

KALADHAR KAMALASANAN, M Pharm, PhD

BIOTECHNOLOGICAL/PHARMACEUTICAL FORMULATION DEVELOPMENT , BIOMATERIAL DEVELOPMENT AND SYSTEM DESIGN FOR ADVANCED THERAPEUTICS:

TRANSLATIONAL RESEARCH IN IMMUNOTHERAPEUTICS, ADVANCED DRUG/PROTEIN/DELIVERY SYSTEMS, ADVANCED BIOMATERIALS, VALUE ADDED GENERIC FORMULATIONS, MEDICAL DEVICE SURFACE COATINGS AND NANOMATERIALS

Brief:

Nearly 2 decades of research, technology development and academic experience in translational medicine. Lead to platform drug delivery systems; commercialisation of oral delayed release capsules, and multi drug formulations. Also TRL5 techno demos (Science driven) of class III medical devices to Intl. companies. On going TRL6-9 projects in chronic disease. Written Biomaterials Chapter in Vision 2035 document by TIFAC, DST. Several publications in journals like *Angewandte*, *Langmuir* and *JCR* as 1st or corres. author. Nearly 10 patents applied and 1 US patent granted. Written H2020 consortium project on TB vaccine. Initiated and written CADDs and FADDs (currently Central Analytical Facility) at SCTIMST with Prof. Sharma CP. Now supporting Research-Industry Network and teaching/guiding at pharmacy school and consulting for Pharma/ biomedical companies.

PROFILE

- A technically competent and detail oriented diligent person, with **demonstrated leadership qualities**, having more than **18Yrs of research experience (Fully funded research in advanced research institutes such as institute of national importance, Phillips University Marburg Germany, University of Pittsburgh, USA)** and 4yrs of teaching and 6yrs consulting experience at present actively networking in research, teaching, clinical, industrial and policy aspects of pharmaceutical therapeutics and medical devices.
- Expertise on design and development of biomaterial and pharmaceutical technology development to address unmet clinical needs combining *in silico*, *ex vivo*, *in vitro* and *in vivo* studies
- Currently consulting for **organizations nationally and internationally** with a mission of extending the borders of “biomaterial based technology development and transfer”.
- From 2015 September 7th onwards serving as an **Assistant professor and consultant at Amrita School of Pharmacy (ASP)** in connection with **Amrita Center for Nanoscience and Molecular Medicine (ACNMM)**.
- From Feb 22nd 2012 to Feb 22nd 2015 was leading translational research in immunotherapeutics and nanomedicine **at the capacity of adhoc faculty position** as **Fellow scientist - D (Chitra High Value Fellow)** at Sree Chitra Tirunal Institute for Medical Science and Technology, India, (*an institute of national importance by federal law*).
- **From Jan 1st 2009 to Feb 7th 2012 working as a Postdoctoral Associate in USA from one of premier research groups in immunotherapeutics and drug delivery** for 3-4yrs as well as in Germany as visiting scholar in material science, drug delivery, nanotechnology and surface coatings.
- **Experience in a nutshell: Biomaterial/ translational medicine Research- 17, Consulting- 5, Teaching- 2, Industry-2, Entrepreneurial -3**
- **Area of working:** Biomaterials, Drug Delivery, Medical devices, Immunotherapeutics, Tissue engineering and Regenerative medicine

