

VISION RESEARCH FOUNDATION
NEW NO.41 (OLD NO.18), COLLEGE ROAD, CHENNAI – 600 006



ANNUAL REPORT & RESEARCH ACTIVITIES
2019 – 20



VISION RESEARCH FOUNDATION

Date : 9th December 2020

The Members of the Vision Research Foundation

NOTICE

NOTICE IS HEREBY GIVEN TO THE MEMBERS OF VISION RESEARCH FOUNDATION THAT THE 36TH ANNUAL GENERAL MEETING OF VISION RESEARCH FOUNDATION WILL BE HELD ON WEDNESDAY, THE 30TH DECEMBER 2020 AT 4.30 P.M. THE AGENDA FOR THE MEETING IS GIVEN BELOW. THE MEETING WILL BE HELD ONLINE DUE TO THE PREVAILING COVID PANDEMIC.

AGENDA

1. To consider and adopt the Annual Report of the Hon. Secretary for the year 2019-20.
2. To consider and adopt the Audited Income and Expenditure Account for the year ended March 31, 2020 and the Balance Sheet as at that date together with the Report of the Auditors thereon.
3. To appoint statutory auditors for the financial year 2020-21 and to fix their remuneration.
4. To appoint the following Members to the Board of Management in the vacancies caused by their retirement, who are eligible for re-appointment:

Name	Category of Membership
Dr. S S Badrinath	Founder Member
Mr. V Vaidyanathan	Founder Member
Dr. S B Vasanthi	Founder Member
Dr. S Bhaskaran	Honorary Member
Dr. M S Swaminathan	Honorary Member
Dr. H N Madhavan	Honorary Member
Dr. J Biswas	Honorary Member
Dr. L Vijaya	Honorary Member

5. Election of new members to the Board of management

Those members of the Foundation desirous of becoming members of the Board of Management are requested to send their nomination letters from the proposer with a signed letter of consent and the complete details required in the attached annexure 1 not less than 14 days prior to the date of the General Body meeting.

Kindly make it convenient to attend the meeting.

**DR RONNIE GEORGE
PRESIDENT**

Note:

Explanatory statement for Item 4 of the Agenda and Annexure 1 for details required from nominee are attached.



VISION RESEARCH FOUNDATION

Explanatory Statement

Refer Item No 4 of the Agenda

The following members were appointed to the Board of Management for a period of three years at the 33rd Annual General Meeting held on 15th September 2017 :-

Name

Dr. S S Badrinath
Mr. V Vaidyanathan
Dr. S B Vasanthi
Dr. S Bhaskaran
Dr. M S Swaminathan
Dr. H N Madhavan
Dr. J Biswas
Dr. L Vijaya

Their term of appointment expires at the end of the Annual General Meeting on 30th December 2020. As per 16(xiv) of the Bye-laws of the Foundation read with Section 15 (5) of the Tamil Nadu Societies Registration Act 1975, they are eligible for reappointment to the Board of Management.



VISION RESEARCH FOUNDATION

Annexure 1 Refer item number 5 on agenda.(Only to be completed by nominees to the Board of Management, not members for re-election)

Personal Details (Page 1 of 2)

1	Name	
2	Name of father / spouse	
3	Nationality	
4	Aadhaar number	
5	PAN	
6	Occupation	
7	Designation in the Association	
8	Relationship with other Member(s) of the Executive Council / Governing body / office bearers	
9	Contact details; Office Address; Residential Address; e-mail address; Landline no.; mobile no.	

In case of a foreigner (including PIO/OCI card holder), please provide the following information also :

1	Name	
2	Date and Place of birth	
3	Passport number	
4	Address in the foreign country	
5	Whether a person of Indian origin	
6	PIO/OCI Card number, if any	
7	If resident in India, date from which residing in India	

We also have to provide details whether any board member has, in the discharge of his/her official functions or private conduct:

(a) been convicted by any court of law :



VISION RESEARCH FOUNDATION

Personal Details (Page 2 of 2)

- (b) under prosecution for any offence pending against him/her:
- (c) been found guilty of diversion or mis-utilisation of funds of the Association or any other Association in the past:
- (d) has been prohibited from accepting foreign contribution:
- (e) is a current Key functionary of any other association:

- (f) is a current Key functionary of any other association against whom an order under sections 13 or 14 of the Foreign Contribution (Regulation) Act, 2010 (42 of 2010) has been passed:

Note: If any of the replies to (a) to (f) above is "yes", then please provide full details of the case.

I certify that the above information is true and correct to the best of my knowledge as of

Place:

Signature



VISION RESEARCH FOUNDATION

BOARD OF MANAGEMENT

Dr Ronnie Jacob George
Dr S Bhaskaran

President
Honorary Secretary

Members of the Board

Dr S S Badrinath	Member
Dr J Biswas	Member
Mr Homi C H Bhabha	Member
Dr H N Madhavan	Member
Dr T S Surendran	Member
Dr M S Swaminathan	Member
Mr V Vaidyanathan	Member
Dr S B Vasanthi	Member
Dr L Vijaya	Member

Director – Research
Deputy Director – Research
Manager

Dr. Ronnie Jacob George
Dr. S Krishnakumar
Mr. S Narayan

Auditors

M/s S Viswanathan LLP
Chartered Accountants, Chennai

Bankers

HDFC Bank, Chennai – 600 034
State Bank of India, Chennai –600 034
Indian Overseas Bank, Chennai – 600 006

Registered Office

New No.41, Old No.18, College Road
Chennai – 600 006



VISION RESEARCH FOUNDATION

INSTITUTIONAL REVIEW BOARD (ETHICS COMMITTEE) MEMBERS

Dr. T Santha Devi
Dr. Bakulesh M. Khamar
Dr. Manjula Dutta
Dr. Ronnie Jacob George
Prof. H N Madhavan
Dr. S Krishnakumar
Dr. T S Surendran
Prof. N Vizheenathan
Mrs. Radhika Krishnan
Lion G V Raman
Dr. Rama Shankar Verma
Mrs. Sujatha Viswanath
Mrs. Nalini Ravindran

RESEARCH SUB-COMMITTEE MEMBERS

Dr. Ronnie Jacob George
Dr. J. Biswas
Dr. S Krishnakumar
Dr. T Santha Devi
Prof. H N Madhavan
Dr. Rama Shankar Verma

RESEARCH CELL COMMITTEE MEMBERS

Dr. Ronnie Jacob George
Dr. H N Madhavan
Dr. L Vijaya
Dr. S Krishnakumar
Dr. Sumita Agarkar
Dr. J Biswas
Dr. R R Sudhir
Dr. Vikas Khetan
Dr. Kalpathy R K Easwaran
Dr. Prema Padmanabhan
Dr. N Angayarkanni



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INSTITUTIONAL COMMITTEE FOR STEM CELL RESEARCH

Prof. Dr. Rama Shankar Verma
Dr. H.N. Madhavan
Mrs. Radhika Krishnan
Dr. S Arumugam
Prof. N. Veezhinathan
Dr. Ronnie Jacob George
Dr. Rama Rajaram
Dr. Rosy Vennila
Dr. Bakulesh M Khamar

INSTITUTIONAL BIOLOGICAL SAFETY COMMITTEE

Dr. H.N. Madhavan
Dr. Gunasekar
Dr. M Natarajan
Mr. S Narayan
Dr. S Krishnakumar



VISION RESEARCH FOUNDATION

ANNUAL REPORT FOR THE YEAR 2019-20

Report of the Honorary Secretary to the Members of the Foundation

It gives me great pleasure to welcome you all to this 36th Annual General Meeting of our Foundation. I am pleased to present the Thirty Sixty Annual Report of Vision Research Foundation. The thirty fifth Annual General Meeting of the Foundation was held on 14th September 2019 in which the Annual Report and the Audited Accounts of the Foundation for the financial year ended 31st March 2019 were approved by the members and M/s. S Viswanathan LLP, Chartered Accountants, were re-appointed as Auditors for the financial year 2019-20.

