

# Anu Joseph

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## EDUCATIONAL QUALIFICATIONS

DEGREE AWARDED	INSTITUTION & UNIVERSITY	YEAR
<b>Ph.D Biotechnology</b>	Molecular Neurobiology and Cell Biology Unit, Department of Biotechnology, Cochin University of Science and Technology, Kerala, India.	July 2009
<b>M. Sc. Biotechnology</b>	Karpagam Arts and Science College Affiliated to Bharathiar University, Coimbatore	April 2004
<b>B. Sc. Microbiology</b>	RVS College of Arts and Science, Affiliated to Bharathiar University, Coimbatore	April 2002

## RESEARCH EXPERIENCE

- **Deputy Director Research & Chief Scientist-** MIMS Research Foundation, Calicut, Kerala India. **April 2020- March 8, 2022**
- **Scientist-** Diabetic Research- Molecular Biology of Insulin Resistance, Action of insulin of vascular systems, Developing kits for quantifying insulin in blood samples at MIMS Research Foundation, Calicut, Kerala India. **February 2015- March 2020.**
- **Post-doctoral Research-** Mouse behavioural genetics and molecular neurodegeneration at Department of Cell Biology and Anatomy, School of Medicine, Louisiana State University Health Science Centre, Louisiana, USA. **September 2009 – April 2014.**
- **Ph.D. -** Molecular Neurobiology at Molecular Neurobiology and Cell biology Unit, Department of Biotechnology, Cochin University of Science and Technology, Cochin-682 022, Kerala, INDIA. – **May 2004 – August 2009**

**COMPLETED PROJECTS- DST-SERB (ECR/2015/000158)- 2016-2019**

A Molecular Biology Study of the Effect of Pre-Diabetes Insulin Resistance in the Development of Cardio Vascular Diseases- **Rs. 45,26,307/-**

**EDITORIAL EXPERIENCE**

**Reviewer-** PlusOne  
Behavioral and Brain Functions  
Indian Journal of Experimental Biology  
Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy  
Patient Preference and Adherence  
Journal of Military Medicine  
  
Reviewer of abstracts received for the 28<sup>th</sup> Kerala Science Congress

**PROJECT REVIEWER:** SERB, GOVT OF INDIA

**PROJECT GUIDE:** 10 MSc Projects

**PATENT FILED:** AFR: 202141058854 DATED: December 17, 2021

**AWARDS AND HONOURS**

1. **DST – SERB Early Career Research Award** 2016
2. **APSN-SNCI Travel Award** – 2008.
3. **ISN IBRO Travel Award**– 2007.
4. **Junior Research Fellowship**, ICMR, Govt of India, July, 2007 – July, 2009
5. **Junior Research Fellowship**, Cochin University, February 3, 2007 – July 1, 2007

**MEMBERSHIPS IN SCIENTIFIC SOCIETIES AND ORGANIZATIONS**

- Chairperson and Member, Institutional Animal Ethical Committee, MIMS Research Foundation, Kerala, 2018-March 2022.
- PhD Guide, Kerala University of Health Sciences.
- Executive Committee Member, Society for Biotechnologists, (India) 2015- 2018

- Organising Committee Member, Annual meeting of Society for Biotechnologists, (India) 2015.
- Post-doctoral Member, Society for Neuroscience, (Member ID# 2002214459, USA)
- Social Committee Member, Post-doctoral Association, LSUHSC, NO, LA (2009-2014)
- Life Member, Society for Biotechnologists, (India) (Member # **L173**)
- Life Member, Society for Neurochemistry, (India) (Member # **LM-I- 191**)

