

Malar Azhagan Azagarsamy

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Mailing address:

Department of Chemical and Biological engineering,
University of Colorado Boulder, Campus Box 424
Boulder, CO 80309

Educational Qualifications:

Ph.D. Organic Chemistry (2005 - 2010)
 Department of Chemistry,
 University of Massachusetts Amherst
 Current GPA: 3.8 out of 4.0

Research Title: Design, Syntheses and Protein Responsive Assembly/Disassembly of Amphiphilic Dendrimers

Advisor: Professor S. Thayumanavan

M.Sc. Chemistry (1998 - 2000)
 School of Chemistry, Madurai Kamaraj University, Madurai, India.

B.Sc. Chemistry (1994 - 1997)
 University of Madras, Chennai, India.

Professional Experience:

2010 - present Research Associate
 Howard Hughes Medical institute
 Department of Chemical & Biological Eng.
 University of Colorado Boulder

Research Title: Design and Development of New Biomaterials to Deliver Cells, Proteins and siRNA for Tissue Engineering Applications

Advisor: Professor Kristi S. Anseth

2006 - 2010 Graduate Research Assistant
 Thayumanavan Research Group
 Department of Chemistry, University of Massachusetts Amherst

2005 - 2007 Teaching Assistant for General Chemistry Laboratory
 Department of Chemistry, University of Massachusetts Amherst

2000-2005 Research Associate
 Department of Discovery Chemistry
 Dr. Reddy's Laboratories Ltd., India

Scholarship and Award:

- 2009 Procter & Gamble Outstanding Chemistry Graduate Student Award - UMass Amherst
- 2009 Graduate School Travel Award - UMass Amherst
- 2000 Qualified Graduate Aptitude Test in Engineering (GATE-2000) Exam in the Discipline of Chemistry

Research Experience:

Design and Syntheses of medicinally oriented small molecules and natural products, amphiphilic dendrimers and polymers, and cross-linked nanogels and hydrogels.

Studies on protein induced assembly/disassembly of amphiphilic dendrimers and polymers

Light induced swelling and degradation studies on photo-labile nanogels

Light directed release of cells and proteins using photodegradable hydrogels

Technical Skills:

Instruments Expertise: NMR (2D and DOSY), GPC, HPLC, MALDI, Fluorimeter, Rheometer, Confocal fluorescence microscope, UV-Vis, Isothermal calorimeter, Dynamic light scattering, TEM, LVSEM, FESEM, AFM and Cyclic voltammeter.

Publications:

1. **Azagarsamy, M. A.**; Alge, D. L; Radhakrishnan, S. J.; Tibbit M. W.; Anseth, K. S. "Photocontrolled Nanoparticles for Intracellular On Demand Release of Proteins" *Biomacromolecules*, **2012**, ASAP.
2. **Azagarsamy, M. A.**; Gandavarappu, N, R.; Anseth, K. S. " Poly (ethylene glycol) (PEG) Hydrogels Using Bioorthogonal, Click Reactions to Create Versatile Cell Culture Scaffolds" *Material Matters - Sigma Aldrich*, **2012** (Invited article).
3. Torres, D.; **Azagarsamy, M. A.**; Thayumanavan. S. "Supramolecular Displacement Mediated Activation of a Silent Fluorescent Probe for Label-free Ligand Screening" *J. Am. Chem. Soc.*, **2012**, 134, 7235.
 - Featured in *Chemical and Engineering News*, **2012** as "Simple probe allows drug candidate screening without labels".
4. Raghupathi, K.; **Azagarsamy, M. A.**; Thayumanavan. S. "Guest release control in enzyme-sensitive, amphiphilic-dendrimer-based nanoparticles through photochemical crosslinking" *Chem. Eur. J.*, **2011**, 17, 11752.
 - *Appeared as cover page*
5. Yesilyurt, V.; Ramireddy, R.; **Azagarsamy, M. A.**; Thayumanavan. S. "Accessing lipophilic ligands in dendrimer-based amphiphilic supramolecular assemblies for protein-induced disassembly" *Chem. Eur. J.*, **2011**, 18, 223.
6. **Azagarsamy, M. A.**; Yesilyurt, V.; Thayumanavan. S. "Disassembly of dendritic amphiphilic nanocontainers due to protein binding" *J. Am. Chem. Soc.*, **2010**, 132, 4550.
7. **Azagarsamy, M. A.**; Sokkalingam, P.; Thayumanavan. S. "Enzyme-triggered disassembly of dendrimer-based amphiphilic nanocontainers" *J. Am. Chem. Soc.*, **2009**, 131, 14184.
8. **Azagarsamy, M. A.**; Thayumanavan. S. "Making sense of disassembly" *Nature Chem.*, **2009**, 1, 523.
9. **Azagarsamy, M. A.**; Gomez-Escudero, A.; Yesilyurt, V.; Vachet, R, W.; Thayumanavan, S. "Amphiphilic nanoassemblies for the detection of peptides and proteins using fluorescence and mass spectrometry" *Analyst*, **2009**, 134, 635.
10. **Azagarsamy, M. A.**; Sivanandan, K.; Krishnamoorthy, K.; Thayumanavan, S. "Site-specific installation and study of electroactive units in every layer of dendrons" *J. Org. Chem.*, **2009**, 74, 9475.
11. Gomez-Escudero, A.; **Azagarsamy, M. A.**; Theddu, N.; Vachet, R, W.; Thayumanavan, S. "Selective peptide binding using facially amphiphilic dendrimers" *J. Am. Chem. Soc.*, **2008**, 130, 11156.
12. Selvakumar, N.; Kumar, G, S.; **Malar Azhagan, A.**; Kumar, M, S.; Mamidi, N. V. S. R.; Das, J.; Iqbal, J. "Synthesis, SAR and antibacterial activity of novel chalcone oxazolidinone hybrids" *Eur. J. Med. Chem.* **2007**, 42, 538.