The donations received during the year under report were Rs.184.37 lakhs as compared to Rs. 164.81 lakhs in the previous year. The gross total income for the year under review was Rs.940.72 lakhs including research grants and interest on deposits. The total expenditure before providing depreciation was Rs.952.50 lakhs resulting in a cash deficit of Rs.11.78 lakhs. After considering depreciation for the year and loss on discarded assets, there was a net deficit of Rs.149.77 lakhs, which was carried over to the capital fund account.

Summary of Source and applications are as follows:

Sources	Rs. in Lakhs
1. Decrease in Net Current Assets	151.77
2. Increase in Net Current Liabilities	2.99
	<hr/> 154.76 <hr/>
Applications of Funds	
1. Increase in Fixed Assets	142.98
2. Cash Deficit	11.78
	<hr/> 154.76 <hr/>



VISION RESEARCH FOUNDATION

The foundation has received a sum of Rs.648.67 lakhs as research grants, of which Rs.63.26 lakhs released as capital grants during the year under review as per the details given below :

	Rs. in Lakhs	
Research Grants – Basic Science	2019-20	2018-19
1. Council of Science & Industrial Research	12.42	7.46
2. Indian Council of Medical Research	103.58	69.79
3. Department of Biotechnology	247.10	159.54
4. Department of Science & Technology	38.76	51.66
5. Bayer Pharmaceuticals Pvt Ltd	.35	5.58
6. NHS Foundational Trust	58.67	50.96
7. Indian Institute of Technology	3.07	6.07
8. Fellowship Programme	98.02	60.87
9. The Glaucoma Foundation	22.42	7.73
10. Others [incl. Conference Receipts]	34.42	.00
Total	618.81	419.66
Clinical Science		
11. Excel Life Sciences Pvt. Ltd.	3.15	5.09
12. Indiana University	.00	17.01
13. Manipal Academy of Higher Education	.00	5.86
14. Microsoft India (R & D) Pvt Ltd.	7.16	5.88
15. Novartis Healthcare Pvt Ltd	5.51	.00
16. Parexel Intl. Clinical Research Pvt Ltd	12.30	17.18
17. Others	1.74	0.60
Total	29.85	51.62
Grand Total	648.67	471.28

Research Activities:

Research activities during the financial year were satisfying. A number of projects were submitted to the Indian Council of Medical Research, Department of Science and Technology and Department of Biotechnology.



VISION RESEARCH FOUNDATION

The projects which were under consideration by the Govt. agencies as on date are as under:

Title of the Project	Funding Agency	Grant Amount for 2020-21 (Value in Rs.)
A study on the DNA methylation pattern of the ocular quantitative trait loci/genes in primary open angle glaucoma. [Dr. S Sripriya]	Indian Council of Medical Research	27,00,000/-
Controlling immunosuppressive properties of T regulatory cells with retinal glia: implications for tubercular uveitis [Dr. Nivedita Chatterjee]	Department of Biotechnology	30,00,000/-
To delineate the role of Zinc alpha 2 glycoprotein as a novel target in diabetic retinopathy [Dr. S R Bharathi Devi]	Indian Council of Medical Research	11,60,800/-
Generation of oligodendrocytes from induced pluripotent stem cells – A step towards cell based therapy for demyelinating diseases [Dr. Sowmya Parameswaran]	Indian Council of Medical Research	17,62,618/-
Impact of ultra-violet radiation and air pollution on ocular health with emphasis on cataract and pterygium among outdoor workers [Dr. Sharada Ramasubramanyan]	Indian Council of Medical Research	9,72,000/-
Artificial Intelligence for Affordable Screening and Prediction of Diabetic Retinopathy in the Framework of Big Data [Dr. Rajiv Raman]	Department of Biotechnology	71,37,420/-

During the year, six meetings of the Board of Management were held and Institutional Review Board (Ethics Committee)/Research Sub-Committee met four times.



VISION RESEARCH FOUNDATION

Manpower Details :-

<u>Manpower</u>	<u>As on 31st Mar 2020</u>	<u>As on 31st Mar 2019</u>
President	1	1
Directors	3	3
Deputy Director / Head of the Dept / Chief Scientist / Professor	1	1
Head of the Department / Senior Chief Scientist / Senior Professor	0	1
Head of the Dept / Chief Scientist / Senior Professor	1	1
Head of the Department / Chief Scientist / Professor	2	2
Head of the Department /Principal Scientist / Associate Professor	0	1
Manager	1	1
Senior Principal Scientist / Associate Professor	2	2
Principal Scientist / Associate Professor	6	6
Principal Scientist / Assistant Professor	2	0
Senior Scientist II / Assistant Professor	1	3
Senior Associate Professor	1	1
Senior Scientist / Sr Research Scientist	1	2
Post Doc. Fellow / Research Associate	7	3
Project Manager / Project Coordinator	2	5
Research Fellows	3	0
Senior Research Fellows	16	16
Junior Research Fellows	12	12
Social Workers / Field Workers	4	5
Research / Project / Technical Asst	5	5
Junior Scientist	2	7
Research Optometrist	4	3
Executives / Staff / Technicians	19	19
Bio-statistician	1	1
Part Time Scientists	53	61
Total	150	162



VISION RESEARCH FOUNDATION

Conclusion:

I would like to take this opportunity to place on record my gratitude for all the guidance extended to me by Dr. S S Badrinath, Founder Member; Dr. Ronnie Jacob George, President & Director – Research; and Dr. S Krishnakumar, Deputy Director – Research; and all the members of the Board of Management, and members of the sub-committees of Vision Research Foundation.

I regret to inform you about the sad demise of Mr R S Falor who was a donor member of the Foundation. Mr. Falor had also served as a Treasurer of the foundation. In addition to his personal contributions, he was instrumental in motivating many other donors to support our research activities. I would like to place on record our heartfelt gratitude for his many contributions to the Foundation and his support and guidance over the years.

I also regret to inform you about the sad demise of Hon. Justice S Mohan, Chairman of Institutional Review Board in December 2019. He was a dedicated member of the committee.

I am pleased to share that Vision Research Foundation convened the 26th Annual Meeting of the Indian Eye Research Group for the year 2019 at Hotel Ashoka, Chennai from 26th to 28th July 2019 and the conference was well attended by 271 participants. The meeting commemorating the largest group of eye researchers in the country with 280 participants were engaged in discussions on current ophthalmic research.

Dr Angayarkanni Narayansamy, Organizing Secretary IERG 2019 and Professor & Head, R S Mehta Jain Department of Biochemistry and Cell Biology, Vision Research Foundation, worked with the Scientists and other members of the team to organize this meeting and the workshop.

The highly successful preconference workshop enlisting more than 100 participants across the country covered topics on latest technologies in medical research namely 'Advances in Genomics and session on Next Generation Sequencing' (NSG) and 'Recent Trends in Regenerative Medicine & Nano Medicine'. The pre-conference workshop concluded by participants sensitized to a topic of current national importance, "Intellectual Property Rights". This pre-conference was supported by the National Academy of Medical Sciences, New Delhi.

I would like to mention that the achievements and awards received by the scientists, details of completed projects and ongoing projects, conferences attended and the articles published in the national and international journals are given separately.



VISION RESEARCH FOUNDATION

My thanks are also due to the Auditors, M/s. S Viswanathan LLP particularly to their partner, Mr. Chella K Srinivasan for their active and invaluable support and our Bankers, HDFC Bank and State Bank of India for their support and co-operation.