## PEER REVIEWED PAPERS

1. Parvathy S, Fathima T K, Febin Huda P P and **Joseph A**. Protective Role of Exercise in Regulating Oxidative Stress in Kidneys of Diet Induced Hyperinsulinemic Rats. *International Journal of Endocrinology and Diabetes*, 4 (2):125-35 (2021) IMPACT FACTOR– **2.6**
2. **Joseph A**, Parvathy S, K K Varma. Hyperinsulinemia induced altered insulin signaling pathway in muscle of high fat and carbohydrate fed rats: Effect of exercise. *J. Diabetes Research* vol. 2021, Article ID 5123241 (2021) IMPACT FACTOR– **3.0**
3. **Joseph A**, Parvathy S, K K Varma, Aiswarya N. "Four weeks exercise training enhanced the hepatic insulin sensitivity in high fat- and high carbohydrate-diet fed hyperinsulinemic rats". *J Diabetes and Metabolic Disorders* 19, 1583–1592 (2020) IMPACT FACTOR- **1.8**
4. Parvathy S, **Joseph A**, K K Varma. Differential expression of oxidative stress and vascular remodeling enzymes in the coronary artery and Internal mammary artery of hyperinsulinemic and exercised rats. *American Heart Journal* 229, 171-172 (2020). IMPACT FACTOR **4.2** – Conference Abstract
5. **Joseph A**, Parvathy S, K K Varma. Altered insulin signalling and lactate dehydrogenase activity in the heart of hyperinsulinemic rats: Effects of exercise. *Metabolism Clinical and Experimental* 104 (Supplement), 154091 (**2020**). IMPACT FACTOR- **6.5** – Conference Abstract
6. **Joseph A**, Tang M, Chen Q, Mamiya T, Yuan LL, Jiao JW, Yu N, and Tang YP A temporal association of elevated CCKergic tone and adolescent trauma is critical for the development of PTSD-like behavior in adult mice. *Proc Natl Acad Sci USA* 110(16):6589-94 (**2013**). IMPACT FACTOR **9.6**
7. Sherin A, **Joseph A**, Peeyush KT, Smijin S, Anitha M, Roshni BM and Paulose CS. Cholinergic and gabaergic receptor functional deficit in the hippocampus of insulin-induced hypoglycemic and streptozotocin-induced diabetic rats.

*Neuroscience* 202 69–76 (2012). IMPACT FACTOR 3.2

8. Chen Q, Tang M, Mamiya T, Im HI, Xiong X, **Joseph A**, Tang YP. Bi-directional effect of cholecystokinin receptor-2 overexpression on stress-triggered fear memory and anxiety in the mouse. *PLoS One*. 5(12): e15999 (2010) IMPACT FACTOR 2.8
9. **Joseph A**, Peeyush KT, Nandhu MS, Paulose CS. Enhanced NMDAR1, NMDA2B and mGlu5 receptors gene expression in the cerebellum of insulin induced hypoglycaemic and streptozotocin induced diabetic rats. *European Journal of Pharmacology* 630 (1-3):61-8 (2010). IMPACT FACTOR 3.2
10. Paulose CS, John PS, Sreekanth R, Philip M, Mohan CP, Mathew J, Peeyush TK, Paul J, Abraham PM, Antony S, Joseph B, **Joseph A**, Krishnakumar A, Anju TR, Khan SR, Santhosh KT and Nandhu MS. Spinal cord regeneration and functional recovery: neurotransmitter's combination and bone marrow cells supplementation. *Current Science*, Vol. 97, 546-549 (2009) IMPACT FACTOR 0.8
11. **Joseph A**, Antony S, Paulose CS. Increased glutamate receptor gene expression in the cerebral cortex of insulin induced hypoglycemic and streptozotocin-induced diabetic rats. *Neuroscience*, 156: 298-304 (2008). IMPACT FACTOR 3.2
12. **Joseph A**, Robinson R, Paulose CS. Enhanced [<sup>3</sup>H] Glutamate Binding in the Cerebellum of Insulin Induced Hypoglycaemic and Streptozotocin Induced Diabetic Rats. *Cellular and Molecular Neurobiology*, 27: 1085-1095 (2007). IMPACT FACTOR 3.9
13. Shankar EPN, **Joseph A**, Paulose CS Decreased [<sup>3</sup>H] YM-09151-2 binding to dopamine D<sub>2</sub> receptors in the hypothalamus, brainstem and pancreatic islets of streptozotocin-induced diabetic rats. *European Journal of Pharmacology*, 557/2-3, 99-105, (2007). IMPACT FACTOR 3.2

#### **BOOK CHAPTER**

1. Tang M, **Joseph A**, Chen Q, Jiao J and Tang YP. CCKergic System, Hypothalamus-Pituitary-Adrenal (HPA) Axis, and Early-Life Stress (ELS), Glucocorticoids - New Recognition of Our Familiar Friend, Dr. Xiaoxiao Qian (Ed.), ISBN: 978-953-51-0872-6, InTech, DOI: 10.5772/52042. (2012)