SPECIFICS OF EDUCATION AND WORK EXPERIENCE IN ACADEMIA, RESEARCH INSTITUTES AND INDUSTRY

- **Assistant Professor** (From Sept 2015 continuing) at Amrita School of Pharmacy, Cochin, Kerala, India: **Responsibilities; Teaching:** M Pharm 1st sem; CDDS- 3credits theory & 2credits practical (2015-2016 as per Amrita syllabus (1 sessional exam)), DDS- 5credits theory and 2credits practical (MPH102T) & Regulatory Affairs- 2credits (MPH104T), (2017 onwards as per PCI syllabus 2 sessional exam); M Pharm 2nd Sem (ADDS-3credits) (2015-2016), Molecular Pharmaceutics (Nano Tech and Targeted DDS)- 5credits theory and 2credits practical (2017 onwards as per PCI syllabus), **Outreach:** Professional awareness to schools, research orientation programs for B Pharm 5th and 6th sem. **Research:** Guiding M Pharm student thesis-6, completed-4, pending-2, areas: Pharmaceutics, biomaterials, biosurface technology, pharmacology, diagnostics, diabetes, prostate cancer, bone regeneration and eye diseases), B Pharm thesis guidance-2 (Completed-1, Running-1), PhD student guiding-0, Research collaborations -5; institutional-1, intra-university-2, inter-university-0, international-1. **Consulting:** Pilot plant development, Cell culture facility development, Research lab development, **Industry:** Strategic consulting in technology development for companies, **Societies:** Strategic planning, Organising speeches, Reviewing for international conferences, **Thrust Area Groups (TAGs):** Diabetes, Autoimmune disease, Bioavailability, **Consulting for clinical-** podology, endocrinology, cancer, Projects for extramural grants focus: Diabetes, Wound Healing, Bone regeneration, **Administration:** Board of studies committee, Anti-ragging committee, Research committee and IIPC committee, **Output: Highlights: Govt. policy document:** 1 national document published, **Products:** Two products developed, **Publications:** Highest impact factor reached 8, **Awards:** 4Nos in a year, **Peer reviewed publications:** (Original research work (5) **Reviews:** (2) (Journal/Impact factor/No, JCR(7.8)(1), Col.Interf.sci B-Biointerf (4.2)(1), **Book Chapters:** 1 (Elsevier), **Opinion paper-** 1, **Extramural grants -**4 (submitted)(2017- onwards), **Seed grants-**1 (running), **Invited talks-**3, **Research manuscripts-** 5 (published), **Patents (Indian)-** 3 (Submitted to office-1, Under preparation-2), **Conference papers -**4 (invited talk-1, posters 4), **Special issue edited:** 1 on going, **Books:** 1 on going, **Product developed:** 2, **Technology briefing document-**5, **Organising session in conference-**1 (2017-2018). **Workshops-**1.
- **Fellow Scientist-D** (2012-2015 successfully completed – 3yrs) at FADDS, BST Division, BMT Wing, SCTIMST Poojappura-Thiruvananthapuram, India, 695012, in prestigious Chitra High Value Fellowship (ad hoc contract appointment against permanent vacancy), **Responsibilities:** (1) Developing short term research programs in immunomodulation/therapeutics and nanobiotechnology, (2) Facility for advanced drug delivery systems (FADDS) second phase, Biosurface technology division in new research programs, (3) Key author contributions in TIFAC 2035 vision document on Biomaterials, (4) Commercially exploitable technologies evidenced in terms of technology briefing documents, (5) Patent submissions, (6) Publications. (6) International Research Programs (H2020), (7) International Visits to University of Liverpool, Liverpool, UK.
- **Postdoc in Immunomodulation and therapeutics as well as in the area of Nanobiotechnology**, Depts. of Chemical Engineering, bioengineering, immunology, McGowan Institute for Regenerative Medicine, University of Pittsburgh, Pittsburgh, USA, Advisor: Dr. Steven R Little, (associate Professor) **(2009 to 2012) (3-4yrs)**.
- **Pre-postdoc Training in Immunology:** Project based personal exchange program, DST-DAAD, Phillips University, Marburg, Germany, Advisor: Prof. Med. Harold Renz, (Director, BMFZ). **(2006-08) (successfully completed visiting collaborative research for 2yrs, 3months each for two times)**.
- **PhD in biomedical Engineering (Biosurface modification)** Biosurface technology division, Biomedical Technology Wing, Sree Chitra Tirunal Institute for Medical Science and Technology, (AN INSTITUTE OF NATIONAL IMPORTANCE) Poojappura- Thiruvananthapuram, India, 695012, Mentor: Prof. Chandra Prakash Sharma **(2003- 08)**.
- **Junior Research Fellow in Oral delivery of insulin (nanotechnology for oral cavity delivery)**, NMITLI project, Biosurface technology division, Biomedical Technology Wing, Sree Chitra Tirunal Institute for Medical Science and Technology, (AN INSTITUTE OF NATIONAL IMPORTANCE) Poojappura- Thiruvananthapuram, India, 695012, **(2001-2003) (2yrs)**.
- **Master of Pharmacy (Industrial Pharmacy) (equivalent to pharmaceuticals)**, at Annamalai University, Tamil Nadu, INDIA., Advisors: Subbal C Basak (Professor), and T. Subburaj (Vice President, Micro labs Ltd) **(1998-00)**.
- **Bachelor of Pharmacy at Dr. MGR Medical University, Tamil Nadu, INDIA (1993-97)**.

RESEARCH AREA

Fundamental research areas: Material science, Supramolecules, Biophysics, Cellular dynamics and Immunology. **With background in:** Pharmaceutical sciences, Biomaterials and Nanotechnology. **Applied research in:** Drug delivery systems,

Nanotechnology/Nanomedicine, Immunotherapeutics/Immunomodulation, Surface modification strategies, Tissue engineering and Regenerative medicine **related to** Periodontology (dental medicine), Neurology, Cardiology, Wound healing, Haemorrhage, Eye disease.

NATIONAL VISION ROADMAP FOR BIOMATERIALS

Kaladhar K, Sharma CP, Biomaterials vision document for TIFAC Vision-2035 roadmap on materials published in 2016.

PRODUCT DEVELOPED/CONSULTED

(1) Multi-drug containing paediatric syrup (2018), SKAN Research Labs Pvt Ltd, Puducherry, India, (Optimised the formulation and solved the incompatibility issues) (Product in market).

(2) Multi drug containing eye lotion (2018), SKAN Research Labs Pvt Ltd, Puducherry, India, Optimised the formulation and rectified the stability issues) (Product in market).

(3) Microdox DR Capsules USP, by Micro Labs Ltd, Bangalore, India (2001), Developed the formulation and scaled up. (Product in market)

