risk of progression to CKD and cardiovascular mortality in long run. I am highly motivated for an independent successful research carrier and establish myself as a renal physiologist with a long term goal of studying the effects of renal pathophysiology and its impact on other systems along with different interventional modalities.

1. Jiang H, Zou S, Chaudhari S, Ma R. Short-term high-glucose treatment decreased abundance of Orai1 protein through posttranslational mechanisms in rat mesangial cells. Am J Physiol Renal Physiol. 2018 May 1;314(5):F855-F863. PubMed PMID: 29363325.

2. Chaudhari S, Li W, Wang Y, Jiang H, Ma Y, Davis ME, Zuckerman JE, Ma R. Store-operated calcium entry suppressed the TGF-β1/Smad3 signaling pathway in glomerular mesangial cells. Am J Physiol Renal Physiol. 2017 Sep 1;313(3):F729-F739. PubMed PMID: 28637791; PubMed Central PMCID: PMC5625109.
3. Wu P, Wang Y, Davis ME, Zuckerman JE, Chaudhari S, Begg M, Ma R. Store-Operated Ca^{2+} Channels in Mesangial Cells Inhibit Matrix Protein Expression. J Am Soc Nephrol. 2015 Nov;26(11):2691-702. PubMed PMID: 25788524; PubMed Central PMCID: PMC4625675.
4. Chaudhari S, Wu P, Wang Y, Ding Y, Yuan J, Begg M, Ma R. High glucose and diabetes enhanced store-operated Ca^{2+} entry and increased expression of its signaling proteins in mesangial cells. Am J Physiol Renal Physiol. 2014 May 1;306(9):F1069-80. PubMed PMID: 24623143; PubMed Central PMCID: PMC4010683.

B. Positions and Honors

ACTIVITY / OCCUPATION	Start Date MM/YYYY	Completion Date MM/YYYY	FIELD	INSTITUTION / COMPANY	SUPERVISOR / EMPLOYER
Lecturer	05/2007	06/2011	Physiology	Govt. Medical College, Nagpur	Dr Neelam Mishra
Postdoctoral Research Associate	09/2016	08/2017	Integrative Physiology	University Of North Texas Health Science Center	Dr Keisa Mathis Dr S Goulopoulou
Postdoctoral Research Associate	09/2017	Present	Integrative Physiology	University Of North Texas Health Science Center	Dr Rong Ma

Academic and Professional Honors

2019 Young Investigator Award for Postdoc from Society for Experimental Biology and Medicine (EBM)
2019 GSBS Postdoctoral Travel Award to attend the Experimental Biology Conference, Orlando, Florida
2018 Outstanding Reviewer award for the journal of Experimental Biology and Medicine (EBM).
2018 GSBS Postdoctoral Travel Award to attend the Experimental Biology Conference, San Diego.

2016	2016 Young Investigator Award for Graduate Student from Society for Experimental Biology and Medicine
2016	GSBS Graduate Student Travel Award to attend the Experimental Biology Conference, San Diego.
2015	Induction to Sigma Xi, the international Scientific Research Society.
2015	GSBS Graduate Student Travel Award to attend the Experimental Biology Conference, Boston.
2014	Student of the Year Award for Department of Integrative Physiology, UNTHSC.
2014	Student Leadership/Professional Development Fund (SLPDF) travel award to attend Experimental Biology conference at San Diego.

Grants

01/01/15-08/31/16 :	UNT Health Science Center Intramural Bridge Grant (RI6165)
05/01/15-05/31/16 :	Sigma Xi Grant-in-Aid of Research program Grant (G201503151137055)

Professional Memberships

2015-	Society for Experimental Biology and Medicine (SEBM)
2014-	American Heart Association (AHA)
2012-	American Physiological Society (APS)
2008-	Association of Physiologists and Pharmacologists of India (APPI)

C. Contributions to Science

1. **Early Career**: During my career as a physiologist in a medical school, I was involved with a controlled, longitudinal, follow –up clinical study to understand the effect of selective serotonin re-uptake inhibitors (fluoxetine and citalopram) on improvement in depressive signs/symptoms and identifying a correlation with altered endogenous antioxidants in the plasma of theses patients. I learned to design the clinical study, preparing consent form, recruitment of patients with exclusion and inclusion criteria and follow-up. (Published with maiden name Sarode S.)

    a. Chaudhari K, Khanzode S, Khanzode S, Dakhale G, Saoji A, **Sarode S**. Clinical correlation of alteration of endogenous antioxidant-uric acid level in major depressive disorder. Indian J Clin Biochem. 2010 Jan;25(1):77-81. PubMed PMID: 23105889; PubMed Central PMCID: PMC3453017.

