

## Curriculum Vitae



### KRISHNAMOORTHY GANESAN, PhD

#### Young Scientist

##### Office Address

Natural Products Chemistry Groups  
Chemical Science & Technology Division  
CSIR-NEIST,  
Jorhat - 785 006, Assam, India

Email Id: [krishnamoorthyganes@gmail.com](mailto:krishnamoorthyganes@gmail.com)  
Mob No: +91-9940267251

##### Personal Details

Date of Birth: 25-05-1979  
Gender: Male  
Blood Group: A1+ve

##### Home Address

New No. 79/Old No. 38 Eda Street  
Kottaimedu, Thottiyam-621215  
Trichy, Tamil Nadu, India

Marital status: Unmarried  
Nationality: Indian

#### Personal Statement

I have a proven track record of research achievements comprising research experiences, commitment, and high impact publications in the basic molecular level understanding of triple helical structure of collagen chemistry, self-assembly and cross-linking; production and evaluation of novel biomedical biomaterials and nanomaterials for drug delivery and tissue engineering applications. I have published 15 research papers in high-impact reputed scientific journals, 1 book chapter, and 5 conference proceedings. I have presented my work at various international conferences. And also I am potential reviewer of various reputed journals and giving contribution to editorial process for Journal of Photochemistry and Photobiology B: Biology. I have received prestigious awards, fellowships and travel grants and worked as a teaching assistant and trained the research trainees. And also I am a lifetime member of various scientific societies. The objective of my recent research involves applied protein engineering, production of novel biomedical biomaterials and nanomaterials, analysis of structural and mechanical properties of soft biological tissues, and modulation of chemokine network to treat myocardial and cerebral infarctions.

#### Educational and Research Careers:

##### Educational:

<b>Doctor of Philosophy</b>	Biotechnology-Biomaterials <i>Biocomposites containing Collagen, D-amino acids and Phytosome Nanoparticles as drug carriers and tissue engineering scaffolds</i> (Guides; Dr. TP Sastry and Dr AB Mandal, CSIR-CLRI, Chennai, India)	Anna University	<b>2008-2013</b>
<b>Master of Philosophy</b>	Biotechnology <i>"Identification of gene encoding polyphenol oxidase in Streptomyces species SSG 007"</i>	Bharathidasan University	<b>2003-2005</b>
<b>Master of Science</b>	Biochemistry <i>"Variability and biochemical analysis of Soya bean [GLYCINE MAX] VAR. CO1 by following Gamma Irradiation"</i>	Bharathidasan University	<b>2001-2003</b>
<b>Bachelor of Science</b>	Biochemistry	Madras university	<b>1997-2000</b>

##### Research:

<b>Young Scientist</b>	"Design of a photoresponsive chitosan nanogel to regulate CXCR4 signalling through slow release of SDF-1 $\alpha$ in the infarcted myocardium"	CSIR-NEIST, Jorhat	<b>2015-2018</b>
<b>Postdoctoral Fellow</b>	"Preparation of collagen peptide functionalized chitosan nanoparticles by ionic gelation method"	SRM University, Chennai	<b>2014-2015</b>
<b>DBT-SRF</b>	"Theoretical studies on D-amino acids crosslinked collagen scaffolds"	IIT Madras, Chennai	<b>2013-2014</b>
<b>Project Assistant</b>	"Development of novel collagen scaffolds by using unnatural D-Amino acids"	CSIR-CLRI, Chennai	<b>2011-2013</b>
<b>CSIR-SRF</b>	"Development of novel collagen scaffolds by using unnatural D-Amino acids"	CSIR-CLRI, Chennai	<b>2008-2011</b>
<b>Project Assistant</b>	"Role of polyphenolics in the inhibition of collagenolytic activity by collagenase"	CSIR-CLRI, Chennai	<b>2005-2008</b>

### Teaching Assistant:

I have worked as **Teaching (Project) Assistant (2005-2007)** with CSIR-CLRI handled the classes on **Skin Biology** and **Collagen Chemistry**

### Editorial Assistant:

I have worked as **Editorial Assistant** from 01/03/2016 to 30/03/2018 with Dr D Ramaiah (Former Director of CSIR-NEIST, Jorhat, Assam, India) Editor of Journal of Photochemistry and Photobiology B biology (Elsevier). I assisted the editorial work with assessing the manuscripts, sending to reviewers, evaluating the reviewer's comments. I had acquired experiences with editorial processing and, scientific writing and editing, etc.