13. Selvakumar, N.; Reddy, B, Y.; **Malar Azhagan, A.**; Kumar, K, M.; Babu, J, M.; Iqbal, J. "A direct entry into 1-methoxyindole skeleton and into the corresponding indoles by a novel rearrangement: general synthesis of 2-substituted-1-methoxyindoles" *Tetrahedron Lett.* **2003**, *44*, 7065.
14. Selvakumar, N.; Reddy, B, Y.; Kumar, K, M.; Srinivas, D.; **Malar Azhagan, A.**; Iqbal, J. "An efficient total synthesis of 9-methoxy-carbazole-3-carbaldehyde based on a novel methodology for the preparation of methoxy indoles" *Azagarsamy's CV Page 2 of 3 Tetrahedron Lett.* **2003**, *44*, 7071.
15. Selvakumar, N.; **Malar Azhagan, A.**; Srinivas, D.; Krishna, G, G. "A direct synthesis of 2-arylpropenoic acid esters having nitro groups in the aromatic ring short synthesis of (\pm)-Coerulescine and (\pm)-Horsfiline" *Tetrahedron Lett.* **2002**, *43*, 9175.
16. Selvakumar, N.; Srinivas, D.; **Malar Azhagan, A.** "Observation of O \rightarrow N type smiles rearrangement in certain alkyl aryl nitro compounds" *Synthesis*, **2002**, 2421.

Book Chapter:

1. **Azagarsamy, M. A.**; Krishnamoorthy, K.; Thayumanavan, S. "Molecular recognition using amphiphilic macromolecules" *Molecular Recognition and Polymers: Control of Polymer Structure and Self-Assembly*, ed. Rotello, V. M.; Thayumanavan, S., Wiley: New York, 2008.

Conference Presentations:

1. **Azagarsamy, M. A.**; Anseth, K. S. "Design and Synthesis of Photocontrolled Nanoparticles." 238th ACS National Meeting, San Diego, CA, April 16-20, 2012.
2. **Azagarsamy, M. A.**; Sokkalingam, P.; Thayumanavan, S. "Synthesis of bioactive amphiphilic dendrimers." 238th ACS National Meeting, Washington, DC, August 16-20, 2009.
3. **Azagarsamy, M. A.**; Thayumanavan, S. "Biologically triggered supramolecular disassembly of dendrimer based amphiphilic nanoassemblies" 8th National Graduate Research Polymer Conference, UNC at Chapel Hill, June 6 - 9, 2010.
4. **Azagarsamy, M. A.**; Sokkalingam, P.; Thayumanavan, S. "Synthesis of bioactive amphiphilic dendrimers." 238th ACS National Meeting, Washington, DC, August 16-20, 2009.
5. **Azagarsamy, M. A.**; Thayumanavan, S. "Enzyme triggered disassembly of dendrimer based amphiphilic nanoassemblies" Research Fest-2009, UMass Amherst.
6. **Azagarsamy, M. A.**; Gomez-Escudero, A.; Savariar, E. N.; Vachet, R. W.; Thayumanavan, S. "Separation and identification of peptides utilizing supramolecular polymer assemblies" 236th ACS National Meeting, Philadelphia, August 17-21, 2008.
7. **Azagarsamy, M. A.**; Sokkalingam, P.; Thayumanavan, S. "Disassembly of dendritic micellar assemblies by an enzymatic reaction" Research Fest-2008 held at UMass Amherst.
8. **Azagarsamy, M. A.**; Sivanandan, K.; Krishnamoorthy, K.; Thayumanavan, S. "Incorporation of single ferrocene unit at different layers of dendrimers" Research Fest-2007, UMass Amherst.
