Curriculum Vitae

Dr. Ramachandran Samivel M.Sc., M.Phil., Ph.D.

Assistant Professor in Research Cornea Research Chair, Department of Optometry and Vision Science, College of Applied Medical Sciences, King Saud University Email: rkumari@ksu.edu.sa, <u>ramvel82@gmail.com</u> Phone:0556506728

1. Professional experience



| Durations | Institutions | Classes |
|-----------|---|---|
| 2018- | Cornea Research Chair, Department of Optics and | N/A |
| Present | Vision Science, CAMS, King Saud University, SA | |
| 2017-2018 | Department of Physiology, Tulane University | N/A |
| | Health Sciences Center, School of Medicine, | |
| | New Orleans, USA | |
| 2015-2017 | Translational Research Platform for Veterinary | N/A |
| | Biologicals, Central University Laboratory | |
| | Building, TANUVAS, Chennai, India | |
| 2013-2015 | Department of Otorhinolaryngology, Dankook | N/A |
| | University, College of Medicine, Cheonan, South | |
| | Korea | |
| 2012-2013 | CHA Stem Cell Laboratory, CHA university, | N/A |
| | Seoul, South Korea | |
| 2008-2012 | Annamalai University, India | Awarded |
| 2006-2008 | Annamalai University, India | First |
| 2004-2006 | Bharathidasan University, India | First |
| 2001-2004 | Madras University, India | Second |
| | Durations 2018- Present 2017-2018 2017-2018 2015-2017 2013-2015 2012-2013 2008-2012 2006-2008 2004-2006 2001-2004 | DurationsInstitutions2018- PresentCornea Research Chair, Department of Optics and Vision Science, CAMS, King Saud University, SA2017-2018Department of Physiology, Tulane University Health Sciences Center, School of Medicine, New Orleans, USA2015-2017Translational Research Platform for Veterinary Biologicals, Central University Laboratory Building, TANUVAS, Chennai, India2013-2015Department of Otorhinolaryngology, Dankook University, College of Medicine, Cheonan, South Korea2012-2013CHA Stem Cell Laboratory, CHA university, Seoul, South Korea2008-2012Annamalai University, India2004-2006Bharathidasan University, India2001-2004Madras University, India |

2. Research Experience: 18 years (2006- At present)

3. Teaching Experience: 6 years teaching experience (2018 – at present), Department of Optometry, College of Applied Medical Sciences, King Saud University.

2-year full-time lecture (Feb 2013 to Feb 2015), BLI Korea, Dankook University Hospital, College of Medicine, Cheonan, South Korea.

4. M.Sc/M.Phil students guided/awarded: 14 candidates

5. Area of interest/Research focused: Cell and Molecular Biology, Corneal Dystrophy, Corneal Keratitis, Heart and Kidney disease (Hypertension), Biomedical Imaging (*IVS* Nanotechnology), Allergy Rhinitis, Nasal Rhinosinusitis, Immunology, Stem cell Biology, Radiation Oncology, UVB-Photoprotection.

6. List of Journal Reviewer's:

- 1. International Journal of Molecular Sciences,
- 2. Biomolecules,
- 3. Molecular and Cellular Biochemistry,
- 4. Stem cell Research & Therapy,
- 5. European Journal of Pharmacology,

- 6. Chemico-Biological Interaction,
- 7. Human & Experimental Toxicology,
- 8. Journal of Cancer Research and Therapeutics.

7. List of Research Projects worked

| Years | Project entitle |
|-------------|--|
| Postdoc | Molecular and Genetic Aspects of Guanylyl Cyclase Natriuretic Peptide |
| (2017-2018) | Receptor-A in Regulation of Blood Pressure and Renal Function. |
| Postdoc | Small animal in vivo imaging, auto-fluorescent nanomaterials-drug delivery |
| (2015-2017) | and biodistribution. |
| Postdoc | Role of TRPV1 activate on CD4 ⁺ T cells mediated inflammatory response in |
| (2013-2015) | allergic rhinitis and nasal polyps remodeling. |
| Postdoc | Hypoxia induced ROS generation stimulate adipose-derived stem cell |
| (2012-2013) | proliferation and differentiation into various progenitor cells. |
| Ph.D. | Evaluation of protective effect of sesamol on UVB-radiation induced cell and |
| (2008-2012) | molecular changes in cultured human skin dermal fibroblasts and photo- |
| | carcinogenesis mice. |
| M.Phil. | Photoprotective effect of ursolic acid on UVB-radiation induced oxidative |
| (2006-2008) | stress, DNA-damage and cytotoxicity in human blood lymphocytes. |
| M.Sc. | Protective effect of Nigella sativa-ethanolic extract on CCl4-induced |
| (2004-2006) | hepatotoxicity rats. |

8. Professional fellowships received: Senior Research Fellowship (SRF) Department of Science and Technology, New Delhi, India (April 2008 to April 2011) (DST Fast Track project scheme).