### List of International Journal Publications (Selected):

1. S. Anandhakumar, **G. Krishnamoorthy**, KM. Ramkumar, AM. Raichur. Preparation of collagen peptide functionalized chitosan nanoparticles by ionic gelation method: An effective carrier system for encapsulation and release of doxorubicin for cancer drug delivery. *Materials Science and Engin: C*, 70, 2017, 378-385 (IF: 3.4)
2. **G. Krishnamoorthy**, PK. Sehgal, AB. Mandal, S. Sadulla. Studies on collagen-tannic acid-collagenase ternary system: Inhibition of collagenase against collagenolytic degradation of extracellular matrix component of collagen. *Journal of Enzyme Inhibition and Medicinal Chemistry* 27, 451-457, 2012 (IF: 3.428)
3. **G. Krishnamoorthy**, R. Selvakumar, TP. Sastry, S. Sadulla, AB. Mandal and Mukesh Doble. Experimental and theoretical studies on gallic acid assisted EDC/NHS initiated crosslinked collagen scaffolds. *Materials Science and Engineering C* 43, 164-171, 2014 (Impact (IF: 3.4)
4. **G. Krishnamoorthy**, R. Selvakumar, TP. Sastry, AB. Mandal and Mukesh Doble. Effect of D-Amino acids on collagen fibrillar assembly and stability: Experimental and modeling studies, *Biochemical Engineering Journal* 75, 92-100, 2013 (IF: 2.468)
5. **G. Krishnamoorthy**, PK. Sehgal, AB. Mandal, S. Sadulla. Development of D-Lysine assisted EDC/NHS initiated crosslinking of collagen matrix for design of scaffold, *Journal of Biomedical Material Research Part-A*, 101A, 1173-1183, 2013 (IF: 3.263)
6. B. Madhan, **G. Krishnamoorthy**, J. Raghava Rao and BU. Nair. Role of green tea polyphenols in the inhibition of collagenolytic activity by collagenase. *International Journal of Biological Macromolecules* 41, 16-22, 2007 (IF: 3.138)
7. **G. Krishnamoorthy**, PK. Sehgal, AB. Mandal, S. Sadulla. Protective effect of *Withania somnifera* and *Cardiospermum halicacabum* extracts against collagenolytic degradation of collagen. *Appli. Biochem. Biotechnol. Part A: Enzym Eng. Biotechnol.* 165, 1075-1091, 2011 (IF:1.687)
8. **G. Krishnamoorthy**, PK. Sehgal, S. Sadulla and AB. Mandal. Novel collagen scaffolds prepared by using unnatural D-Amino acids assisted EDC/NHS crosslinking. *Journal of Biomaterials Science: Polymer Edition* 24, 344-364, 2013 (IF 1.733)
9. **G Krishnamoorthy**, B. Madhan, S. Sadulla, J. Raghava Rao and W. Mathulatha. Stabilization of collagen by plant polyphenolics *Acacia mollissima* and *Terminalia Chebula*. *Journal of Applied Polymer Science* 108, 199 -205, 2008 (IF: 1.64)
10. **G. Krishnamoorthy**, S. Sadulla, PK Sehgal and AB Mandal. Green chemistry approaches to leather tanning process for making chrome-free leather by unnatural amino acids, *Journal of Hazardous Materials*.215-216, 173-182, 2012 (IF: 4.836)
11. **G. Krishnamoorthy**, S. Sadulla, PK. Sehgal and AB Mandal. Greener approaches to leather tanning processes: D-Lysine aldehyde as novel tanning agent for chrome-free tanning, *Journal of Cleaner Production* 2013 (IF: 4.959)
12. **G Krishnamoorthy**, G Ramamurthy, S Sadulla, TP Sastry, AB Mandal. Click chemistry approach to conventional vegetable tanning process: accelerated method with improved organoleptic properties. *Environmental Science and Pollution Research* 21, 10678-10685, 2014 (IF: 2.76)
13. G. Ramamurthy, **G. Krishnamoorthy**, TP Sastry, AB Mandal. Rationalized method to enhance the chromium uptake in tanning process: role of Gallic acid. *Clean Technologies and Environmental Policy* 16 (3), 647-654, 2014 (IF: 1.934)