FELLOWSHIPS, AWARDS AND HONOURS

- One of the ambassadors from India for 11th World Biomaterial Congress, Glasgow, Scotland, (2019).
- Organising Committee member International Conference on Advances in Polymeric Materials and Human Healthcare, 16-18 Oct, 2019, **International center Goa India**, Organised by Asian Polymer Association and STERMI, Goa, India, (2019).
- Best poster award, Current trends in drug development and delivery technology, Chiral, nano and herbal technology, Nehru College of Pharmacy, Thrissur, Kerala, India, (2019).
- Best poster award, Prime Pharma-conclave 2019 Prime college of pharmacy, Palakkad, Kerala, India, (2019).
- Organising committee member of BioTerm 2019, IIT Kanpur, India, (2019).
- Best poster award, International conference in clinical pharmacy and pharmaceutical technology, JAMIA College of Pharmacy, Kerala, India, (2019).
- Best poster award (Springer-nature), Biomet-2018, International conference on biomaterials, bioengineering and biotheranostics, VIT, Vellore, TN, India, (2019)
- Coordinator, Research Industry Network (RIN) session at BioMet 2018, VIT, Vellore, India, (2019).
- National Advisory Board member of BioMet 2018, VIT, Vellore, India,(2019).
- National Advisory Board member of Asian Biomaterial Congress-6, 2017, Thiruvananthapuram, Kerala, India (2019).
- Author honoured, Biomaterials roadmap- Vision 2035, TIFAC, DST, India, Kolkotta, 2016.
- Chitra High Value Fellowship (2012-2015)
- Postdoctoral fellowship (2009-2012)
- Executive board member of Society for Tissue Engineering and Regenerative Medicine India (STERMI) (2008-2010).
- DST-DAAD Project Based Personal Exchange Program, Indo-German collaborative project (2006- 2008).
- Senior Research Fellowship (SRF) of Council of Scientific and Industrial Research (CSIR), India (2006-08).
- Best Poster Presentation Award, 19th MRSI-AGM, 19th AGM, Kerala, India (2008).
- Travel Grant from CSIR to attend Regenerate & Society for Biomaterials conferences at Pittsburgh, USA (2006).
- Best Oral Presentation Award in MACRO -2004, Society for Polymer Science, India (2004).
- General Aptitude Test for Engineering (GATE)(1998).

SELECTED RESEARCH ARTICLES, REVIEWS AND BOOK CHAPTERS

2019

- (1) **Kaladhar K**¹, Thomas T¹, Tuberculosis control current status and future prospectives for developing nanomedicine strategies, **2018**, Journal of Controlled Release, (Jun2017-April 2018), Manuscript prepared (Jun2017-April 2018), (Submitted- September 2018), (Oct-Nov2018), (Published- Dec 2018) (Uner review).

- (2) **Kaladhar K¹**, Bagiyu B¹, Infection control in lower limb ulcers for wound healing current status and future perspectives, **2018**, International journal of nanomedicine, (Jun2017-April 2018), Manuscript prepared (Jun2017-April 2018), (Submitted- October 2018), (Accepted -Nov Dec 2018), (Published-Jan 2019). (Under Review)
- (3) **Kaladhar K***, Krishnapriya M, Vyshma KV, Megha H, Diclofenac loaded floating tablets, (**2018**) (Under preparation).
- (4) **Kaladhar K***, Delma D, Prophylaxis using estradiol nano-medicine based ocular insert suppresses allergic conjunctivitis in rat model: A “tradition-mimetic” approach, Colloids Surfaces B Biointerfaces (Submitted September 2018) (Under Review).
- (5) **Kaladhar K***, Jeevna R, Sabitha M, Novel aspirin controlled release nanomedicine suppresses platelet aggregation: implications for extending the golden hour in stroke, Pharmaceutical Research, (Submitted August 2018) (Under review).
- (6) Vyshma KV, Megha H, Krishnapriya M, Gayathri PP, Nithin EU, Juna K, Antony N, Renju R, **Kaladhar K***, Formulation of different polymer coated spherules from granules, J. Pharm. Sci. & Res. Vol. 11(4), **2019**, 1633-1637.

2018

- (7) Delma D, Avinash A, T Subburaj, **Kaladhar K***, Magnesium stearate is an incompatible excipient for aspirin in wet granulation producing non-linear degradation, J. Pharm. Sci. & Res. Vol. 10, 2, 2018, 240-242, (**Scopus Indexed**). Study completed 2017-2018), Manuscript prepared (Jun2017-April 2018), (Submitted- Dec 2018), (Accepted – Jan 2018), (Published- Feb 2018).
- (8) Jeevna R, Mukundan S, Bimal Raj KS, Dhanaja VP, Subburaj T, **Kaladhar K***, Formulation of a novel immediate release heterolithic buccal patch of aspirin, , (**2018**), J. Pharm. Sci. & Res., 10(8), 2018, 2079-2083
- (9) **Kaladhar K**, “FABLE” - First Aids (FAs) for Blood Loss in Emergency - Campaign for Rural India Exploring Pharmacists, *Trends in Biomaterials and Artificial Organs*, 30, 2, 161-162, (2018) (IF 0.625) (**Scopus Indexed**) (**Proof corrected**)

2017

- (10) Kumar SK, Kuruvila T, Kavya SG, Radhakrishnan R, Nair AJ, **Kamalasanan K***, Early detection of seizure in epilepsy using point of care (POC) systems, J Pharm. Sci. & Res., 9, 3, **2017**, 302-306 (**Scopus Indexed**).
- (11) Renju R, **Kalahdar K***, (**2017**) Eby Chandra P Sharma, Pharmaceutical perspectives of selection criteria and toxicity profiling of nanotheranostic agents, IN Drug delivery nanosystems for biomedical applications, Elsevier, UK, (Tentative April 2018), (ISBN No: 9780323509220).
- (12) Juna K, Alex A, Renju R, Megha H, AJ Nair, Rashmi R, **Kaladhar K***, Affordable technologies to stop bleeding from haemorrhage: New role of pharmacists in its R&D and rational use in rural India, Int. J. Pharm. Sci. Rev. Res. 42(2), Jan-Feb 2017, 35, 194-200 (**Published, Scopus Indexed**).
- (13) Sasikumar A, **Kamalasanan K*** Nanomedicine for prostate cancer using nanoemulsion: A review, Journal of Controlled Release, **2017**, 2, 260, 111-123 (**IF 7.79**).
- (14) Jayakrishnapillai PV, SV Nair, **Kaladhar K***, Current trend in drug delivery considerations for subcutaneous insulin depots to treat diabetes, Colloids and Surfaces B Biointerfaces, 153, **2017**, 123-131 (**IF 4.2**).
- (15) Juna K, Alex A, Renju R, Megha H, AJ Nair, Rashmi R, **Kaladhar K***, Affordable technologies to stop bleeding from haemorrhage: New role of pharmacists in its R&D and rational use in rural India, Int. J. Pharm. Sci. Rev. Res. 42(2), **2017**, 35, 194-200 (**Scopus Indexed**).

