

## CURRICULUM VITAE

### **Dr. Chinnapaiyan Srinivasan. Ph.D.**

Assistant Professor

Department of Immunology and Nano-Medicine

Institute of Neuroimmune Pharmacology

Herbert Wertheim College of Medicine

Florida International University

11200 SW 8th Street, Miami-33199, Florida, USA.

E-mail: [schinnap@fiu.edu](mailto:schinnap@fiu.edu); [srinivasan30782@gmail.com](mailto:srinivasan30782@gmail.com)

Phone: +1-786-420-7686



### **Educational Background and Employment:**

#### **2008 - 2013**

#### **Doctor of Philosophy (Ph.D.) in Biochemistry-Endocrinology (Interdisciplinary)**

Dr.ALM. Post Graduate Institute of Basic Medical Sciences

University of Madras, Chennai, Tamilnadu, India

**Title of the Ph.D. thesis:** “Studies on the protective role of antioxidant vitamins (C & E) against diethyl hexyl phthalate (DEHP)-induced changes in glucose tolerance and insulin signaling molecules in target tissues of adult male albino rat”.

#### **2006 - 2007**

#### **Master of Philosophy (M.Phil.) in Endocrinology**

Dr.ALM Post Graduate Institute of Basic Medical Sciences

University of Madras, Chennai, Tamilnadu, India

**Title of the M.Phil. dissertation:** “Impact of di (2-ethylhexyl) phthalate (DEHP) on glucose homeostasis in male rats”.

#### **2004 - 2006**

#### **Master of Science (M.Sc.) in Biochemistry**

Annamalai University, Chidambaram, Tamilnadu, India.

#### **1999 - 2002**

#### **Bachelor of Science (B.Sc.) in Biochemistry**

University of Madras, Chennai, Tamilnadu, India.

### **Current Position: Assistant Professor (2019 - Till to Date)**

#### **1. 2015 – 2019 (Postdoctoral Research Associate)**

**Current Research:** My research predominantly focus on mucociliary dysfunction in HIV and smoked substance abuse and the pathophysiological mechanisms that lead to MCC suppression in people living with HIV who also smoke tobacco or abuse illicit drugs.  $\beta$ 2-agonists mediated MCC is attenuated in chronic airway diseases (COPD /asthma) and smokers, due to TGF- $\beta$  mediated suppression of CFTR biogenesis and function. Nevertheless, inhibiting TGF- $\beta$  signaling can restore CFTR function. Further, miRNAs are emerging as key regulators, altering gene expression by binding to mRNA via target sequences within the 3' UTR and directing posttranscriptional repression by translational inhibition and / or mRNA degradation. The

better understanding of miRNAs biology considered as potential therapeutic targets both in health and different chronic airway diseases.

## 2. **2012 – 2013: Post- Doctoral Fellow**

Edu-GLIA (PITN-GA-2009-237956) Project Fellow funded by the European Commission under the Seventh Framework Programme (FP7), France (June, 2012 - June, 2013).

Department of Molecular Neurophysiology, Institute of Experimental Medicine AS CR, v.v.i, Videnska 1083, 142 20, Prague-4, Czech Republic.

**Area of Research:** Calcium homeostasis in isolated supraoptic nucleus vasopressin and oxytocin neurons.

## **Ongoing Grant/ Work/ Research Experience and Awards:**

1. Herbert Wertheim College of Medicine Pilot Project Award, Florida International University (FIU), Florida, Miami, U.S.A. (Award Number: 11479, 05/01/2020 – 4/30/2022).

**Title:** Improving Airway Health In HIV Associated Lung Co-Morbidities.

Role: Principal Investigator

2. NHLBI/NIH (Award Number: R01 HL147715-01, 08/01/2019 – 07/31/2023)

**Title:** Mechanisms of Defective Mitophagy and Cellular Senescence in HIV Associated COPD.

The goal of this proposal is to determine the effects of multiple HIV Tat on regulation of genes directly involved in mitophagy and general macroautophagy.

Role: Research fellow

3. NIH/NIDA (Award Number: 1R03DA042681, 03/01/2018–02/28/2020)

**Title:** Lung comorbidities in HIV patients.

Examines the mechanisms by which HIV establishes reservoirs in bronchial epithelial cells and its effects on lung health.

Role: Research fellow

4. Department of Defense (Award Number: DM171044, 09/01/2018 – 03/31/2020)

**Title:** Novel Approaches to Eliminating HIV Latency.

Proposes an aptamer-siRNA chimera to eliminate HIV reservoirs from different anatomical sites using Shock and kill.