### Conference Proceedings:

1. **G Krishnamoorthy**, Sayeed S, Sastry, TP., Mandal, A.B. Click chemistry approach to tanning processes: Accelerated vegetable tanning process with improved properties, XXXII. IULTCS Congress, May 29-31th 2013, Istanbul, TURKEY.
2. **G Krishnamoorthy**, Sayeed S, use of greener chemicals for environmental friendly tanning processes. *Annals of the university of oradea fascicle of textiles, leatherwork, Romania*, 225-228, 2012.
3. **G. Krishnamoorthy**, Sehgal, P.K., Mandal, A.B. and Sadulla, S. Studies on role of unnatural amino acids in tanning process for making chrome-free leather, *Proceedings of XXXI IULTCS Congress 2011, Spain*.
4. **G. Krishnamoorthy**, Sehgal, P.K., Mandal, A.B. and Sadulla, S. "Preparation and characterization of collagen matrix by unnatural amino acids as novel cross-linking bridges", *Proceedings of II International Leather Engineering Congress-Innovative Aspects for Leather Industry (IAFLI) (2011) 113-122, Turkey*.
5. **G. Krishnamoorthy**, Sehgal, P.K. and Sadulla, S. Collagen coated liposome nanospheres as a targeted and controlled delivery of zidovudine (AZT) and doxorubicin, *Proceedings of 7th World PBP Meeting 2010, Malta*.
6. **G. Krishnamoorthy**, Stephen, P., Prabhu, M., Sehgal, P.K. and Sadulla, S. Collagen coated nanoliposome as a targeted and controlled drug delivery system, *Amer. Inst. Phys., Vol. 1276, pp. 163-168, 2010*.

### Manuscript under Progress:

1. **G Krishnamoorthy**, D Ramaiah, In vitro biocompatibility of photosensitizer decorated-SDF-1 encapsulated chitosan nanc

photodynamic therapy.

2. **G Krishnamoorthy**, N Adarsh, D Ramaiah, Design of photosensitizer tagged chitosan nanogel through ionotropic gelation with tripolyphosphates for photodynamic therapy.
3. **G Krishnamoorthy**, D Ramaiah, Design of collagen scaffold: Dialdehyde chitosan mediated gallic acid assisted crosslinking.
4. **G Krishnamoorthy**, D Ramaiah, G. Pugazhenthii. Resorbable Polymer Matrices: Chitosan Substituted Collagen based Biomateri:

#### Indian Patents:

1. **G. Krishnamoorthy**, T.P. Sastry and A. B. Mandal. Novel Phytosome nanoparticles useful as drug carriers and process for the preparation thereof, Indian Patent Application No. 2460/DEL/2013.