2016

- (16) **Kamalasanan K***, Affordable medicines exploring organ printing using “Make in India” campaign, *Trends in Biomaterials and Artificial Organs*, (**2016**) (**IF 0.625**).

2015

- (17) **Kamalasanan K**, Renz H, Sharma CP, (**2015**), Nano-anisotropic surface coating based on drug immobilized pendant polymer to suppress macrophage adhesion response. Colloids and surf. B Biointerfaces, 128, 8-16 (**IF 4.2**).

2014

- (18) **Kamalasanan K**, Sharma CP, (**2014**), Anisotropic surface coatings controls drug delivery from reservoir devices similar to that of erodible systems., *Trends in Biomaterials and Artificial Organs*, 28, 4 (**IF 0.675**).
- (19) **Kamalasanan K**, Anupriya, Deepa MK, Sharma CP., (**2014**) Supramolecular curcumin-barium prodrugs for formulating with ceramic particles., Colloids Surf B Biointerfaces. 14; 122C: 301-308 (**IF 4.2**).
- (20) **Kaladhar K**, Renz H, Sharma CP., Cell-mimetic coatings for immune spheres., (**2014**), Colloids Surf B Biointerfaces., 1, 123, 845-51(**IF 4.2**).

2013

(21) **Kamalasanan K, Gottardi R, Tan S, Chen Y, Godugu B, Rothstein S, Balazs AC, Star A, Little SR., (2013), "Zero-dimensional" single-walled carbon nanotubes., *Angew Chem Int Ed Engl.* Oct 18;52(43):11308-12. (IF 13.8)**

2011

(22) **Kamalasanan K, Jhunjhunwala S, Wu J, Swanson A, Gao D, Little SR., (2011) Patchy, anisotropic microspheres with soft protein islets., *Angew Chem Int Ed Engl.* Sep 5;50(37):8706-8. (IF 13.8)**

(23) **Kaladhar K, Sharma CP (2011), Manipulation of biomaterial interface by biomimetic strategies: Possibilities of exploring stem cells, IN *Stem Cell Technologies*, Eby, Totey S, Deb K, McGrawHill, pp 200-214.**

2009

(24) **Kaladhar K, Sharma CP (2009), Possibilities of using cord blood for improving biocompatibility of implants, IN *Frontiers of Cord Blood Science*, Springer, 5, p10-12.**

(25) **Durgadas CV, Kaladhar, K, Sreenivasan K, Sharma CP (2009). Preliminary Studies on Blood Compatibility and Langmuir Monolayer Stability of Gold Nanoparticles Stabilized Through Amino-PEG Functionality, *Trends in Biomaterials and Artificial Organs*, 23(2), p86-92.**

(26) **Kaladhar, K, Sharma CP (2009), Supported Cell Mimetic Monolayers and Their Blood Compatibility, IN *Advanced Biomaterials*, Wiley, p663-76.**

2007

(27) **Kaladhar K, Sharma CP (2007) Surface Passivation and Controlled Ligand Supplementation of Cellular Activation Processes - Strategies for Bottom up Synthesis of Bioactive Surfaces, *Trends in Biomaterials and Artificial Organs*, Vol 21(1), p 29-62.**

2006

(28) **Kaladhar K, Sharma CP (2006), Cell mimetic lateral stabilization of outer cell mimetic bilayer on polymer surfaces by peptide bonding and their blood compatibility, *Journal of Biomedical Materials Research Part A* 79(1), p 23-35. (IF: 2.834)**

(29) **Smitha M, Kaladhar K, Sharma CP (2006) Cell mimetic monolayer supported chitosan-haemocompatibility studies, *Journal of Biomedical Materials Research Part A* 79(1), p147-52. (IF: 2.834).**

(30) **Basak SC, Kaladhar K, Subburaj T (2006), Studies in Formulation of Delayed Release Capsules of Doxycycline Hyclate, *Acta Pharmaceutica Scientia.*, 48, p121- 128. (This work lead to MICRODOX DR capsules, Micro Labs Ltd, Bangalore, India).**

2004

(31) **Kaladhar K, Sharma CP (2004), Supported cell mimetic monolayers, interaction with blood. *Langmuir*, 20(25), p11115-22. (IF: 4.187).**

(32) **Basak SC, Kaladhar K, Subburaj T, (2004) Doxycycline hyclate delayed release capsules with sodium starch glycolate as a pH-dependent pore forming agent, *Indian Journal of pharmaceuticals*, 66(5), p704- 707. (This work lead to MICRODOX DR capsules, Micro Labs Ltd, Bangalore, India).**

PATENTS

2015-2020

(1) **Kaladhar K, SV Nair, (2017) (Category- Drug Delivery) Entitled: Globular protein derivative based reconstituted nanoparticle suspension for the controlled delivery of insulin in injections, **Indian patent, Status:** submitted to office, (Internal reference No: ...)(Indian Provisional Patent, Filed on ..., filing number: ...) (Under submission).**

2010-2015

(2) **Kaladhar K, Sharma CP, (2014) (Category: Drug Delivery) Entitled: Sublingual delivery of insulin. Indian Patent, **Status: Indian patent**, (Internal reference No: IPBST05/Y14)(Indian Provisional Patent, Filed on 04/03/2014, filing number: 1103/CHE/2014).**