2. **Graduate career**: My graduate research project focused on the alterations of the SOCE and its channel proteins in mesangial cells with exposure to long term high glucose /diabetes. Previous studies have demonstrated cell specific effects of SOCE in different tissues. I demonstrated increased abundance of store operated calcium channels and entry in mesangial cells in kidneys in diabetes. Since it is difficult to target particular protein specifically in MCs because of lack of specific promoter in these cells, the in-vivo studies for intracellular pathways in MCs is difficult. In my PhD project, I used a novel nanoparticle delivery system targeted to MCs specifically. With this delivery system I could knock down proteins of interest in MCs and as a team, was able to demonstrate SOC-mediated suppression of extracellular matrix protein expression in MCs in-vivo in mice model, suggesting a possible protective anti-fibrotic pathway in diabetic kidney. Further, I and other members in the lab, established that inhibition of TGFβ mediated Smad-3 and smad-1 pathway are partly responsible for the protective effects of SOC. I also published a review paper on role of SOC in various diabetic complications and role of TRPC6 calcium channels in renal pathophysiology.

    a. **Chaudhari S**, Li W, Wang Y, Jiang H, Ma Y, Davis ME, Zuckerman JE, Ma R. Store-operated calcium entry suppressed the TGF-β1/Smad3 signaling pathway in glomerular mesangial cells. Am J Physiol Renal Physiol. 2017 Sep 1;313(3):F729-F739. PubMed PMID: 28637791; PubMed Central PMCID: PMC5625109.

    b. Wu P, Ren Y, Ma Y, Wang Y, Jiang H, **Chaudhari S**, Davis ME, Zuckerman JE, Ma R. Negative regulation of Smad1 pathway and collagen IV expression by store-operated Ca^{2+} entry in glomerular

mesangial cells. Am J Physiol Renal Physiol. 2017 Jun 1;312(6):F1090-F1100. PubMed PMID: 28298362; PubMed Central PMCID: PMC5495888.

c. Wu P, Wang Y, Davis ME, Zuckerman JE, **Chaudhari S**, Begg M, Ma R. Store-Operated Ca^{2+} Channels in Mesangial Cells Inhibit Matrix Protein Expression. J Am Soc Nephrol. 2015 Nov;26(11):2691-702. PubMed PMID: 25788524; PubMed Central PMCID: PMC4625675.

d. **Chaudhari S**, Wu P, Wang Y, Ding Y, Yuan J, Begg M, Ma R. High glucose and diabetes enhanced store-operated Ca^{2+} entry and increased expression of its signaling proteins in mesangial cells. Am J Physiol Renal Physiol. 2014 May 1;306(9):F1069-80. PubMed PMID: 24623143; PubMed Central PMCID: PMC4010683.

3. **Post-doctoral Career**: During the first year as a post-doctoral research associate, I was involved with a project on female Systemic lupus Erythematosus mice with the role of immune cells and hypertension in these animal models. I trained myself in a new skill of flow cytometry analysis of various immune cells in various organs like kidneys, spleen and bone marrow and established the protocols for the lab. I also worked with rat models of preeclampsia and placental cells and contributed as first author for a comprehensive review article on sex differences in cardiovascular development and pathology.

   Now with my current mentor, I am involved with the $eNOS^{-/-}$ db/db mouse model which is an excellent model for diabetic nephropathy. The long term goal is to demonstrate various molecular pathways that may alter in diabetic nephropathy in turn worsening the kidney pathology. With my knowledge earned in the previous lab and my mentor's guidance, I have developed a project associated with renal inflammation in diabetic kidneys and affected molecular pathways in relation to SOCE. Our recent finding that SOCE is suppressed with short term exposure of high glucose supports the idea that this protective pathway might be suppressed early in diabetes. Understanding further the association of SOCE with renal inflammation in diabetes is the proposed project.

