Ajay TIJORE

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Centre for Biosystems Science & Engineering
Indian Institute of Science, Bangalore, 560012, India

EDUCATION

PhD	NTU Singapore, Biomaterials & Bioengineering Dissertation: Modulating stem cell differentiation via cell-material interactions	2016
MTech	IIT Bombay, Biomedical Engineering Thesis: Anticancer drug delivery using thermosensitive triblock copolymer	2011
BPharm	Pune University, Pharmaceutical Sciences	2009

POSITIONS

Assistant Professor	Centre for Biosystems Science & Engineering Indian Institute of Science (IISc), Bangalore	Nov 2021-present
Postdoctoral Fellow	Mechanobiology Institute (MBI), NUS, Singapore	2017-2021
Postdoctoral Fellow	NTU, Singapore	2016-2017

AWARDS & HONORS

Outstanding Abstract Award, 11th Asian-Pacific Conference on Biomechanics, 2021, Kyoto, Japan

Best Poster Award, National Post Doc Symposium, 2019, IISER Pune, India

One of the top ten posters, MBI 10th Anniversary Conference, 2018, Singapore

BioRxiv preprint selected as the 'Preprint Highlights' by The Company of Biologists, 2018

NTU Research Scholarship (2011-2015)

MHRD Postgraduate Fellowship, India (2009-2011)

PUBLICATIONS, BOOK CHAPTERS, GRANT & PATENT

Publications (†co-first authors, *co-corresponding authors)

1. **Tijore A***, Bo Y, Sheetz Michael*, Cancer cells can be killed mechanically or with combinations of cytoskeletal inhibitors, *Frontiers in Pharmacology*, 2022, 13, 955595

2. Yao M*, **Tijore A**, Cheng D., Li JV, Hariharan A, Martinac B, Nhieu GTV, Cox CD*, Sheetz Michael*, Force and cell-state dependent recruitment of Piezo1 drives focal adhesion dynamics and calcium entry, *Science Advances*, 2022, 8, eabo1461

3. **Tijore A**, Yao M, Wang Y-H, Hariharan A, Nematbakhsh Y, Doss BL, Lim CT, Sheetz Michael*, Selective killing of transformed cells by mechanical stretch, *Biomaterials*, 2021, 275, 120866

4. Singh A†, **Tijore A**†*, Margadant F, Simpson C, Chitkara D, Low BC, Sheetz Michael*, Enhanced tumor cell killing by ultrasound with microtubule depolymerization, *Bioengineering and Translational Medicine*, 2021, e10233

5. **Tijore A***, Lee BH, Mohan HKSV, Li KHH, Tan LP*, Bioactive micropatterned platform to engineer myotube-like cells from stem cells, *Biofabrication*, 2021, 13, 035017

6. **Tijore A**, Irvine SA*, Mhaisalkar P, Baisane V, Venkatraman S, Contact guidance for cardiac tissue engineering using 3D bioprinted gelatin hydrogel, *Biofabrication*, 2018, 10, 025003

7. **Tijore A**, Behr JM, Irvine SA*, Baisane V, Venkatraman S, Bioprinted gelatin hydrogel platform for smooth muscle cell contractile phenotype maintenance, *Biomedical Microdevices*, 2018, 20, 32

8. Suntornnond R, Jia A, **Tijore A**, Chua C, Leong K*, Tan LP, A solvent-free surface suspension melt technique for making biodegradable PCL membrane scaffolds for tissue engineering applications, *Molecules*, 2016, 21, 386

9. **Tijore A**, Cai P, Nai MH, Zhuyun L, Yu W, Tay CY, Lim CT, Chen X, Tan LP*, Role of cytoskeletal tension in induction of cardiomyogenic differentiation in micropatterned human mesenchymal stem cell, *Advanced Healthcare Materials*, 2015, 4, 1399

10. **Tijore A**, Hariharan S, Yu H, Lam CRI, Wen F, Tay, CY, Ahmed S, Tan LP*, Investigating the spatial distribution of integrin beta1 in patterned human mesenchymal stem cells using super-resolution imaging, *ACS Applied Materials & Interfaces*, 2014, *6*, 15686