Role: Research fellow

5. NHLBI/NIH (Award Number: R21 HL128141-01A1, 09/01/2016 – 06/30/2020)

**Title:** Tracheobronchial Mucociliary Dysfunction in HIV patients.

Examines the mechanisms by which HIV suppresses mucociliary clearance and proposes therapeutics to rescue this.

Role: Research fellow.

6. Flight Attendant Medical Research Institute (07/01/2016 – 06/30/2020)

**Title:** Gene Silencing in Chronic Bronchitis

Examines the mechanism by which secondhand smoke silences genes involved in mucociliary clearance and proposes therapeutic approaches to reverse this

Role: Research fellow.

7. **Senior Research Fellowship (SRF)** awarded by The Department of Science and Technology (DST), Govt. of India (2010 - 2011).

8. **Junior Research Fellowship (JRF)** awarded by The Department of Science and Technology (DST), Govt. of India (2008 - 2010).

9. Served as a resource person on “**Epigenetics and Gene Expression**” organized by the **Department of Endocrinology, University of Madras, Chennai** during 21<sup>st</sup> Feb to 3<sup>rd</sup> Mar 2011.
10. Served as a resource person and conducted the practical session at National Workshop on “**Techniques in Molecular and Cellular Endocrinology**” from 4<sup>th</sup> to 13<sup>th</sup> January 2010 organized by the **Department of Endocrinology, University of Madras, Chennai**.

### **Publications in Peer-Reviewed Scientific Journals:**

1. [Chinnapaiyan S](#), Dutta RK, Nair M, Chand HS, Rahman I, Unwalla HJ (2019). TGF- $\beta$ 1 increases viral burden and promotes HIV-1 latency in primary differentiated human bronchial epithelial cells. **Scientific Reports**, 9(1):12552. doi: 10.1038/s41598-019-49056-6.
2. [Chinnapaiyan S](#), Dutta R, Bala J, Parira T, Agudelo M, Nair M, Unwalla HJ (2018). Cigarette Smoke Promotes HIV Infection of Primary Bronchial Epithelium and Additively Suppresses CFTR function. **Scientific Reports**, 8(1):7984. doi: 10.1038/s41598-018-26095-z.
3. [Chinnapaiyan S](#), Parira T, Dutta R, Agudelo M, Morris A, Nair M, Unwalla HJ (2017). HIV Infects Bronchial Epithelium and Suppresses Components of the Mucociliary Clearance Apparatus. **PLoS One**, 12(1): e0169161. doi: 10.1371/journal.pone.0169161
4. [Chinnapaiyan S](#), Unwalla HJ (2015). Mucociliary dysfunction in HIV and smoked substance abuse. **Frontiers in Microbiology**, 14: 6:1052. doi: 10.3389/fmicb.2015.01052.
5. [Chinnapaiyan S](#), Dutta RK, Devadoss D, Chand HS, Rahman I, Unwalla HJ (2020). Role of Non-Coding RNAs in Lung Circadian Clock Related Diseases. **International journal of molecular sciences**, 21(8). doi: 10.3390/ijms21083013.
6. [Chinnapaiyan S\\*](#), Dutta RK, Unwalla HJ (2020). Novel Approaches of CRISPR-Cas Technology in Airway Diseases. **Critical Reviews™ in Biomedical Engineering**, 48 (3): 169-176. DOI: 10.1615/CritRevBiomedEng.2020034594.
7. [Srinivasan C](#), Khan AI, Balaji V, Selvaraj J, Balasubramanian K (2011). Diethyl hexyl phthalate-induced changes in insulin signaling molecules and the protective role of antioxidant vitamins in gastrocnemius muscle of adult male rat. **Toxicology and applied pharmacology**, 257: 155-164. DOI: 10.1016/j.taap.2011.08.022.
8. [Chinnapaiyan Srinivasan](#), Karundevi Balasubramanian (2013). Protective effects of antioxidant vitamins against diethyl hexyl phthalate-induced changes in insulin signaling molecules in adult wistar rats. **International Journal of Pharmaceutical & Biological Archives**, 4(4): 1028-1039.

