NIH BIOGRAPHICAL SKETCH COMMON FORM

Name: Voshavar, Chandra Shekhar

Persistent Identifier (PID) of the Senior/Key Person: https://orcid.org/0000-0003-3350-3977

Position Title: Research Assistant Professor

Organization and Location: Florida A&M University, Tallahassee, Florida, United States

PROFESSIONAL PREPARATION

INSTITUTION AND LOCATION	DEGREE	Start Date	Completion Date	FIELD OF STUDY
Florida A&M University, Tallahassee, Florida, United States	Postdoctoral Fellow	05/2018	12/2020	Medicinal Chemistry
C-CAMP, Bengaluru, Not Applicable, N/A, India	Postdoctoral Fellow	01/2016	04/2018	Medicinal Chemistry
JNCASR, Bengaluru, Not Applicable, N/A, India	Postdoctoral Fellow	01/2015	12/2015	Medicinal Chemistry
Wayne State University, Detroit, Michigan, United States	Postdoctoral Fellow	01/2012	01/2015	Medicinal Chemistry
CSIR-IICT& Osmania University, Hyderabad, Not Applicable, N/A, India	Doctor of Philosophy (PHD)	01/2006	10/2011	Chemistry
Osmania University, India, Hyderabad, Not Applicable, N/A, India	Master of Science (MS)	06/2001	04/2003	Chemistry
Kakatiya University, India, Warangal, Not Applicable, N/A, India	Bachelor of Science (BS)	06/1998	04/2001	Chemistry, Botany and Zoology

Appointments and Positions

2021 - present Research Assistant Professor, Florida A&M University, Tallahassee, Florida, United States
2003 - 2005 Assistant Professor (Contract), PG College of Science, Osmania University, Hyderabad, Not Applicable, N/A, India

Products

Products Closely Related to the Proposed Project

1. Chandrashekhar V, Srujan M, Prabhakar R, Reddy RC, Sreedhar B, Rentam KK, Kanjilal S, Chaudhuri A. Cationic amphiphiles with fatty acyl chain asymmetry of coconut oil deliver genes selectively to mouse lung. Bioconjug Chem. 2011 Mar 16;22(3):497-509. PubMed PMID: 21338113.
2. Voshavar C, Meka RC, Samanta S, Marepally S, Chaudhuri A. Enhanced Spacer Length between Mannose Mimicking Shikimoyl and Quinoyl Headgroups and Hydrophobic Region of Cationic Amphiphile Increases Efficiency of Dendritic Cell Based DNA Vaccination: A Structure-Activity Investigation. J Med Chem. 2017 Feb 23;60(4):1605-1610. PubMed PMID: 28124909.
3. Asong GM, Voshavar C, Amissah F, Bricker B, Lamango NS, Ablordeppey SY. An Evaluation of the Anticancer Properties of SYA014, a Homopiperazine-Oxime Analog of Haloperidol in Triple Negative Breast Cancer Cells. Cancers (Basel). 2022 Dec 8;14(24) PubMed Central PMCID: PMC9776707.
4. Asong GM, Amissah F, Voshavar C, Nkembo AT, Ntantie E, Lamango NS, Ablordeppey SY. A Mechanistic Investigation on the Anticancer Properties of SYA013, a Homopiperazine Analogue of Haloperidol with Activity against Triple Negative Breast Cancer Cells. ACS Omega. 2020 Dec 29;5(51):32907-32918. PubMed Central PMCID: PMC7774091.
5. Mockey M, Bourseau E, Chandrashekhar V, Chaudhuri A, Lafosse S, Le Cam E, Quesniaux VF, Ryffel B, Pichon C, Midoux P. mRNA-based cancer vaccine: prevention of B16 melanoma progression and metastasis by systemic injection of MART1

mRNA histidylated lipopolyplexes. Cancer Gene Ther. 2007 Sep;14(9):802-14. PubMed PMID: 17589432.

