

## Curriculum Vitae

Dr.Madhumita P. Ghosh, Ph.D

Place and Date of Birth : Kolkata, India, 11<sup>th</sup> July 1971

Nationality : Indian

Present position : Associate Professor, Amity Institute of Biotechnology

Present Address : Rm no. 322, J3 Block, Amity Institute of Biotechnology  
Amity University, Noida

Email : mpghosh@amity.edu

Educational Qualification : 1995-2001, Ph.D, Jadavpur University, Kolkata

2001-2002, Research Associate , AIIMS, New Delhi

2002- 2004, Visiting Post Doctoral Fellow, National  
Eye Institute, NIH, Bethesda, USA

2004-2008, Post Doctoral Fellow, National Brain Research Center,  
New Delhi, India

Professional Position : 2008-2011, Senior Lecturer, Amity Institute of Biotechnology,  
Amity University, Noida, India

2011 – 2019, Assistant Professor , Amity Institute of Biotechno-  
logy, Amity University, Noida , India

2019-Till date, Associate Professor, Amity Institute of Biotechcnology, Amity  
University, Noida

Teaching Activity : Animal Biotechnology and Immunology classes in Bachelor of  
(Programmes).  
Technology, Master of Technology, Bachelor and Master of Science

Research Activity : Completed a Department of Biotechnology grant of 3 years in  
Oct'2016

Assessment of antiapoptotic property of lithium as lithium chloride in  
combination with coenzyme Q and vitamin E against retinal ganglion

cell degeneration. (BT/PR3433/MED/30/647/2011) with an amount of **27,66000(INR)**

**Completed** a Department of Science and Technology project titled ‘Studies on dopamine/ dopamine agonist treatment with IGF1 to regulate angiogenesis and normalize blood vessels in diabetic retinopathy under SERB scheme of 3 years from 2017-2020 with a sanction of budget around **47,25000.00 (INR)**

**Mentor and Project Investigator** for ICMR-SRF project of Ph.D

Student ,Shikha Upreti, “Elucidating the role of VEGF using Trolox and CoQ10 in combination against NMDA induced toxicity in retina”for 3 yrs from 2021-2024. Shikha Upreti completed and submitted her Ph.D thesis this yr **16,80000. (INR)**

Co Investigator in a 2<sup>nd</sup> DST-SERB project “ Development of a targeted intraocular neuroprotective sustained release novel drug assembly for attenuation of retinal ganglion cells.”from 2023-2026. **52,00000 (INR)**

Dr. Madhumita P. Ghosh is serving as Associate Professor at Amity Institute of Biotechnology, Amity University, Noida campus since 2019 after she joined Amity University in 2008 as a lecturer. She completed her doctoral degree from Department of Biotech, Jadavpur University, Kolkata in 2001 and went to work as visiting Post-Doctoral fellow at National Eye Institute, NIH, Bethesda, USA at Laboratory of Mechanism of Ocular Diseases headed by Dr. Sam Zigler, Jr. from 2002 – 2004. During her stay at NEI. she worked on establishing invitro **Sprague Dawley** model of rat lens culture, methods of cataractogenesis and up and down regulation of lens proteins like all isoforms of crystallins, vimentin, heat shock protein-70 etc. during cataractogenesis. She got good publications in peer reviewed journals like Molecular Vision, Experimental Eye research from the work done at National Eye Institute. Also, studied that growth factors in vitreous humour have significant role in maintaining the lens healthy and transparent. Later on, at National Brain Research Center she got associated with group working on retinal degeneration in C57bj16 mice model and got publication on molecular mechanisms in retinitis pigmentosa in Molecular Vision. She got a grant from DBT

on studying retinal ganglion cell (RGC) degeneration leading to glaucoma and looking for its therapeutics from 2013 - 2016. Then got a bigger grant from DST- SERB in 2017 on RGC degeneration in Wistar rat models of diabetic retinopathy and its treatment with dopamine and insulin growth factor-1 in my DST funded project from 2017-2020. Our study on diabetic retinopathy could throw light in the mechanism of occurrence of neuronal changes and angiogenesis and proposed a concept of prevention of vascular damage and loss of vision. Got a very good publication from this work in Elsevier published Biomedicine and Pharmacotherapy. Mentored Shikha Upreti in her ICMR – senior research fellow project of 16, 80,000, successfully completed this yr with recently accepted paper in Experimental Eye Research.

