Dr. Sudhir H. Ranganath, M.S., Ph.D., Postdoc (Harvard-MIT, JNCASR)

Associate Professor
Department of Chemical Engineering
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Academic Training

No.	Degree	Year	Institute	Specialization
1	B.E.	1999	Bangalore University	Chemical Engineering
2	M.Sc	2004	National University of Singapore	Chemical & Environmental Engineering
3	PhD	2010	National University of Singapore	Chemical & Bio molecular Engineering

Professional Experience

No.	Date (from-to)	Designation	Organization
1	2026 - till date	Associate Professor Dept. of Chemical Engineering	Siddaganga Institute of Technology, Tumkur
2	2024-2026	Head of the Department Dept. of Chemical Engineering	Siddaganga Institute of Technology, Tumkur
2	2015-2024	Assistant Professor Dept. of Chemical Engineering	Siddaganga Institute of Technology, Tumkur
3	2010-2014	IUSSTF Postdoctoral Fellow	Harvard-MIT HST, USA JNCASR, India
4	2009-2010	BMRC Research Fellow	National University of Singapore
5	2005-2006	Project Engineer	Plant Engineering Construction Pte Ltd
6	2000-2001	Process Engineer	Grasim Industries Ltd, India
7	2000	Production Engineer Trainee	RS Starch & Chemicals Pvt Ltd, India

Positions held

No.	Date (from-to)	Designation	Organization
1	2024 - 2026	Head, Chemical Engineering	Siddaganga Institute of Technology, Tumkur
2	2022-2025	Member Secretary	Institutional Biosafety Committee, SIT
3	2019-2024	Start-up Activity Coordinator	Institutional Innovation Council, SIT
4	2019-2020	Member, Board of Studies in Chemical Engineering	VTU Belagavi
5	2019 – till date	Member	NIRF Rank Improvement Committee
6	2019 - till date	Member	Research Progress Review Committee

Affiliations of Professional organizations

- Life Member, Sigma Xi, USA (2022 - till date)
- Member, American Institute for Chemical Engineers (AIChE), USA (2025)
- Member, Controlled Release Society (CRS), USA (Jan 2021 - till date)
- Member, Association for Research in Vision & Ophthalmology, USA (Dec 2019 - till date)
- Member of the Society for Biomaterials, USA (2017)
- Member of the Institute of Engineers (IE), India
- Student member of Controlled Release Society, USA (2008 – 2009)
- Student member of American Institute for Chemical Engineers (AIChE), USA (2006 – 2007)
- President of Chemical & Biomolecular Engineering-Graduate Students' Association, NUS (2008-2009)

Awards and Honors

- Member of **Sigma Xi Scientific Honor Society**, USA (Feb 2023 - till date)
- **INSA Visiting Scientist Fellowship** (Host: IIT Bombay) (May 2022)
- **Roche Collaborative Research Fellowship** from ARVO, USA (Nov 2020)
- **Young Investigator** at the Young Investigators' Meeting organized by India Bioscience Group (Feb 2020)
- **Finalist** at the National Bio Entrepreneurship Competition organized by C-CAMP, Bangalore (Dec 2019)
- **Award for Research Publication** from the Vision Group for Science & Technology, Govt of Karnataka (June 2019)
- **Winner** of DST-Lockheed Martin-Tata Trusts India Innovation Growth Programme University Challenge (July 2019)
- **Best Poster Award** at the COMSOL Conference, Bangalore (2018)
- **Innovation Certificate** by Partners Healthcare, Brigham & Women's Hospital, Harvard Medical School (2017)
- Session Chair at the International Conference on Biomedical Engineering, Singapore (Dec 2016)
- **DBT Travel Grant** to ICBME Singapore (Dec 2016)
- Awarded **Institute Seed Funding** of Rs.48 Lakhs for Research, SIT (2016)
- Selected for Young Investigator Meeting, MIT, USA (Sep 2013)
- Review article in **Featured Five Review Collection** in Cell Stem Cell Journal (March 2013)
- Selected to participate in Advanced School of Living Mechanics, NCBS, India (Nov 2010)
- Indo-US Science & Technology Forum (IUSSTF) Postdoctoral Fellowship (Aug 2010–Dec 2013)
- Biomedical Research Council (BMRC) Research Fellowship, NUS (Aug 2009-Aug 2010)
- NUS Research Scholarship for PhD (Jan 2006- Aug 2010)
- Ph.D. research proposal awarded funding (S$541,000) by BMRC to PI, NUS (2008-2010)
- **Best poster award** at Graduate Student Symposium, Singapore, 2004
- Bioprocess Engineering Continuing Education Course – **Distinction**, IISc, India (May 2002)

