

## DR. AGNISHWAR GIRIGOSWAMI



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### Qualifications:

Ph.D.: 2004, Department of Chemistry, University of Kalyani, Kalyani 741 235, INDIA.

### Research Interests:

Biomedical Nanotechnology

### Post-Doc / Work Experience:

- 1) 2015 – Present: Professor, Faculty of Allied Health Sciences, Chettinad Academy of Research & Education (CARE), Kelambakkam, Chennai 603 103, INDIA.
- 2) 2012 – 2015 : Associate Professor, Faculty of Allied Health Sciences, Chettinad Hospital and Research Institute (CHRI), Chettinad Academy of Research & Education (CARE), Kelambakkam, Chennai 603 103, INDIA.
- 3) 2010 – 2012 : Asst. Professor, Dept. of Medical Bionanotechnology, Chettinad Hospital and Research Institute (CHRI), Chettinad Academy of Research & Education (CARE), Kelambakkam, Chennai 603 103, INDIA.
- 4) 2010 – 2010 : Lecturer, Department of Biochemistry, RKVM Sarada Ma Girls' College, Kolkata 700126, INDIA
- 5) 2009 – 2010 : Lecturer & HOD-Basic Sciences, JIS School of Polytechnic, Kalyani, 741 235, INDIA
- 6) 2008 – 2009 : CSIR-RA, Jadavpur University, Kolkata 700 032, INDIA.
- 7) 2006 - 2008: Postdoctoral Researcher, Korea Advanced Institute of Science and Technology (KAIST), SOUTH KOREA.
- 8) 2004 – 2006 : CSIR Project Fellow, University of Kalyani, Kalyani 741 235, INDIA.

### Extramural projects:

*PI*: Formulation of nanoparticle-based probe for multimodal imaging and therapy, Council of Scientific and Industrial Research (CSIR), INDIA. No. 01(2868)/17/EMR-II, May 2017 (on going).

*PI*: Photophysical study of biologically active molecules and biomacromolecules in biomimicking systems, Council of Scientific and Industrial Research (CSIR), INDIA, Scheme No. 9/96(0552)2K8-EMR-I, (Completed).

## Patents / GenBank Submissions:

1. Sanjay K Metkar, Koyeli Girigoswami, Ramachandran Murugesan and Agnishwar Girigoswami, Denaturation of Amyloids by Lumbrokinase, submitted to Patent Office, Chennai on 09.10.2015, Ref. No. 5412/CHE/2015. Patent published on 14.4.2017 in The Patent Office Journal, India, 10756.
2. Sanjay K Metkar, Koyeli Girigoswami, Ramachandran Murugesan and Agnishwar Girigoswami, Degradation Process of Amyloid Fibrils by Serratiopeptidase, submitted to Patent Office, Chennai on 09.10.2015, Ref. No. 5415/CHE/2015.
3. Koyeli Girigoswami, Agnishwar Girigoswami, Ramachandran Murugesan and Najim Akhtar, Sensor For Amyloid Detection Based On ZnO Nanoflower Platform, submitted to Patent Office, Chennai on 11.01.2017, Appl. No. 201741001092.
4. Agnishwar Girigoswami, Haribabu V, Koyeli Girigoswami, Sharmila P, Label-free biocompatible magnetofluorescent nanoclusters for multimodal imaging, submitted to Patent Office, Chennai on 11.01.2017, Appl. No. 201741001085.

## Research Guidance:

Ph.D.:03

M.Sc.: 09

## Summary of Research:

Papers	39	Cites/paper	21.19	h-index	15
Citations	786	Cites/author	242.73	g-index	27
Years	15	Papers/author	11.18	hc-index	8
Cites/year	52.27	Authors/paper	4.19	i10-index	21

## Publications:

39. P. Sharmiladevi, V. Haribabu, K. Girigoswami, S.F. Abubacker, Agnishwar Girigoswami, Effect of Mesoporous Nano Water Reservoir on MR Relaxivity, *Scientific Reports*, 2017, 7:11179.

38. R. Deepika, K. Girigoswami, R. Murugesan, Agnishwar Girigoswami, Influence of Divalent Cation on Morphology and Drug Delivery Efficiency of Mixed Polymer Nanoparticles, *Current Drug Delivery*, 2017 (in press).