9. [Chinnapaiyan Srinivasan](#), Bharanidharan Arthi, Karundevi Balasubramanian (2017). Impaired insulin signaling molecules in triceps muscle of diethyl hexyl phthalate treated rat is ameliorated by antioxidant vitamins. **International Journal of Pharmaceutical & Biological Archives**, 8(5): 32-44.
10. Dutta RK, [Chinnapaiyan S](#), Rasmussen L, Raju SV, Unwalla HJ (2019). A Neutralizing Aptamer to TGFBR2 and miR-145 Antagonism Rescue Cigarette Smoke- and TGF- $\beta$ -Mediated CFTR Expression. **Molecular Therapy**, 27(2):442-455. doi:10.1016/j.ymthe.2018.11.017. Epub 2018 Dec 6.
11. Dutta RK, [Chinnapaiyan S](#), Unwalla H (2019). Aberrant MicroRNAomics in Pulmonary Complications: Implications in Lung Health and Diseases. **Molecular Therapy Nucleic Acids**, 18:413-431. doi: 10.1016/j.omtn.2019.09.007.
12. Ahmed MS, Dutta RK, Manandhar P, Li X, Torabi H, Barrios A, Wang P, [Chinnapaiyan S](#), Unwalla HJ, Moon JH (2019). A guanylurea-functionalized conjugated polymer enables RNA interference in ex vivo human airway epithelium. **Chemical Communications (Camb)**. 55(54):7804-7807. doi: 10.1039/c9cc02856k.
13. Bala J, [Chinnapaiyan S](#), Dutta RK, Unwalla H (2018). Aptamers in HIV research diagnosis and therapy. **RNA Biology**, 1-11. doi: 10.1080/15476286.2017.1414131.
14. Kortus S, [Srinivasan C](#), Forostyak O, Ueta Y, Sykova E, Chvatal A, Zapotocky M, Verkhatsky A, Dayanithi G (2016). Physiology of spontaneous  $[Ca^{2+}]_i$  oscillations in the isolated vasopressin and oxytocin neurones of the rat supraoptic nucleus. **Cell Calcium**, 59(6): 280-288. doi: 10.1016/j.ceca.2016.04.001.
15. Kortus S, [Srinivasan C](#), Forostyak O, Zapotocky M, Ueta Y, Sykova E, Chvatal A, Verkhatsky A, Dayanithi G (2016). Sodium-calcium exchanger and R-type  $Ca^{2+}$  channels mediate spontaneous  $[Ca^{2+}]_i$  oscillations in magnocellular neurones of the rat supraoptic nucleus. **Cell Calcium**, 59(6): 289-298. doi: 10.1016/j.ceca.2016.03.010.
16. Muthusamy T, Murugesan P, [Srinivasan C](#), Balasubramanian K (2011). Sex steroids influence glucose oxidation through modulation of insulin receptor expression and IRS-1 serine phosphorylation in target tissues of adult male rat. **Molecular and Cellular Biochemistry**, 352: 35-45. DOI: 10.1007/s11010-011-0737-1.
17. Rajesh P, Sathish S, [Srinivasan C](#), Selvaraj J, Balasubramanian K (2013). Phthalate is associated with insulin resistance in adipose tissue of male rat: role of antioxidant vitamins. **Journal of cellular Biochemistry**, 114(3): 558-569. doi: 10.1002/jcb.24399.
18. Williams AA, Selvaraj J, [Srinivasan C](#), Sathish S, Rajesh P, Balaji V, Arunakaran J, Balasubramanian K (2013). Protective role of Lycopene against Aroclor 1254-induced

changes on GLUT4 in the skeletal muscles of adult male rat. **Drug and chemical toxicology**, 36(3): 320-328. DOI: 10.3109/01480545.2012.720991.

19. Selvaraj J, Muthusamy T, [Srinivasan C](#), Balasubramanian K (2009). Impact of excess aldosterone on glucose homeostasis in adult male rat. **Clinica Chimica Acta**, 407: 51-57. DOI: 10.1016/j.cca.2009.06.030.

### **Book Chapter:**

#### **1. Fundamentals of Smart Materials**

Chapter# 22 Smart Nanogels for Biomedical Applications. Arti Vashist, Ajeet Kaushik, [Srinivasan Chinnapaiyan](#), Atul Vashist, Madhavan Nair (2020). Royal Society of Chemistry, 267.

### **Scientific Journals of Editorial Board member and peer-reviewer:**

1. Integrative Human Virology
2. Open Access Journal of Pulmonary & Respiratory Sciences
3. Journal of Autoimmune Diseases and Immunology
4. International Journal of Biomechanics and Movement Science
5. International Journal of Analytical and Bioanalytical Methods
6. Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy
7. HIV/AIDS - Research and Palliative Care
8. International Journal of Chronic Obstructive Pulmonary Disease
9. Journal of Inflammation Research
10. BioMed Research International
11. Current Gene Therapy
12. PLoS ONE
13. Therapeutic Advances in Chronic Disease
14. Member, College of Medicine, Florida International University, Medical School Interview panel.