#### List of Conferences - Oral Presented in India (Selected):

1. **G. Krishnamoorthy**, D Ramaiah, G. Krishnamoorthy. Development of ionically cross linked photoresponsive (TPCC4) chitosan nanoparticle for drug delivery. Oral presentation at 24<sup>th</sup> ISCB International Conference (ISCB-2018) Frontier Research in Chemistry & Biology Interface, 11<sup>th</sup> - 13<sup>th</sup> January, 2018 at Manipal University, Jaipur, India.
2. **G. Krishnamoorthy**, D Ramaiah, G. Krishnamoorthy. Design of chlorin e6 decorated chitosan nanogel through ionotropic gelation for cardiac drug delivery system. Oral presentation at International Conference on Advanced Materials and Processes: Challenges and Opportunities (AMPCO-2017), Nov 30 – Dec 02, 2017, IIT Roorkee, Uttarakhand, India,
1. **G. Krishnamoorthy**. Bioactive nanoparticles to sustained release of anti-arthritis herbals: Inhibit collagenolytic activity against collagen degradation, Invited Lecture at Nano Research Centre, SRM University, Chennai, India, 25<sup>th</sup> March 2015.
2. **G. Krishnamoorthy**, A. B. Mandal and Mukesh Doble, Design of Collagenolytically stable heterochiral collagen scaffold: D-Lysine assisted 1-Ethyl-3-(3-dimethylaminopropyl) Carbodiimide/N-Hydroxysuccinimide Initiated Crosslinking. Oral presentation at Indo-Australian Conference on Biomaterials, Tissue Engineering, Drug Delivery System & Regenerative Medicine (BITERM 2015), 05-07 Feb 2015, Anna University, Chennai, India,
3. **G. Krishnamoorthy**\*. Recent advancement in herbosome nanomedicine for delivering herbal extract. Invited Lecture at 142<sup>nd</sup> Science Club Meeting, IIMSc, Taramani, Chennai, India, 16<sup>th</sup> February 2013.
4. **G. Krishnamoorthy**, Sehgal, P.K., Mandal, A.B. and Sadulla, S. "Preparation and characterization of novel unnatural amino acids modified collagen matrix for design of scaffold", Sectional lecture at 99<sup>th</sup> Indian Science Congress 2012, Indian Science Congress Association, KIIT University, Bhubaneswar, India, 3-7 January 2012
5. **G. Krishnamoorthy**, P. K. Sehgal, S. Sadulla and A. B. Mandal. Studies on Cytotoxicity, DNA binding effect and inhibition of collagenase by *Withania somnifera* and *Cardiospermum halicacabum* extract. Sectional lecture at 98<sup>th</sup> Indian Science Congress 2011 organized by "Indian Science Congress Association at SRM University, Chennai, Tamil Nadu, India, 3-7 January 2011.
6. **G. Krishnamoorthy**, P. K. Sehgal, S. Sadulla and A. B. Mandal. Physical characterization of Collagen coated Cholesterol-free Liposome Nanoparticles matrix for drug delivery system and tissue engineering application. Oral presentation at International Symposium for Research Scholars (ISRS-2010) on Metallurgy, Materials Science and Engineering organized by IIT Madras, Chennai, Tamil Nadu, India, 20-22 Dec 2010.
7. **G. Krishnamoorthy**, R. Karthikeyan, P. K. Sehgal, S. Sadulla and A. B. Mandal. Stabilization of collagen matrix by Neem Bark Polyphenol: Effect on Mechanical, Thermal, Enzymatic, Conformational Stability & Resistant to Microbial Activities. Oral presentation at 11<sup>th</sup> International Conference on Frontiers of Polymers & Advanced Materials (Macro 2010) organized by IIT Delhi, New Delhi, India, 15-17 December 2010.
8. **G. Krishnamoorthy**, P. K. Sehgal, S. Sadulla and A. B. Mandal. Preparation and characterization of Cholesterol-free Liposome Nanoparticles-collagen matrix. Paper presented at "DAE BRNS 3<sup>rd</sup> International Symposium on Material Chemistry (ISMC-2010) organized by Society for Materials Chemistry, BARC, Mumbai, India, 7-11 December 2010.
9. **G. Krishnamoorthy**, Sehgal, P.K. and Sadulla, S. "Collagen coated liposome nanospheres as a targeted and controlled delivery of zidovudine (AZT) and doxorubicin (DXR)", Paper presented at International Conference in Cancer Biology: Molecular Mechanisms and Novel Therapeutics (Cancercon 2010), IIT Madras, Chennai, India, 18-20 February 2010.
10. **G. Krishnamoorthy**, P. K. Sehgal and S. Sadulla. Stabilization of polymeric fibrous collagen by *Withania somnifera* extract for biomedical applications: Effect of mechanical, thermal, enzymatic and conformational stability. Paper presented at "Polymer congress (APA-2009) on Polymer Science and Technology: Vision & Scenario" organized by IIT Delhi, New Delhi, India, 17-20 Dec 2009.
11. **G. Krishnamoorthy**, P. Stephen, M. Prabhu, P. K. Sehgal and S. Sadulla. Collagen coated nanoliposome as a targeted and controlled Drug delivery system. Paper presented at "International Conference on Advanced Nanomaterial and Nanotechnology" organized by IIT Guwahati, Assam, India, 9-11 Dec 2009.