Other Significant Products Highlighting Contributions to Science

1. Wang X, Sarkar DP, Mani P, Steer CJ, Chen Y, Guha C, Chandrasekhar V, Chaudhuri A, Roy-Chowdhury N, Kren BT, Roy-Chowdhury J. Long-term reduction of jaundice in Gunn rats by nonviral liver-targeted delivery of Sleeping Beauty transposon. Hepatology. 2009 Sep;50(3):815-24. PubMed Central PMCID: PMC4174336.
2. Voshavar C, Shah M, Xu L, Dutta AK. Assessment of Protective Role of Multifunctional Dopamine Agonist D-512 Against Oxidative Stress Produced by Depletion of Glutathione in PC12 Cells: Implication in Neuroprotective Therapy for Parkinson's Disease. Neurotox Res. 2015 Nov;28(4):302-18. PubMed Central PMCID: PMC6158776.
3. Voshavar C, Vemula PK, Marepally S. Topical and Transdermal Delivery with Chemical Enhancers and Nanoparticles. In: Xu C, Wang X, Pramanik M, editors. Imaging Technologies and Transdermal Delivery in Skin Disorders [Internet] Weinheim, Germany: Wiley-VCH Verlag GmbH & Co. KGaA; 2019. Chapter 8p.169-200. Available from: https://onlinelibrary.wiley.com/doi/10.1002/9783527814633.ch8 DOI: 10.1002/9783527814633.ch8
4. Dharmalingam P, Rachamalla HKR, Lohchania B, Bandlamudi B, Thangavel S, Murugesan MK, Banerjee R, Chaudhuri A, Voshavar C, Marepally S. Green Transfection: Cationic Lipid Nanocarrier System Derivatized from Vegetable Fat, Palmstearin Enhances Nucleic Acid Transfections. ACS Omega. 2017 Nov 30;2(11):7892-7903. PubMed Central PMCID: PMC6044896.
5. Bricker BA, Voshavar C, Onyameh EK, Gonela UM, Lin X, Swanson TL, Kozell LB, Schmachtenberg JL, Bloom SH, Janowsky AJ, Ablordeppey SY. Enantiomeric Separation, Absolute Configuration by X-ray Crystallographic Analysis, and Functional Evaluation of Enantiomers of the Dual Ligand, SYA0340 at 5-HT(1A) and 5-HT(7A) Receptors. ACS Omega. 2023 Jun 20;8(24):21736-21744. PubMed Central PMCID: PMC10285950.

Certification:

I certify that the information provided is current, accurate, and complete. This includes, but is not limited to, information related to current, pending, and other support (both foreign and domestic) as defined in 42 U.S.C. § 6605.

In accordance with Section 10632 of the CHIPS and Science Act of 2022 (42 U.S.C. § 19232), each individual identified as a senior/key person must certify that they are not a party to a malign foreign talent recruitment program.

Research Security Training Requirement for Federal Award Personnel: In accordance with Section 10634 of the CHIPS and Science Act of 2022 (42 U.S.C. § 19234), each individual identified as a senior/key person must certify that they have completed the requisite research security training that meets the requirements specified in Item 2 of Important Notice No. 149 within 12 months prior to proposal submission.

Misrepresentations and/or omissions may be subject to prosecution and liability pursuant to, but not limited to, 18 U.S.C. §§287, 1001, 1031 and 31 U.S.C. §§3729-3733 and 3802.