   a. Ma Y, Li W, Yazdizadeh Shotorbani P, Dubansky BH, Huang L, **Chaudhari S**, Wu P, Wang LA, Ryou MG, Zhou Z, Ma R. Comparison of diabetic nephropathy between male and female eNOS-/- db/db mice. Am J Physiol Renal Physiol. 2019 May 1;316(5):F889-F897. Pubmed PMID: 30810354

   b. Jiang H, Zou S, **Chaudhari S**, Ma R. Short-term high-glucose treatment decreased abundance of Orai1 protein through posttranslational mechanisms in rat mesangial cells. Am J Physiol Renal Physiol. 2018 May 1;314(5):F855-F863. PubMed PMID: 29363325.

   c. **Chaudhari S**, Cushen S, Osikoya O, Jaini P, Posey R, Mathis K and Goulopoulou S. Mechanisms of sex disparities in cardiovascular function and remodeling. Compr Physiol. 2018 Dec 13;9(1):375-411. PubMed PMID: 30549017

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/12q7kziHuzq5j/bibliography/53657434/public/

D. Additional Information: Research Support and/or Scholastic Performance

Completed Research Support

RI6165, UNT Health Science Center Intramural Bridge Grant
Rong Ma (PI), 01/01/15-08/31/16
Store-operated Ca^{2+} entry and Renal Protection in Diabetic Nephropathy. This project hypothesized that an enhanced Store-operated Ca2+ entry (SOCE) in mesangial cells protects the kidney from diabetic injury by suppressing extracellular matrix (ECM) protein expression and mesangial expansion. This study demonstrated an endogenous, self-protective mechanism of the kidney through SOCE in diabetes.

G201503151137055, Sigma Xi Grant-in-Aid of Research program
Rong Ma (PI), 05/01/15-05/31/16
Inhibition of TGF-β1/Smad3 pathway mediates the anti-fibrotic effect of Store Operated Calcium Entry in Mesangial cells. The hypothesis for this study was that Store Operated Calcium Entry (SOCE) occurring through the store operated calcium channels (SOC) in mesangial cells suppressed extracellular matrix protein expression by inhibition of TGFβ1/Smad3 pathway.

Scholastic performance:

	MBBS				PhD (GPA-9.30)	
Year	**Course Title**	**Grade**		**Year**	**Course Title**	**Grade**
1995-1996	Human Anatomy	P		Fall 2011	Intro to Fac Research Programs	P
	Human Physiology	P			Laboratory Rotations	P
	Biochemcistry	P			Laboratory Rotations	P
1997-1998	Pathology	P			Biomedical Ethics	A
	Pharmacology	P			Integ Biomed Sci 1: Biochem	A
	Microbiology	P			Integ Biomed Sci 2: Cell Biol	A
	Forensic Medicine	P		Spring 2012	Intro to Fac Research Programs	P
1998-2000	Ophthalmology	P			Laboratory Rotations	A
	Ear, Nose and Throat	P			Scientific Communications	A
	Preventive and Social Medicine	P			Integ Biomed Sci 3: Physiology	A
	Medicine	P			Integ Biomed Sci 4: Pharmacol	A
	Surgery	P			Integ Biomed Sci 5: Immu & Mic	A
	Obstretics and Gynecology	P		Summer 2012	Biostatistics for Biomed Sci	A
	Pediatrics	P			Individual Research	S
	Orthopedics	P		Fall 2012	Techniques in Biomed Sciences	A
	Radiology	P			Individual Research	S
					Seminar in Current Topics	A
	MD				Cardiovascular Physiology	A
Year	Course Title	Grade			Neurohumoral cntl Autonomic Func	A
2004-2007	Clinical and Exptal Physiology	P		Spring 2013	Individual Research	S
					Intro to Confocal Microscopy	P
	(P-50% or more				Seminar in Current Topics	A
	Distinction- 75%or more)				Physio and Pathophysio Rnl & Res	B
					Integ Phys of Skeletal Muscle	A
					Current topics in Physiology	A
				Summer 2013	Individual Research	S
				Fall 2013	Grant Writing	P
					Individual Research	S
				Spring 2014	Individual Research	S
				Summer 2014	Individual Research	S
				Fall 2014	Individual Research	S
					Doctoral Dissertation	S
				Spring 2015	Individual Research	S
					Doctoral Dissertation	S
				Summer 2015	Individual Research	S
					Doctoral Dissertation	S
				Fall 2015	Individual Research	S
					Doctoral Dissertation	S
				Spring 2016	Individual Research	S
					Doctoral Dissertation	S
				Summer 2016	Doctoral Dissertation	S
					Individual Research	S
					P-Pass, S-satisfactory,	
					A,B,C- Grades	