11. **Tijore A,** Wen F, Lam CRI, Tay CY, Tan LP*, Modulating human mesenchymal stem cell plasticity using micropatterning technique, *PLOS One*, 2014, *9*, e113043

12. Wen F, Wong HK, Tay CY, Yu H, Li H, Yu T, **Tijore A,** Venkatraman S, Boey F, Tan LP*, Induction of myogenic differentiation of human mesenchymal stem cells cultured on notch agonist (Jagged-1) modified biodegradable scaffold surface, *ACS Applied Materials & Interfaces*, 2014, 6, 1652–1661

In revision

1. **Tijore A**†, Margadant F†, Yao M, Hariharan A, Chew CAZ, Powell S, Bonney GK, Sheetz Michael*, Ultrasound-mediated mechanical forces activate selective tumor cell apoptosis, bioRxiv link

Book chapter

Lee BH, **Tijore A**, Lam CR, Chen H, Kumar KM, Tan LP, Engineering stem cell niche and stem cell-material interaction, Smart Materials for Tissue Engineering, *RSC Smart Materials Series*, 2016, 163-196

Grant

1. Singapore Ministry of Education 'Academic Research Fund Tier 1 Grant 2015' (Awarded, S$ 200,000)
2. SERB-Start up Research Grant 2022

United States Patent

Title: System and methods for cancer treatment (link)
International Application No. PCT/US2020/030288
Applicant: **Ajay Tijore,** Felix Margadant, Mingxi Yao, Michael Sheetz

COMPANY STAKEHOLDER

Mechanobiologics, Inc.

Healthcare company with a specific purpose to treat cancer patients using non-invasive ultrasound-based therapy (*work in progress*).

CONFERENCES & SEMINARS

Invited talk

Pravega (IISc Bangalore Undergrad Fest) Talk, 2022, Bangalore, India
DGZ International Meeting, Life in between the cell biology of interfaces, 2021, Munster, Germany
Institute talk, 2021, National Centre for Cell Science (NCCS), Pune, India
Departmental talk, 2021, Centre for BSSE, Indian Institute of Science (IISc), Bangalore
Departmental talk, 2021, BioX Centre, Indian Institute of Technology (IIT), Mandi
Departmental talk, 2021, DBS, Indian Institute of Science, Education & Research (IISER), Bhopal
Frontiers in Mechanobiology Symposium, 2019, Mechanobiology Institute, NUS, Singapore

Contributed talk

11th Asian-Pacific Conference on Biomechanics, 2021, Kyoto, Japan
Postdoc Fellow Meeting, 2021, India
National Post Doc Symposium, 2019, IISER Pune, India
Mechanobiology Meeting: When Physics meets Biology, 2019, Vietnam
International Conference on Materials for Advanced Technologies (ICMAT), 2019, Singapore
Mechanobiology Institute 10th Anniversary Conference, 2018, Singapore
Physics of Cancer Symposium, 2018, Leipzig, Germany
Biomedical Engineering Society 9th Scientific Meeting, 2015, Singapore
ASME's Global Congress on Nano Engineering for Medicine and Biology, 2014**,** San Francisco, USA

Poster

MBI Virtual Conference, From Molecules to Organs: Mechanobiology of Morphogenesis, 2020, Singapore
NCIS Annual Research Meeting, 2020, NUS Singapore
All India Cell Biology Conference, 2019, IISER Mohali, India
TERMIS-EU 2017, Davos, Switzerland
EMBL: Physics of Cells and Tissues, 2015, Heidelberg, Germany
Small Science Symposium, 2012, Singapore
IIT Bombay Tech Fest, 2011, India
Bangalore Nano Conference, 2010, India

PROFESSIONAL SERVICES

Peer reviewer for journals like Nanoscale, ACS Applied Materials and Interfaces, RSC Advances

COMMUNITY OUTREACH

Interviewed by India's leading Science magazine 'Biopatrika' (interview link)

Interviewed for Kernel IISc research newsletter