I also thank the Internal Auditors, M/s. Sundar, Ranganath & Srinivasan, Chartered Accountants, for their active support in conducting internal audit of the Foundation.

Mr. S Narayan, Manager, played an active role in managing the finance and administrative activities of the Foundation. I thank him for his help and assistance. I also wish to thank Mr. N Sivakumar for his support in relation to the income tax assessment of the foundation.

The Board of Management place on record their appreciation of the invaluable contribution made by the Research Scientists, Consultants, para-medics and other employees to the continued success of the institution.

Dr S Bhaskaran
Hony. Secretary
Vision Research Foundation



VISION RESEARCH FOUNDATION

HONOURS & AWARDS

- ❖ Vision Research Foundation awarded Dr. Sudha Iyengar, Ph.D., Case Western Reserve University, USA, the **"Dr. S S Badrinath Oration for Research in Ophthalmic & Visual Science"** at the 26th Annual Meeting of the Indian Eye Research Group held from 26th to 28th July 2019. She delivered the second Dr.S.S.Badrinath oration for Research in Ophthalmic & Visual Science on "The Big Data revolution in Ocular Genomics".
- ❖ Ms. R Ramya received the best oral presentation award for "Paraoxonase-2 reduces Advanced glycation end Product induced Endoplasmic Reticulum Stress and inflammation - In human Micro and macrovascular endothelial cells" at the 26th Indian Eye Research Group meeting (IERG – 2019) from 26th to 28th July 2019 at Chennai,
- ❖ Ms G Harshavardhini received the best poster award for "Targeted exome sequencing in bardet biedl syndrome: implicative role of modifiers" presented in Indian Eye Research Group Meeting (IERG) held at Chennai from 26th to 28th July 2019.
- ❖ Ms. Vijaya Vani Narayan and Mr. Naresh Kumar R.N, won the first and second prize of the Quiz Contest at the 26th Indian Eye Research Group 2019.
- ❖ Ms. Lakshmi B and Ms. Hemavathy Nagarajan received the GYAN Scholarship Award (Travel Grant) for attending NGBT 2019 Conference at Mumbai from 30th September to 2nd October 2019. Ms. Lakshmi made a poster presentation entitled "RNA Deep-sequencing identified novel somatic mutations, isoforms and thereupetic targets in Retinoblastoma" and Ms. Hemavathy on "Structure-function relationship studies on Methylene tetrahydrofolatereductase mutational Landscape reveal unreferrred pathogenic variants linked to homocystinuria"
- ❖ Mr. Ranjith Kumar R was awarded MS by Research from Anna University supervised by Dr. Sailaja Elchuri. His viva Voce was held on 29th October 2019. His thesis titled "3D cancer tissue growth on graphene sponges for cancer drug therapy"
- ❖ Ms. Nikhala Shree received Swarnalatha Punshi Best Researcher Award in Basic Science for the year 2019 for her research paper entitled "Decorin a potential biomarker and a possiblle therapeutic target in glaucoma filtration surgery" at the 31st Graduation Ceremony of Sankara Nethralaya held at Sri V.D. Swami Auditorium on 2nd November 2019.
- ❖ Dr. N. Murugan, received the "Prof. S. Krishnamoorthy Endowment Award for the year 2019 for the best outgoing Ph.D. student in the 31st Graduation Ceremony of Sankara Nethralaya held at Sri V.D. Swami Auditorium on 2nd November 2019.
- ❖ Mr. S. Ravikanth Danda received the Ph.D. degree for his thesis entitled "Identification of Novel therapeutic target molecules in Retinoblastoma" at SASTRA deemed to be University, Thanjavur on 12th December 2019 under the supervision of Dr. Krishana Kumar.



VISION RESEARCH FOUNDATION

- ❖ Mr. K Anand Babu received the Ph.D. degree for his thesis entitled "Role of Paraoxonase in oxidized LDL mediated pathogenesis of Age-related Macular Degeneration (AMD): in vivo studies in AMD patients and in vitro studies in human Retinal Pigment Epithelial cells" at SASTRA University-Thanjavur on 17th Feb 2020. Dr.N.Angarkanni was his supervisor.

Individual Fellowship Awards

- ❖ Dr.N.N.Srikrupa was awarded Research Associate fellowship for the project entitled, "A Study on the genetic regulatory regions of dio3 gene for possible correlation with varying clinical severity in LCA patients" by Indian Council of Medical Research.
- ❖ Dr. Durga Devi was awarded Research Associate fellowship for the project entitled, "Development of Myelin oligodendrocyte glycoprotein (MOG) cell-based assay for the detection of antibodies against MOG for differential laboratory diagnosis of optic neuritis" " by Indian Council of Medical Research.
- ❖ Ms. Aswathy Nair was awarded Junior Research Fellowship for the project entitled, "Molecular and epigenetic screening of Leber's Hereditary Optic Neuropathy (LHON)" by Council of Scientific & Industrial Research.
- ❖ Ms. Kamini Khatak was awarded Junior Research Fellowship for the project entitled, "Studying HIV Mediated Changes at Blood Retinal Barrier on an in vitro Model" by Council of Scientific & Industrial Research.
- ❖ Ms. Ambily Vincent was awarded Senior Research Fellowship for the project entitled, "Modeling cancers associated with RB1 mutation using human induced pluripotent stem cells" by Indian council of Medical Research.
- ❖ Ms. Suganya K was awarded Senior Research Fellowship for the project entitled, "Profiling the promoter methylation status of candidate Genes for Ocular Quantitative traits in primary Glaucoma patients." by Indian Council of Medical Research.
- ❖ Ms. Nikhala Shree S was awarded Senior Research Fellowship for the project entitled, "Deciphering if impaired autophagy and mitochondrial dysfunction contribute to ECM modifications in primary glaucoma" by Indian Council of Medical Research.
- ❖ Ms. Aloysius Dhivya was awarded Senior Research Fellowship for the project entitled, "To delineate the role of copper in mediating inflammation in diabetic retinopathy" by Indian Council of Medical Research.
- ❖ Ms. Hemavathy Nagarajan was awarded Junior Research Fellowship for the project entitled, "*In silico* conformational analysis and design of inhibitors targeting LIM kinases" by Department of Science & Technology.



VISION RESEARCH FOUNDATION

RESEARCH PUBLICATIONS

International Journals :