#### List of Conferences and symposium/meeting attended at India (Selected):

1. Attended Theme meeting on X-ray micro-imaging using Synchrotron radiation and its applications at RRCAT, Indore, Madhya Pradesh, September 14-16, 2017.
2. Attended the DST-SERB Project (Design of a photoresponsive chitosan nanogel to regulate CXCR4 signalling through slow release of SDF-1 $\alpha$  in the infarcted myocardium) Review meeting at Goa University, Goa, India, 9<sup>th</sup> & 10<sup>th</sup> March, 2017.
3. Attended 6<sup>th</sup> CDE program on Symposium on Bone grafting" organized by SRM University, Chennai, Tamil Nadu, India, 19<sup>th</sup> June 2015.

### List of Conferences participated at abroad:

1. **G. Krishnamoorthy**, P. K. Sehgal, A. B. Mandal and S. Sadulla. Stabilization of collagen matrix by unnatural amino acids for biomedical and industrial application. Invited presentation at II International Leather Engineering Congress on Innovative Aspects for Leather Industry (IAFLI 2011) by Izmir, Turkey, 12-13 May 2011,
2. **G. Krishnamoorthy**, Sayeed S, Sastry TP, Mandal AB. Click chemistry approach to tanning processes: Accelerated vegetable tanning process with improved properties, Invited presentation at XXXII. IULTCS Congress, May 29-31st 2013, Istanbul, TURKEY.
3. **G. Krishnamoorthy**, Sehgal, P.K., Mandal, A.B. and Sadulla, S. "Studies on role of unnatural amino acids in tanning process for making chrome-free leather", Proceedings of XXXI IULTCS Congress 2011, Spain.
4. **G. Krishnamoorthy**, P. K. Sehgal and S. Sadulla. Collagen Coated Liposome Nanospheres as a targeted and controlled delivery system Of Zidovudine (AZT) and Doxorubicin (DXR). Paper presented at 7<sup>th</sup> World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology organized by International Pharmaceutical Association (APV, APGI and A.D.R.I.T.E.L.F) at the Mediterranean Conference Centre in Valletta, Malta, 8-11 March 2010.

### Awards and Fellowships:

1. DST-Young Scientist award (2015) by Department of Science & Technology (DST)-SERB, title "Design of a photoresponsive chitosan nanogel to regulate CXCR4 signalling through slow release of SDF-1 $\alpha$  in the infarcted myocardium".
2. Best oral presentation award, Garrick Bikku George, G. Prabhu Shankar, **G. Krishnamoorthy**, T.P. Sastry, A.B. Mandal<sup>†</sup>. Recent advancement in phytosome nanomedicine for delivering herbal extract with improved bioavailability and targeting efficiency, Oral presentation in Recent Trends in Bioscience, Asan Memorial Arts and Science College, Chennai, India, 8<sup>th</sup> February 2013.
3. CSIR-Senior research fellowship 2008-2010 by awarded by Council of Scientific & Industrial Research (CSIR), New Delhi, India.
4. International travel grants to attend the conference awarded by Department of Science & Technology (DST), New Delhi, India,
5. International travel grants to attend the conference awarded by Council of Scientific & industrial Research (CSIR), NEW DELHI, India
6. International travel grants to attend the conference awarded by Tamil Nadu Science & Technology, Chennai.