#### **ABSTRACTS PRESENTED IN SCIENTIFIC CONFERENCE**

1. Parvathy S, **Joseph A**. Varma KK. (2020) Effect of exercise on the comparative gene expression analysis between coronary arteries and internal mammary arteries

- in hyperinsulinemic rats. 4<sup>th</sup> Heart in Diabetes Virtual Conference, New York, USA. August 21-24, (2020)
2. **Anu Joseph**, Parvathy S, Koyikkal Karthikeya Varma. Altered Insulin Signaling and Lactate Dehydrogenase Activity in the Heart of Hyperinsulinemic Rats: Effect of Exercise. 17 World Congress on Insulin Resistance and Cardio Vascular Diseases. Los Angeles, California, USA. December 4-7. (2019)
  3. Parvathy S, **Anu Joseph**, KK Varma. Effect of exercise on the upregulated Inhibitory Insulin Signalling Pathway, LDH activity and Lactate Accumulation in the Heart of Pre-Diabetic Hyperinsulinemic Rats. 8th Annual Meeting of Indian Academy of Biomedical Sciences- CSIR-NIIST Trivandrum. (2019)
  4. Parvathy S, **Anu Joseph**, KK Varma. Effect of exercise in the muscles of high fat and high carbohydrate fed insulin resistant rats. National Symposium on Current Research in Biotechnology and Annual Meet of Society for Biotechnologists India (SBTI). JSS College of Pharmacy, Ooty. Tamil Nadu. (2017)
  5. **Anu Joseph**, Farhana Musarrat, Sara Andres, James Wittliff, Ya-Ping Tang. Sub-amygdalar molecular underpinning for the pathogenesis of PTSD. Neuroscience 2013, Society for Neuroscience Annual meeting San Diego, California (2013).
  6. **Anu Joseph**, He-In Im, Farhana Musarrat, Takayoshi Mamiya, Lingling. Yang, Jovanny Zabaleta, Sangram Sisodia, Ya Ping Tang. GSK signaling pathway is associated with hyperphosphorylation of tau epitopes in the brain of an AD mouse model. Neuroscience 2013, Society for Neuroscience Annual meeting San Diego, California (2013).
  7. **Anu Joseph**, Farhana Mussarat, Ya-Ping Tang. Differential Tau Hyperphosphorylation is Associated with Age Dependent Neurodegeneration in Presenilin Knockout Mice. Neuroscience 2012, Society for Neuroscience Annual meeting New Orleans, Louisiana (2012).
  8. Jianwei Jiao, **Anu Joseph**, Ya-Ping Tang Overexpression of cholecystinin receptor-2 (CCKR-2) in the forebrain facilitates the pathogenic effect of adolescent trauma on the development of posttraumatic stress disorder (PTSD) in the mouse. Neuroscience 2011, Society for Neuroscience Annual meeting Washington DC (2011).
  9. Jianwei Jiao, Xuanying Li, **Anu Joseph**, Ya-Ping Tang. Functional NR1 splicing in the cerebellum. Neuroscience 2011, Society for Neuroscience Annual meeting Washington DC (2011).
  10. **Anu Joseph**, Sherin Antony, C. S. Paulose. Enhanced NMDA Receptors Gene Expression and Neurodegeneration in the Cerebellum of Insulin Induce Hypoglycaemic and Streptozotocin Induced Diabetic Old Rats. 21st Kerala Science Congress –Young Scientist award contest paper, Kollam (2009).