- ❖ Amit, Chatterjee, Prema Padmanabhan, and Janakiraman Narayanan. "Deciphering the mechanoresponsive role of β -catenin in Keratoconus epithelium" BioRxiv April 2019.
- ❖ Samdani Ansar, Anupriya Sadhasivam, Umashankar Vetrivel, "PocketPipe: A computational pipeline for integrated Pocketome prediction and comparison" Bioinformatics 15(4): 295-298 April 2019.
- ❖ Rajasekaran, S., Nagarajha Selvan, L.D., Dotts, K., Kumar, R., Rishi, P., Khetan, V., Bisht, M., Sivaraman, K., Krishnakumar, S., Sahoo, D. and Campbell, M.J., 2019. "Non-coding and coding transcriptional profiles are significantly altered in pediatric retinoblastoma tumors" Frontiers in oncology, April 9, p.221
- ❖ Karthikka Palanisamy, Coral Karunakaran, Rajiv Raman, Subbulakshmi Chidambaram. "Optimization of an in vitro bilayer model for studying the functional interplay between human primary retinal pigment epithelial and choroidal endothelial cells isolated from donor eyes". BMC Res Notes, May, 2019.
- ❖ Kannadasan Anand Babu, Parveen Sen, Narayanasamy Angayarkanni. "Oxidized LDL, homocysteine, homocysteine thiolactone and advanced glycation end products act as pro-oxidant metabolites inducing cytokine release, macrophage infiltration and pro-angiogenic effect in ARPE-19 cells" PlosOne, May, 2019
- ❖ John, M. Sivashanmugam, S.K. Natarajan, V. Umashankar, "Computational modeling of novel inhibitory peptides targeting proteoglycan like region of carbonic anhydrase IX and in vitro validation in HeLa cells" Journal of Biomolecular Structure & Dynamics May 2019 1-12.
- ❖ Kulandhai LT, Bhagavathi H, Krishnan S, Krishnan K, Balasubramaniam M, Madhavan HN. "Seroprevalence of Anti-HIV-1, Anti-HIV-2, Hepatitis B Surface Antigen, and Anti-HCV in Eye Donors in a Tertiary Eye Hospital, Chennai, India, in the Past 13 years (2005-2017)" Cornea. 2019 June 1;38 (6):737-41.
- ❖ John S, Srinivasan S, Raman R, Ram K, Sivaprakasam M. "Validation of a Customized Algorithm for the Detection of Diabetic Retinopathy from Single-Field Fundus Photographs in a Tertiary Eye Care Hospital" Stud Health Technol Inform. 2019 Aug 21;264:1504-1505.
- ❖ Ansar S, Vetrivel U. "PepVis: An integrated peptide virtual screening pipeline for ensemble and flexible docking protocols". Chemical Biology and Drug Designing. Aug 2019.



VISION RESEARCH FOUNDATION

- ❖ Anupriya Sadhasivam, Hemavathy Nagarajan & Vetrivel Umashankar. *"Structure-based drug target prioritization and rational drug design for targeting Chlamydia trachomatis eye infections"* Journal of Biomolecular Structure & Dynamics 2019 August 5:1-18.
- ❖ Kuppan K, Mohanlal J, Mohammad AM, Babu KA, Sen P, Undurti ND, Natarajan V, Narayanasamy Angayarkanni. *"Elevated Serum OxLDL is associated with progression of type 2 Diabetes Mellitus to Diabetic Retinopathy"* Exp Eye Res. Sep 2019.
- ❖ Vijay Raja, Soniya Charles, Mohankumar Ramasamy, Luxitaa Goenkad, M. Kamatchi, Melvin George, Jesu Arockiaraj, VE Dhandapani, Angayarkanni Narayanasamy, Kanchana Mala. *"Cell cycle arrest in peripheral blood mononuclear cells: A non-invasive method for diagnosis of coronary artery disease"* Elsevier Process Biochemistry Sep 2019.
- ❖ Aberami S, Nikhalashree S, Bharathselvi M, Biswas J, Sulochana KN, Coral K. *"Elemental concentrations in Choroid-RPE and retina of human eyes with age-related macular degeneration"*. Exp Eye Res, Sep 2019.
- ❖ Nikhalashree S, George R, Shantha B, Lingam V, Vidya W, Panday M, Sulochana KN, Coral K. *"Detection of Proteins Associated with Extracellular Matrix Regulation in the Aqueous Humour of Patients with Primary Glaucoma"* Curr Eye Res. 2019 Sep;44(9):1018-1025.
- ❖ Gopakumar V, Agarwal S, Srinivasan B, Krishnakumar S, Krishnan UM, Iyer G. *"Clinical Outcome of Autologous Cultivated Oral Mucosal Epithelial Transplantation in Ocular Surface Reconstruction"* Cornea 2019 Oct;38(10):1273-1279
- ❖ Sampath Nikhalashree, Gayathree Karthikkeyan, Ronnie George, BalekudaruShantha, Lingam Vijaya, Vineet Ratra, Konerirajapuram Natarajan Sulochana, Karunakaran Coral. *"Lowered Decorin With Aberrant Extracellular Matrix Remodeling in Aqueous Humor and Tenon's Tissue From Primary Glaucoma Patients"* Invest Ophthalmol Vis Sci, Nov, 2019.
- ❖ Pathak A, Chatterjee N, Sinha S. *"Developmental trajectory of Caenorhabditis elegans nervous system governs its structural organization"* PLoS Comput Biol. 2020 Jan 2;16(1):e1007602.
- ❖ Nagarajan, H., Narayanaswamy S., & Vetrivel, U. *"Mutational Landscape screening of Methylene tetrahydrofolate reductase to predict Homocystinuria associated variants: an integrative computational approach"* Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis, Epub Jan 2020.



VISION RESEARCH FOUNDATION

- ❖ S. Mohana Devi, I. Mahalaxmi, J. Kaavya, V. Chinnkulanhai, V. Balachandar. "Does epigenetics have a role in age related macular degeneration and diabetic retinopathy?" *Genes & Diseases*. Jan 2020.
- ❖ Subramaniam Mohana Devi, Iyer Mahalaxmi, Nair P. Aswathy, Venkatesan Dhivya, Vellingiri Balachandar. "Does retina play a role in Parkinson's Disease?" **Acta Neurologica Belgica**. 21 Jan 2020, 120(2):257-265.
- ❖ Ravishankar H, Mangani AS, Shankar MB, Joshi M, Devasena T, Parameswaran S, Subramaniam K "Characterization of NCC-RbC-51, an RB cell line isolated from a metastatic site" *Histochem Cell Biol*. 2020 Feb;153(2):101-109.
- ❖ Chatterjee Amit, Prema Padmanabhan, Sailaja V Elchuri, Janakiraman Narayanan. "Probing the effect of matrix stiffness in endocytic signalling pathway of corneal epithelium". *Biochemical and Biophysical Research Communications* 19 Feb 2020, 525(2):280-285.
- ❖ Jayaramayya K, Iyer M, Venkatesan D, Balasubramanian V, Narayanasamy A, Subramaniam MD, Cho SG, Vellingiri B. "Unraveling correlative roles of dopamine transporter (DAT) and Parkin in Parkinson's disease (PD) - A road to discovery?", *Brain Res Bull*. 2020 Feb; 157:169-179. Epub 2020 Feb 6.
- ❖ Alam MS, Vijay V, Barh A, Subramanian K. "Plasma cell granuloma of the conjunctiva in a young female" *Orbit*. 2020 Mar 1:1-4.
- ❖ Arun John, Umashankar Vetrivel, Muthukumaran Sivashanmugam, Sulochana Konerirajapuram Natarajan. "Microsecond Simulation of the Proteoglycan-like Region of Carbonic Anhydrase IX and Design of Chemical Inhibitors Targeting pH Homeostasis in Cancer Cells" *ACS Omega*. 2020 Mar 3; 5(8): 4270-4281.
- ❖ Iyer G, Srinivasan B, Agarwal S, Subramanian K. "Ectopic sebaceous glands of Gibsan in eyelid margin- A novel manifestation in Stevens Johnson Syndrome & proposed nomenclature based on an observational case series" *Ocul Surf*. Epub 2020 Mar 16: S1542-0124(20)30056-2.
- ❖ Koh JEW, Raghavendra U, Gudigar A, Ping OC, Molinari F, Mishra S, Mathavan S, Raman R, Acharya UR. "A novel hybrid approach for automated detection of retinal detachment using ultrasound images". *Computers in Biology and Medicine*, Mar 2020, 120: 103704-715.
- ❖ Alagappan LP, Koh JEW, V J, Ramesh A, Bhende M, Raman R, Acharya UR, Mathavan S. "Development of an automated system for the detection of genotype in polypoidal choroidal vasculopathy using retinal image phenotype" *Comput Methods Programs Biomed*. Epub 2020 Mar 19.
- ❖ Ravindran, S.J., Jenifer, S.K., Balasubramanyam, J., Jana, S.K., Krishnakumar, S., Elchuri, S., Philip, L. and Pradeep, T. "Arsenic Toxicity: Carbonate's Counteraction Revealed" *ACS Sustainable Chemistry & Engineering*, Mar 2020 8(13), pp.5067-5075



VISION RESEARCH FOUNDATION

- ❖ John, A., Vetrivel, U., Sivashanmugam, M., Natarajan, S. K. "Microsecond Simulation of the Proteoglycan-like Region of Carbonic Anhydrase IX and Design of Chemical Inhibitors Targeting pH Homeostasis in Cancer Cells" ACS Omega. March 2020.
- ❖ Chen Y, Sharma T, Li X, Song Y, Chang Q, Lin R, Egger A, Foo A, Gekkieva M, Lai TYY. "Ranibizumab Versus Verteporfin Photodynamic Therapy in Asian Patients with Myopic Choroidal Neovascularization: Brilliance, a 12-Month, Randomized, Double-Masked Study Retina. 2019 Oct;39(10):1985-1994.