37. SK. Metkar, K. Girigoswami, Agnishwar Girigoswami, R. Murugesan, Degradation Process of Amyloid Fibrils by Serratiopeptidase, *The Patent Office Journal* 30/06/2017, INDIA, 22220.
36. N. Akhtar, SK. Metkar, Agnishwar Girigoswami, K. Girigoswami, ZnO Nanoflower Based Sensitive Nano-biosensor for Amyloid Detection, *Materials Science and Engineering C*, 2017, 78, 960-968.
35. SK. Metkar, K. Girigoswami, Agnishwar Girigoswami, R. Murugesan, Denaturation Of Amyloids By Lumbrokinase, *The Patent Office Journal* 14/04/2017, INDIA, 10756.
34. SK. Metkar, Agnishwar Girigoswami, R. Murugesan, K. Girigoswami, Lumbrokinase for degradation and reduction of amyloid fibrils associated with amyloidosis, *Journal of Applied Biomedicine*, 2017, 15, 96-104.
33. SK. Metkar, Agnishwar Girigoswami, R. Murugesan, K. Girigoswami, *In vitro and in vivo insulin amyloid degradation mediated by Serratiopeptidase*, *Materials Science and Engineering C*, 2017, 70, 728-735.
32. M. Vimaladevi, KC. Divya, Agnishwar Girigoswami, *Liposomal Nanoformulations of Rhodamine for Targeted Photodynamic Inactivation of Multidrug Resistant Gram Negative Bacteria in Sewage Treatment Plant*, *J. Photochem. Photobiol B*, 2016, 162, 146-152
31. V. Haribabu, A. S. Farook, N. Goswami, R. Murugesan, Agnishwar Girigoswami, *Optimized Mn-Doped Iron Oxide Nanoparticles Entrapped in Dendrimer for Dual Contrasting Role in MRI*, *Journal of Biomedical Materials Research: Part B - Applied Biomaterials*, 2016, 104, 817-824.
30. Koyeli Girigoswami, Meenakshi Viswanathan, Ramachandran Murugesan, Agnishwar Girigoswami, *Studies on Polymer-Coated Zinc Oxide Nanoparticles: UV-blocking Efficacy and in vivo Toxicity*, *Materials Science and Engineering C*, 2015, 56, 501-510.
29. JC. Kavya, G. Amsaveni, Haseena Yasmin, R. Murugesan, Agnishwar Girigoswami, *Gene Expression Profile Induced by Liposomal Nanoformulation of Anticancer Agents: Insight into Cell Death Mechanism*, *Adv. Sci. Eng. Med.*, 2014, 6, 159-165.
28. Agnishwar Girigoswami, *Nanomedicine: Promising Tools in Biomedical Sciences*, *CHC Medical Journal*, 2013, 02, 99-102
27. G. Amsaveni, A. S. Farook, V. Haribabu, R. Murugesan, Agnishwar Girigoswami, *Engineered Multifunctional Nanoparticles for DLA Cancer Cells Targeting, Sorting, MR Imaging and Drug delivery*, *Adv. Sci. Eng. Med.*, 2013, 5, 1340-1348.
26. JC. Kavya, G. Amsaveni, M. Nagalakshmi, K. Girigoswami, R. Murugesan, Agnishwar Girigoswami, *Silver Nanoparticles Induced Lowering of BCL<sub>2</sub> / Bax Causes DLA Tumour Cell Death in Mice*, *Journal of Bionanoscience*, 2013, 7, 276-281.
25. U. Ghosh, M. Nagalakshmi, R. Sadhukhan, Agnishwar Girigoswami, *Biocapped Nanoparticles are More Bioactive to HeLa Cells than its Chemical Counterpart*, *Adv. Sci. Eng. Med.* 2013, 5, 783-788.

