

Chinnapaiyan Srinivasan, Ph.D.

Assistant Professor

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Academic Training

EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Madras, Chennai, India	Ph.D.	2013	Biochemistry- Endocrinology
University of Madras, Chennai, India	M.Phil.	2007	Endocrinology
Annamalai University, Chidambaram, India	M.S.	2006	Biochemistry
University of Madras, Chennai, India	B.S.	2002	Biochemistry

A. Positions and Honors

Positions and Scientific Appointments

2019- Present Assistant Professor, Department of Immunology and Nanomedicine, College of Medicine, Florida International University, Miami, Florida, USA.
Mentor: Hoshang J. Unwalla (Ph.D.)

2015-2019 Post-Doctoral Research Associate, Department of Immunology and Nanomedicine, College of Medicine, Florida International University, Miami, Florida, USA. Mentor: Hoshang J. Unwalla (Ph.D.)

2012- 2013 Post-Doctoral Trainee, Department of Molecular Neurophysiology, Institute of

Experimental Medicine AS CR, v.v.i, Videnska 1083, 142 20, Prague-4, Czech Republic. Mentor: Govindan Dayanithi (Ph.D.)

Honors and Awards

- 2012- Project Fellow awarded from Edu-GLIA (PITN-GA-2009-237956) funded by the European Commission under the Seventh Framework Programme (FP7), France.
- 2011- Served as a resource person and conducted the practical session on “Epigenetics and Gene Expression” organized by the Department of Endocrinology, University of Madras, Chennai, India.
- 2010- Served as a resource person and conducted the practical session at National Workshop on “Techniques in Molecular and Cellular Endocrinology” organized by the Department of Endocrinology, University of Madras, Chennai, India.
- 2010- Senior Research Fellowship (SRF) awarded by Department of Science and Technology, Government of India.
- 2008- Junior Research Fellowship (JRF) awarded by Department of Science and Technology, Government of India.

B. Selected Peer-Reviewed publications (in chronological order)

Patent: Srinivasan Chinnapaiyan, and Hoshang Jehangir Unwalla. “Inducible CRISPR System Expression and Applications Thereof”. Patent No.: US 11,643,672 B2 dated May 09, 2023.

1. **Chinnapaiyan S**, Santiago MJ, Panda K, Rahman MS, Alluin J, Rossi J, et al. A conditional RNA Pol II mono-promoter drives HIV-inducible, CRISPR-mediated cyclin T1 suppression and HIV inhibition. *Molecular therapy Nucleic acids*. 2023; 32:553-65. doi: 10.1016/j.omtn.2023.04.011. PubMed PMID: 37215150.
2. Panda K, **Chinnapaiyan S**, Rahman MS, Santiago MJ, Black SM, Unwalla HJ (2023). Circadian-Coupled Genes Expression and Regulation in HIV-Associated Chronic Obstructive Pulmonary Disease (COPD) and Lung Comorbidities. *International Journal of Molecular Sciences*. 2023; 24(11):9140. <https://doi.org/10.3390/ijms24119140>.
3. Dutta RK, **Chinnapaiyan S**, Santiago MJ, Rahman I, Unwalla HJ. Gene-specific MicroRNA antagonism protects against HIV Tat and TGF-beta-mediated suppression of CFTR mRNA and function. *Biomed Pharmacother*. 2021; 142:112090. Epub 2021/09/01. doi: 10.1016/j.biopha.2021.112090. PubMed PMID: 34463266.
4. **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.

5. **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.
6. **Chinnapaiyan S**, Dutta RK, Nair M, Chand HS, Rahman I, Unwalla HJ (2019). TGF- β 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.
7. 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- β -Mediated CFTR Expression. *Molecular Therapy*, 27(2):442-455. doi:10.1016/j.ymthe.2018.11.017. Epub 2018 Dec 6.
8. 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.
9. 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.
10. **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.
11. 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.
12. **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.
13. **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.
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. **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.
17. **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.
18. 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.
19. 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.
20. **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.
21. 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.
22. 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.

C. Papers (Abstracts) accepted for presentation in conferences (in chronological order):

1. **S Chinnapaiyan**, MJ Santiago, HJ Unwalla. Role of TGF- β in Cellular Senescence and Inflammation by MicroRNA Mediated Gene Silencing. *American Journal of Respiratory and Critical Care Medicine* 2023;207:A5712. <https://doi.org/10.1164/ajrccm-conference.2023.207>. Abstract presented at the 2023 American Thoracic Society (ATS), Washington, DC, USA.
2. **S Chinnapaiyan**, MJ Santiago, HJ Unwalla. Beneficial Effects of Quercetin in HIV-Infected Primary Human Bronchial Epithelial Cells. Abstract presented at the 2022 American Thoracic Society (ATS), San Francisco, CA, USA.