### **Technical Experience:**

- Animal handling skills adherent to good laboratory practise
- Animal transcardial perfusion, Animal Dissection
- Isolation of supraoptic nucleus, dorsal root ganglia (DRG) and neurohypophysis (posterior pituitary) in arginine vasopressin (AVP) and oxytocin (OT) transgenic rat
- Primary and continuous cell culture methods (including neuronal & non-neuronal)
- HIV infection studies in cell lines along with drugs of abuse
- Radio Receptor Assay (RRA), Radio Immuno Assay (RIA), Enzyme-linked Immuno Sorbent Assay (ELISA), Analysis of biochemical markers, Free radical production and antioxidant changes

#### **Molecular Techniques**

- RNA & DNA Isolation, RT-PCR, qPCR
- Methylation Specific PCR (MSP)
- Chromatin Immunoprecipitation (ChIP) Assay
- Western Blotting, Agarose gel electrophoresis
- Immunohistochemistry (IHC), Fluorescent microscopy

- Extraction of DNA from gel
- Plasmid extraction, purification and quantization
- Confocal microscopy, Whole-cell patch-clamp recordings, and Quantum Dot (QD)
- Electrophysiology for Calcium Imaging
- Molecular Cloning- Transformation
- Transfection

#### **SOFT SKILLS**

- SPSS Statistical Software
- MS-Office, Origin for data analysis and graphing, Adobe Photoshop and Database searching, CorelDRAW, Prism – GraphPad.

#### **Professional Memberships Honors:**

1. Society for Personalized Nano-Medicine (SPNM)
2. American Thoracic Society (ATS)
3. Society for Reproductive Biology and Comparative Endocrinology (SRBCE)

#### **National and International Conferences/ Symposia/ Workshops Attended:**

1. **Effect of TGF-Beta Induced Aberrant Micrornaomics on Cliogenesis in Primary Human Bronchial Epithelial Cells** in “American Thoracic Society (ATS)” held at **Philadelphia, PA, USA** during May 19th to May 20th, 2020.
2. **TGF- $\beta$ 1 induces the expression of HIF-1 $\alpha$  by suppressing miR-16-5P in NHBE cells** in “Society for Personalized Nano-Medicine (SPNM)” held at Florida International University (FIU), **Miami, Florida, USA** during November 20<sup>th</sup>, 2019.
3. Served as a **Chairperson** in “10<sup>th</sup> Annual Symposium for NanoFlorida 2017” held at Florida International University (FIU), **Miami, Florida, USA** during September 23<sup>rd</sup> & 24<sup>th</sup>, 2017.
4. **Dysregulation of CFTR function by synergistic effects of cigarette smoke and HIV-1 infection on NHBE cells** in “Society for Personalized Nano-Medicine (SPNM)” held at Pullman Hotels & Resorts Miami Airport, **Miami, Florida, USA** during November 2<sup>nd</sup> & 3<sup>rd</sup>, 2017.
5. **Cigarette smoke enhances HIV-1 infection of NHBE cells and suppresses CFTR function** in “American Thoracic Society (ATS)” held at **Washington, DC, USA** during May 19<sup>th</sup> to 24<sup>th</sup>, 2017.
6. **Tracheobronchial mucociliary dysfunction in HIV patients** in “9<sup>th</sup> Annual Nanoscience and Nanotechnology Symposium” held at University of Central Florida (UCF), **Orlando, Florida, USA** during September 25<sup>th</sup> & 26<sup>th</sup>, 2016.
7. **Effect of tobacco smoke and HIV infection on mucociliary clearance** in “Society for Personalized Nano-Medicine (SPNM)” held at Florida International University (FIU), **Miami, Florida, USA** during May 19<sup>th</sup> & 20<sup>th</sup>, 2016.
8. **Assessment of calcium signals in human embryonic stem cells (hESCs)** in Edu-GLIA - 3<sup>rd</sup> Annual Meeting held at **Margaux, France** during August 24<sup>th</sup> to 25<sup>th</sup>, 2012.

9. Participated and presented a paper entitled “**Diethyl Hexyl Phthalate (DEHP) - induced changes in insulin signaling molecules and the protective role of antioxidant vitamins in gastrocnemius muscle of adult male rat**” in “International symposium on current trends in Endocrine and Reproductive health and 29<sup>th</sup> Annual meeting of the Society for Reproductive Biology and Comparative Endocrinology (SRBCE - xxix)” held at **University of Mysore, Manasagangotri, Mysore** during February 10<sup>th</sup> to 12<sup>th</sup>, 2011.