Courses Taught

Undergraduate Courses

- Mass Transfer, Advanced Mass Transfer
- Biochemical Engineering
- Process Calculations, Bioprocess Calculations
- Biology for Engineers
- Chemical Reaction Engineering
- Heat and mass transfer (Teaching Assistant), NUS, Singapore, 2007, 2008, 2009
- Heat and mass transfer (Laboratory Teaching Assistant), NUS, Singapore, 2009
- Process control lab (Teaching Assistant), NUS, Singapore, 2006
- Process dynamics and control (Teaching Assistant), NUS, Singapore, 2004

- Mathematical Methods in Chemical Engineering (Teaching Assistant), NUS, Singapore, 2004

Postgraduate Courses

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Research Guidance

Sl. No.	Name of the Scholar	Title	Year of completion
1	Dr. Ramesha H (Postdoc Fellow)	Understanding the cellular and molecular interaction between glioma stem cells and T-cells in the context of immune exhaustion	Mar 2025 – till date
2	Dr. Tanusree Saha (Postdoc Fellow)	Understanding the cellular and molecular interaction between glioma stem cells and T-cells in the context of immune exhaustion	Apr 2024 – Jan 2025
3	Dr. Thanuja M Y	Development and characterization of natural and synthetic nanovesicles for drug delivery and biosensing applications	2016 - 2022
4	Dr. Anupama C	Effect of oxidative stress on the barrier function of corneal endothelium	2018 - 2023
5	Rudraradhya U	Prophylactic drug delivery to donor corneal endothelium	2024 - till date
6	Varsha G	Synthesis and development of injectable, intravitreal and stimuli-responsive drug delivery systems to treat eye diseases	2024 - till date (Co-guide)
7	Shubhangi Pandit (IIT Delhi)	Microfluidic devices for cellular lysis for high throughput production of cell membrane vesicles for drug delivery	2023 - till date (Co-guide)
8	Bharathi M	Small molecule inhibitors to combat atherosclerotic plaque by cholesteryl ester supply cholesteryl ester transfer protein	2024 - till date (Co-guide)
9	Kavya S U (Research Fellow)	Non-genetic engineering of Mesenchymal Stem Cells to enable T-cell immunotherapy against glioma stem cells	2024-till date
10	Appurva K (MS Engg by Res)	Process development for the extraction of Lithium from RO reject using novel deep eutectic solvents	2024 - till date (Co-guide)
11	Sonal P Kabadi (Project Associate)	Melanocyte isolation, culture and purification from Vitiligo patients for cell therapy	2016 – till date

Research Areas

- Cell-based, cell-derived and cell-inspired targeted drug delivery systems
- Ocular pathophysiology, pharmacology, ocular drug delivery
- Bionanosensors for ocular surface sensing
- Small molecule-based bioengineering and particle engineering of stem cells
- Mesenchymal stem cell-based therapeutics, cancer treatment and immunomodulation
- Development of biomaterial-based micron/submicron/nanoscale drug/protein delivery implants
- Modelling & simulation of transport in biological systems
- Quantum computational and machine learning-assisted design of Deep Eutectic Solvents
- Deep Eutectic Solvent-based extraction of Lithium from RO reject water and spent Li ion batteries

Sponsored Projects

Ongoing Projects:

1. Title: Development and standardization of protocols for isolation, culture, characterization and purification of autologous melanocytes for transplantation in Indian Vitiligo patients
   Funding Agency: Cutis Academy of Cutaneous Sciences, Bengaluru
   Amount: ₹**34.10 lakhs**
   Duration: 1 year (2026 - 2027)
   Role: Principal Investigator

2. Title: Development, optimization, and antifungal evaluation of fabrics functionalized with Carbon Quantum Dot–stabilized nanoparticles for textile applications
   Funding Agency: Cutis Medi Apparels LLP, Bengaluru
   Amount: ₹**8.96 lakhs**
   Duration: 1 year (2025 - 2026)
   Role: Principal Investigator

3. Title: Investigation of the protective effects of AMPK activation against energy stress in cold-stored ex vivo donor corneal endothelium
   Funding Agency: National Academy of Sciences, USA and SigmaXi
   Amount: ₹**2.14 lakhs**
   Duration: 1 year (2025)
   Role: Principal Investigator and Mentor

4. Title: Network center for research on glioblastoma stem cell-targeted T-Cell immunotherapy using non-genetically engineered mesenchymal stromal cells
   Funding Agency: Department of Biotechnology, Govt. of India
   Amount: ₹**3.35 crores**
   Duration: 3 Years
   Role: Principal Investigator and Project Coordinator