9. Techniques experts

(A). Molecular Biology: Extensive experience in isolation of RNA and Proteins (gene expression analysis by qRT-PCR, protein expression by Western blot), FACS analysis, *In vivo* imaging, Confocal Microscopy, ELISA, Immunocytochemistry/immunohistochemistry, Histopathology and Transmission Electron Microscopy ultra-structural studies.

(B). Biochemistry: Blood sample collections and parameters analysis, automated Spectrophotometry, HPLC, embryonic study, Genotoxicity, Microbiological analysis, Blood lymphocyte, lymph node, spleen primary cells isolation etc.,

(C). Animal Study and Breading: Well experience handling and experimental design in Rodents (rat and mice) in vivo studies. Transgenic mice breeding colonies formation and maintaining (Flox/Cre target gene knockout mice) experimental research models.

(D). Other Scientific Skills with experience:

- > Capable of planning and executing research projects and collaborating with co-workers.
- ➤ Isolation, characterization of *ex vivo* organ culture and maintenance of cells.
- ➤ Isolation, characterization of primary cells and maintenance of cells.
- > Handling Westar rats, mouse, dissection internal organs and animal breeding's.
- > Experience in chicken embryo study (egg & embryo injection)-*In ovo* study.
- > Blood pressure measurement in rodents by Tail cuff, and telemetry probe implantation.
- > Nanoparticles (NPs) synthesis and characterization using HR-TEM, FE-SEM, XRD, FT-
- IR and EDX analysis (Green and chemical synthesis of NPs).
- > Cytotoxicity Assay- MTT, LDH, Trypan blue, comet assay & Ao/EtBr staining.

➤ Dissection of eyes and lens from rats, mice and primary cell isolation.

➤ Worked independently with statistical Packages-Origin, SPSS, PRISM, Adobe Photoshop, Image-J & Flow jo (FACS) software.

10. List of publications

- Ramasamy, C., Neelamegam, K., Ramachandran, S., Xia, H., Kapusta, D. R., Danesh, F. R., & Pandey, K. N. (2024). Podocyte Cell-Specific Npr1 is Required for Blood Pressure and Renal Homeostasis in Male and Female Mice: Role of Sex-Specific Differences. Physiological genomics, 2024, 10.1152/physiolgenomics.00137.2023. (Impact factor-3.2)
- Kumar, P., Neelamegam, K., Ramasamy, C., Ramachandran, S., Xia, H., Kapusta, D. R., & Pandey, K. N. Epigenetic mechanisms differentially regulate blood pressure and renal dysfunction in male and female Npr1 haplotype mice. FASEB journal: official publication of the Federation of American Societies for Experimental Biology, 2024, 38(15), e23858. (Impact factor-4.5)
- Almutleb, E.S.; Ramachandran, S.; Khan, A.A.; El-Hiti, G.A.; Alanazi, S.A. Synergistic Effect of Nilavembu Choornam–Gold Nanoparticles on Antibiotic-Resistant Bacterial Susceptibility and Contact Lens Contamination-Associated Infectious Pathogenicity. Int. J. Mol. Sci. 2024, 25, 2115. https://doi.org/ 10.3390/ijms25042115. (Impact factor-5.8)
- 4. Saeed Akhtar, Adrian Smedowski, Adnan Ali Khan, Hind Debasi, Hanan Mofty, Ramachandran Samivel, Turki Almubrad. Glycosaminoglycans and collagen fibril distribution at various depths of the corneal stroma of normal and CXL treated rats. Experimental Eye Research 239 (2024) 109780. (Impact factor-3.7)
- Subramanian U, Ramasamy C, Ramachandran S, Oakes JM, Gardner JD, Pandey KN. Genetic Disruption of Guanylyl Cyclase/Natriuretic Peptide Receptor-A Triggers Differential Cardiac Fibrosis and Disorders in Male and Female Mutant Mice: Role of TGF-β1/SMAD Signaling Pathway. Int J Mol Sci. 2022;23(19):11487. (Impact factor-5.8)
- 6. **Ramachandran S**, Saud AA, Ibraheem SA, Adnan AK, Omar K, Essam SA, Masmali AM. Translocation of pro-apoptotic proteins through basements membrane and hemidesmosome in the corneal epithelium of the keratoconus subjects. J King Saud University-Science. 2022;34(8):102328. (**Impact factor-3.8**)
- Akhtar S, Smedowski A, Masmali A, Alkanaan A, Khan AA, Almutleb E, Mofty HK, Al-Debasi HI, Samivel R, Almubrad T. Effect of Ultraviolet-A and Riboflavin treatment on the architecture of the center and periphery of normal rat cornea: 7 days post treatment. Exp Eye Res. 2022;219:109064. (Impact factor-3.7)
- 8. Akhtar S, **Samivel R**, Smedowski A, Alkanaan A, Masmali A, Kirat O, Khan AA, Almubrad T. A unique pre-endothelial layer at the posterior peripheral cornea: ultrastructural study. Sci Rep. 2022;12(1):2556. (**Impact factor-4.6**)
- Samivel R, Subramanian U, Ali Khan A, Kirat O, Masmali A, Almubrad T, Akhtar S. Lipopolysaccharide Enhances Genotoxicity by Activating GADD45G and NF-κB in Human Corneal Epithelial Cells. Oxid Med Cell Longev. 2022;2022:4328116. (Impact factor-7.3)
- Samivel R, Raja R, Subramanian U, Gopal DR. Use Of Quantum Dots-conjugated Newcastle Disease Virus for Tracking and Assessment of Neutralization Efficacy *in vivo*. International Journal of Veterinary Science & Medical Diagnosis. 2022; 3(1):117.