24. D. Ghosh, Agnishwar Girigoswami, N. Chattopadhyay, *Superquenching of coumarin 153 by gold nanoparticles*, **J. Photochem. Photobiol. A**, 2012, 242, 44-50.
23. T. Jaiganesh, J. Daisy Vimala Rani, Agnishwar Girigoswami, *Spectroscopically Characterized Cadmium Sulphide Quantum Dots Lengthening the Lag Phase of Escherichia coli Growth*, **Spectrochimica Acta A**, 2012, 92, 29-32.
22. D. Ghosh, D. Sarkar, Agnishwar Girigoswami, N. Chattopadhyay, *A fully standardized method of synthesis of gold nanoparticles of desired dimension in the range 15 nm - 60 nm*. **Journal of Nanoscience and Nanotechnology**, 2011, 11, 1141-1146.
21. KW Park, Agnishwar Girigoswami, H. Parab, C. Jung, H.G. Park, *Label-Free Biomolecule Detection by Using Aptamer-Based Microarray*, International Proceeding The 24th International Symposium on **Chemical Engineering**, 2011, Dec. 2-4, Hyundai Hotel, South Korea.
20. D. Bose, P. Das, D. Ghosh, A. Mahata, D. Sarkar, Agnishwar Girigoswami and N. Chattopadhyay, *Binding of a cationic phenazinium dye in anionic liposomal membrane: A spectacular modification in the photophysics*, **Chem. Phys. Lipids**, 2010, 163, 94-101.
19. D. Bose, D. Sarkar, Agnishwar Girigoswami, A. Mahata, D. Ghosh and N. Chattopadhyay, *Photophysics and dynamics of cationic phenazinium dyes in anionic reverse micelle: Effect of methyl substitution*, **J. Chem. Phys.**, 2009, 131, 114707/1-9.
18. D. Sarkar, A. Mahata, P. Das, Agnishwar Girigoswami, D. Ghosh and N. Chattopadhyay, *Deciphering of the perturbation of serum albumins by a ketocyanine dye: A spectroscopic approach*, **J. Photochem. Photobiol. B.**, 2009, 96, 136-143.
17. A. Mahata, D. Sarkar, D. Bose, D. Ghosh, Agnishwar Girigoswami, P. Das and N. Chattopadhyay, *Photophysics and rotational dynamics of a b-carboline analogue in nonionic micelles: Effect of variation of length of the head group and the tail of the surfactant*, **J. Phys. Chem. B**, 2009, 113, 7517-7526
16. D. Sarkar, P. Das, A. Mahata, Agnishwar Girigoswami and N. Chattopadhyay, *Excited state proton transfer promoted fluorescence resonance energy transfer: Modulation within cyclodextrin nanocavity*, **Chem. Phys. Lett.**, 2009, 474, 88-92
15. Hyo young Mun, Agnishwar Girigoswami, Cheulhee Jung, Hyun Gyu Park, *SNPs detection by Single-Strand Specific nuclease on PNA zip-code microarray*, **Biosensors and Bioelectronics**, 2009, 24, 1706-1711.
14. Agnishwar Girigoswami, Taihua Li, Cheulhee Jung, Hyo Young Mun, Hyun Gyu Park, *Gold Nanoparticle-based Label-free Detection of BRCA1 Mutations Utilizing DNA Ligation on DNA Microarray*, **Journal of Nanoscience and Nanotechnology**, 2009, 9, 1019-1024.
13. Deboleena Sarkar, Paramita Das, Agnishwar Girigoswami, Nitin Chattopadhyay, *Spectroscopic characterization of phenazinium dye aggregates in water and acetonitrile media: Effect of methyl substitution on the aggregation phenomenon*, **Journal of Physical Chemistry A**, 2008, 112, 9684-9691.