National Journals :

- ❖ Vidhya Srinivasan, Selvi Radhakrishnan, Narayanasamy Angayarkanni, K.N.Sulochana. "Antidiabetic effect of free amino acids supplementation in human visceral adipocytes through adiponectin-dependent mechanism" Indian J Med Res 2019 IJMR _1782_16.
- ❖ Aditya Maitray, Ekta Rishi, Pukhraj Rishi, Lingam Gopal, Pramod Bhende, Rupak Ray, Kuzhanthai Lily Therese. "Endogenous endophthalmitis in children and adolescents: Case series and literature review" Indian J Ophthalmol. 2019 Jun;67(6):795-800.
- ❖ Alam MS, Tongbram A, Krishnakumar S, Mukherjee B. "Ciliochoroidal melanoma presenting as bleeding anterior staphyloma: Report of a case and review of literature" Indian J Ophthalmol. 2019 Jul;67(7):1162-1163.
- ❖ Subramaniam Rajesh Bharathi Devi, Karunakaran Coral, Karthikeyan Gayathree, Muthuvel Bharathselvi, Shanmuganathan Sivasankar, Jyotirmoy Biswas, Pukhraj Rishi, Sundaram Natarajan, Sengamedu Srinivasa Badrinath, **Narayanasamy Angayarkanni**. "Case report on two diabetic donor eyes with no retinopathy: Clinicopathological and molecular studies" Indian Journal of Ophthalmology, September 2019.
- ❖ Dalan D, Nandini P, Angayarkanni N, Kaviarasan K, Thanikachalam S, Das UN, Ratra D. "Interchangeability of retinal perfusion indices in different-sized angiocubes: An optical coherence tomography angiography study in diabetic retinopathy" Indian J Ophthalmol. 2020 Mar;68(3):484-489.

Accepted for the publication:

- ❖ Balachandar Vellingiri, Kaavya Jayaramayya, Mahalaxmi Iyer, Arul Narayanasamy, Vivekanandhan Govindasamy, Bupesh Giridharan, Singaravelu Ganesan, Anila Venugopal, Dhivya Venkatesan, Harsha Ganesan, Kamarajan Rajagopalan, Pattanathu K.S.M. Rahman, Ssang-Goo Cho, Nachimuthu Senthil Kumar, Mohana Devi Subramaniam. "COVID-19: A promising cure for the global panic" Science of the Total Environment.
- ❖ Agarwal, Shweta, Bhaskar Srinivasan, Narayanan Janakiraman, Lily K. Therese, S. KrishnaKumar, Nilay Patel, V. Thenmozhi, and Geetha Iyer. "Role



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of Topical Ethanol in the Treatment of Pythium insidiosum Keratitis—A Proof of Concept." Cornea

- ❖ Ramya Ravi, Nareshkumar Ragavachetty Nagaraj, Bharathi Devi Subramaniam Rajesh *"Effect of advanced glycation end product on paraoxonase 2 expression: Its impact on endoplasmic reticulum stress and inflammation in HUVECs"* Life Science.
- ❖ Koka K, Alam MS, Subramanian N, Subramanian Krishnakumar, Biswas J, Mukherjee B. *"Clinical spectrum and management outcomes of Langerhans cell histiocytosis of the orbit"* Indian J Ophthalmol.
- ❖ Narasimhan S, Joshi M, Parameswaran S, Rishi P, Khetan V, Ganesan S, Biswas J, Sundaram N, Sreenivasan J, Verma S, Krishnamurthy V, Subramanian Krishnakumar *"MYD88 L265P mutation in intraocular lymphoma: A potential diagnostic marker"* Indian J Ophthalmol.
- ❖ Sivaprasad S, Raman R, Conroy D, Mohan 5th, Wittenberg R, Rajalakshmi R, Majeed A, Krishnakumar S, Prevost T, Parameswaran S, Turowski P, Maheswari U, Khobragade R, Netuveli G, Sadanandan R, Greenwood J, Ramasamy K, Rao M, Bergeles C, Das T ORNATE India Project Group. *"The ORNATE India Project: United Kingdom-India Research Collaboration to tackle visual impairment due to diabetic retinopathy"*. Eye (Lond).



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COMPLETED PROJECTS

- ❖ Protocol No:PSV-FAI-005 : A Multi-center, Controlled, Safety and Efficacy Study of a Fluocinolone Acetonide Intravitreal (FAI) Insert in Subjects with Chronic Non-Infectious Uveitis Affecting the Posterior Segment of the Eye [Dr J Biswas]
- ❖ A Phase 2/3, Randomized, Double-Masked, Sham controlled Trial of QPI-1007 Delivered by Single or Multi-Dose intra vitreal injection(s) to subjects with Acute No-Arteric Anterior Ischemic Optic Neuropathy (NAION) [Dr S Ambika]
- ❖ Functional Characterization of Lacrimal Proline rich 4 protein (LPRR4). [Dr. N. Angayarkanni]
- ❖ Clinical correlation of the tear chemokines and the sphingolipids in children with vernal keratoconjunctivitis. [Dr. N. Angayarkanni].
- ❖ Role of microenvironment in the pathogenesis of HCV and HCV/HIV-associated hepatocellular carcinoma. [Dr. A.R. Anand].
- ❖ Self-Assembling peptide nanofiber matrix as implants for fungal keratitis drug delivery system. [Dr. J. Narayanan]
- ❖ 3D Cancer Tissue Growth on Graphene sponges for cancer drug therapy. [Dr. Sailaja Elchuri]
- ❖ Genome wide association studies for Pharmacogenomics of Steroid response in Eye. [Dr. Srujana Chitipothu]
- ❖ Indo-US study of ocular quantitative traits predisposing to glaucoma. [Dr Ronnie George]
- ❖ Exome sequencing of patients with inherited retinal degenerative diseases [Dr. S Mathavan]
- ❖ Patient derived induced pluripotent stem cells (iPSCs) for modelling retinoblastoma tumorigenesis. Dr. Sowmya Parameswaran
- ❖ Generation of hypoimmunogenic retinal pigment epithelial cells for age related macular degeneration by targeted genome engineering approach. Dr. Sowmya Parameswaran

INDIVIDUAL FELLOWSHIP:

- ❖ Insilico design and invitro validation of naturally occurring compounds as anticancer moieties for targeting Ornithine Decarboxylase paralog (ODCp) protein. [Mr S Muthukumar; Mentor: Dr Umashankar V]
- ❖ Monocyte to macrophage differentiation induced alterations in oxLDL uptake and Paraoxonase expression in RPE-Monocyte co-culture system. [Mr. K. Anand Babu; Mentor : Dr. Angayarkanni N]



