Tissue Engineering and Cancer Research Laboratory

Projects and Grants

RESEARCH GRANTS FUNDED

Ongoing

- Title: Identification and Functional Characterization of TGF-β1-mediated Activating Transcription Factor-3 sumoylation in Breast cancer Bone Metastasis
    - Funding Agency: DST-SERB, India
    - Funding period: 2024 – 2027

Completed

- Title: Identification of MicroRNAs Regulating Runx2 Activity of TGF-β1 Stimulation of Matrix Metalloproteinase-13 Expression in Osteoblastic Cells.
    - Funding Agency: Indian Council of Medical Research (ICMR), India
    - Funding Period: 2021 – 2024

- Title: Identification of MicroRNAs Regulating Runx2 Activity of TGF-β1 Stimulation of Matrix Metalloproteinase-13 Expression in Osteoblastic Cells.
    - Funding Agency: Indian Council of Medical Research (ICMR), India
    - Funding Period: 2021 – 2024

- Title: Identification of MicroRNAs Regulating TGF-β1-stimulated ATF-3 Expression in Human Breast Cancer Cells.
    - Funding Agency: Indian Council of Medical Research (ICMR), India
    - Funding Period: 2019 - 2022

- Title: Transforming growth factor-β1 activates Runx2 for matrix metalloproteinase-13 expression in osteoblastic cells.
    - Funding Agency: DST-SERB, India
    - Funding Period: 2019 – 2022

- Title: Regulation of Parathyroid Hormone-Stimulation of Matrix Metalloproteinase-13 Expression in Osteoblastic Cells in MicroRNAs.
    - Funding Agency: Department of Biotechnology, India
    - Funding Period: 2017 – 2020

- Title: Regulation of Activating Transcription Factor-3 in Human Breast Cancer Cells.
    - Funding Agency: Department of Biotechnology, India
    - Funding Period: 2016 – 2019

- Title: Regulation of Runx2, a Bone Transcription Factor by Transforming Growth Factor-β1 in Osteoblastic Cells.
    - Funding Agency: DST-SERB, India
    - Funding Period: 2015 – 2018

- Title: In vitro and In vivo Role of Biocomposite Scaffolds for Bone Tissue Engineering.
    - Funding Agency: Council for Scientific and Industrial Research,India
    - Funding Period: 2014 – 2017

- Title: A Novel Hydrogel for Bone Tissue Engineering.
    - Funding Agency: Council for Scientific and Industrial Research, India
    - Funding Period: 2013 – 2015

- Title: ATF-3: A Potential Target Gene for Breast Cancer Progression in vivo.
    - Funding Agency: Indian Council of Medical Research, India
    - Funding Period: 2011 – 2014

- Title: Regulation of Mesenchymal Stem Cells towards Osteogenic Cell lineage by microRNAs.
    - Funding Agency: Indian Council of Medical Research, India
    - Funding Period: 2011 - 2014

List of Ph.D. awarded

- Abinaya S, successfully defended her research work entitled "Evaluation of osteogenic potential of 4-Methoxycinnamic acid encapsulated chitosan nanoparticles on polydopamine functionalized 3D-printed scaffolds" and has been awarded doctoral degree on 12th December 2024.
- Abinaya S, successfully defended her research work entitled "Evaluation of osteogenic potential of 4-Methoxycinnamic acid encapsulated chitosan nanoparticles on polydopamine functionalized 3D-printed scaffolds" and has been awarded doctoral degree on 12th December 2024.
- Akshaya R L., Successfully defended her research work entitled "Regulation of TGF-β1-stimulated Activating Transcription factor 3 by MicroRNAs in Human Breast Cancer Cells" and has been awarded doctoral degree on 26th June 2023.
- Lavanya K., successfully defended her research work entitled "Fabrication of Thymol-loaded Sodium alginate/Poly(2-ethyl-oxazoline)/Chitosan based Semi-interpenetrating Hydrogels for Bone Tissue Engineering" and has been awarded doctoral degree on 19th June 2023.
- Roshini Yadav, L., successfully defended her research work entitled "Bioactive Scaffolds in Sustained Release of Orsellinic Acid for Guided Bone Regeneration" and has been awarded doctoral degree on 08th May 2023.
- K. Gomathi, successfully defended her research work entitled "Transforming Growth Factor-β1 Promotes Runx2 Acetylation for Matrix Metalloproteinase-13 Expression in Osteoblastic Cells" and has been awarded doctoral degree on 23rd November 2022.