(3) **Kaladhar K, Sharma CP, (2013)(Category: Surface coating), Entitled: Surface coatings for phenotype regulation of adherent cells. **Patent Status: Indian Patent: Filing under progress.** (Filed to Patent cell SCTIMST on 27/11/2013 and to attorney on 03/12/2012 Ref No IPBST049.Y13). Indian Patent Appl. No. 160/CHE/2014 (Indian provisional patent, filed on: 14.01.2014, Filing No. 160/CHE/2014). Full specification submitted on 01/13/2014.**

(4) **Kaladhar K, Sharma CP, (2012), (Category: Surface coating), Entitled: Novel amphiphilic nano-particle based thermo-responsive coatings on surfaces for tissue engineering applications, **Status: Indian patent**, SCTIMST IPC Ref: No. IPBST002.Y11, Indian Patent Appl. No.: 17/CHE/2012, Indian patent Filed: filed on: 06/01/2012, Application No: (17/CHE/2012A), *Published in Gazette*: on 08/11/2013, Publ. No. 17/CHE/2012A, **Technology Status: Patent intimation to TBD from Patent Cell**: Intimation date: 07/04/2012.**

- (5) **Kaladhar K**, Menon RN, Shenoy SJ, RR Nair, Sharma CP, (2012), (Category: **Medical Devices**) **Entitled:** "Catheter assisted therapeutic delivery device", **Status:** *Indian patent*, SCTIMST IPC Ref: No. IPBST034.Y13, Indian Patent Appl. No. 2138/CHE/2013, **Technology Status: Patent intimation to TBD from Patent Cell:** Intimation date: 12/02/2013.
- (6) **Kaladhar K**, Jayalakshmi AC, Pradeep kumar SS, Vijayan S, HK Varma, Sharma CP, (2012), (Category: **Nanomaterials/nanomedicine**) **Entitled:** "Ceramic particles with fast and tunable degradation properties for antibacterial applications", **Status:** *Indian patent*, SCTIMST IPC Ref: No. IPBST030.Y12, Indian Patent Appl. No. 608/CHE/2013, **Technology Status: Patent intimation to TBD from Patent Cell:** Intimation date: 05/04/2013.
- (7) **Kaladhar K**, Radhika R, Pradeep kumar SS, Maya AN, Sharma CP, (2012), (Category: **Therapeutic nanoparticles**) **Entitled:** "Drug oligomer based nanoparticles with fast degrading properties", **Status:** *Indian patent*, SCTIMST IPC Ref: No. IPBST029.Y12, Indian Patent Appl. No. 106/CHE/2013, (Indian Provisional Patent, Filed on: 07/01/2013, Filing Number: 106/CHE/2013**Technology Status: Patent intimation to TBD from Patent Cell:** Intimation date: 25/01/2012.

2000-2010

- (8) **Kaladhar K**, Little SR, (2009), (Category: **Surface patterning**) **Entitled:** Methods to prepare patchy microparticles, **Patent Status:** *US Patent:* (US Provisional Patent, Filed on Oct 8, 2009, (Filing No: 61/249802); *issued*, US Patent filed on: Aug 23 2012, Patent No: US20120214001A1, *PCT Patent: Filed:* Oct 7/2010 PCT Patent No: PCT/US10/51771, *Published:* (PCT Patent published) Publ. Date: 14/4/2011 (Publication number: WO/2011/044328).

CONFERENCE PROCEEDINGS

- (1) Juna K, Megha H, Alex A, **Kaladhar K***, (2019) Nanomedicine for delivery of anti platelet agent from advanced tourniquet, Prime Pharma-conclave 2019 Prime college of pharmacy, Palakkad, Kerala, India, (**Best poster award**).
- (2) Megha H, Juna K, Alex A, **Kaladhar K***, (2019) Nanomedicine to deliver antiplatelet agent from advanced tourniquet to suppress haematoma, international conference on clinical pharmacy and pharmaceutical technology, Jamia Salafiya Pharmacy College, Malappuram, Kerala, (**Best poster award**).
- (3) Megha H, Juna K, Alex A, **Kaladhar K***, (2019) Nanomedicine delivery from advanced tourniquet to stop hemorrhage from the lower limb extremities, Current trends in drug development and delivery technology, Chiral, nano and herbal technology, Nehru College of Pharmacy, Thrissur, Kerala, India (**Best poster award**).
- (4) Juna K, Alex A, Megha H, **Kaladhar K***, (2018) Advanced bandages to stop hemorrhage from lower limb extremities, Biomet-2018, International conference on biomaterials, bioengineering and biotheranostics, VIT, Vellore, TN, India (**Best poster award- sponsored by Springer-nature**).
- (5) Krishnapriya M, **Kaladhar K***, (2018) Floating drug delivery systems using diclofenac sodium as a model drug, Biomet-2018, International conference on biomaterials, bioengineering and biotheranostics, VIT, Vellore, TN, India.
- (6) Jeevna R, **Kaladhar K***, (2018) Development of aspirin loaded niosome, Biomet-2018, International conference on biomaterials, bioengineering and biotheranostics, VIT, Vellore, TN, India.
- (7) Dacruz D, **Kaladhar K***, (2018) Development of medicated kajal based drug delivery system for the prophylaxis of allergic conjunctivitis, Biomet-2018, International conference on biomaterials, bioengineering and biotheranostics, VIT, Vellore, TN, India (**Best poster award**).
- (8) Rashmi R, Renju R, SV Nair, **Kaladhar K***, (2017), (Poster) Controlled local delivery of insulin for accelerated wound healing, 6th Asian Biomaterial Congress, Oct 25-27, Thiruvananthapuram, India.
- (9) Nair AJ, Decruz D, MB Nair, SV Nair, **Kaladhar K***, (2017) (Poster) Accelerated Bone Regeneration in Critical Calvarial Defect By Controlled Delivery of Insulin from Scaffold, 6th Asian Biomaterial Congress, Oct 25-27, Thiruvananthapuram, India.
- (10) Juna K, Alex A, Megha H, **Kaladhar K***, (2017) (Poster) Advanced bandages to stop haemorrhage from the lower limb extremities, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.
Thomas K, Rehna M, **Kaladhar K***, (2017) (Poster) Treatment strategies for tuberculosis resistaince, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.
- (11) Delma D, **Kaladhar K***, (2017) (Poster) Pharmacological strategies to address cataract, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.
- (12) Kavya SG, Aiswari SK, Thomas K, **Kaladhar K***, (2017) (Poster) Pharmaceutical strategies for addressing cigarette smoking, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.
- (13) Aiswari SK, Kavya SG, Thomas K, **Kaladhar K***, (2017) (Poster) Early detection of epileptic siezures, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.
- (14) Rashmi R, **Kaladhar K***, (2017) (Poster) Accelerated wound healing using nanosystems, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.