5. Title: Seed Grant to establish Bio-IN*v*ENT Center of Excellence
   Funding Agency: Sree Siddaganga Education Society (SSES), Tumakuru
   Amount: ₹**37.4 lakhs**
   Duration: NA
   Role: Principal Investigator and Project Coordinator

Completed Projects:

1. Title: Nanoparticle-based prophylactic drug delivery to the corneal endothelium
   Funding Agency: SERB, Dept of Science & Technology, Govt of India
   Amount: ₹35.04 Lacs
   Duration: 3 year
   Role: Principal Investigator

2. Title: Mesenchymal stem cell membrane-derived nanovesicles loaded with 177Lu for targeted cancer therapy
   Funding Agency: BRNS, Department of Atomic Energy, Govt of India
   Amount: ₹28.82 Lacs

Duration: 3 Year
Role: Principal Investigator

3. Title: Investigation of ferroptosis as the mechanism of hypothermia-induced cell death and barrier dysfunction in cold stored ex vivo corneal endothelium
   Funding Agency: National Academy of Sciences, USA and SigmaXi
   Amount: ₹2.08 lakhs
   Duration: 1 Year
   Role: Principal Investigator and Mentor

4. Title: Rescuing the hypothermia- and cytokine-induced damage to donor corneal endothelial functions by pre-treatment with microtubule stabilizers
   Funding Agency: Association for Research in Vision Science & Ophthalmology, USA
   Amount: $10,000
   Duration: 1 Year
   Role: Principal Investigator

5. Title: Unraveling a new strategy of inhibition of Cholesteryl ester transfer protein by small molecule inhibitors through site directed mutagenesis and molecular dynamics simulation studies
   Funding Agency: Vision Group on Science & Technology, Govt of Karnataka
   Amount: ₹25 Lacs
   Duration: 2 Year
   Role: Co-Principal Investigator

6. Title: CLeONs: High efficiency contact lens-coated oxygen nanosensors for eye clinics
   Funding Agency: DST-Lockheed Martin-Tata Trusts
   Amount: ₹10 Lacs
   Duration: 1 Year
   Role: Principal Investigator

7. Title: Understanding the biophysical properties of cell membrane-derived nanocarriers
   Funding Agency: Indo-French Centre for the Promotion of Advanced Research
   Amount: ₹1.69 Lacs
   Duration: 3 months
   Role: Principal Investigator

8. Title: Nanoparticle-assisted non-genetic, transient engineering of stem cells for therapy
   Funding Agency: TEQIP-II/SSES
   Amount: ₹9.5 Lacs
   Duration: 1 Year
   Role: Principal Investigator

9. Title: Ocular drug delivery and biosensing via nanotechnology and mathematical modeling
   Funding Agency: SSES, Tumkur
   Amount: ₹47.25 Lacs
   Duration: 6 Year
   Role: Principal Investigator

Publications

Journals

1. WB Krantz, JA Bonanno, **SH Ranganath**. Oxygen transfer in the human cornea: Sensitivity and error-propagation analyses incorporating an oxygen-tension-dependent diffusion coefficient. ***Experimental Eye Research***. 263, 2026, 110779.