- K. Balagangadharan, successfully defended his research work entitled “Polycaprolactone Fibers containing Sinapic Acid Loaded Chitosan nanoparticles for Bone Tissue Engineering” and has been awarded doctoral degree on 29th July 2020.
- Viji Chandran, Successfully defended his research work entitled “Synthesis and characterisation of gelatin/Nanohydroxyapatite/Diosmin composite scaffolds for bone tissue repair: In vitro and In vivo” and has been awarded doctoral degree on 29th July 2020.
- B. Arumugam, successfully defended his thesis entitled ‘Regulation of Runx2, a Bone Transcription Factor by Transforming Growth Factor-β1 for Matrix Metalloproteinase-13 Expression in Osteoblastic cells’ and has been awarded doctoral degree on 03rd October 2018.
- S. Dhivya, successfully defended her thesis entitled ‘Synthesis and Characterization of biocomposite Scaffolds containing Chitosan Calcium Polyphosphate and Pigeonite for Bone Tissue Engineering: In vitro and In Vivo’ and has been awarded doctoral degree on 14th September 2018
- M. Gokulnath, successfully defended his thesis entitled 'Regulation of Activating Transcription Factor 3 in Human Breast Cancer Cells' and has been awarded doctoral degree on 17th November 2017
- S. Vimalraj, successfully defended his thesis entitled ‘Regulation of Mesenchymal Stem Cells towards Osteoblasts by MicroRNAs’ and has been awarded doctoral degree on 2nd November 2015.
- Saravanan Sekaran, successfully defended his research work entitled “In vitro and In vivo assessment of mesoporous wollastonite particles derived from rice straw on bone formation” and has been awarded with doctoral degree on 16th March 2015.
- Moorthi Ambigapathi, successfully defended his thesis entitled “Synthesis, Characterization and Biological Action of Nano Bioglass Ceramic Particles for Bone Formation” and has been awarded doctoral degree on 28th January 2014.

B.Tech and M.Tech Research Projects Completed

2023-2024

- Ashok Bharathy M R, Induja Magesh, Karthik Suryanarayanan, Rushil Kolipaka – MicroRNA-4327 regulates TGF-β1-stimulation of Matrix Metalloproteinase-13 expression via CREB-binding protein-mediated Runx2 acetylation in human osteoblastic cells. (B.Tech).
- Srinidhi G, Sahithya M, Sathiya K – Osteogenic evaluation of 3D-printed PLA scaffolds intergrated with Khellin-loaded Chitosan-Alginate sponges for Bone Tissue Engineering. (B.Tech).

2022-2023

- Anushikaa R, Shree Ganesh S J, Sri Swetha Victoria V, Orthopedic Applications of 3D- printed Titanium Scaffolds loaded with Gelatin Hydrogel containing Strontium-doped Silver Nanoparticles. (B. Tech).
- Bharathi R, Harini G, Aravind S, Osteogenic Evaluation of Nuciferine-loaded Chitosan Hydrogel on 3D-Printed PLA Scaffolds for Bone Tissue Engineering.
  (B. Tech).

2021-2022

- Hari Krishnan R, Lakshana Sruthi SM, Udipt Ranjan Das, Sneha S Kumar - Circ_CUX1/miR-130b-5p/p300 Axis in PTH-Stimulation of Runx2 Activity in Rat Osteoblasts. (B.Tech)

2020-2021

- R. Abhinandan, S. Pranav Adithya, D. Saleeth Sidharthan, Osteo-Stimulatory Effect of Alginate/PVA/Magnesium Boride Nanosheets for Bone Tissue Engineering (B.Tech)
- Ashwin Badrinaath, Prasith T P, Abinaya B, Bioactive Three-Dimensional printing of Scaffolds for Bone Tissue Engineering. (B. Tech)

- S. Swetha, 3D-Poly (Lactic acid) Scaffolds Coated with Carboxymethyl Cellulose Containing Zinc Oxide and Calcium Phosphate nanoparticles for Bone Tissue Engineering. (M. Tech)

2019-2020

- Srinaath N, Akshaya N, Parathyroid Hormone – Regulation of Runx2 by MicroRNAs for the stimulation of Matrix Metalloproteinase 13 (MMP 13) in rat Osteoblastic cells. (B. Tech)
- Ashwin Badrinaath, Prasith T P, Abinaya B, Bioactive Three – Dimensional printing of Scaffolds for Bone Tissue Engineering. (B. Tech)
- Sruthi Ranganathan, Polycaprolactone/Polyvinylpyrrolidone Coaxial elecrospun fibers containg veratric acid – loaded Chitosan Nanoparticles for Bone Regeneration. (M. Tech)

2018 - 2019

- Shreya Srinivasan, Malavika B Desai, Raj Priya V, Regulation of parathyroid hormone-stimulation of matrix metalloproteinase-13 expression in rat osteoblastic cells. (B. Tech)

2017 - 2018

- A. Haritha Menon, V. Sanjay, Preethi S Soundarya, Delivery of chrysin using a biocomposite scaffold for bone tissue engineering application (B. Tech)
- Harini Balaji, Pranav Kumar Shadamarshan, Harsha Shrihari Rao, Fabrication of electrospun polycaprolactone and polyvinylpyrrolidone fibres containing anethole for bone regeneration (B. Tech)
- S. Saiganesh, Saathvika Ravi, V. Udhaya, Regulation of transforming growth Factor-β1 stimulation of MMP-13 expression by miRNAs in rat osteoblastic cells (B. Tech)
- Shreya Srinivasan, Malavika B Desai, Raj Priya V, Regulation of parathyroid hormone-stimulation of matrix metalloproteinase-13 expression in rat osteoblastic cells. (B. Tech)