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ONGOING PROJECTS

- ❖ Protocol No. ILJ466-P005, Study Title: Post-Market Clinical Study of the Clareon® AutoMe™ with Indian Population. [Dr Prema Padmanabhan]
- ❖ Validation of Diabetic retinopathy deep learning algorithm (Microsoft) by using Sankara Nethralaya Diabetic retinopathy image data set from SNDREAMS [Dr. Rajiv Raman]
- ❖ Evaluating the effect of ocular UV exposure as a major causative factor in a risk model for pseudo-exfoliation syndrome in Indian population. [Dr.A.Rashima]
- ❖ Development of Cell based systematic evolution of ligands by exponential enrichment (Cell-SELEX) for Retinoblastoma. [Dr. S. Krishnakumar]
- ❖ Nuclease resistant aptamer-nanoparticle conjugate against B7-H3 as targeted therapy and imaging in retinoblastoma. [Dr. S. Krishnakumar]
- ❖ Biological Investigation and Degradation Behaviour of Bioglass based artificial cornea material. [Dr. S. Krishnakumar]
- ❖ Fluorescent Nanoprobes for Squamous cell carcinoma: A step towards developing a rapid tool for margin clearance. [Dr. S. Krishnakumar]
- ❖ RCUK SIVS1033 : Increasing eye research capacity and capabilities to tackle the burden of blindness in India: a research-based UK-India Collaboration” [Dr Rajiv Raman]
 - WP1 : SMART INDIA (Statistical Modelling and Risk Assessment of Type 2 diabetes complications in India) study. [Principal Investigator: Dr. Rajiv Raman]
 - WP3: Prospective multicentre discovery and validation of diagnostic circulating biomarkers to detect sight threatening diabetic retinopathy [Principal Investigator: Dr. S. Krishnakumar]
- ❖ In silico Design and Development of novel peptide inhibitors targeting CD147 through virtual screening and biopanning of peptide libraries and in vitro validation of anticancer efficacies. [Dr. S Krishnakumar]
- ❖ Ocular Biological Senescence Evaluation & Science Study. [Dr. Nivedita Chatterjee]
- ❖ Biomechanical effect of chemotherapeutic drugs on Retinoblastoma tumor cells. [Dr. J. Narayanan]
- ❖ Smart Polycaprolactone peptide composite nanofiber for sustines release of 5 Flouro uracil to modulate wound healing in Glaucoma surgery. [Dr. J. Narayanan]
- ❖ Injectable self-assembled Bruch’s membrane mimetic nanofibers for retinal pigment epithelium. [Dr. Sowmya Parameswaran]



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- ❖ Generation of corneal endothelial cells from induced pluripotent stem cells. [Dr. Sowmya Parameswaran]
- ❖ RNA guided Nuclease based targeted genome editing for retinitis pigmentosa [Dr. Sowmya Parameswaran]
- ❖ Effect of the Metabolites Relevant to Pathogenesis of Age Related Macular Degeneration on the Phagocytic Machinery of the Retinal Pigment Epithelial cells and Screening of Therapeutic Molecules: An in vitro study. [Dr. N. Angayarkanni]
- ❖ Development of therapeutic molecules for diabetic retinopathy from studies on structure/function relationship of PON2 by cloning. [Dr. S R Bharathi Devi]
- ❖ Cracking the code of NEDD8 conjugation pathway via Human Antigen R (HuR) signaling in ocular angiogenesis. [Dr.Sharada Ramasubramanyan]
- ❖ Genome wide Transcriptome profiling of Human Retinal Cells under diabetic milieu under the context of Egr-1 expression towards deciphering alternative pathways mediating Retinal Angiogenesis [Dr. Sharada Ramasubramanyan]
- ❖ Unraveling the genetic architecture of diabetic retinopathy in south Indian population. [Dr Sinnakaruppan Mathavan]
- ❖ To identify circulating biomarkers for responders and non-responders to anti-VEGF therapy in proliferative diabetic retinopathy (PDR). [Dr. Sinnakaruppan Mathavan]
- ❖ To identify circulating miRNA biomarkers for responders and non-responders to anti-VEGF therapy in macular degeneration disorders. [Dr. Sinnakaruppan Mathavan]
- ❖ A novel molecular screening approach for clinical and molecular characterisation of Usher syndrome patients in India. [Dr. S. Sripriya]
- ❖ In search of the causative genetic/molecular events in Bardet Biedl syndrome patients excluded for mutations in candidate genes [Dr. S. Sripriya]
- ❖ Mesenchymal stem cell mitochondrial transfer effectively protects mutant Leber's Hereditary Optic Neuropathy (LHON) cells from mitochondrial damage: Molecular and epigenetic screening of LHON patients. [Dr.S.Mohana Devi]
- ❖ Screening of mitochondrial transfer and epigenetic markers in Leber hereditary opticneuropathy (LHON) cells for its protective effect from mitochondrial dysfunction [Dr.S.Mohana Devi]
- ❖ Rational Design of novel peptide inhibitors targeting DNA-Topoisomerase-II-Beta through virtual screening of combinatorial peptide libraries and in vitro validation of anticancer efficacies. [Dr.Srujana Chitipothu]
- ❖ Molecular pathogenesis of HIV in T cells and endothelial cells. [Dr. A. R. Anand]



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- ❖ Retinal vascular permeability in Dengue virus infection: pathogenesis and evaluation of protective effects of vascular stabilizing agents. [Dr. A.R. Anand]

Individual Fellowship :

- ❖ Clinical phenotype guided selection and screening of candidate genes in Leber Congenital Amaurosis patients and Genetic Analysis of X-Linked Recessive Retinitis Pigmentosa families from India. [Dr. S Srilekha; Mentor: Dr. S. Sripriya]
- ❖ Development of Myelin oligodendrocyte glycoprotein (MOG) cell-based assay for the detection of antibodies against MOG for differential laboratory diagnosis of optic neuritis. [Dr. P.Durgadevi; Mentor : Dr. Lily Therese]
- ❖ A study on genetic regulatory region in DIO3 gene for possible correlation with varying clinical severity in LCA patients. [Dr. N N Srikrupa; Mentor: Dr. S. Sripriya]
- ❖ Longitudinal assessment of retinal structural and functional changes in individuals with diabetes, with and without diabetic retinopathy. Wellcome Trust/DBT Early Career Fellowship [Dr Sangeetha Srinivasan; Guide: Dr Rajiv Raman]
- ❖ Investigator inflammatory machinery in glia and the role of miRNA on exposure to HIV Tat protein. [Mr. D Durairaj; Mentor : Dr. Nivedita Chattarjee]
- ❖ Design and Development of automated computational pipelines for intermolecular recognition of kinases pertaining to structure based drug design and validation [Mr. A Samdani; Mentor: Dr Srujana Chitipothu]
- ❖ Virtual Screening of Natural compounds targeting Human Carbonic anhydrase IX and validation of efficacy as anti-cancer agents through biochemical and in vitro assays. [Mr. Arun John; Mentor: Dr Srujana Chitipothu]
- ❖ In silico conformational analysis and design of inhibitors targeting LIM kinases [Ms. Hemavathy Nagarajan; Mentor: Dr. V Umashankar]
- ❖ Modeling cancers associated with RB1 mutation using human induced pluripotent stem cells [Ms. Ambily Vincent; Mentor : Dr. Sowmya Parameswaran]
- ❖ A pilot study to evaluate the expression of tropoelastin intracellularly and its aggregation extracellularly to probe the disease mechanism of PXF. [Ms. Rebecca Manohar; Mentor: Dr. N Angayarkanni]
- ❖ To delineate the functional role of paraoxonase 2 in regulating angiogenesis. [Ms. Ramya Ravi; Mentor: Dr.S.R.Bharathidevi]
- ❖ Deciphering if impaired autophagy and mitochondrial dysfunction contribute to ECM modifications in primary glaucoma. [Ms. Nikhala Shree S, Mentor : Dr. S.R. Bharathi Devi]



