



Centre/School/Special Centre: **SoS in Life Science**

Department **Zoology**

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Dr. ROHIT SETH

Qualification: **Ph.D.**

Area of Interest/Specialization **Cancer Biology, Neuroscience & Obesity Research**

Experience

(2011 – Present), Associate Professor of Zoology Department, Guru Ghasidas Viswavidyalaya, Bilaspur (CG), INDIA.

(2006 – 2011), Instructor and Postdoctoral Associate, College of Medicine, Florida State University (FSU) Tallahassee, FL, USA.

(2003 – 2006) Postdoctoral Fellow at Department of Medicine, Division of Nephrology, University of Arkansas for Medical Sciences, Little Rock, AR.

Awards & Honors

1. Union for International Cancer Control technical fellowship (UICC-TF/17/554101) to conduct joint research at University of Toledo, Toledo, OH (December 8, 2017 – January 07, 2018)
2. Best Poster Presentation at 4th meeting of Association of Scientists of Indian Origin in America. January 15-17, 2011. Suwanee, GA, USA.
3. Travel grant from American Society of Nephrology to attend 38th Annual Meeting of American Society of Nephrology, Philadelphia, Pennsylvania. USA November 8th 2005.
4. DAAD fellowship, German academic exchange services (2001). Availing this fellowship I worked at Institute for Animal Science and Animal Behavior, Mariensee, Neustadt, Germany.
5. Best Oral Presentations at 21st Symposium of Society for Reproduction Biology and Comparative Endocrinology meeting, Banaras Hindu University, Varanasi UP (2003).
6. Best Oral Presentations at 19th Symposium of Society for Reproduction Biology and Comparative Endocrinology meeting (2001), Bhartidasan University, Baroda, Gujarat, INDIA.

Research Projects

1. "Neurobiology of obesity regulation and therapeutic interventions". Leptin inhibits orexigenic pathways in the CNS and is a powerful appetite suppressant; mutations in genes coding for Leptin or Leptin receptors produce morbid obesity. However, nearly all obese individuals exhibit Leptin resistance. Thus, it is not surprising that early human trials of Leptin administration failed to yield impressive weight loss. However, Leptin treatment sustains normal energy expenditure in subjects that have lost weight by caloric restriction. This observation suggests that weight loss can restore Leptin responsiveness. This project is funded by the SERB (Department of Science and Technology, Govt. of India) to Rohit Seth (2018).
2. "Role of Serum Catalytic Iron, 1-25- Dihydroxy Vitamin D3 and withanolides on autophagy and apoptosis in renal tubular epithelial cells exposed to Iohexol". This is a consultancy project funded by Dr. Chandrasekar Annamalai, Senior Nephrologist, Apollo Hospital, Bilaspur (CG).
3. "Neuronal Death & Survival: The Treatment of Traumatic Brain Injury". Neuronal injury and death appears to be a trigger for stem cell proliferation and adult neurogenesis. We are exploring ways to promote neuronal survival after traumatic brain injury, induce neurogenesis, and improve behavioral outcomes. This project was funded by National Institute of Health (2010-11).
4. Central neural control of energy balance, feeding behavior and cardiovascular functions. We studied mechanisms by which reduced energy consumption produces marked reductions in blood pressure and sympathetic activity. For this study we used chronically instrumented rats to assess cardiovascular status while manipulating caloric intake. CNS lesions and microinjection strategies were employed to evaluate specific neuroanatomic and neurochemical substrates which modulate blood pressure during negative energy balance. This project was funded by National Institute of Health (NIH) and research support from College of Medicine, Florida State University (2006-2010).
5. Signal transduction in renal tubular epithelial cells in relation to cell death and cell survival pathways in caspase -3 knockouts. I worked as a co-investigator in this project aimed to address the role of caspase in cisplatin induced acute renal failure. This project was supported by National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK), National Institutes of Health and an American Heart Association (Affiliated), (2003-2006).
6. p53 mediated caspase-2-activation in mitochondrial release of apoptosis inducing factor and its role in renal tubular epithelial cell injury. Aim of this project was to address the role of apoptosis inducing factor in cisplatin induced renal tubular epithelial cell injury. This project was supported by National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK), National Institutes of Health and an American Heart Association (Affiliated), (2003-2006).
7. USDA (Indo-US fellowship), research grant FG-IN- (IN-ARS-866) to work on project: "Molecular biology of neuroendocrine system of poultry birds" (1999).