### Guided summer/Winter Project:

1. Rajashree Saharia, Development of Ultrasound Responsive Chitosan Nanoparticles for Drug Delivery, University of Science and Technology, Meghalaya, India (Dec 2017 – Feb 2018)
2. Kalpita Dutta, Development of Ultrasound Responsive Chitosan Nanoparticles for Drug Delivery, Department of Chemistry, Assam Kaziranga University, Jorhat, Assam, India (Dec 2017 – Feb 2018)
3. Sukanya Saikia, Preparation and Characterization of Photoresponsive (TPCC) Chitosan Nanoparticle (CNS) for Drug Delivery, Department of Chemistry, Assam Kaziranga University, Jorhat, Assam, India (June 2017 – July 2017)
4. Luna Bhuyan, Preparation and characterization of photoresponsive TPCC4-chitosan-PVA thin film for biomedical application, Department of Chemistry, Jagannath Barooah College, Jorhat, Assam, India (June 2017 – July 2017)
5. Anindita Bhatta, Development of Ionically Cross linked Photoresponsive (TPCC) Chitosan Nanoparticle for Drug Delivery, University of Science and Technology, Meghalaya, India (Dec 2016 – Feb 2017)
6. Pemo Bam, design of photoresponsive chitosan nanoparticles through ionotropic gelation method for cancer drug delivery, University of Science and Technology, Meghalaya, India (Dec 2016 – Feb 2017).

### As a Journal Reviewer:

1. Journal of Photochemistry and Photobiology B biology
2. Material Science and Engineering Part C

### Professional Memberships:

1. Life member at Indian Society of Human Genetics, Hyderabad, India
2. Life member at Indian Society for Radiation and Photochemical Sciences (ISRAPS), Mumbai, India
3. Life member at Society for Materials Chemistry(SMC), Mumbai, India
4. Life member at Indian Nuclear Society, Mumbai, India
5. Life member at MRSI, Bangalore, India
6. Life member at Indian Science Congress Association, Kolkata, India

### Visited abroad:

1. Malta to present the paper in 7<sup>th</sup> World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology organized by International Pharmaceutical Association (APV, APGI and A.D.R.I.T.E.L.F) at the Mediterranean Conference Centre in Valletta, Malta, 8-11 March 2010,

### Technical and analytical Skills:

#### Genetic methods

DNA and RNA electrophoresis, Northern and Southern blot and PCR, Primer design, Gene transfer

#### Extraction of proteins

Extraction of collagen, keratin and silk proteins, Industrial enzymes, Polyphenol oxidase, Laccase, Lipase, Collagenase

**Proteins methods**

Protein Purification, SDS-PAGE and zymography, HPLC, CD spectral analysis, Western and Eastern blot, Protein sequencing, Protein-protein interaction, enzymes inhibition kinetics

**Biomaterial and drug delivery**

Porous scaffolds for tissue engineering, Thin film, thin papers for wound healing, Phytosome nanoparticles, chitosan nanogels for drug delivery, Cardiac valves

**Cell cultures studies**

Biocompatibility, Cell viability (Fibroblast and macrophages) and Cell adhesion

**Microbial cultures studies**

Antimicrobial, Enzymes productions and Microbial screenings

**Molecular docking**

Docking, Dynamics, Collagen-Collagen, Collagen-Collagenase interaction

**Analytical skills**

DLS, SEM, TEM and AFM, PCR, CD spectra, XRD, FT-IR, DSC, DGA, UV Vis and Emission spectra, Flow Cytometry