3. **S Chinnapaiyan**, RK Dutta, HS Chand, I Rahman, HJ Unwalla. Effect of TGF-Beta Induced Aberrant Micronaomics on Cliogenesis in Primary Human Bronchial Epithelial Cells. Abstract presented at the 2020 American Thoracic Society (ATS), Philadelphia, PA, USA.
4. **TGF- β 1 induces the expression of HIF-1 α 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 20th, 2019.
5. **Chinnapaiyan S.**, Dutta R., Nair M, Unwalla H. HIV Tat Protein and TGF-beta Suppresses CFTR Biogenesis and Activity by MicroRNA Mediated Gene Silencing. Abstract presented at the 2018 American Thoracic Society (ATS), San Diego, CA.
6. **S Chinnapaiyan**, R Dutta, M Nair, AM Morris, HJ Unwalla. Cigarette smoke enhances HIV-1 infection of NHBE cells and suppresses CFTR function. Abstract presented at the 2017 American Thoracic Society (ATS), Washington DC.
7. **Chinnapaiyan S.**, Dutta R., Bala J, Nair M, Morris AM, Unwalla H. Suppression of CFTR function by synergistic effects of HIV-1 infection and Cigarette smoke on NHBE cells. Abstract presented at the 2017 NanoFlorida Meeting, Miami, FL.
8. **Chinnapaiyan S.**, Dutta R., Bala J, Parira T., Agudelo M., Nair M, Morris AM, Unwalla H. Dysregulation of CFTR function by synergistic effects of Cigarette smoke and HIV-1 infection on NHBE cells. Abstract presented at the 2017 meeting of the Society of Personalized Nanomedicine (SPNM), Miami, FL.
9. **Chinnapaiyan S.**, Dutta R., Bala J, Parira T., Agudelo M., Nair M, Unwalla H. Effect Of Tobacco Smoke And HIV Infection On Mucociliary Clearance. 2016 meeting of the Society of Neuroimmune Pharmacology (SNIP), Krakow, Poland.
10. **Assessment of calcium signals in human embryonic stem cells (hESCs)** in Edu-GLIA - 3rd Annual Meeting held at Margaux, France, during August 24th to 25th, 2012.
11. 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 29th Annual meeting of the Society for Reproductive Biology and Comparative Endocrinology” held at University of Mysore, Manasagangotri, Mysore, India, during February 10th to 12th, 2011.
12. **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 28th meeting of the Society for Reproductive Biology and Comparative Endocrinology” held at Jawaharlal Nehru University, New Delhi, India, during February 4th to 6th, 2010.
13. 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, Tiruchirapalli, India, during January 23rd to 25th, 2008.

Participation:

1. Participated the NanoFlorida Conference held at Florida Institute of Technology, Melbourne, Florida, USA during October 5th - 7th, 2018.
2. Center for AIDS research (CFAR), 14th Annual HIV Symposium “Curing HIV-The Next Frontier’ University of Miami, Florida, USA during April 6, 2018.
3. Tracheobronchial mucociliary dysfunction in HIV patients in “9th Annual Nanoscience and Nanotechnology Symposium” held at University of Central Florida (UCF), Orlando, Florida, USA during September 25th & 26th, 2016.
4. 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 2nd – 8th, 2013.
5. Edu-GLIA - 2nd, Summer School, held at Margaux, France, during August 25th – 27th, 2012.
6. 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, India, during on 23rd & 24th March 2010.
7. International conference on novel updates in reproductive biology and comparative endocrinology and the 27th annual meeting of the Society for Reproductive Biology and Comparative Endocrinology held at Hyderabad, India, during January 19th -21st, 2009.
8. International conference on Frontiers in Biomedical Sciences held at Holy Cross College, Tiruchirappalli, India, during August 26th to 28th, 2009.
9. One day Seminar on “Stress Management” held at Dr.ALM. Post Graduate Institute of Basic Medical Sciences, University of Madras, Chennai India, during on 24-02-2009.
10. National workshop on Patent Awareness” held at University of Madras, Chennai, India, during on 17th April 2009.
11. Quantitative Analysis and Modelling in Animal Sciences (QAMAS)”, IISER(Pune), CCMB (Hyderabad), NCL (Pune) held at Pune, India, during on 6th to 11th October 2009.
12. International conference on Frontiers in Biomedical Sciences” held at Holy Cross College, Tiruchirappalli, India during August 26th to 28th, 2009.
13. National Symposium of Reproductive Biology and Comparative Endocrinology, 15th- 17th January 2007, conducted by the Department of Zoology, University of Kerala, India.