International Collaboration/Consultancy

1. **University of Toledo, OH, United States of America (International Collaboration)**
2. **Dr. Chandrashekar Annamalai, Apollo Hospitals, Bilaspur (C.G.) (Consultancy)**

List of Publications

1. Namrata Kahar & **Rohit Seth**. Role of Plant-based active compounds in inflammatory responses of cancer. International Journal of Pharmacognosy (2021).
2. Chandrashekar Annamalai, **Rohit Seth** & Pragasam Vishwanathan. Ferrotoxicity and Its Amelioration by Calcitriol in Cultured Renal Cells. Anal Cell Pathol (Amst) . 2021.
3. **Rohit Seth** & Ritu Burman. Fruit Fly: An Ideal Model for Studying Obesity Related Disorders. Int J Zoo Animal Biol, DOI: 10.23880/izab-16000213 (2020).
4. Satyanarayana Reddy PVV and **Rohit Seth**. "Role of Tumor Necrosis Factor in Neurodegeneration". EC Endocrin. & Metabolic Research 4.4 (2019): 162-171.
5. Tirthraj Baj and **Rohit Seth**. Role of curcumin in regulation of TNF- α mediated brain inflammatory responses. Recent Patents on Inflammation & Allergy Drug Discovery 2018, 12.
6. Rupal Purena, **Rohit Seth** and Renu Bhatt. Protective role of *Emblica officinalis* hydro-ethanolic leaf extract in cisplatin induced nephrotoxicity in Rats. Toxicol Rep. 2018 Feb 3;5:270-277.
7. **Rohit Seth**, Rikki S Corniola, Brian Bishop and Cathy W Levenson. Zinc deficiency induces apoptosis via mitochondrial p53- and caspase-dependent pathways in human neuronal precursor cells. Journal of Trace Elements in Medicine and Biology. 2015 Apr;30:59-65.
8. **Rohit Seth**, DE Terry, B Parrish, R Bhatt, James M Overton. Amylin-leptin co-administration stimulates central histaminergic signaling in rats Brain Res. 2012 Mar 9;1442:15-24.
9. EM Parise, Kay K Lilly, AM Dossat, **Rohit Seth**, JM Overton, DL Williams. Evidence for the role of hindbrain orexin-1 receptors in the control of meal size. Am J Physiol Regul Integr Comp Physiol. 2011 Sep 28.
10. **Rohit Seth**, W David Knight and J Michael Overton. Combined amylin-leptin treatment lowers blood pressure and adiposity in lean and obese rats. International Journal of Obesity (Nature Publishing Group), 2011 Sep;35(9):1183-92.
11. Nicholas J. Rich, Jacob W. VanLandingham, Silvia Figueiroa, **Rohit Seth**, Rikki S. Corniola, Thomas Morgan and Cathy W. Levenson. Chronic caloric restriction reduces tissue damage and improves spatial memory in a rat model of traumatic brain injury. J Neurosci Res. Oct;88 (13):2933-9. (2010)
12. Ling Liu, Cheng Yang, Christian Herzog, **Rohit Seth** and Gur P. Kaushal. Proteasome inhibitors prevent cisplatin-induced mitochondrial release of apoptosis-inducing factor and markedly ameliorate cisplatin nephrotoxicity. Biochem Pharmacol. Jan 15;79(2):137-46. (2010)
13. Dave Knight, **Rohit Seth**, Jim Boron, James Michael Overton. Short-term physiological hyperleptinemia decreases arterial blood pressure. Regulatory Peptides. 154, (1-3), 10 April, 60-68. (2009).
14. Cheng Yang, Varsha Kaushal, Randy Haun, **Rohit Seth**, Sudhir V Shah and Gur P Kaushal. Transcriptional activation of caspase-6 and -7 genes by cisplatin-induced p53 and its functional significance in cisplatin nephrotoxicity. Cell Death Differ. Mar; 15 (3):530-44. (2008)
15. Christian Herzog, **Rohit Seth**, Sudhir V Shah and Gur P Kaushal. Role of meprin A in renal tubular epithelial cell injury. Kidney Int. May; 71(10): 1009-18. (2007)
16. **Rohit Seth**, Cheng Yang, Varsha Kaushal, Sudhir V Shah, and Gur P Kaushal. p53 mediated caspase-2-activation in mitochondrial release of apoptosis inducing factor and its role in renal tubular epithelial cell injury. Journal of Biological Chemistry Sep 2; 280(35): 31230-9. (2005)
17. Gur P Kaushal, Ling Liu, Varsha Kaushal, Xiaoman Hong, Oksana Melnyk, **Rohit Seth**, Robert Safirstein and Sudhir V Shah. Regulation of Caspase-3 and -9 Activation in Oxidant Stress to Renal