2. Chakraborty A, ... **SH Ranganath**, …., Arghya Paul. Engineering multifunctional adhesive hydrogel patches for biomedical applications. ***Interdisciplinary Medicine***, 2023. https://doi.org/10.1002/INMD.20230008.
3. Shilpashree PS, ... SH Ranganath, et al. Grading the severity of damage to the peri-junctional actomyosin ring and ZO-1 of the corneal endothelium by ensemble learning methods. ***Journal of Ocular Pharmacology & Therapeutics***, 2023; 39(4): 252-274.
4. Thanuja MY, Tellakula SS, Suryavanshi SV, Keerthana GS, Chandan V, **Ranganath SH**. Fusogenic liposome-coated nanoparticles for rapid internalization into donor corneal endothelial tissue to enable prophylaxis before transplantation. ***Nanoscale Advances***, 2023; 5(23): 6410-6422.
5. Roy D, Udugiri G, **Ranganath SH**. Evaluation of suitability and detection range of fluorescent dye-loaded nanoliposomes for sensitive and rapid sensing of wide ranging osmolarities. ***Journal of Liposome Research***, 2023; 33(3): 300-313.
6. Anupama C, Abhijith SR, **Ranganath SH**, Srinivas SP. Experimental oxidative stress breaks down the barrier function of the corneal endothelium. ***Journal of Ocular Pharmacology & Therapeutics***, 2023; 39(1): 70-79.
7. Thanuja MY, **Ranganath SH**, Srinivas SP. Role of oxidative stress in the disruption of the endothelial apical junctional complex during corneal cold storage. ***Journal of Ocular Pharmacology & Therapeutics***, 2022; 38 (10), 664-681.
8. SP Srinivas, ... **SH Ranganath**, et al. Depth-resolved fluorescence lifetime spectroscopy across the cornea in digital frequency domain. Multiphoton Microscopy in the Biomedical Sciences XXII 11965, 2022; 44-53.
9. Thanuja MY, **Ranganath SH**, Bonnano JA, Srinivas SP. Nanoliposomes for sensing local osmolarity of the tear film on the corneal surface. ***Journal of Ocular Pharmacology & Therapeutics***, 2022; 38(8): 549-560.
10. Anupama C, Thanuja MY, **Ranganath SH**, Pandya K, Kompella UB, Srinivas SP. Oxidative stress induces a breakdown of the cytoskeleton and tight junctions of the corneal endothelial cells. ***Journal of Ocular Pharmacology & Therapeutics***, 2022; 38(1): 74-84.
11. Thanuja MY, Suma BS, Divyasree D, **Ranganath SH**, Srinivas SP. Microtubule stabilization protects hypothermia-induced damage to the cytoskeleton and barrier integrity of the corneal endothelial cells. ***Journal of Ocular Pharmacology & Therapeutics***, 2021; 37(7): 399-411.
12. Rogers OC, Antony L, Levy O, Joshi N, Simons BW, Dalrymple SL, Rosen DM, Pickering A, Lan H, Kuang H, **Ranganath S**, et al. Microparticle encapsulation of a prostate-targeted biologic for the treatment of liver metastases in a preclinical model of castration-resistant prostate cancer. ***Molecular Cancer Therapeutics***, 2020; 19(11), 2353-2362
13. Thanuja MY, Anupama C, **Ranganath SH**. Bioengineered cellular and cell membrane-derived vehicles for actively targeted drug delivery: So near and yet so far. ***Advanced Drug Delivery Reviews*** 2018; 132, 57-80.
14. SP Srinivas, A Goyal, DP Talele, S Mahadik, RR Sudhir, P Pavani Murthy, **S Ranganath**, U Kompella, P Padmanabhan. Corneal epithelial permeability to fluorescein in humans by a multi-drop method. ***PLoS ONE*** 2018; 13 (6), e0198831.
15. Yang Z, Concannon J, Ng KS, Seyb K, Mortensen L, **Ranganath SH**, Gu F, Levy O, Zhao W, Glicksmen M, Karp JM. Tetrandrine identified in a small molecule screen to activate mesenchymal stem cells for enhanced immunomodulation. ***Scientific Reports***, 2016; 6, 30263.
16. **Ranganath SH**, Tong Z, Levy O, Martyn K, Karp JM, Inamdar MS. Controlled inhibition of the mesenchymal stromal cell pro-inflammatory secretome via microparticle engineering. ***Stem Cell Reports***, 2016; 6, 1-14.
17. Levy O, Brennen WN, Han E, Rosen DM, Musabeyezu J, Safaee H, **Ranganath S**, et al. A prodrug-doped cellular Trojan Horse for the potential treatment of prostate cancer. ***Biomaterials*** 2016; 91, 140-150.
18. Fu Y, Ong LC, **Ranganath SH**, Zheng L, Yu S, Chow PKH, Wang CH. A dual tracer 18F-FCH/18F-FDG PET imaging of an orthotopic brain tumor xenograft model. ***PLoS ONE*** 2016; 11 (2), e0148123.
19. **Ranganath SH**, Levy O, Inamdar MS, Karp JM. Harnessing the mesenchymal stem cell secretome for the treatment of cardiovascular disease. ***Cell Stem Cell*** 2012; 10(3): 244–258.

20. **Ranganath SH**, Tan AL, He F, Krantz WB, Wang CH. Control and enhancement of perm-selectivity of membrane-based microcapsules for favorable biomolecular transport and immunoisolation. ***AIChE Journal*** 2011; 57: 3052-3062.
21. **Ranganath SH**, Fu Y, Arifin DY, Kee I, Zheng L, Lee HS, Chow PKH, Wang CH. The use of submicron/nanoscale PLGA implants to deliver paclitaxel with enhanced pharmacokinetics and therapeutic efficacy in intracranial glioblastoma in mice. ***Biomaterials*** 2010; 31: 5199-5207.
22. **Ranganath SH**, Kee I, Krantz WB, Chow PKH, Wang CH. Hydrogel matrix entrapping PLGA-paclitaxel microspheres: Drug delivery with near zero-order release and implantability advantages for intracranial chemotherapy. ***Pharmaceutical Research*** 2009; 26: 2101-2114.
23. Ong BYS, **Ranganath SH**, Lee LY, Lu F, Lee HS, Sahinidis NV, Wang CH. Paclitaxel delivery from PLGA foams for controlled release in post-surgical chemotherapy against glioblastoma multiforme. ***Biomaterials*** 2009; 30: 3189-3196.
24. Lee LY, **Ranganath SH**, Fu Y, Zheng JL, Lee HS, Wang CH, Smith KA. Paclitaxel release from micro-porous PLGA disks. ***Chemical Engineering Science*** 2009; 64: 4341-4349.
25. **Ranganath SH**, Wang CH. Biodegradable microfiber implants delivering paclitaxel for the post-surgical chemotherapy against malignant glioma. ***Biomaterials*** 2008; 29: 2996-3003.
26. Loh KC, **Ranganath S**. External-loop fluidized bed airlift bioreactor (EFBAB) for the cometabolic biotransformation of 4-chlorophenol (4-cp) in the presence of phenol. ***Chemical Engineering Science*** 2005; 60(22): 6313-6319.