12. Agnishwar Girigoswami, Cheulhee Jung, Hyo Young Mun, Hyun Gyu Park, *PCR-free Mutation Detection of BRCA1 on a Zip-code Microarray using Ligase Chain Reaction*, **Journal of Biochemical and Biophysical Methods**, 2008, 70, 897–902.
11. Hyo Young Mun, Agnishwar Girigoswami, Cheulhee Jung and Hyun Gyu Park, *SNPs detection by single-strand specific nuclease on PNA Zip-code microarray*, The 3rd Annual IEEE International Conference on **Nano/Micro Engineered and Molecular Systems**, 2008, Jan. 6-9
10. Won-young Chung, Agnishwar Girigoswami, Cheulhee Jung, Hyo Young Mun and Hyun Gyu Park, *Rapid colorimetric detection of sexually transmitted diseases using ligase detection reaction and gold nanoparticles*, **Theories and Applications of Chemical Engineering**, 2007, 13, 1741.
9. Swati De, Susmita Das, Agnishwar Girigoswami, *Spectroscopic probing of bile salt-albumin interaction*, **Colloids Surf B Biointerfaces**, 2007, 54, 74-81
8. Agnishwar Girigoswami, Cheulhee Jung, Hyo Young Mun, Hyun Gyu Park, *Mutation Detection of BRCA1 on a Zip-code Microarray using Ligase Chain Reaction*, **The Korean Society for Biotechnology and Bioengineering**, 2007, 5.
7. Swati De, Agnishwar Girigoswami, *A Fluorimetric and Circular Dichroism Study of Hemoglobin – Effect of pH and Anionic Amphiphiles*, **Journal of Colloid and Interface Science** 2006, 296, 324
6. Agnishwar Girigoswami, Susmita Das, Swati De, *Fluorescence and Dynamic Light Scattering Studies of Niosomes – Membrane Mimetic Systems*, **Spectrochimica Acta A**, 2006, 64, 859
5. Swati De, Susmita Das, Agnishwar Girigoswami, *Environmental Effects on the Aggregation of Some Xanthene Dyes Used in Lasers*, **Spectrochimica Acta A**, 2005, 61, 1821.
4. Swati De, Agnishwar Girigoswami and Susmita Das, *Fluorescence Probing of Albumin – Surfactant interaction*, **Journal of Colloid and Interface Science**, 2005, 285, 562.
3. Swati De and Agnishwar Girigoswami, *Fluorescence Resonance Energy Transfer – a Spectroscopic Probe for Organized Surfactant Media*, **Journal of Colloid and Interface Science**, 2004, 271, 485
2. Swati De, Agnishwar Girigoswami and Anil Kumar Mandal, *Energy Transfer – a Tool for Probing Micellar Media*, **Spectrochimica Acta A**, 2003, 59, 2487
1. Swati De, Agnishwar Girigoswami and Suchismita Mandal, *Enhanced Fluorescence of Triphenylmethane Dyes in Aqueous Surfactant Solutions at Supramicellar Concentrations – Effect of Added Electrolyte*, **Spectrochimica Acta A**, 2002, 58, 2547.

#### **Workshop / Conference / Seminar Conducted:**

- Two Days Workshop on Nanotechnology for Dental Applications - 11 & 12 April, 2017, Faculty of Allied Health Sciences, Chettinad Academy of Research & Education. Kelambakkam, Chennai 603 103.
- 2 Days National Workshop on Cellular & Molecular Diagnostics, 10th & 11th February, 2017, Faculty of Allied Health Sciences, Chettinad Academy of Research & Education. Kelambakkam, Chennai 603 103.

- Seminar and workshop on *in vivo* small animal optical imaging, 14th March, 2016 at Central Research Lab, Chettinad Academy of Research & Education, Kelambakkam, Chennai 603 103.
- Seminar and workshop on “Biomedical Applications of Flow Cytometry, 13<sup>th</sup> March, 2014, Faculty of Allied Health Sciences, Chettinad Academy of Research and Education, Kelambakkam, Chennai - 603103

## Conference Presentations:

25. Indo-Australian conference on biomaterials, tissue engineering, drug delivery system & regenerative medicine (BiTERM-2015), Fabricated multifunctional nano-vectors for cancer cells targeting, sorting, MR imaging and drug delivery, Anna University, Chennai, INDIA, 5-7 Feb, 2015.
24. National seminar on chemistry of materials for drug delivery (sponsored by DRDO), Hindustan University, Padur, Chennai, INDIA. January, 2015.
23. National symposium on Translational Clinical Research, Chettinad Academy of Research & Education (CARE), Chettinad Health City, Chennai, **INDIA**. Nov 2014,
22. Nanomedicine: Current trends and future prospects, VIT University, Chennai, **INDIA**, April 2014.
21. Open House Demonstration of the Genomic Technology involved in the Genographic Project, Chettinad Academy of Research & Education (CARE), Chettinad Health City, Chennai, **INDIA** Feb 2013,
20. NAAC Sponsored National Seminar on Outreach – A Catalyst Towards Improved Educational Outcomes, Chettinad Academy of Research & Education (CARE), Chettinad Health City, Chennai, **INDIA** September 2012,
19. Label-Free Biomolecule Detection by Using Aptamer-Based Microarray, Kwan Woo Park, Agnishwar Girigoswami, Harshala Parab, Cheulhee Jung and Hyun Gyu Park, The 24th International Symposium on Chemical Engineering, Dec. 2-4, Hyundai Hotel, Gyeongju, **SOUTH KOREA**, 2011
18. UGC Sponsored State Level Seminar on Playing God: Expanding Frontiers of Biotechnology, Gurudas College, Kolkata, **INDIA**. 2010.
17. Current Trends of Chemical Research, Chemical Research Society of India, Ramkrishna Mission Residential College, Narendrapur, Kolkata, **INDIA**. 2009.
16. 14<sup>th</sup> National Conference on Surfactants, Emulsions and Biocolloids (NATCOSEB-XIV), 2009, University of Kashmir, **INDIA**,
15. National Conference on Life and Works of Sir J.C. Bose in the Perspective of Modern Science and Technology, 2009, Jadavpur University, Kolkata, **INDIA**.