- 11. Almubrad T, Mencucci R, Smedowski A, **Samivel R**, Almutleb E, Alkanaan A, Khan AA, Masmali A, Akhtar S. Ultrastructural study of collagen fibrils, proteoglycans and lamellae of the cornea treated with iontophoresis UVA cross-linking and hypotonic riboflavin solution. Saudi J Biol Sci. 2021;28(12):7160-7174. (Impact factor-4.0)
- 12. Samivel R, Nagarajan RP, Subramanian U, Khan AA, Masmali A, Almubrad T, Akhtar S. Inhibitory Effect of Ursolic Acid on Ultraviolet B Radiation-Induced Oxidative Stress and Proinflammatory Response-Mediated Senescence in Human Skin Dermal Fibroblasts. Oxid Med Cell Longev. 2020;2020:1246510. (Impact factor-7.3)
- Arise KK, Kumar P, Garg R, Samivel R, Zhao H, Pandya K, Nguyen C, Lindsey S, Pandey KN. Angiotensin II represses Npr1 expression and receptor function by recruitment of transcription factors CREB and HSF-4a and activation of HDACs. Sci Rep. 2020;10(1):4337. (Impact factor-4.6)
- Ramachandran S, Thiyagarajan Dhinakar Raj G, Uma A. Non-invasive in vivo imaging of fluorescence-labeled bacterial distributions in aquatic specie. International Journal of Veterinary Science and Medicine 5 (2), 187-195, 2017. (Impact factor 2.2)
- 15. Ramachandran S, Eun Hee Kim, Jie Hye Kim, Ji Eun Kwon, Jin-Chul Ahn, Young-Jun Chung, Ji-Hun Mo. Role of TRPV1 activate on CD4+ T cells mediated inflammatory response in allergic rhinitis. Oncotarget, 2015;7(1):148-160 (Impact factor 6.2)
- 16. Eun Hee Kim, Jie Hye Kim, Ramachandran S, Jun-Sang Bae, Young-Jun Chung, Phil-Sang Chung, Shee Eun Lee, Ji-Hun Mo. Intralymphatic treatment of flagellinovalbumin mixture reduced allergic inflammation in murine model of allergic rhinitis. Allergy, 2016. (Impact factor 12.6)
- Ramachandran S, Eun Hee Kim, Young-Jun Chung, Ji-Hun Mo. Immunomodulatory effect of tonsil-derived mesenchymal stem cells in a mouse model of allergic rhinitis. American Journal of Rhinology & Allergy, 2015;29(4):262-7. (Impact factor 2.6)
- Ki-Il Lee, Dae Woo Kim, Eun Hee Kim, Jie Hye Kim, Ramachandran S, Ji Eun Kwon, Jin-Chul Ahn, Young-Jun Chung, Ji-Hun Mo. Cigarette smoke promotes eosinophilic inflammation, airway remodeling, and nasal polyps in a murine polyp model. American Journal of Rhinology & Allergy, May–June 2014, Vol. 28, No. 3. (Impact factor 2.6)
- G. Kanimozhi, S. Ramachandran, N. Rajendra Prasad, K. V. Pugalendi. Umbelliferone protects whole body irradiated Swiss albino mice: Study on animal survival, tissue antioxidant status and DNA damage. Biomedicine & Preventive Nutrition, 2012; (Impact factor 0.5)
- 20. S. Ramachandran, N. Rajendra Prasad. Sesamol modulates UVB induced apoptotic and inflammatory signaling in human skin dermal fibroblasts. Int J Nutr Pharmacol Neurol Dis. 2011; 1: 1-9.
- 21. S. Ramachandran, N. Rajendra Prasad. Sesamol, a phenolic in sesamum indicum, inhibits photocarcinogenesis by targeting UVB-induced lipid peroxidation and antioxidation depletion in Swiss albino mice. Journal of Research Biochemistry, 2011; 1: 001-008.
- 22. G. Kanimozhi, **S. Ramachandran**, N. Rajendra Prasad, K. V. Pugalendi. Umbelliferone modulates gamma-radiation induced ROS generation and subsequent oxidative damage in human blood lymphocytes. European Journal of Pharmacology, 2011; 672(1-3): 20-29. (**Impact factor 5.1**).