2016 - 2017

- S. Leena Regi, Alginate/Gelatin Scaffolds incorporated with silibinin loaded chitosan nanoparticles for bone formation in vitro (M.Tech)
- M. Vishal, Parathyroid hormone regulation of microRNAs in osteoblastic cells (M. Tech)
- P. Shilpa, Transforming growth factor-β1 regulation of ATF3 in normal and cancerous human breast cells (B. Tech)

2015 - 2016

- R. Swetha and G. Thejaswini, TGF-β1 regulation of activating transcription factor-3 in human breast cancer cells (B. Tech)
- A. Kesav Narayan and R. Logith Kumar, Iron-containing ceramic particles in mesenchymal stem cell proliferation (B. Tech)

2014 - 2015

- M. Sriram, V. Kalyanaraman and R. Sainitya, Biocomposite scaffolds containing chitosan/carboxymethylcellulose/mesoporous wollastonite for bone engineering (B.Tech).
- R. Ajeetha, M.Vishal and R. Keerthana, Regulation of bone transcription factor by miRNAs during Mesenchymal Stem Cell Differentiation towards Osteoblast (B.Tech).

2013 - 2014

- Anbuselvan. T, Anjali Chawla, Chatterjee Pallavi Vishwanath. Graphene Oxide Reinforced Chitosan/Gelatin Scaffolds for Bone Tissue Engineering (B. Tech).
- Ajita Jindal. Impact of Size(s) of Nano Bioglass Ceramic Particles on Mesenchymal Stem Cells Proliferation (M. Tech).
- Panimaya Jeffreena Miranda. Identification of microRNAs in Breast Cancer Mediated Bone Metastasis and Their Target Gene Validation (M. Tech).
- Dhivya. S. Synthesis and Characterization of a Thermosensitive Hydrogel containing Zinc Doped Chitosan/Nano-hydroxyapatite/b-Glycerophosphate for Bone Tissue Engineering (M. Tech).

2012 - 2013

- Prashanth balaji.D.R. In vitro biological characterization of chitosan/diopside scaffolds for bone tissue engineering (B.Tech)
- Pradeep kumar.J,Lakshmi.L,Jyothsna.V. Preparation and characterization of chitosan/diopside scaffolds for bone tissue engineering (B.Tech)
- Avani. C. Mesenchymal stem cells differentiation into osteoblasts by microRNA (M.Tech)
- Gloria Josephine.J .Preparation and characterization of a biocomposite scaffold containing chitosan/carboxymethyl cellulose/n-wollastonite for bone tissue engineering (M.Tech)
- Nithya.C .Chitosan nanoparticles for gene delivery. (M.Tech)
- Priyanka R.parithar . Impact of nano-bioglass ceramic particles on osteoblast proliferation in bone formation. (M.Tech)

2011 - 2012

- Sameera.D .Chitosan scaffolds containing keratin nanoparticles for bone tissue engineering applications.(B.Tech)
- Koushik gopal.C.NiranjanPreparation and characterization of zinc doped chitosan/beta-glycerophosphate hydrogel for bone tissue engineering applications. (B.Tech)
- Jitendra. S,mohita.T & sowjanya.J. Preparation and characterization of a biocomposite scaffold containing chitosan/alginate/nano-silica for bone tissue engineering. (B.Tech)

2010 - 2011

- Ramayakrishna .B. Preparation and characterization and antibacterial activity of chitosan and n,o-CMC nanoparticles. (M.Tech)
- Soumitri Pattnaik . Preparation and characterization of novel chitosan scaffolds containing silicon dioxide and zirconia nano particles for bone tissue engineering applications. (M.Tech)
- Saranya.N .Chitosan and n,o-carboxymethyl chitosan nanoparticles for intracellular gene delivery. (M.Tech)
- Anjali Tripathi .preparation and characterization of a biocomposite scaffold containing chitosan/nano-hydroxyapatite/copper zinc alloy nanoparticles for bone tissue engineering applications. (M.Tech)
- Sricharan Nethala .Preparation and characterization and antibacterial activity of a biocomposite scaffold containing chitosan/nano-hydroxyapatite/nano silver for bone tissue engineering applications.

(M.Tech)

2009 - 2010

- Sahithi .K. Synthesis and characterization of nanoscale-hydroxyapatite-copper for antimicrobial activity towards bone tissue engineering applications. (M.Tech)
- Swetha. M. Synthesis and characterization ofnanoscale-hydroxyapatite-zinc for antimicrobial activity towards bone tissue engineering applications. (M.Tec)