14. India-Japan Joint Workshop Sponsored by DST-JSPS, Frontiers in Molecular Spectroscopy and Theory, 2009, IACS, Kolkata, **INDIA**
13. National Conference on Luminescence and its Application (NCLA 2009), Central Glass and ceramic Research Institute, Kolkata, **INDIA**
12. 4<sup>th</sup> Asia Oceania Conference on Photobiology, 2008, Banaras Hindu University (BHU), Varanasi, **INDIA**.
11. National symposium on advances in chemistry (NASC-2008), Department of Chemistry, Jadavpur University, Kolkata, **INDIA**.
10. Trends in surface science and related areas, Indian Society for Surface Science and Technology and Centre for Surface Science, 2008, Jadavpur University, Kolkata, **INDIA**
9. National conference on application of identified chemical and biological technologies in agriculture –'08, Jadavpur University, Jadavpur, Kolkata, **INDIA**.
8. Spectroscopic characterization of phenazinium dye aggregates in water and acetonitrile media: Effect of methyl substitution on the aggregation phenomenon. National Conference on Recent Advances in Photosciences, Jadavpur University, Kolkata, **INDIA**.
7. Agnishwar Girigoswami, Won-young Chung, Cheul hee Jung, and Hyun Gyu Park "PLP (PCR/LCR/PCR)-Efficient tool for SNP detection", 2008 Korean Institute of Chemical Engineering (KIChE) spring meeting, April 23-25, Hyatt regency hotel, **JEJU, SOUTH KOREA, 2008**.
6. Hyo young Mun, Agnishwar Girigoswami, Cheulhee Jung, Hyun Gyu Park, SNPs detection by Single-Strand Specific nuclease on PNA zip-code microarray, IEEE International Conference of Nano/Micro Engineered and Molecular Systems (IEEE-NEMS-2008). Sanya, Hainan Island, **CHINA, 2008**.
5. Won-young Chung, Agnishwar Girigoswami, Cheulhee Jung, Hyo Young Mun and Hyun Gyu Park, Rapid colorimetric detection of sexually transmitted diseases using ligase detection reaction and gold nanoparticles, 2007 Korean Institute of Chemical Engineering (KIChE) fall meeting, October 26-27, KAIST, Daejeon, **SOUTH KOREA 2007**.
4. Agnishwar Girigoswami, Taihua Li, Cheulhee Jung, Hyo Young Mun, Hyun Gyu Park, Label-free detection of BRCA1 mutations utilizing DNA ligation and zip-code microarray, International Conference on Nanoscience and Technology, Beijing, **CHINA, 2007**.
3. Agnishwar Girigoswami, Hyun Gyu Park, PCR-free mutation detection of BRCA1 on zip-code microarray using ligase chain reaction, International Symposium and KSBB Meeting 2007, Incheon, **SOUTH KOREA, 2007**.

2. Agnishwar Girigoswami, Susmita Das, Mrinmoy De and Swati De; Fluorescence and Dynamic Light Scattering Studies in Niosomes; National Symposium in Chemistry, Indian Association for the cultivation of Science (IACS), Kolkata, **INDIA**, 2005.

1. Swati De, Agnishwar Girigoswami, Susmita Das; Probing Albumin – Surfactant Interaction Fluorimetrically, International Conference on Soft Matter, Kolkata, **INDIA**, 2004.