- 23. S. Ramachandran, N. Rajendra Prasad, S. Karthikeyan. Sesamol inhibits UVBinduced ROS generation and subsequent oxidative damage in cultured human skin dermal fibroblasts. Arch Dermatol Res (2010): 1–11 (Impact factor 3.1).
- N. Rajendra Prasad, K. Jeyanthimala and S. Ramachandran. Caffeic acid modulates ultraviolet radiation-B induced oxidative damage in human blood lymphocytes, Journal of Photochemistry & Photobiology B 95/3 (2009) 196-203 (Impact factor 6.8).
- 25. S. Ramachandran, N. Rajendra Prasad, Effect of ursolic acid, a triterpenoid antioxidant, in ultraviolet radiation induced cytotoxicity, lipid peroxidation and DNA damage in human lymphocytes. Chemico-Biological Interactions 176 (2008) 99–107 (Impact factor 5.1).
- 26. S. Ramachandran, N. Rajendra Prasad, K.V. Pugalendi, Venugopal P. Menon Modulation of UVB-induced oxidative stress by ursolic acid in human blood lymphocytes. Asian Journal of Biochemistry 3 (1) (2008) 11-18. (Impact factor 1.0).
- N. Rajendra Prasad, S. Ramachandran, K.V. Pugalendi, V.P. Menon. Ferulic acid inhibits UVB induced oxidative stress. Nutrition Research 27 (9) (2007) 559-564 (Impact factor 4.5)

11. Conference presents/attended

- 1. Resource person & Gust talked an entitled "Synergistic effect of Nilavembu Choornam-gold nanoparticles on antibiotic-resistant bacterial susceptibility and biofilm formation" hosted international conference on Neo-perspectives in biochemical, chemical and microbial techniques-2024, Annai Violet Arts and Science College, Chennai, India, 20th February 2024.
- 2. Resource person & Gust talked an entitled "Therapeutic efficacy of Nanoparticles-Assessed multi-drug resistant bacterial pathogen morbidity" hosted International conference on Recent advancements in therapeutics (ICRAT-2022), Indira Gandhi Women College, Trichy, India, 17th August 2022.
- Akhtar S, Samivel R, Smedowski A, Alkanaan A, Masmali A, Kirat O, Khan A, Almubrad TA. A unique pre-endothelial layer at the posterior peripheral cornea: ultrastructural study. Acta Ophthalmol, 2022;100:. https://doi.org/10.1111/j.1755-3768.2022.030.
- Akhtar S, Almubrad T, Smedowski A, Samivel R, Almutleb E, Alkanaan A, Khan A, Masmali A, Mencucci R. Ultrastructure of collagen fibrils, proteoglycans and lamellae of the human cornea treated with Iontophoresis - UVA cross-linking and hypotonic riboflavin solution. Acta Ophthalmol, 2022;100:. https://doi.org/10.1111/j.1755-3768.2022.032.
- Kumar P, Neelamegam K, Samivel R, Xia H, Ramasamy C, Zhao H, Nguyen C, Gogulamudi V, Kapusta D, Pandey KN. Regulation of Blood Pressure and Renal Fibrosis by Class I Specific HDAC Inhibitor, Mocetinostat, in Npr1 Gene-targeted Male and Female Mice. The FASEB Journal, 2021;35: https://doi.org/10.1096/fasebj.2021.35.S1.03773.
- Arise KK, Kumar P, Samivel R, Zhao H, Lindsey S, Pandey KN. Angiotensin II Represses Guanylyl Cyclase/Natriuretic Peptide Receptor-A Gene Expression and Receptor Signaling and Function. The FASEB Journal, 2020;34:1-1. https://doi.org/10.1096/fasebj.2020.34.s1.02216.
- 7. Samivel R, Subramanian U, Oakes JM, Chen H, Zhao H, Gardner JD. and Pandey KN. Blockade of Cardiac Hypertrophy and Fibrosis by TGF-Beta 1 Receptor