- (15) Athira JN, Kaladhar K*, (2017), Controlled growth factor delivery for bone regeneration, Research Day, March 17, 18 (Org by: Amrita School of Pharmacy), Kochi, Kerala, India.
- (16) Kaladhar K (2016), Author briefing, Biomaterials chapter, 2035 Technology Vision, Technology Roadmap on materials, TIFAC, DST, India, IN national seminar on technology thrust on materials and manufacturing sector in India, CSIR-CGCRI, Kolkutta, July 28-29 (Org by: CGCRI, IIM Kolkata, MIEEM, TIFAC).
- (17) Kaladhar K (2016), (Invited talk) Zero dimensional Single Walled Carbon Nanotubes and its application in super thin electronics and nanomedicine, BiTERM- 2016, International Conference on Biomaterials, Biagnostics, Tissue Engineering, Drug Delivery and Regenerative Medicine, IIT Delhi, New Delhi, India, April 15-17, (Org by: Center for Biomedical Engineering, IIT Delhi, SBAOI, STERMI).
- (18) Kaladhar K* (2016) (Invited speaker) The nanobridge in drug discovery and therapeutics: Nanomedicine, Advancing chemotherapy with a merge of medicinal chemistry and bioinformatics, Karpagam University, Karpagam College, June 17, (Org by: Karpagam University, AICTE).
- (19) Kaladhar K* (2016) (Invited speaker) Traditional medicine to link with modern medicine: Research Possibilities, Medical Seminar, Kozhikode, Sept 17, (Org by: HKS, Kozhikode).
- (20) Kaladhar K*, Benjamin B, T Subburaj, Sharma CP, (2015) Research-Industrial Networks (RIN)- Need of the hour in India, (Oral presentation, BITE-RM-2015, Indo-Australian conference on biomaterials, tissue engineering, drug delivery systems, and regenerative medicine, 25th Annual meeting of Society for Biomaterials and artificial organs India, 8th Annual meeting of Society for Tissue engineering and Regenerative Medicine, Feb 5-7, 2015.
- (21) Lash MH, Kaladhar K, McCarthy J, Little SR, (2012) Fabrication of Highly Ordered and Close Packed Colloidal Crystals From Large Microparticles, 2012, 12th AIChE Annual meeting, October 30, Pittsburgh, PA, USA.
- (22) Kaladhar K, Little SR (2011) (poster), Synthetic Cells with Ordered Protein Patches, annual Meeting & Exposition, April 13-16, 2011, Orlando, Florida.
- (23) Kaladhar K, Little SR, (2010) (oral), Anisotropic Protein Patterned Microspheres, 10th AIChE annual Meeting, Salt Lake City, USA.
- (24) Kaladhar K, Little SR, (2010) (oral), Self-assembly of quantum single walled carbon nanotubes, 10th AIChE annual Meeting, Salt Lake City, USA.
- (25) Kaladhar K, Sharma CP, (2008), (Poster) (Best poster award) Role of head group structure in regulating the packing density of lipid monolayers on phosphatidylcholines, and development of liposome delivering matrices for nerve conduit applications. 19th Annual meeting of the Materials Research Society of India, February 14-16, Thiruvananthapuram, Kerala, India.
- (26) Kaladhar K, Deb, D, Sharma CP, (2008), (Poster) Preliminary investigation on formation of embryoid bodies on cell mimetic surfaces and controlled ligand supplementation, 8th World Biomaterials Congress, May 28th- Jun 1, Amsterdam, Netherlands.
- (27) Kaladhar K, Sharma CP, (2008) (Poster), Biofriction at Lipid Modified Surfaces: Polymeric Gels 8th World Biomaterials Congress, May 28th- Jun 1, Amsterdam, Netherlands.
- (28) Kaladhar K, Sharma CP, (2008) (Poster), Biofriction at Cell Mimetic Lipid Surfaces: Microspheres, 8th World Biomaterials Congress, May 28th- Jun 1, Amsterdam, Netherlands.
- (29) Kaladhar K, Sharma CP, (2008) (Poster) Incorporation of Globular Proteins Into Lipid Monolayers After Conformational Change 8th World Biomaterials Congress, May 28th- Jun 1, Amsterdam, Netherlands.
- (30) Kaladhar K, Sharma CP, (2008) (Oral) Bottom Up Synthesis Of Protein Like Nanoparticles With Enhanced Drug Loading And Their Post Synthetic Surface Modification, 8th World Biomaterials Congress, May 28th- Jun 1, Amsterdam, Netherlands.
- (31) Kaladhar K, Sharma CP, (2007) (Poster), Calcification at micro domains: Effect of insulin and ethanol, Society for Biomaterials, 31st Annual meeting: A multi dimensional: multi disciplinary approach to biomaterials, April 18-21, Illinois, Chicago, USA.
- (32) Kaladhar K, Sharma CP (2007) (Poster), Thermo responsive protein like nanoparticles, Society for Biomaterials, 31st Annual meeting: A multi dimensional: multi disciplinary approach to biomaterials, April 18-21, , Illinois, Chicago, USA.
- (33) Kaladhar K, Asha Rani V, Sharma CP, (2007) (Poster) Screening of ligands for blood compatible applications by In silico methods: NSAID's like Aspirin, Indomethacin & Diclofenac affinity for albumin. BITE & RM, Jan 2-5, Thiruvananthapuram, Kerala, India.
- (34) Kaladhar K, Sharma CP, (2007), (Poster) Development of thin solid films of thermoresponsive nanoparticles and their characterization. BITE & RM, Jan 2-5, Thiruvananthapuram, Kerala, India.
- (35) Kaladhar K, Sharma CP; (2007), (Poster), Calcification at micro domains: A bottom up approach for the synthesis of bioactive ceramic nanoparticles with high drug loading, CMA 2007, Indo-US workshop on Ceramics for Medical Applications, IIT Madras, Dec 13-14, 2007, Chennai, TN, India.