Conference Proceedings (Selected)

1. Spatiotemporal sensing of local osmolarity of the tear film on the corneal surface using nanoliposomes for diagnosing dry eye disease. ***Progress in Regenerative & Integrative Medicine for Eye (PRIME Summit 2025)***, Narayana Netralaya, Bengaluru (Nov 2025).
2. Machine learning-enhanced grading the severity of stress induced damage to the barrier function of the corneal endothelium. ***Progress in Regenerative & Integrative Medicine for Eye (PRIME Summit 2025)***, Narayana Netralaya, Bengaluru (Nov 2025).
3. Oxidative stress induces a breakdown of the cytoskeleton, tight junctions and barrier function of corneal endothelial cells. ***Progress in Regenerative & Integrative Medicine for Eye (PRIME Summit 2025)***, Narayana Netralaya, Bengaluru (Nov 2025).
4. Computational thermodynamics- and machine learning-based screening of deep eutectic solvents for the extraction of Lithium from low concentration sources. **14th International Conference on Sustainable Waste Management - Circular Economy & IPLA Global Forum**, GITAM University (Nov 2024)
5. Biochemical insights into the oxidative stress-induced adverse effects of cold storage on the barrier function of donor corneal endothelium. **SRRR-INDIA DISCOVER 2024**, BARC, Mumbai (Nov 2024)
6. Computational thermodynamics- and machine learning-based screening of deep eutectic solvents for the extraction of Lithium from low concentration sources. 14th International Conference on Sustainable Waste Management - Circular Economy & IPLA Global Forum, GITAM University (Nov 2024)
7. Biochemical insights into the oxidative stress-induced adverse effects of cold storage on the barrier function of donor corneal endothelium. SRRR-INDIA DISCOVER 2024, BARC, Mumbai (Nov 2024)
8. Computational thermodynamics- and machine learning-based screening of deep eutectic solvents for the extraction of Lithium from low concentration sources. SChemcon 2024, IIChE-RGPIT, Amethi (Sep 2024)
9. Machine learning and computational thermodynamics-based screening of deep eutectic solvents for the extraction of Lithium from low concentration sources. IISc Sustainability Summit, IISc Bangalore (July 2024)
10. Fusogenic liposome-coated nanoparticles for rapid internalization into donor corneal endothelial tissue to enable prophylaxis before transplantation. Nature Conference on Nanomaterials in Biomedical Applications, MAHE Manipal (Feb 2024).