11. Sherin Antony, Anu **Joseph**, C. S. Paulose. Decreased [ $^3\text{H}$ ] QNB binding to muscarinic M1 receptors in the cerebral cortex of diabetic and insulin induced hypoglycemic rats. 8<sup>th</sup> Biennial meeting of Asia Pacific Society for Neurochemistry Symposium organized by International Society for Neurochemistry/Asia Pacific Society for Neurochemistry/International Brain Research Organization held in Shanghai, China (2008)
12. Anu **Joseph**, Sherin Antony, C. S. Paulose. Enhanced Glutamate and IP3 receptor gene expression in the Cerebral Cortex of Insulin Induced Hypoglycemic and Streptozotocin Induced Diabetic Rats. International Symposium on Regenerative Neuroscience and Annual Meeting of Society for Neurochemistry (India), NIMHANS, Bangalore, INDIA (2008).
13. Anu **Joseph**, Sherin Antony, C. S. Paulose. Decreased  $\alpha$ -2a adrenergic receptor gene expression in the Hypothalamus and Brainstem of Insulin Induced Hypoglycaemic and Streptozotocin Induced Diabetic Rats. Annual meeting of Society for Biotechnologists, India and National Symposium on Current Trends in Stem Cell Biology, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram (2007)
14. Sherin Antony, Anu **Joseph**, C. S. Paulose. Kinetic parameters of acetylcholine esterase in the heart of Streptozotocin Induced Diabetic and Insulin Induced Hypoglycemic rats. Meeting of Society of Biological Chemists (India) conducted in Sri Venkateswara University, Thirupathi (2007)
15. Anu **Joseph**, Finla Chathu, C. S. Paulose. Enhanced glutamate dehydrogenase activity in the cerebral cortex and liver of hypoxic rats: Effect of oxygen, epinephrine and glucose treatment. Abstract Memorabilia of XXV National Symposium on Reproductive Biology and Comparative Endocrinology - Translational Endocrinology and Reproductive Biology jointly organised by Society for Reproductive Biology and Comparative Endocrinology and Department of Zoology, University of Kerala (2007).
16. Anu **Joseph**, Remya Robinson, C. S. Paulose. Glutamate dehydrogenase activity in the cerebellum of streptozotocin induced diabetic and insulin induced hypoglycaemic rats. Abstracts of the 3<sup>rd</sup> International Symposium on Neurodegeneration and Neuroprotection jointly organised by Indian Institute of Chemical Biology and Society for Neurochemistry (India) (2007)
17. C. S. Paulose, Ameer Krishnakumar, Anu **Joseph**. Neurotransmitter Functional Role in Neurodegenerative Diseases. Proceedings sent to National Conference on "Environment & Human Health" held by School of Environmental Studies, Dept. of Environmental Science, Cochin University of Science and Technology, Cochin, India (2006).
18. C. S. Paulose, Ameer Krishnakumar and Anu **Joseph**. Neurotransmitter Functional Role in Neurodegenerative Disease Management: Recent Advances. *J. Science & Society*, 5(1) 23- 30, (2007).

19. **Anu Joseph** and C. S. Paulose. Kinetic parameters of Norepinephrine binding and its functional relationship with Epinephrine and Serotonin. Presented at the 18th Kerala Science Congress held at Centre for Earth Science Studies (CESS), Trivandrum, India (2006).
20. **Anu Joseph**, Ani Das. V and C. S Paulose. Enhanced EPI binding nuclear protein in the pancreatic islets of pancreatectomised rats. Presented in International Conference on Biotechnology and Neurosciences, Dec 29-31, Centre for Neuroscience, Cochin University of Science and Technology, Cochin, India (2004).

#### **CONFERENCES / WORKSHOPS ATTENDED:**

1. Attended and presented paper 4<sup>th</sup> Heart in Diabetes Virtual Conference, New York, USA. August 21-24, (2020)
2. Attended and presented paper 17<sup>th</sup> World Congress on Diabetes Insulin Resistance and Cardiovascular Diseases, Los Angeles, California, USA (2019)
3. Attended and presented paper 8th Annual Meeting of Indian Academy of Biomedical Sciences- CSIR-NIIST Trivandrum. (2019)
4. National Symposium on Current Research in Biotechnology and Annual Meet of Society For Biotechnologists India (SBTI). JSS College of Pharmacy, Ooty. Tamil Nadu. (2017)
5. Attended Annual meeting of Society for Biotechnologists India and Biotrends 2016
6. **Organising member and Attended** Annual meeting of Society for Biotechnologists India and national conference on Recent advances in Biomedical sciences and Biotechnology 2015
7. Attended Society for Neurochemistry meeting October 13-17, 2012 New Orleans, LA
8. Attended Society for Neurochemistry meeting November 12-16, 2011 Washington DC.
9. Attended Society for Neurochemistry meeting October 17-22, 2009 Chicago.
10. Attended and Presented paper in Young Scientist award contest in 21<sup>st</sup> Kerala Science Congress, Kollam, (India) (2009).
11. Participated in International Conference on Advances in Neuroscience jointly organized by Centre for Neuroscience, Department of Biotechnology, Cochin University of Science and Technology, Cochin-22, Indian Academy of