### **Relevant Publications :**

Shikha Upreti, Tapas Nag and Madhumita P. Ghosh. Trolox aids Coenzyme Q10 in neuroprotection against NMDA induced damage via upregulation of VEGF in rat model of glutamate excitotoxicity

Amritpal Kaur, Yash Sharma, Anoop Kumar, **Madhumita P. Ghosh** & Kumud Bala. In-vitro antiproliferative efficacy of *Abrus precatorius* seed extracts on cervical carcinoma. . Scientific Reports volume 12, Article number: 10226 (2022).

Upreti S, Sen S, Nag TC, **Ghosh MP**. Insulin like growth factor-1 works synergistically with dopamine to attenuate diabetic retinopathy by downregulating vascular endothelial growth factor. Biomedicine & Pharmacotherapy. 2022 May 1;149:112868.

Upreti S. and **Madhumita P. Ghosh**. Chapter 9 - Trolox assisted inhibition of glutamate excitotoxicity-mediated degeneration in retina. **Contemporary Medical Biotechnology Research for Human Health**. Advances in Biotechnology and Bioengineering. 2022, Pages 79-90 ( Elsevier Publications)

Lithium rescues retinal ganglion cells in rat model of glutamate excitotoxicity. Shikha Upreti, Gaurav Yadav, Mehak Tiwari and **Madhumita P. Ghosh**. Int J. Pharmaceutical Science and Research.2020.Vol. 11(11): 5823-5830

Rapid Electrochemical Quantification for In Vitro Release Trait of Ophthalmic Drug Loaded within Mucoadhesive Metal Organic Framework (MOF). Chansi, Shikha Upreti , Punya , Jay Singh , **Madhumita P Ghosh** , Tinku Basu. Chemistryselect: 2021: 6 (12): 3006 – 3012.

Mutation associated with autosomal dominant retinitis pigmentosa alter MAPK-dependent phosphorylation of neural retina leucine zipper. Prabodh Swain, Sandeep Kumar, Dharmesh

Patel, Sushmita Richong, Pranav Oberoi, **Madhumita P Ghosh** and Anand Swaroop. Molecular .Vision.2007 July; 13 :1114-20

Lack of fiber cell induction stops normal growth of rat lenses in organ culture. **Madhumita P. Ghosh and J. Samuel Zigler Jr.** Molecular.Vision. 2005 Nov 1; 11: 901-8

A spontaneous mutation affects programmed cell death during development of the rat eye. Debasish Sinha, Stacey Hose, Chen Zhang , **Madhumita P. Ghosh**, Terrence P. O'Brien, Olof Sundin, Morton F. Goldberg, W. Gerald Robison, Jr., Paul Russell, Woo-Kuen Lo and J. Samuel Zigler, Jr. Exp Eye Res. 2005 Mar; 80(3): 323-35

Studies on Rat Lenses Following Long Term Organ Culture . **Madhumita P. Ghosh, JS Zigler Jr** Abstract, IOVS: 44 (13), 3492-3492.

Apoptosis and necrosis in developing brain cells due to arsenic toxicity and protection with antioxidants. Sukumar Chattopadhyay, Sraboni Bhaumik, **Madhumita Purkayastha**, Srabanti Basu, Aditi Nag Chaudhuri and Shyamal Das Gupta.Toxicol Lett. 2002 Nov 15, 136(1): 65-76

### **Patents Filed :**

1. A formulation for the treatment of ophthalmic diseases. Madhumita P. Ghosh and Shikha Upreti. 202011010373. INDIA ( Complete, Published since 2.5 years)
2. Dopamine in combination with insulin growth factor(IGF-1) for prevention of proliferative diabetic retinopathy. Madhumita P. Ghosh and Shikha Upreti. 202011001007. INDIA.( Complete, Published since 2.5 years)
3. Development of a slow release MOF encapsulated novel neuro protective drug complex relied on Li+ and antioxidant and vitamin e for the treatment of glaucoma. Tinku Basu, Chansi, Shikha Upreti and Madhumita P. Ghosh. 2011018206CRN- CRN3999 ( Complete, Published since 2 years)