11. Fluorescent dye-loaded nanoliposomes for sensing local osmolarity of the tear film on the corneal surface. Nature Conference on Nanomaterials in Biomedical Applications, MAHE Manipal (Feb 2024).
12. Nanoparticle-based prophylactic microtubule stabilization protects barrier integrity of donor corneal endothelial cells from hypothermic stress. Progress in Regenerative & Integrative Medicine for Eye (PRIME Summit 2023), Narayana Netralaya, Bengaluru (Dec 2023).
13. Fusogenic Liposome-coated Nanoparticles for rapid internalization into donor corneal endothelial tissue to enable prophylaxis before transplantation. Progress in Regenerative & Integrative Medicine for Eye (PRIME Summit 2023), Narayana Netralaya, Bengaluru (Dec 2023).
14. Oxidative stress induces a breakdown of the cytoskeleton, tight junctions and barrier function of corneal endothelial cells. Progress in Regenerative & Integrative Medicine for Eye (PRIME Summit 2023), Narayana Netralaya, Bengaluru (Dec 2023).
15. Fusogenic liposome-coated nanoparticles for rapid internalization into donor corneal endothelial tissue to enable prophylaxis before transplantation. International Conference on Advancements in Polymeric Materials, CIPET, Bengaluru (Mar 2023).
16. Sensing local osmolarity of the tear film on the corneal surface using fluorescent dye-loaded nanoliposomes. ARVO Annual Meeting, Denver, USA (May 2022).
17. Automatic image skeletonization to characterize ZO-1 distribution in the corneal endothelium following hypothermia and oxidative stress. ARVO Annual Meeting, Denver, USA (May 2022).
18. Corneal cold storage breaks down the actin cytoskeleton and tight junctions of the endothelium via oxidative stress. ARVO Annual Meeting, Denver, USA (May 2022).
19. Depth-resolved fluorescence lifetime spectroscopy across the cornea in the digital frequency domain. SPIE Photonics West Conference, San Francisco, USA (Jan 2022).
20. Hypothermia breaks down the barrier function of the corneal endothelium. ARVO Annual Meeting, (May 2021).
21. Impact of oxidative stress on the cytoskeleton and barrier integrity of the corneal endothelium. ARVO Annual Meeting, (May 2021).
22. Drug-loaded nanoparticle internalization into donor cornea towards enhanced transplantation. Bengaluru India Nano 2020, Bengaluru (Mar 2020).
23. Mesenchymal stem cell membrane-cloaked nanoparticles for active targeted cancer therapy. Bengaluru India Nano 2020, Bengaluru (Mar 2020).
24. Ruthenium-loaded silica nanoparticles bound to contact lenses for rapid pO2 sensing in the post lens-tear film. Bengaluru India Nano 2020, Bengaluru (Mar 2020).
25. Multifaceted effects of oxidative stress on the corneal endothelium in Fuchs Endothelial Corneal Dystrophy (FECD). Society for Free Radical Research (SFRR) - India Annual Meeting 2020. BARC, Mumbai (Feb 2020).
26. An integrated and multidisciplinary approach to the development of ocular theranostic solutions. Young Investigators' Meeting, Mahabalipuram (Feb 2020).
27. CLeONs: Contact Lens-coated oxygen nanosensors for rapid pO_2 sensing in the post lens-tear film. International Conference on Biomedical Engineering, Singapore (Dec 2019).
28. Ruthenium-loaded silica nanoparticles bound to contact lenses for rapid pO2 sensing in the post lens-tear film. ARVO-IERG, Chennai (2019)
29. Digital frequency domain approach for pO2 sensing with a microfluorometer developed for transcorneal measurements. ARVO Annual Meeting, British Columbia, Canada (May 2019).
30. Simulation of measurement of corneal permeability by multi-drop method using COMSOL Multiphysics. COMSOL Conference 2018, Bangalore, INDIA (Aug 2018).

31. Measurement of endothelial permeability to fluorescein with a spot fluorometer. ARVO Annual Meeting, Baltimore, USA (May 2017).
32. Reevaulation of epithelial permeability to fluorescein by the multi-drop method. ARVO Annual Meeting, Baltimore, USA (May 2017).
33. Non-genetic, Transient Engineering of Mesenchymal Stem Cell Secretome via Intracellular Controlled Drug Delivery. Society for Biomaterials Annual Meeting, Minneapolis, USA (April 2017).
34. Non-genetic and transient engineering of mesenchymal stem cell secretome using intracellular, controlled drug delivery. International Conference on Biomedical Engineering (ICBME 2016), Singapore (Dec 2016).
35. Attacking prostate cancer with a prodrug-doped cellular Trojan horse. American Association of Cancer Research 107th Annual Meeting 2016; New Orleans, LA, USA (April 2016).
36. Measurement of corneal epithelial permeability to Fluorescein in humans by multi-drop method. ARVO Annual Meeting, Seattle, USA (May 2016).
37. Nanoparticle engineering of corneal endothelial cells for transplantation. International Advanced Lecture Series in Ocular Pharmacology: Recent Trends with a Focus on Nanomedicine. SIT, Tumkur, Aug 2015.
38. Cell membrane-derived nanocarriers for targeted drug delivery. International Advanced Lecture Series in Ocular Pharmacology: Recent Trends with a Focus on Nanomedicine. SIT, Tumkur, Aug 2015.
39. Delivery of riboflavin into corneal stroma with and without iontophoresis. International Advanced Lecture Series in Ocular Pharmacology: Recent Trends with a Focus on Nanomedicine. SIT, Tumkur, Aug 2015.
40. Effects of brief periods of eye closure on the dynamics of pO2 underneath a contact lens. International Advanced Lecture Series in Ocular Pharmacology. SIT, Tumkur, Aug 2015.
41. Penetration of hydrophilic sulforhodamine B into the cornea. International Advanced Lecture Series in Ocular Pharmacology: Recent Trends with a Focus on Nanomedicine. SIT, Tumkur, Aug 2015.
42. Measurement of tear flow rates in humans using a spot fluorometer. Advanced Lecture Series in Ocular Pharmacology: Recent Trends with a Focus on Nanomedicine. SIT, Tumkur, Aug 2015.
43. Mesenchymal stromal cells as a cellular delivery platform of prostate cancer prodrugs. Society of Biomaterials Annual Meeting, Denver, CO, USA, April 2014.
44. Mesenchymal stem cells (MSC) as a cell-based delivery vector for PSA-activated prodrugs to sites of prostate cancer. American Association of Cancer Research (AACR) Annual Meeting, San Diego, USA, October 2014; 74(19).
45. Micro/nano-structures enabling chemotherapy & stem cell phenotype control. Young Investigator Meeting, MIT, Cambridge, USA, September 2013.
46. 8th Indo-Australian Biotechnology Conference on Stem Cell Biology, Bangalore, India, December 2011. – poster presentation.
47. Micro/nano-structured implants delivering paclitaxel: Enhanced pharmacokinetics and therapeutic efficacy in treating intracranial glioblastoma in mice. CRS Annual meeting 2010, Portland, USA, July 2010.- podium presentation.
48. Bio-molecular mass transport across alginate microcapsules with genipin-chitosan membrane shell: Implications for micro-bioreactor-based protein delivery. CRS Annual meeting 2010, Portland, USA, July 2010. – poster presentation.
49. Implantable hydrogel beads entrapping PLGA-paclitaxel microspheres: Exploring the effects of near-zero order drug release for intracranial chemotherapy. AIChE Annual Meeting, Philadelphia PA, USA, 16-21 November 2008. – podium presentation.