VISION RESEARCH FOUNDATION

- ❖ To delineate the role of copper in mediating inflammation in diabetic retinopathy [Ms. Aloysius Dhivya M; Mentor: Dr.S.R.Bharathi Devi]
- ❖ Profiling the promoter methylation status of the candidate genes for ocular quantitative traits in primary glaucoma patients. Mentor: Dr. S. Sripriya ([Ms. Suganya K; Mentor: Dr. S Sripriya]
- ❖ Molecular and epigenetic screening of Leber's Hereditary Optic Neuropathy(LHON) [Ms. Aswathy P Nair; Mentor : Dr. S Mohana Devi]
- ❖ Studying HIV Mediated Changes at Blood Retinal Barrier on an in vitro Model [Ms. Kamini Khatak; Mentor : Dr. Nivedita Chattarjee]



VISION RESEARCH FOUNDATION

PARTICIPATION IN CONFERENCES

- ❖ Ms. Rebecca Manohar participated in the MALDI Imaging Workshop organized by the Department of Molecular Oncology, Cancer Institute (WIA), and Chennai on 3rd and 4th April 2019.
- ❖ Dr. N. N. Srikrupa and Ms. K. Suganya participated in the Retina Summit-2019 on 'Paediatric Retina' at The Taj Coromandel, Chennai on 12th July 2019. Dr. Srikrupa presented a poster entitled "Next generation sequencing in predictive diagnosis of Syndromic LCA/ EORP" and participated in a debate on "Targeted NGS vs Whole exome sequencing". Ms. Suganya made a poster presentation on "Genetic analysis in familial cases of Retinal Detachment".
- ❖ Vision Research Foundation and R S Mehta Jain Department of Biochemistry and Cell Biology organized the 26th Annual Meeting of the Indian Eye Research Group (IERG 2019), the Indian Chapter of the Global Consortium of the Association for Research in Vision and Ophthalmology (ARVO India) from 26th to 28th July 2019 at Hotel Ambassador Pallava, Chennai. The conference was attended by nearly 277 delegates., Prof. Banu Prakash Reddy, Ph.D, National Institute of Nutrition, Hyderabad; Dr. Sudha K. Iyengar, Ph.D, Professor – Vice Chair for Research Dept. of Genetics and Genome Sciences, Department of Ophthalmology and Visual Sciences Case –Western University, USA, Dr. Deepak P. Edward MD, FACS, FARVO Chief Research and Training Officer, King Khaled Eye Specialist Hospital, Riyadh, Saudi Arabia, Dr. T. Velpandian, Ph.D, Prof. Ocular Pharmacology and Pharmacy. R. P. Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi and other distinguished scientists from many National and International institutes participated in the conference.
- ❖ Dr. S. Srilekha, Ms. K. Suganya, Ms. A. L. Lakshmi Priyankka, Ms. A. N. Rizza, Ms. Sruthi Priya, Ms. Rebecca Manohar, Mr. Naresh Kumar, Mr. Anand Babu, Ms. Karthikka, Ms. Nikhalashree, Mr. M Vignesh, Ms. Nandini Prakash, Ms. R Ramya, Mr. A Samdani, Ms. G Harshavardhini and Mr. S Muthukumaran participated in the Indian Eye Research Group Conference (IERG-ARVO-INDIA) 2019 held at Ambassador Pallava, Chennai from 27th to 28th July 2019. Dr. Srilekha made a poster presentation entitled "Molecular profiling of x-linked recessive Retinitis pigmentosa: a pilot study on Indian cohort"; Ms. Suganya on "Screening for mitochondrial gene variations in primary glaucoma patients from India"; Ms. Lakshmi Priyankka on "Explorative network analysis of microRNA: profiling and target gene analysis in Age related Macular Degeneration patients"; Ms. Rizza on "Screening for the GWAS signals identified in European, African-American and multi-ethnic type 2 diabetes, Retinopathy cohorts in south Indian population"; Ms. Harshavardhini on "Targeted re-sequencing in Bardet Bidel syndrome: implicative role of genetic modifiers"; Ms. Sruthi Priya on "The anti-angiogenic role of neddylation inhibitor, MLN4924 in human retinal microvascular endothelial cells"; Ms. Rebecca Manohar on "The elastogenic state of lens capsule in pseudoexfoliation syndrome: an ex vivo study"; Mr. Naresh Kumar on "Apoptotic and anti-proliferative effect of Lysyl oxidase propeptide in human retinoblastoma cells"; Mr. Anand Babu on "Oxidative stress influences the scavenger receptor-mediated oxLDL uptake and augments the antioxidant Paraoxonase in ARPE-19 cells"; Ms. Karthikka on "Specific multimeric form of Adiponectin causes profibrotic effect in retinal pigment epithelial cells"; Ms. Nikhalashree on "Decorin inhibits TGF- β 1



VISION RESEARCH FOUNDATION

induced fibrosis in Human Tenon Fibroblast"; Mr. Vignesh on "Alterations in sphingolipids metabolism in vernal keratoconjunctivitis"; Ms. Nandini Prakash on "Alterations in serum Neurotrophins in Diabetic Retinopathy"; Ms. Ramya on "Paraoxonase-2 reduces Advanced glycation end product induced Endoplasmic Reticulum Stress and inflammation - In human micro and macrovascular endothelial cells"; Mr. Muthukumaran on "Design and development of inhibitory peptides targeting ornithine decarboxylase and in vitro validation in human retinoblastoma Y79 cells" and Mr. Samdani on "A comprehensive toolkit for automating Virtual Screening of peptides for ocular therapeutics research".

- ❖ Ms. G Harshavardhini participated in the Retina Summit Conference held at Hotel Taj Coromandal, Chennai from 12th to 13th July 2019 and she presented a poster on "Comprehensive analysis of ciliopathy genes in Bardet Biedl syndrome (BBS) patients in India".
- ❖ Dr. S. Mathavan participated in the International Conference on "Genomes and AI: From packing to regulation" at the Mechanobiology Institute, National University of Singapore (NUS) from 2nd to 4th October 2019.
- ❖ Ms. A .L. Lakshmi Priyanka participated in the International conference on Genomes and AI: From packing to regulation" held at Mechanobiology Institute, National University of Singapore (NUS) from 2nd to 4th October 2019. She made a poster presentation entitled "Automated discrimination of genotype and phenotype of Polypoidal Choroidal Vasculopathy in Indian population using texture features".
- ❖ Ms. Lakshmi, Ms. Hemavathy Nagarajan and Ms. A. N. Rizza attended NGBT 2019 Conference at Mumbai from 30th September to 2nd October 2019. Ms. Lakshmi presented a poster on "RNA Deep-sequencing identified novel somatic mutations, isoforms and therapeutic targets in Retinoblastoma" and Ms. Hemavathy Nagarajan on "Structure-function relationship studies on Methylene tetrahydrofolate reductase mutational Landscape reveal unreported pathogenic variants linked to homocystinuria".
- ❖ Mr. Amit Chatterjee attended the 3rd Annual Conference of Society of Inflammation Research – SIRCON 2019 "Changing Concepts in Inflammation – Bench to Bed Side" on 12th & 13th October 2019. He presented a poster entitled "Photo activated Chromophore for Keratitis-Corneal Crosslinking (PACK-CXL): supporting its adjuvant role in the treatment of Fungal Keratitis".
- ❖ Dr. N. Angayarkanni attended the 3rd Annual Conference of Society of Inflammation Research SIRCON 2019 on 12th & 13th October 2019 at Sankara Nethralaya and she gave an invited talk on "Lipids and Inflammation in Age Related Macular Degeneration".
- ❖ Dr. N Angayarkanni, Dr. S. R. Bharathi Devi, Dr. R. Mani, Mr. Vignesh & Ms. Sruthi Priya participated in the seminar entitled "Optimization Techniques of Immuno histochemistry & Immuno cytochemistry, Immuno Fluorescence" on 03th December 2019 at Sri Ramachandra Medical College, Chennai Organized by Abcam & Allied Scientific Products.