- (36) **Kaladhar K**, Sharma CP, (2006) (Poster) (Travel award), Novel Albumin Self-Assembled Liposomes for Drug Delivery Applications, Society for Biomaterials, Annual meeting: Biomaterials- The enabling Technology, April 26- 29, Pittsburgh, Pennsylvania, USA.
- (37) **Kaladhar K**, Sharma CP, (2006) (Poster) (Travel award), Effect of phosphatidylethanolamine in fibroblast cell adhesion and proliferation, Tissue Engineering and Regenerative Medicine International Society., Regenerate- World Congress on Tissue Engineering and Regenerative Medicine, April 24- 27, Westin Convention Center, Pittsburgh, Pennsylvania, USA
- (38) **Kaladhar K**, Sharma CP, (2005) (Poster), A novel Solid Liposome Based Drug Delivery System- Concept Proving Approach, Society for Biomaterials, 30th Anniversary meeting &Exposition, New Applications and Technologies, April 27- 30, Memphis Cook Convention center, Memphis, USA.
- (39) **Kaladhar K**, Sharma CP, (2005) (Poster), Niomat- A Novel Solid Drug Delivery System to Deliver the Niosomes or Proniosomes with Drugs, Indo- Australian Conference on Biomaterials, Implantable Devices, Tissue Engineering and Regenerative Medicine (BITE & RM), Jan 2-5, Thiruvananthapuram, Kerala, India.
- (40) **Kaladhar K**, Sharma CP, (2004) (Oral), Blood Compatibility of Cell Mimetic Monolayers, 7th World Biomaterial Conference, May 17 to 21, Sydney, Australia.
- (41) **Kaladhar K**, Sharma CP, (2004) (Oral) (Travel award), Modification of chitosan using N- aryl anthranilic acid derivative for blood compatible applications” International Symposium on Advanced Materials and Processing, Dec 6-8, IIT Kharagpur., India
- (42) **Kaladhar K**, Sharma CP, (2004) (Oral) (Best Oral Presentation), Modification of chitosan using n-aryl anthranilic acid derivative for insulin delivery, Macro2004, International Conference on Polymers for Advanced Technologies, SPSI Annual General body meeting, Dec 15-17, Thiruvananthapuram, India.
- (43) **Kaladhar K**, Sharma CP, (2002), Insulin Drug Delivery by Sublingual Route, MACRO 2002, International Seminar on Frontiers of Polymer Science and Engineering ; Dec 9- 11, IIT, Kharagpur., India.

COLLABORATIONS

(1) **Current: (2018-2020): Continuing all from last year with the inclusion of Megasis Biotek Ltd, Ernakulam, Kerala, India** and entered an MOU with them on academic and research consultancy, **(2017-2018) Institutional:** (1) Nair SV Dean (Research) Sabitha M (Principal), Manita B Nair, Amrita University, Kochi, India., **International** (1) Tyagarajan B, Padmamalini T, University of Wyoming, Wyoming, USA., **Industrial** (1) R Narasimman, director, SKN Organics Pvt Ltd. (1) Dr. Praveen K, Amrita Hospital,

(2) **Past collaborations: Industrial** (1) T Subburaj (Vice President) (Microlabs Ltd, Bangalore, 2000-2001), (2) **Research (India):** Chandra Prakash Sharma (Associate Head), SCTIMST, (2001 to present), **(USA)** Steven R Little (Chairman and Head) (2010-Present), AC Balazs (Chairman and Head), Bhaskar Goduku, Susheng Tan, Alexander Star, Riccardo Gottardi, Sam Rothenstein, Yanan Chen, Smitha Mathews, Siddharth Jhunjunwala, University of Pittsburgh, (2010 to present).

STUDENTS GUIDED SO FAR

B Pharm (Thesis)

Student details

Graduated: (2016-2017) (Published) Juna Joju (M Pharm, Amrita School of Pharmacy), Megha Hansen (M Pharm, Amrita School of Pharmacy), Alex Antony (studies abroad), **Current: (2017-2018)**(Published) Thomas Kuruvila (Symbiosis, MHA), Aiswari S Kumar (Joined for M Pharm, Amrita School of Pharmacy), Kavya SG (Joined for M Pharm, Amrita School of Pharmacy), Rasheed A(Joined for M Pharm, Amrita School of Pharmacy).