Co-Author presented on National and International Conferences/ Symposia

1. MJ Santiago, S Chinnapaiyan, HJ Unwalla. Lactoperoxidase a Key Player in Immunity and Inflammation Upon HIV Infection and Cigarette Smoke Exposure. American Thoracic

- Society (ATS) 2023, Washington, DC, USA. C33. Advances and unsolved mysteries in COPD, A4805-A4805.
2. Kingshuk Panda, **Srinivasan Chinnapaiyan**, Maria Santiago, Md Sohanur Rahman, Hoshang Unwalla. Investigating the Mechanism to Develop a Therapeutic Approach to Resetting Lung Molecular Clock During HIV-Mediated COPD. American Society of Gene and Cell Therapy (ASGCT) 2023, Los Angeles, CA, USA.
 3. MJ Santiago, **S Chinnapaiyan**, RK Dutta, HJ Unwalla. Investigating the Effect of TGF- β Induced by HIV and Cigarette Smoke as a Suppressor of the Antimicrobial Agent Lactoperoxidase (LPO) in the Lungs. American Thoracic Society (ATS) 2022, San Francisco, CA, USA.
 4. RK Dutta, **S Chinnapaiyan**, H Unwalla. HIV Tat Protein Induces the TGF- β Signaling Pathway and Suppresses the CFTR Biogenesis and Activity by microRNA-Regulated Gene-Silencing Mechanism. The FASEB Journal 34 (S1), 2020, 1-1.
 5. Dutta RK, **Chinnapaiyan S**, Nair M, Unwalla H. HIV Tat protein-induced TGF- β suppresses CFTR biogenesis and activity by microRNA mediated gene silencing. Society on NeuroImmune Pharmacology (SNIP) 2019, Portland, OR. Abstract Number, **W11**.
 6. R.K. Dutta, **S. Chinnapaiyan**, M. Nair, H.J. Unwalla. HIV Tat Protein and TGF- β Suppresses CFTR Biogenesis and Activity by MicroRNA Mediated Gene Silencing in “American Thoracic Society (ATS)” held at San Diego, CA, USA during May 18th to 23rd, 2018. Abstract Number, **D53**.
 7. 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. Abstract Number, **W12**.
 8. 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. Abstract Number, **C73**.

D. 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.

E. Services to Florida International University:

2020-2021 Member, College of Medicine, Medical School Interview panel.

Other Services.

Chairperson in “10th Annual Symposium for NanoFlorida 2017” held at Florida International University (FIU), Miami, during September 23rd & 24th, 2017.

F. Editorial responsibilities

1. Open Access Journal of Pulmonary & Respiratory Sciences
2. Integrative Human Virology

3. International Journal of Pharmacy and Infections Therapy
4. International Journal of Biomechanics and Movement Science
5. International Journal of Analytical and Bioanalytical Methods

Peer-reviewer/ reviewed:

1. Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy
2. HIV/AIDS - Research and Palliative Care
3. International Journal of Chronic Obstructive Pulmonary Disease
4. Therapeutic Advances in Chronic Disease
5. Clinical Respiratory Journal
6. BioMed Research International
6. Current Gene Therapy
7. PLoS ONE
8. Journal of Inflammation Research

G. Grant Support:

Current Research Projects

1. NIH/NIDA (A-START)

08/01/2022 – 07/31/2024

1 R03 DA057162-01

\$295,000

“Restoring mucociliary clearance apparatus to mitigate lung inflammation in the context of HIV and cigarette smoke”.

Role: Principal Investigator.

2. NHLBI/ NIH

01/04/2023 – 01/31/2027

R01 HL167655-01

\$2,615,796

“Aberrant Micro-managing of the Airway Epithelial Transcriptome in HIV-associated COPD”.

Role: Research fellow

3. NHLBI

07/01/2022 – 06/30/2026

1R01 HL158316-01A1

\$2,204,000

“Resetting the Clock in HIV associated COPD”.

Role: Research fellow.

4. Florida Department of Health

05/01/2021 – 04/30/2024

21K09

\$535,680

“Pathophysiological Mechanisms and Therapeutics for Chronic Lung Inflammation in Smokers and COPD”

Role: Research fellow.

5. NHLBI

07/15/2019 – 06/30/2023

1 R01 HL147715-01

\$1,932,760

“Mechanisms of Defective Mitophagy and Cellular Senescence in HIV Associated COPD”.

Role: Research fellow.

Completed Research Support

- 1. Herbert Wertheim College of Medicine Pilot Project Grant** (Award Number: 11479)
05/01/2020 – 4/30/2022 \$42,000
“Improving Airway Health In HIV Associated Lung Co-Morbidities”
Role: Principal Investigator
- 2. NIH/NIDA (A-START)** 1R03DA042681
03/01/2018 – 02/28/2022 \$200,000
“Lung comorbidities in HIV patients”
Role: Research fellow.
- 3. Department of Defense** DM171044
07/01/2018 – 03/31/2022 \$224,000
“Novel approaches to Eliminating HIV Latency”
Role: Research fellow
- 4. NIH/NHLBI** 1R21HL128141A1
07/01/2016 - 06/30/2020 (No cost extension) \$275,000
“Tracheobronchial Mucociliary Dysfunction in HIV patients”
Role: Research fellow
- 5. Flight Attendant Medical Research Institute** CIA150086
07/01/2016 – 06/30/2019 (No cost extension) \$300,000
“Gene Silencing in Chronic Bronchitis”
Role: Research fellow.