Antagonist in Npr1 Gene-Knockout Mice. The FASEB Journal, 2019;33: 531.10-531.10. https://doi.org/10.1096/fasebj.2019.33.1_supplement.531.10.

- 8. Umadevi Subramanian, Ramachandran S, Hanqing Zhao, Venkateswara Gogulamudi, and Kailash N Pandey. Abstract 101: Transforming Growth Factor Beta-Receptor Antagonist Blocks the Cardiac Fibrosis and Remodeling in Guanylyl Cyclase/Natriuretic Peptide Receptor-A Gene-Disrupted Mice. Hypertension, https://doi.org/10.1161/hyp.72.suppl_1.101Hypertension. 2018; 72: A101.
- Prerna Kumar, Venkateshwara R. Gogulamudi, Christian Nguyen, Ramachandran Samivel, Kailash N. Pandey. Inhibition of Class I HDAC Enhances the Expression of Npr1 and Repairs Renal Pathology in Gene-targeted Haplotype Mice. Hypertension, 2017; P161 16.
- Ramachandran S, Eun Hee Kim, Jie Hye Kim, Young-Jun Chung, Ji-Hun Mo. XXIV World Allergy Congress 2015, World Allergy Organization Journal, 2016; 9(1): 14, ISSN 1939-4551, <u>https://doi.org/10.1186/s40413-016-0096-1</u>.
- 11. Attended 25th international congress of Korean society of otorhinolaryngology-Head and neck surgery held in Seoul, Korea from April 24 to 26, 2015.
- 12. Attended international conference in The Korean academy of asthma, allergy and clinical immunology held in Seoul, Korea from May 9 to 10, 2014.
- 13. Conducted a resource person in National Workshop on Animal Cell Culture Techniques hailed March 18-20, 2011, Department of Biochemistry and Biotechnology, Annamalai University, Annamalainagar, Tamil Nadu, India.
- 14. Paper presented International Conference on Natural products and Biochemical Technology organized by Department of Biochemistry and Biotechnology, Annamalai University, Chidambaram, India, from 10-12 January, 2011.
- 15. Paper presented International Conference on Radiation Biology-Nanotechnology, Imaging and Stem Cell Research in Radiation Oncology organized by Department of Human Genetics & Biomedical Science, Sri Ramachadra University, Chennai, India, from November 15-17th, 2010.
- 16. Conducted a resource person in National Workshop on Animal Cell Culture Techniques hailed March 13-15, 2010, Department of Biochemistry and Biotechnology, Annamalai University, Annamalainagar, Tamil Nadu, India.
- 17. Participated National Workshop on Recent Trends in Biomedical Technology on December 12 & 13, 2009, Department of Biochemistry and Biotechnology, Annamalai University, Annamalainagar, Tamil Nadu, India.
- 18. Paper presented International Conference on Natural products in Health and ISARCON-2008 organized by Department of Biochemistry and Biotechnology, Annamalai University, Chidambaram, India, from 8-10 December, 2008.
- 19. Attended the National level Symposium of free radicals and antioxidants in health on march 2-4, 2007, Department of Biochemistry and Biotechnology, Annamalai University, Annamalainagar, Tamil Nadu, India.
- 20. Attended the National level Symposium on Resent trends in Biochemistry and Biotechnology with special reference to Natural products in Health on February 24 & 26th, 2006, Department of Biochemistry and Biotechnology, Annamalai University, Annamalainagar, Tamil Nadu, India.
- 21. Attended the National level Symposium on Diafight 2005 in biochemistry with special reference to management of diabetes on September 23rd and 24th, 2005, Department of Biochemistry, Srimad Andavan Arts and Science College, Tiruchirappalli, Tamil Nadu, India.

I hereby declare that the above-furnished information is true to the best of my knowledge, and I vow to work hard for the best deliverance, which would help in development of firm.

S. Ramachandran