Thesis details

(1) Juna J, Megha H, Alex A, (2017) Advanced bandages to stop haemorrhage from the lower limb extremities, (Guide Dr. **Kaladhar K**).

(2) Thomas K, Aiswari SK, Kavya SG, Abdul R, (2018) Early detection and therapy of epilepsy using point of care systems, (Guide Dr. **Kaladhar K**).

M Pharm (Thesis)

Graduated: (2013-2014) (Published) Anupriya Mahesh (IF4.2) (Lecturer, Amrita School of Pharmacy, Kochi), **(2015-2016)** Jayakrishnapillai PV (IF4.2) (Aster, Dubai), Aravindsiva (IF7.7) (QC, Strides Arco lab, Bangalore), **(2016-2017)** Rashmi Radhakrishnan (Scopus) (QA, Wockard Pharmaceuticals), Athira J Nair (Scopus) (Sun Pharma, Production, Hyderabad), **(2017-2018)** Delma Decruz (Teaching, Vinayaka college of pharmacy, Madurai, Tamilnadu, India), Jeevna (SKN, Madridge, FR&D, Bangalore), Juna Joju (Joined for PhD), Megha Hansan (Joined for PhD).

(1) Jayakrishnapillai PV, (2016) Insulin depots for therapeutic applications in diabetes mellitus, (Guide Dr. **Kaladhar K**) (IF 4.3).

- (2) Aravindsiva, Nanoemulsion for the treatment of prostate cancer, (Co-guide: **Kaladhar K**, Guide: Sabitha M) (IF 7.8)
- (3) Rashmi R, Controlled local delivery of insulin for accelerated wound healing, (Guide Dr. **Kaladhar K**)
- (4) Athira J Nair, Developing a controlled insulin drug delivery system for bone regeneration applications, (Guide Dr. **Kaladhar K**).
- (5) Delma Decruz, Kajaal based ocular insert (Guide Dr. **Kaladhar K**)
- (6) Jeevna R, aspirin nanomedicine to extend the golden hour in stroke (Guide Dr. **Kaladhar K**)
- (7) Megha H Ocular insert to deliver insulin (Guide Dr. **Kaladhar K**)
- (8) Juna J, Controlled delivery of antibiotic to wound bed (Guide Dr. **Kaladhar K**)
- (9) Aiswari S, (Guide Dr. **Kaladhar K**)
- (10) Shefrin, (Guide Dr. **Kaladhar K**)

PhD (Thesis)

(2018-2019)

- (1) Juna Konikkara (Guide: **Kaladhar K**) (currently enrolling)
- (2) Megha Hanssan (Guide: **Kaladhar K**) (currently enrolling)

(2017-2018)

- (1) Renju Radhakrishnan (Guide: **Kaladhar K**) (currently enrolling)

GRANTS

List of projects implemented/written as a PI

2019

- (1) **Kaladhar K** (PI) Self-assembling nanoparticulate insulin depots for delivering unaltered long acting basal insulins by minimally invasive pen injections and microneedle technology (Submitted to DBT) (94.03Lakhs)
- (2) **Kaladhar K** (PI) Biomimetic nanoparticle based antibiotic drug delivery for accelerated wound healing of surgical full thickness chronic wounds, (Submitted to ICMR) (1.07Cr)
- (3) **Kaladhar K** (PI) Basal insulin delivery through nasal cavity using combustion derived carbon particle (CDCP) based biomimetic nanoparticles for treating diabetes mellitus (1.06Cr).

2017

- (4) **Kaladhar K** (PI), Sabitha M, Biocompatible self-associating nanoparticulate insulin depot for reducing number of injections per week to half in diabetic patients: structure-property-function study in diabetic rat model., DST nanomission project, (48.25Lakhs), (2017-2020) (Submitted to funding agency, DST-nanomission).

Before 2015

- (5) **Kaladhar K** (PI), RN Menon, VS Harikrishnan.,(2012) Supported and programmed CNS miniatures with regenerative capacity to treat severe Spinal Cord Injury(SCI): Nanomedicine for glial scar therapeutics, OHF Project SCTIMST, (2.6Lakhs), 2013-2016, (implemented and report submitted).
- (6) **Kaladhar K** (PI), Renju R (Student), Peptide building blocks for nano-biomaterials in wound healing applications Seed grant, 30,000Rs, 2017-2018,(Grant approved), Amrita Viswa Vidyapeetham, Kochi, Kerala, India.

List of projects written as a student/tenured track faculty

- (1) **Kaladhar K**, Sharma CP, (2006) Center for advanced drug delivery systems (CADDs), DST, (42Crores) Asked to resubmit as subprojects.
- (2) **Kaladhar K**, Sharma CP, (2007) Facility for advanced drug delivery systems (FADDs), DST, (5Crores) (2008-2012).
- (3) **Kaladhar K**, Sharma CP, (2006), Evaluation of Pro and anti Th1/Th2 inflammatory profile of cells onto bio-material surface by studying the cytokine release profile, DST-DAAD project based personal exchange program, (2006-2008).
- (4) **Kaladhar K**, CSIR Fellowship, (2006-2008).
- (5) Little SR, Balazs AC, NSF project (2010-2012).
- (6) **Kaladhar K**, Sharma CP (SCTIMST) and nine other international institutes, (2014), TB Vaccine, Horizon 2020.

The information provided is to the best of my knowledge, evidence and detailed biodata will be provided upon request.

Kaladhar K

02-11-2019