- Tubular Epithelial Cells By Forkhead proteins, Bcl-2 Proteins and MAP Kinases. *American Journal of Physiology: Renal Physiology*. 287: F1258-F1268. (2004)
18. **Rohit Seth**, Yin Xue Xu, Roland Grossmann and Chandra Mohini Chaturvedi. Changes in Expression of AVT/ AVT receptor gene in hypothalamus and shell gland in relation to egg laying in white leghorn hens. *General and Comparative Endocrinology*. 137:177-186. (2004)
 19. **Rohit Seth**, Almut Köhler, Roland Grossmann and Chandra Mohini Chaturvedi. Expression of hypothalamic Arginine vasotocin gene in response to water deprivation and sex steroid administration in female Japanese quail. *Journal of Experimental Biology* 207: 3025-3033. (2004).
 20. **Rohit Seth**, Roland Grossmann and Chandra Mohini Chaturvedi. In ovo administration of sex steroid alter vasotocin synthesis in bed nucleus of stria terminalis in chicken. *Current Science*. August: 85 (4): 497-502. (2003)
 21. **Rohit Seth** and Chandra Mohini Chaturvedi. Age and sex dependent variation of arginine vasotocin gene in response to dehydration in chicken and Japanese quail. *Zoological Studies*. 43: (1) 86-92. (2004)
 22. **Rohit Seth** and Chandra Mohini Chaturvedi. Beta agonist terbutalin supplementation induces lipolysis and protein synthesis in Japanese quail (*Coturnix coturnix japonica*). *Indian Journal of Poultry Science*. August: 37(2): 166-168. (2002)

Publications in Conference Proceedings:

1. Chandrashekar Annamalai, **Rohit Seth** and Pragasam Vishwanathan. In vitro study of the effect of Vitamin D on iohexol induced ferrotoxicity of renal cells. ISN WCN 2020, ABU DHABI, UAE. *Kidney International Reports* (2020) 5, S1–S392
2. Chandrashekar Annamalai, **Rohit Seth** and Pragasam Vishwanathan. 1,25, Dihydroxy Vitamin D3 ameliorates Iohexol induced oxidative stress in renal cells. *World Congress of Nephrology*, Melbourne, Australia, April 15, 2019.
3. Jacob W VanLandingham, Nicholas J Rich, Kenneth Winnard, Cathy W Levenson, Silvia M Figueiroa, Victor D Schepkin, **Rohit Seth**, James M Overton, and Donald G Stein. Combinatorial treatment with progesterone and thyrotropin releasing hormone improves outcomes after traumatic brain injury, *Experimental Biology*, New Orleans, LA, April 18-22 (2009). Published in *FASEB J.*; 23: 614.9.
4. Dawn Elizabeth Kopa, David Knight, Michelina M. Messina, **Rohit Seth**, and J. Michael Overton. Sex differences in cardiovascular and metabolic responses of Sprague-Dawley rats to chronic subcutaneous leptin infusion. *Experimental Biology*, New Orleans, LA, April 18-22 (2009). Published in *FASEB J.* 23:806.2.
5. **Rohit Seth**, William D Knight, and James M Overton. Re-feeding after long-term caloric restriction rapidly restores heart rate and metabolic rate but slowly restores body weight and incompletely restores serum leptin. *Experimental Biology*, Washington DC, USA April 2007. Published in *FASEB J.* 21: 579.16. (2008)
6. William D Knight, **Rohit Seth**, James M Overton. Potent combination of amylin and leptin reduces food intake, blood pressure, and orexigenic neuropeptides in obese FBNF1 rats. Poster presentation at 16th annual meeting of the society for the study of ingestive behavior, July 2008, Paris. Published in *Appetite*. 51 (2) 377. (2008).
7. Michelina M Messina, Dawn E Kopa, William D Knight, **Rohit Seth**, and James M Overton. Acute low-dose I.P. Amylin+EB treatment in OVX rats does not produce an enhanced anorexigenic response.