Certified by Voshavar, Chandra Shekhar in SciENcv on 2026-06-01 21:07:59

NIH BIOGRAPHICAL SKETCH SUPPLEMENT

Name: Voshavar, Chandra Shekhar

Persistent Identifier (PID) of the Senior/Key Person: https://orcid.org/0000-0003-3350-3977

Position Title: Research Assistant Professor

Organization and Location: Florida A&M University, Tallahassee, Florida, United States

Personal Statement

My long-term research interests are focused on integrating medicinal chemistry, biology, and molecular modeling to address emerging biological and clinical questions and goals in Cancer & CNS-related diseases/disorders. Being a bio-organic & medicinal chemist, I am devoted to researching molecules for therapeutic applications. My research area is concentrated at the interface of chemistry and biology. I enjoy designing and synthesizing unique chemical entities and evaluating their therapeutic potentials using various in vitro and in vivo disease model systems. I am always fascinated by new molecules and their interactions with multiple disease processes. Thanks to my interdisciplinary background, my doctoral and postdoctoral research cover a diversity of topics, spanning from drug discovery research that aims at the development of novel small molecules, multifunctional drug candidates, and non-viral nucleic acid delivery vectors to the hypothesis-driven investigation of specific biological problems such as cancer, neurodegenerative (Parkinson's, Alzheimer's) and mental disorders (Schizophrenia, Depression & Bipolar) where the primary goal is the discovery and advancement of biological knowledge. Initially, my research focused on developing receptor-targeted cationic amphiphiles as transfection reagents for gene delivery and for dendritic cell-based DNA vaccination. I have synthesized compounds and performed biophysical characterization, in vitro studies, and animal experiments to assess their transfection efficacy. My Postdoc at Wayne State University involved the design and synthesis of multifunctional dopamine receptor ligands for the treatment of Parkinson's disease, using cell-based and animal studies. This training helped me to gain valuable experience and knowledge in medicinal chemistry. During my year at JNCASR, India, I worked on developing small molecules as amyloid-β aggregation inhibitors and cell-penetrating peptidomimetics as drug/gene delivery agents. At C-CAMP, I have synthesized novel nucleic acid delivery agents and nano-carrier systems for liposomal-based drug/nucleic acid delivery. These compounds were evaluated for their transfection activity in various cell lines and therapeutic efficacy in psoriatic/cancer disease models. At the College of Pharmacy and Pharmaceutical Sciences at Florida A&M University, I began working with Dr. Seth Ablordeppey in 2018. I have been developing selective high-affinity compounds for 5-HT7A receptors for use as antipsychotics and evaluating sigma receptor ligands for their anticancer activity. I have experience in training graduate students in medicinal chemistry and in vitro cell-based assays. The work has resulted in several publications in peer-reviewed journals. Currently, I am a Research Assistant Professor at the College of Pharmacy and Pharmaceutical Sciences at Florida A&M University in Tallahassee, Florida. My current research interests are focused on developing new compounds for use against triple-negative breast and pancreatic cancers and selective dopamine and serotonin ligands for use against CNS disorders.

Honors

2015	Best poster award @ 5th Indian Peptide Symposium, JNCASR, Bengaluru, India, Indian peptide society
2008 - 2011	Senior Research Fellowship (SRF), CSIR-UGC, India
2006 - 2008	Junior Research Fellowship (JRF), CSIR-UGC, India

Contributions to Science

1. Graduate Career: My graduate career started with securing a doctoral fellowship for 5 years through a highly competitive national entrance exam (CSIR-UGC, Govt. of India) in 2006. My doctoral research, under the mentorship of Dr. Arabinda Chaudhuri at CSIR-IICT, India, focused on the development of novel transfection reagents for gene delivery and receptor-targeted cationic amphiphiles for dendritic cell-based DNA vaccination. I have designed and synthesized gene delivery reagents using a mixture of fatty acid chains derived from coconut & palm stearin oils. These transfection reagents efficiently delivered nucleic acids to cells (Bioconj. Chem. 2011, 22(3), 497-509 & ACS Omega 2017 2 (11), 7892–7903). In another project, I developed mannose receptor targeting ligand-based cationic amphiphiles, explored their ability to self-assemble into liposomes, complexation with nucleic acids, and ultimately evaluated their transfection profiles under in vitro and in vivo conditions. They were further used to transfect melanoma antigen encoding plasmid in mouse bone marrow-derived cultured dendritic cells (DNA vaccine) and evaluate the potential of DNA vaccine against melanoma challenge under in vivo settings (J. Med. Chem. 2017 60(4), 1605-1610). Further, I have significantly contributed to the synthesis and transfection biology of two new Histidine & Amide linker-based cationic amphiphiles (Biomaterials 2011, 32(22), 5231-5240, Cancer Gene Therapy, 2007, 14, 802-814, Hepatology 2009, 50, 815-824).