### **Paper Presentations :**

Invited speaker at Symposium lecture **at Indian Academy of Neuroscience, Gwalior 2nd-5<sup>th</sup> Oct'2023**

Symposium Talk at conference **of Neurological Disorder and Stroke -2023** in virtual mode at Rome , Italy from 14-16<sup>th</sup> June 2023

Oral presentation at **Indian Academy of Neuroscience at Shillong from 8 – 10<sup>th</sup> Dec'2022**

Oral presentation at Indian Academy of Neuroscience virtual mode **in Sept'2020 and Nov' 2021**

Oral presentation at Indian Academy of Neuroscience from **16<sup>th</sup>-19<sup>th</sup> Nov'2019, AIIMS, New Delhi**

Oral presentation at 6<sup>th</sup> International Symposium of community Ophthalmologists Nov' 2015 at Luckhnow

Oral presentation at VIIIth annual meeting South Asian Ophthalmology Society 11-13<sup>th</sup> Dec'2022

Paper presentation at Eyefest,2014, Glaucoma Society of India From 12

- 14 Sept, 2014 at KIIT, Bhubaneshwar.

Poster presentation at Asia ARVO, 2013, Innovating and converging technologies in

Vision research from October 28 – 31, 2013, The Ashoka, New Delhi, India.

Invited speaker at International Symposium on community Ophthalmology, 30-31<sup>st</sup>

Oct,2010, Science city, Kolkata : A pharmaceutical composition comprising LiCl as a treatment for retinal degeneration.

Poster presentation at the US- Japan Cooperate Cataract Research Group meeting, 14-18 Feb, 2004, Kona, Hawaii : Inhibition of differentiation , not of proliferation stops growth of rat lenses in organ culture.

Poster presentation at the 75<sup>th</sup> annual meeting of the Association for Research in Vision and Ophthalmology, 4-8 May, 2003, Ft. Lauderdale, Florida : Studies on rat lenses following long term organ culture.

Oral presentation at Young Scientist Programme, Physiology section of Indian Science Congress, 3-7 Jan., 2001, IASRI, New Delhi : Pentoxifylline : An approach to understand the molecular mechanisms involved in modulation of spermatozoal cytokinematics.

Poster presentation at IInd International Conference on Clinical and Experimental Reproductive Immunology, 15-18 Nov., 2000, Amsterdam, Netherlands : Generation of superoxide anion in condition of infertility and role of nitric oxide in spermatozoal cytokinematics.

**Membership : Life member of India Academy of Neuroscience**

Poster presentation at International Congress on Fertilization, Embryo Development and Implantation, 6-9 Nov., 2000, NII, New Delhi : Pentoxifylline induced enhancement of motility in association with appearance of a membrane protein cross reacting with spermatozoal immobilizing antibodies.

Poster presentation at VII International Congress of Reproductive Immunology, 27-30 Oct., 1998, NII, New Delhi : Heterogeneity in antigen distribution on human spermatozoa is associated with genesis of reactive oxygen intermediates in clinical infertility.

Oral presentation at XV National Conference of Indian Membrane Society on Recent Trends in Membrane Science and Technology, Nov.20-22, 1997, CGCRI, Calcutta : Variation in antigen expression of spermatozoal membrane associated with infertility.

Oral presentation in the section of Biochemistry, Biophysics & Molecular Biology of 84<sup>th</sup> Indian Science Congress, 3-8 Jan., 1997, Delhi University, Delhi : Study of variability in immune response of human spermatozoa using polyclonal antisperm antiserum.

Poster presentation at XIX All India Cell Biology Conference, 23-25 Feb, 1996, IICB, Calcutta : Characterization of spermatozoal surface antigens as a prerequisite phenomenon in clinical infertility.