Poster presentation at 16th annual meeting of the society for the study of ingestive behavior, July 2008, Paris. Published in *Appetite*. 51 (2) 386. (2008)

8. **Rohit Seth** & Chandra Mohini Chaturvedi (2003). Sexual dimorphism in brain vasotocinergic circuits of Indian jungle bush quail (*Perdicula asiatica*). *Proceedings 21st Symposium of Society for Reproduction Biology and Comparative Endocrinology*, Eds. Haldar, C. Department of Zoology, BHU, Varanasi.
9. Adity Chowdhury, **Rohit Seth** and Chandra Mohini Chaturvedi (2002). Age and Sex dependent response in the expression of arginine vasotocin gene following osmotic stress in Japanese quail. *Proc. 20th Symposium of Society for Reproduction Biology and Comparative Endocrinology*, pp 119-120. Ed. M.J. Akbarsha, Bharathidasan University, Thiruchirapalli.

Recent Books/Book Chapters/Monographs etc.

1. **Rohit Seth**, Rakesh Kumar Singh and Alka Seth. *Cisplatin in Cancer Management - New Approaches for Bypassing Nephrotoxicity* (pp. 475-496). *Signaling, Gene Regulation and Cancer*, Nova Science Publishers. (2013)
2. Rakesh Kumar Singh, **Rohit Seth** and Akash Gunjan. *Epigenetic Regulation of Cancer* (pp. 411- 430). *Signaling, Gene Regulation and Cancer*, Nova Science Publishers. (2013)

Research Supervision

Supervised several UG and PG research projects, presently six students are pursuing Ph.D. under my supervision. In past I mentored two Ph.D. students in Florida State University, Tallahassee, FL, USA.

Administrative Responsibilities

1. Member, Department Research Committee, Department of Religion and Philosophy, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India (2018-present).
2. Administrative warden, New Boys Hostel 'B'. Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India (Oct. 2018-2022).
3. Member, Board of Studies, School of Studies in Life Sciences, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India (2018-present).
4. Co-Coordinator MOOCS (SWAYAM), Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. (2018-present).
5. Center superintendent (EXAMS), Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. (2018-present).
6. Academic council member, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. (2017-2018).
7. Member, unassigned grants review committee, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India (2017-present).
8. Member, Board of Studies, Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India (2017-present).

9. Member, decision making committee for UFM cases, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India (2017-present).
10. Asst. Center Superintendent of Exams University Teaching Department, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. (2011-2013)
11. Addl. Officer In charge of University Guest House, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. (2011-2012)
12. In-charge, Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), (2011-2013)
13. Officer, for media cell, Department of Zoology, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. (2012-2013)

Additional Information

INVITED TALKS

1. Neuro-Gut interaction in the regulation of Obesity, Winter School on Novel insights in Life Science Research, HRDC, GGV, 17-02-2021.
2. Obesity Regulation in Connection with Gut & Brain, Refresher Course in Life Science: Synthetic Biology, RSU, 24-12-2020
3. Obesity studies in human & alternative models, Ref Course in Life Science, RSU, Dec. 14, 2019
4. Endocrine regulation of Obesity in Zebrafish. NCRDF, BBAU, Lucknow, India, 7-8, Nov, 2019
5. Gut microbiota regulates brain mediated obesity and metabolic disorders. BioMilaap-2019, Sam Higginbottom University of Agriculture, Technology & Sciences, Prayagraj (UP) 5-6, Nov, 2019
6. Leptin Resistance Knocked Down. IBRO School, IGNTU, Amarkantak (MP), March 09, 2019.
7. Research Ideas in Life Sciences, HRDC, Pt. Ravishankar Shukla University, Raipur (CG), India. 4, July 2018.
8. Invited talk at one day interactive seminar on "Sustainable Quality Education & Millennium Goals of Development (MGDs)- Sensitization towards MGD's & their inclusion in curricular aspects of existing programs" being organized by IQAC, Guru Ghasidas Vishwavidyalaya, Bilaspur on July 18, 2018.
9. Research Methods, ASC, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India. 27, June, 2018
10. Ayurveda, trace elements and behavior, DB Girls College Raipur (CG), India. 06, Feb. 2018.
11. Neural Control of Obesity, CMD Post Graduate College, Bilaspur (C.G.), India. Dec. 03, 2017.
12. Ethics of Animal Research, Seminar Cum Workshop on "Alternatives to Animal Use in Science" at Department of Zoology, Utkal University, Bhubaneswar (OD), India. March 22, 2014.
13. Refinement Alternatives in Animal Research. At Mahatma Gandhi Chitrakoot Gramoday University, Chitrakoot (M.P.), India. February 22, 2014.