2. Postdoctoral Career:
   a. Wayne State University, USA: Develop new multifunctional D2/D3 receptor agonist compounds for the treatment of PD and their mechanism of action in various PD disease models. My work involved the design and synthesis of D2/D3 agonist compounds and the evaluation of their inhibitory activity against α-synuclein aggregation (a protein implicated in PD progression), 6-OHDA/MPTP-induced neurotoxicity, and antioxidant property using various cell models. I also evaluated the antidepressant activity of several Triple Reuptake Inhibitors (TRIs) using animal behavioral assays. I have contributed to research that led to licensing with Tonix Pharmaceuticals (TNX-1600 used for PTSD). (https://www.tonixpharma.com/news-events/press-releases/detail/1158/tonix-pharmaceuticals-expands-preclinical-pipeline-with).
   b.JNCASR, India: Demonstrated the use of a cyclic dipeptide-based cell-penetrating peptidomimetic compound for effective DNA delivery using in vitro studies. Another work involved the development of conjugated naphthalenediimides (NDIs) for modulating amyloid β toxicity, using physicochemical and cell-based studies. I have successfully established an in vitro lab and trained graduate students in cell culture and assays.
   c. C-CAMP: Contributed to the development of various nano-carrier systems for drug and nucleic acid delivery for therapeutic applications.
   d. Florida A&M University: I have been working on the design and synthesis of new antipsychotic compounds with selective targeting for Dopamine & 5-HT receptors and sigma receptor ligands for use in TNBC and Pancreatic cancer therapy. I evaluated the anti-proliferative properties of these compounds in various Triple Negative Breast Cancer (TNBC) and Pancreatic cancer cell lines for use in cancer therapy. I am also involved in teaching organic, bioorganic, and medicinal chemistry courses to undergraduate (BSPS), graduate, and PharmD students.

3. Journal Peer Reviewer: Served as peer reviewer for various journals, including J. Med. Chem., Biomacromolecules, Omega (ACS), Bioorg. & Med. Chem., Biomedicine and Pharmacotherapy, JAIM (Elsevier), Food & Function (RSC), Plos ONE, Curr. Med. Chem. (Bentham Science), Pharmaceutics, IJMS, Polymers, JCM, Vaccines, Materials, Marine drugs, Coatings (MDPI), Drug delivery (Taylor and Francis), iScience (Cell Press), Int. J. of Nanomedicine (Dove Press), and Open Chemistry (De Gruyter).

4. Book Chapter
   Voshavar, C.; Kumar Vemula, P. and Marepally, S. (2020). Topical and Transdermal Delivery with Chemical Enhancers and Nanoparticles. In Imaging Technologies and Transdermal Delivery in Skin Disorders (eds C. Xu, X. Wang, and M. Pramanik). Wiley-VCH Verlag GmbH & Co. KGaA. doi:10.1002/9783527814633.ch8

   Invited Talks
   1. 'Non-viral gene delivery vectors, DC-DNA vaccination, Medicinal Chemistry & Neurodegenerative disease therapeutics' at NIPER Hyderabad, India. March 2017.
   2. 'Neuroprotective Agents for the Treatment of Parkinson’s & Alzheimer’s Diseases' at University of Hyderabad (UoH, Central University), India. November 2016.
   3. Multifunctional Neuroprotective Agents for the Treatment of Parkinson’s disease, November 2015, SRM University, Chennai, India.

5. Faculty Research Initiative grant award 2025 - 2026
   Thurgood Marshall College Fund (TMCF) - Novartis US Foundation - $25,000

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