- Neuroscience (2008).
12. Attended and presented poster in the International Symposium on Regenerative Neuroscience and Annual Meeting of Society for Neurochemistry (India), NIMHANS, Bangalore, INDIA (2008).
  13. Participated in the workshop on Modern Neurochemical Techniques to Understand Brain Functions, APSN-SNCI sponsored workshop, Bangalore (2008).
  14. Attended and presented paper in the Annual meeting of Society for Biotechnologists, India and National Symposium on Current Trends in Stem Cell Biology, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram (2007)
  15. Attended the National conference on Biotechnology in molecular medicine. Organized by Amrita Institute of Biotechnology Kochi and Society for Biotechnologists, India (January 2007)
  16. Attended and presented paper in the XXV National Symposium on Reproductive Biology and Comparative Endocrinology -Translational Endocrinology and Reproductive Biology jointly organised by Society for Reproductive Biology and Comparative Endocrinology and Department of Zoology, University of Kerala (2007).
  17. Attended and presented poster in the Kolkatta Neuroscience meeting – 2007. 3<sup>rd</sup> International Symposium on Neurodegeneration and Neuroprotection jointly organised by Indian Institute of Chemical Biology and Society for Neurochemistry (India) (2007).
  18. Participated in the workshop on Neurochemical Techniques for the Neuroscientists jointly organised by Indian Institute of Chemical Biology, Society for Neurochemistry (India), International Society for Neurochemistry (ISN) and International Brain Research Organization (IBRO) (2007).
  19. National Seminar on Biotechnology and Economic Development – A Kerala Scenario jointly organized by Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram and Society for Biotechnologists (India) (2006).
  20. Presented paper in XVIII Kerala Science Congress, CESS, Thiruvananthapuram, (India) (2006).
  21. Presented paper in International Conference on Biotechnology and Neuroscience jointly organized by Centre for Neuroscience, Department of Biotechnology, Cochin University of Science and Technology, Cochin-22, Society for Neurochemistry (India) and Society for Biotechnologists (India) (2004).
  22. One day seminar on Medical, Plant and Industrial Biotechnology jointly organized by Centre for Neuroscience, Department of Biotechnology, Cochin



- University of Science and Technology, Cochin-22 and Society for Biotechnologists (India) (2004).
23. 3<sup>rd</sup> Asia Pacific Associate School of Neuroscience, organised by Cochin University of Science and Technology, Kochi, (2004).
  24. World Brain Awareness Week Programme organised by Cochin University of Science and Technology, Kochi. (2004, 2005, 2006, 2007, 2008, 2009)
  25. XXIX Annual Conference of Indian Society of Human Genetics jointly organised by NIMHANS, Bangalore on Trends in human genetics, biotechnology and bioinformatics: Next 5 years January (2004)
  26. Workshop on Genomics and Bioinformatics organised by the Dept. of Bioinformatics, Karpagam College of Arts and Science, Coimbatore, September 2003
  27. Presented paper in the State level Essay Competition on Genes and Dreams jointly organised by Karpagam College of Arts and Science, Coimbatore and Thyrocare, October 2003
  28. National Seminar on Genetically modified Crops organized by Karpagam College of Arts and Science, Coimbatore, September 2002
  29. One day Symposium on Transgenesis jointly organised by Society of Biological Chemists (India) Coimbatore branch and Avinashilingam Deemed University, Coimbatore, February 2001

## REFERENCES

**Dr. Lissy Krishnan**, Retd Scientist G , SCTIMST, Director, Biological Research, Aster Research Foundation, DM WIMS, Meppadi Wayanad- 673007  
E-mail: [lissy.krishnan@dmwims.com](mailto:lissy.krishnan@dmwims.com); [lissykrs@gmail.com](mailto:lissykrs@gmail.com)

**Dr. Sam G. McClugage, PhD**, Professor and Head, Department of Cell Biology and Anatomy, Medical Education Building, 1901 Perdido Street, Room 6103, New Orleans, Louisiana 70112.  
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I hereby declare that all information is true to the best of my knowledge and belief.

Place: Calicut- 673635.  
Date: July 11, 2022



Anu Joseph