50. Local intracranial drug delivery using biodegradable PLGA-paclitaxel micro/nano-fiber implants to treat malignant brain tumors. AIChE Annual Meeting, Philadelphia PA, USA, 16-21 November 2008. – podium presentation.
51. In vitro efficacy of implantable hydrogel beads entrapping PLGA-paclitaxel microspheres in treating brain tumors. ChemBiotech'08 Regional Conference, Singapore, 19-20 December 2008. – poster presentation.
52. External-loop fluidized bed airlift bioreactor (EFBAB) for the co-metabolic biotransformation of 4-chlorophenol (4-cp) in the presence of phenol. 7th International Conference on Gas-Liquid-Solid Reactor Engineering, Strasbourg, France, 21-24 August 2005. – poster presentation.

Book Chapters

1. Ranganath SH, Thanuja MY, Anupama C, Manjunatha TD. (2021) Systemic Drug Delivery to the Posterior Segment of the Eye: Overcoming Blood–Retinal Barrier Through Smart Drug Design and Nanotechnology. In: Tripathi A., Melo J.S. (eds) Immobilization Strategies. Gels Horizons: From Science to Smart Materials. Springer, Singapore. https://doi.org/10.1007/978-981-15-7998-1_6.
2. Waters RM, Maloney R, Ranganath SH, Hsieh, HY, Paul A. Nano- and microscale delivery systems for cardiovascular therapy. Microscale Technologies for Cell Engineering, 2016; 269-289.

Books

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Editorial

1. CH Wang, SH Ranganath. Current formulations and techniques of drug/gene delivery for targeted therapy and tissue engineering. Current Pharmaceutical Design 2010; 16(21): 2296-2297.

Editor / Reviewer of Journal

- Reviewer, **American Chemical Society** (Publisher: ACS)
- Reviewer, **Advanced Drug Delivery Reviews** (Publisher: Elsevier)
- Editorial Board Member, **Journal of Cancer Science & Treatment** (Publisher: SciTech Central, USA)
- Reviewer, **Journal of Materials Chemistry B** (Publisher: Royal Society of Chemistry, London)
- Reviewer, **RSC Advances** (Publisher: Royal Society of Chemistry, London)

Patents

Patents (Applied)

- A formulation and a method for inducing defense response in plants. 2022, WO 2022/097174
- A formulation and a method for inducing defense response in plants. 2022, 200233.403 (US Patent)
- A method for recycling cathode materials from spent Lithium-ion batteries. 2023, 202311080453 (Indian Patent)

Invited Lectures, Talks and Workshops

2. Keynote Speaker, Science & Society for Sustainable Future Conference, KSTA (Govt. of Karnataka), Nov 2025
3. Panel Discussion, PRIME Summit, Narayana Netralaya (Nov 2025)