14. Obesity Epidemic – Neuronal Connection. DST-PURSE sponsored International conference at University of Sagar (M.P.) India. February 15, 2014
15. Animal Ethics in Life Science Research, CMD Post Graduate College, Bilaspur (C.G.), India. January 12, 2014.
16. Endocrinology of Obesity, Govt. P.G. Science College, Bilaspur (C.G.). Feb. 2, 2013 7. Molecular Signaling in brain and Neurobiology of Obesity, Scotts Christian College, Nagercoil (T.N.), India. August 27, 2013.
17. Zinc and Behaviour, at KG Science and Arts College, Raigarh (C.G). March, 2012.
18. Neurobiology of Obesity and Leptin resistance. Pt. B D Sharma post graduate institute of medical science, Rohtak (UP), India. March 15, 2010.
19. Neurobiology of Obesity. Banaras Hindu University, Varanasi, India. March 12, 2010.
20. CNS regulation of food intake and body weight. Banasthali Vidyapeeth; Banasthali, Rajasthan, India. October 3, 2008.

TEACHING EXPERIENCE

1. Associate Professor of Zoology Department, Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), INDIA. (2011 – present)

Courses taught: Biostatistics, Economic Zoology, Neuroscience, Cell and Molecular Biology, Endocrinology.

2. Instructor, College of Medicine, Florida State University (FSU) Tallahassee, FL, USA. (2006 – 2011). I was responsible for conducting small groups for 1st and 2nd year medical students.

Courses taught: Physiology, Neuroanatomy and Endocrinology.

3. Adjunct Professor of Biology, Tallahassee Community College (TCC) at Tallahassee, FL, USA. (2009). Courses taught: Anatomy and Physiology.

SERVICES: Disciplinary Services (Reviewer / Editor of Peer Reviewed Journals)

1. Reproduction (The Journal of Society of Reproduction and Fertility)
2. Brain Research (Elsevier Publishing House)
3. Advances in Zoology and Botany (Horizon)
4. Oxidative Medicine and Cellular Longevity (Hindawi)
5. MOJ Anatomy & Physiology (MedCrave)
6. Science Alerts
7. Editor, Jacobs Journal of Forensic Science (Jacobs Publishers)
8. Editor, International Journal of Zoological Investigations

9. Assistant Editor, Journal of Pharmaceutical and Biomedical Science. (Lawrence Press).
10. Editor, EC Pulmonology and Respiratory Medicine journal
11. Associate Editor, International Journal of Zoology and Animal Biology (Medwin Publishers)

Conference organization

Organized International Conference on Emerging Researches in Bioscience (ICERB-2018) from Oct. 28-30, 2018 at Guru Ghasidas Vishwavidyalaya, Bilaspur (CG), India

PROFESSIONAL AFFILIATIONS

1. Life Member, Fellows of Union of International Cancer Control. Geneva, Switzerland August 2018 – Present
2. Life Member, Society for Alternatives to Animal Experiments, Bhartidasan University, Thiruchirapalli (TN)
3. Life member, Society for Reproductive Biology and Comparative Endocrinology. 2001 – Present.
4. Member, The American Association for the Advancement of Science (AAAS) 2008-2011
5. Member, American Physiological Society (APS). (2007-2008)
6. Member, American Heart Association (AHA). (2007-2008)
7. Council Member, Association of Scientists of Indian Origin in America (ASIOA) (2009-2011)

Place: Bilaspur, CG

(Rohit Seth)