VISION RESEARCH FOUNDATION

- ❖ Dr. S Mathavan was invited as an "Honorary Visiting Faculty" by School of Biological Sciences, Madurai Kamaraj University, from 26th to 28th January 2020. He delivered a talk on "Artificial intelligence and Ophthalmology".
- ❖ Dr. Srujana Chitipothu, Dr. N. N. Srikrupa, Ms. K. Suganya, Ms. G Harshavardhini and Ms. B Lakshmi participated in the 45th Annual Meeting of the Indian Society of Human Genetics (ISHG), held at Sri Ramachandra Institute of Higher Education and Research, Porur, Chennai from 13th to 15th February 2020. Dr. Srikrupa made a poster presentation entitled "A 2bp deletion variant in Cerkl Gene suggests a putative founder effect for Autosomal Recessive Retinitis Pigmentosa in India" and Ms. Suganya on "Analysis of Mitochondrial Gene Sets for Lipid Metabolism Pathways in Primary Glaucoma Patients from India" and Ms. Harshavardhini on "Insights into the genetic etiology of Usher syndrome patients in India".
- ❖ Dr. S. Mohanadevi and Mrs. Aswathy P. Nair attended an International Conference on Transdisciplinary & Innovative Research in Science (ICTRIS), Vellore from 26th to 28th February 2020 and Mrs. Aswathy Nair made a poster presentation entitled "Optimization and Maintenance of Leber's Hereditary Optic Neuropathy (LHON) Mutated Cell lines".
- ❖ Ms. Divya and Ms. Madhura attended the National Conference on Chiral and Nano technology: Application in Drug Design, Development held at Annamalai University, Chidambaram, Tamilnadu, on 7th & 8th March 2020. Ms. Divya presented a poster on "Designing peptide therapeutics for modulating wound healing in post glaucoma surgery" and Ms. Madhura on "Fabrication of nanofiber mat drug delivery system to targetintraocular tumor".



VISION RESEARCH FOUNDATION

DISTINGUISHED VISITORS

- ❖ Prof. Kevin Choi, CEO from Korea visited our foundation and research laboratories on 13th May 2019.
- ❖ Prof. Mahesh, Prof. Paulatishthulsiram, Prof. G. Venkateswara and Prof. Prabhatjha, Faculty from BITS Pilani, and Heads of Department of Pharmacology and Biosciences visited our foundation and research facility on 21st May 2019.
- ❖ Our donor, Mr. Sharath Bandari, from Jodhpur, visited our foundation on 18th June, 2019.
- ❖ Dr M Krishnan, Vice Chancellor of Madurai Kamaraj University, Madurai, visited our research facilities on 24th June, 2019.
- ❖ Dr. Paul Zhao, Senior Consultant, Department of Ophthalmology, National University Hospital, Singapore, visited our research laboratories on 26th June 2019.
- ❖ Dr. Ruth Lapid, Director, Head, Academic Medical Centre, Netherlands, Visited our foundation on 29th June, 2019 and she gave a guest lecture on "Correcting Astigmatism with toric IOLs and optimizing patient outcome with current generation trifocal IOLs".
- ❖ Prof. Undurti Narasimha Das, President and Founder of UND Life Sciences, visited our foundation and research facilities on 3rd July, 2019 and he gave a guest lecture on "How auto immunity is triggered and its relevance to Uveitis/Scleritis and newer therapeutic approaches".
- ❖ Ms. Kamala Relu from Singapore visited our foundation and research laboratories on 13th July 2019.
- ❖ Mr. Sudhakar Mattu, SN Omtrust, Secretary, USA, visited our foundation 22nd July, 2019.
- ❖ Dr. John Robson from University of Cambridge visited our foundation and research laboratories on 24th July 2019.
- ❖ Dr. Naoki Okumura, Prof. Debarkasengupta, from University of Doshisha, Japan visited our foundation and research laboratories on 26th July 2019.
- ❖ Dr. Anilkumar, National Institute of Immunology from Delhi visited our research laboratories on 26th July 2019.
- ❖ Dr. Praveen Kumar Vemula, Institute for Stem Cell Science and Regenerative Medicine (INSTEM) from Bangalore visited our laboratories on 26th July 2019.



VISION RESEARCH FOUNDATION

- ❖ Dr Arup Das, UNM, New Mexico, USA, visited our foundation on 26th July, 2019.
- ❖ Dr. Lucia Sobrin, Harvard Medical School, USA, visited our foundation and research facilities on 27th July 2019.
- ❖ Dr. T. Velpandian, Dr.Nabonita, Dr. Naoki Okumura, Dr. John Robson, (IERG Delegates) visited our research facilities on 29th July 2019.
- ❖ Mr. Avinash & Mr. Varadarajan, from Google Team, USA, visited our foundation and research laboratories on 13th August 2019.
- ❖ Mr. Deepak Parekh, Chairman, HDFC Bank, visited our foundation on 22nd August, 2019.
- ❖ Prof A V Ramanan, Bristol Royal Hospital for Children, Bristol, UK, visited our foundation on 26th August, 2019.
- ❖ Ms. Naama Hammel & team from Google CA, USA visited our foundation and research laboratories 20th September 2019.
- ❖ Dr Abhay R. Vasavada, Raghudeep Eye Clinic, visited our foundation on 9th November, 2019 and he gave a guest lecture on "Cataract Update 15.0".
- ❖ Prof. Shilpa Buch from University of Nebraska Medical Centre, USA, visited our foundation and research facilities on 12th November 2019. She gave a guest lecture on "Opiates and Neuro HIV: Blaming the Messengers".
- ❖ Dr. Prashant Garg and team members from L V Prasad Eye Institute visited our foundation and research laboratories on 29th November 2019.
- ❖ Dr. Apoorva Pauranik, Neurologist from Indore visited our foundation and research laboratories on 13th December 2019.
- ❖ Mr. Mirza Faisal Beg from Simon Fraser University, Canada visited our research laboratories on 21st December 2019.
- ❖ Ms. Leela Krishnamurthy, SN OM Trust Inc., USA, visited our foundation on 26th December, 2019
- ❖ Dr. Santhan Gopal, Kamala Nethralaya Hospital, Bengaluru, visited our foundation on 4th January, 2020. He gave a Guest lecture on "Treatment with SMS Magnocellular stimulator".
- ❖ Dr. Chitra Ramamurthy visited our foundation on 6th January 2020 and she gave a guest lecture on "Optimizing Visual outcomes for Premium IOL and dealing with Refractive Surprises".



VISION RESEARCH FOUNDATION

- ❖ Mr. Nauhee Pack & team from Samsung Electronics Visited our foundation and research facility on 9th January 2020.
- ❖ Prof. Elsheikh Ahmed, Professor of Biomedical Engineering, University of Liverpool, visited the research facilities on 3rd February 2020 and appreciated the facilities available in the Nano biotechnology laboratory.
- ❖ Mr. Amey Kamdar from K.J. Somaiya Hospital, Mumbai visited our foundation and research laboratories on 6th February 2020.
- ❖ Dr. Arshimatova from Russia visited our foundation and research facilities on 25th February 2020.
- ❖ Donor, Mr. Krishnamurthy, Chennai visited our foundation on 26th February 2020.