4. Invited Lecture, Department of Chemical Engineering, IIT Hyderabad (April 2025)
5. Invited Industry Lecture, MTech Program, Dept of Chemical Engineering, IIT Hyderabad (April 2025)
6. Invited Lecture, SRRR-INDIA DISCOVER 2024, BARC, Mumbai (Nov 2024)
7. Invited Talk, Science Forum, Govt. First Grade College, Tumkur (Dec 2023)
8. Invited Talk, PRIME Summit, Narayana Netralaya (Dec 2023)
9. Invited Lecture, Samskara-PG Orientation Program at Ashwini Medical College, Tumkur (May 2023)
10. Invited Lecture, Department of Chemical Engineering, IIT Bombay (Jan 2023)
11. Invited Lecture, Bioscience Group, Bhabha Atomic Research Center (BARC), Mumbai (Dec 2022)
12. Invited Talk, FDP on Smart and Sustainable Nanomaterials, DSCE, Bengaluru (Nov 2022)
13. Invited Lecture, National Seminar on Biochemistry, Tumkur University (Sep 2022)
14. Panel Discussion - Education Expo, Pragathi TV, Tumakuru (Mar 2022)
15. Invited Lecture, Department of Chemical Engineering, IIT Hyderabad (Feb 2022)
16. Invited Lecture, School of Optometry, Indiana University, Bloomington, USA (Aug 2021)
17. Invited Lecture, Department of Chemical Engineering, IISc Bangalore (July 2021)
18. Invited Lecture, COMSOL Day: Simulation for Engineering Education & Research (Mar 2021)
19. Webinar, e-Workshop on Nanotechnology, Ramaiah Institute of Technology, Bangalore (Aug 2020)
20. Lecture (Webinar), CSIR-SRTP 2020 (Aug 2020)
21. Webinar, MHRD-Institute Innovation Council of SIT Tumkur (May 2020)
22. Society for Free Radical Research (SFRR) - India Annual Meeting 2020. BARC, Mumbai (Feb 2020).
23. DST-sponsored INSPIRE Science Nurture Camp (Dec 2019)
24. Entrepreneurship Awareness Camp, DSCE, Bangalore (Jan 2019)
25. Chief Guest, Robotech & Science Expo 2018, Sapthagiri PU College, Tumkur (Dec 2018)
26. DST-sponsored INSPIRE Science Nurture Camp (Nov 2018)
27. FDP on Biomaterials for Healthcare, DSCE, Bangalore (July 2018)
28. Cornea and Ocular Surface Symposium at Sankara Nethralaya, Chennai (Mar 2018)
29. Colloquium at Engineering Mechanics Unit, JNCASR, Bangalore (Feb 2018)
30. FDP on Biomaterials for Healthcare, MSRIT, Bangalore (Jan 2018)
31. Special Invitee, Engineers' convention, Ramakrishna-Vivekananda Ashrama, Tumkur (Jan 2018)
32. DST-sponsored INSPIRE Science Nurture Camp (Nov 2017)
33. Bhabha Atomic Research Center (BARC), Mumbai (Nov 2017)
34. Center for PG Studies, Jain University, Bangalore (Sep 2017)
35. Resource person for Career Counselling for Students, Krupamayi Makkala Balaga (May 2017)
36. Industrial Flow Measurement Symposium, SIT Tumkur (March 2017)
37. FDP on Biomaterials for Healthcare, BMSCE, Bangalore (Mar 2016)
38. Department of Chemical & Biomolecular Engg, National University of Singapore, Singapore (Dec 2016)
39. DST-sponsored INSPIRE Science Nurture Camp (Dec 2016)
40. Biocon Academy, SIT Tumkur (Sep 2016)
41. International Conference on Biomedical Engineering in Ophthalmology, DSCE, Bangalore (Aug 2016)
42. Faculty Development Program on Omics, MSRIT, Bangalore (July 2016)
43. Plenary Talk, National Conference on Impact of Physics on Biological Sciences, SSCW, Tumkur (April 2016)
44. Plenary Talk, National Seminar on Advances & Challenges in Biological Research, Kuvempu University (Mar 2016)
45. Plenary Talk, National Seminar of Stem Cells, JSS College of Science, Mysore (March 2016)
46. Keynote Address, National Science Day, SSCW, Tumkur (January 2016)
47. Biotechnology Finishing School, SIT, Tumkur (December 2015)
48. Panel discussion - Futuristic Approach to Alternatives to animal testing, IIT Bombay (Nov 2015)
49. BMS College of Engineering, Bangalore (March 2015)
50. Indian Institute of Technology, Indore (October 2014)
51. Indian Institute of Technology, Ropar (May 2014)

52. Keynote Address, Dayananda Sagar College of Engineering, Bangalore University (March 2014)
53. Indian Institute of Technology, Kanpur (February 2014)
54. Indian Institute of Technology, Hyderabad (February 2014)
55. Indian Institute of Science, Bangalore (January 2014)
56. Orientation to Biomedical Research for Japanese high school students, BWH, USA (April 2013)

Date: 10 February 2026