10. **Effect of antioxidant vitamins against diethyl hexyl phthalate (DEHP)-induced changes in gastrocnemius muscle of adult male rat**” in “International symposium on Endocrinology and Reproduction: Molecular mechanism to Molecular medicine and 28<sup>th</sup> meeting of the Society for Reproductive Biology and Comparative Endocrinology (SRBCE - xxviii)” held at **Jawaharlal Nehru University, New Delhi** during February 4<sup>th</sup> to 6<sup>th</sup>, 2010.

11. Participated and presented a paper entitled “**Impact of Di (2-Ethylhexyl) Phthalate (DEHP) on Glucose Homeostasis in male rat**” in National Symposium of Reproductive Biology and Comparative Endocrinology held at Holy Cross College, **Tiruchirappalli, India** during January 23<sup>rd</sup> to 25<sup>th</sup>, 2008.

### **Participation:**

1. Participated the NanoFlorida Conference held at Florida Institute of Technology, Melbourne, Florida, USA during October 5<sup>th</sup> - 7<sup>th</sup>, 2018.

2. Center for AIDS research (CFAR), 14<sup>th</sup> Annual HIV Symposium “Curing HIV-The Next Frontier” University of Miami, Florida, USA during April 6, 2018.

3. Edu-GLIA Training for Confocal microscopy, Whole-cell patch-clamp recordings, and Quantum Dot (QD) held at Institute François Magendie (INSERM, University of Bordeaux), France, during June 2<sup>nd</sup> – 8<sup>th</sup>, 2013.

4. Edu-GLIA - 2<sup>nd</sup>, Summer School, held at Margaux, France during August 25<sup>th</sup> – 27<sup>th</sup>, 2012.

5. National Seminar-Cum-workshop “Cellular Toxicity Assessment”, sponsored by UGC-SAP-II & DST-FIST LEVEL I, Govt. of India. Organized by Department of Pharmacology and Environmental Toxicology, University of Madras, Chennai-600 113, during 23<sup>rd</sup> to 24<sup>th</sup> March 2010.

6. International conference on novel updates in reproductive biology and comparative endocrinology and the 27<sup>th</sup> annual meeting of the Society for Reproductive Biology and Comparative Endocrinology (SRBCE - XXVII)” held at Hyderabad during January 2009.

7. International conference on Frontiers in Biomedical Sciences held at Holy Cross College, Tiruchirappalli, India during August 26<sup>th</sup> to 28<sup>th</sup>, 2009.

8. One day Seminar on “Stress Management” held at Dr.ALM. Post Graduate Institute of Basic Medical Sciences, University of Madras, Chennai on 24-02-2009.

9. National workshop on Patent Awareness” held at Guindy Campus, University of Madras, Chennai on 17-04-2009.

10. Quantitative Analysis and Modelling in Animal Sciences (QAMAS)”, IISER(Pune), CCMB (Hyderabad), NCL (Pune) held at Pune during 6<sup>th</sup> to 11<sup>th</sup> October 2009.

11. International conference on Frontiers in Biomedical Sciences” held at Holy Cross College, Tiruchirappalli, India during August 26<sup>th</sup> to 28<sup>th</sup>, 2009.

12. National Symposium of Reproductive Biology and Comparative Endocrinology, 15<sup>th</sup>- 17<sup>th</sup> January 2007, conducted by the Department of Zoology, University of Kerala.

**Co-Author presented on National and International Conferences/ Symposia**

1. Dutta RK, Chinnapaiyan S, Raju V, Unwalla H. TGF-Beta Suppresses CFTR Biogenesis and Function by Post-Transcriptional Gene Silencing, Society on NeuroImmune Pharmacology (SNIP) 2017, Philadelphia, PA.

2. Dutta RK, Chinnapaiyan S, Raju V, Unwalla H. TGF-Beta Suppresses CFTR Biogenesis and Function by Post-Transcriptional Gene Silencing, American Thoracic Society (ATS) 2017, Washington, DC.

3. Dutta RK, Chinnapaiyan S, Bala J, Nair M, Unwalla H. HIV Tat protein-induced TGF- $\beta$  suppresses CFTR biogenesis and activity by microRNA mediated gene silencing, Graduate Student Appreciation Week (GSAW) 2018, FIU, Miami, FL.

4. Dutta RK, Chinnapaiyan S, Nair M, Unwalla H. HIV Tat protein-induced TGF- $\beta$  suppresses CFTR biogenesis and activity by microRNA mediated gene silencing. Society on NeuroImmune Pharmacology (SNIP) 2019, Portland, OR.

**Declaration:**

I hereby declare that the information furnished above is true to the best of my knowledge.

Yours faithfully,



(Chinnapaiyan Srinivasan)