Ajay TIJORE

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Department of Bioengineering
Indian Institute of Science, Bangalore, 560012

EDUCATION

PhD	Nanyang Technological University, Singapore (Bioengineering) Thesis: Modulating stem cell differentiation via cell-material interactions	2016
M. Tech	Indian Institute of Technology, Bombay (Biomedical Engineering) Thesis: Anticancer drug delivery using thermosensitive triblock copolymer	2011
B. Pharm	Pune University, India (Pharmaceutical Sciences)	2009

POSITIONS

Assistant Professor	Department of Bioengineering, IISc, Bangalore	Nov 2021-present
Postdoctoral Fellow	Mechanobiology Institute (MBI), NUS, Singapore	2017-2021
Postdoctoral Fellow	NTU, Singapore	2016-2017

AWARDS & HONORS

R. I. Mazumdar Young Investigator, 2023, Biocon Limited, Bangalore
Outstanding Abstract Award, Asian-Pacific Conference on Biomechanics, 2021, Japan
Best Poster Award, National Post Doc Symposium, 2019, IISER Pune, India
One of the top ten posters, Mechanobiology Conference, 2018, Singapore
BioRxiv preprint selected as the 'Preprint Highlights' by The Company of Biologists, 2018
Nanyang Technological University Research Scholarship (2011-2016)
MHRD Postgraduate Fellowship, India (2009-2011)
Rajshree Shau Maharaj Scholarship, Maharashtra State, (2003-2005)

ACADEMIC ACHIEVEMENTS

All India Rank 16 (99.94 percentile), GATE, Pharmaceutical Science, 2009
All India Rank 46, National Institute of Pharmaceutical Education Research JEE (NIPER-JEE), 2009
All India Rank 244 (99.07 percentile), GATE, Pharmaceutical Science, 2008

PUBLICATION, BOOK CHAPTER, PATENT & GRANT

Research articles (†co-first authors, *co-corresponding authors)

1. 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. (IF 15)

2. **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. (IF 14)

3. 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. (IF 7.4)

4. **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. (IF 9)

5. **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. (IF 9)

6. **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. (IF 3)

7. 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. (IF 5)

8. **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. (IF 10)

9. **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 (IF 9.5)

10. **Tijore A,** Wen F, Lam CRI, Tay CY, Tan LP*, Modulating human mesenchymal stem cell plasticity using micropatterning technique, *PLOS One*, 2014, *9*, e113043 (IF 3.7)

11. 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 (IF 9.5)

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).

Review articles

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. (IF 5.6)

Book chapters

1. 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

2. Alka Kumari†, Abhishek Goswami†, Ajay Tijore*, Decoding mechano-oncology principles through microfluidic devices and biomaterial platforms, Cancer Systems Biology and Translational Mathematical Oncology, Oxford University Press, Submitted.

United States Patent

Title: System and methods for cancer treatment (link)
Application no: PCT/US2020/030288, Status: Pending
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
Soft Matter Young Investigator Meeting, 2023, Jim Corbett Park, India
Pravega (IISc Bangalore Undergrad Fest) Talk, 2022, Bangalore, India
Asian-Pacific Conference on Biomechanics, 2021, Kyoto, Japan
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, Singapore

Contributed talk
Mechanobiology Institute conference: Mechanobiology in health and diseases, 2023, Singapore
International Conference on Biomaterials, Regenerative Medicine and Devices, 2022, IIT Guwahati
National 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 NanoEngineering for Medicine and Biology, 2014**,** San Francisco, USA

Poster
Mechanobiology Institute Conference, 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' (Link)

Interviewed by IISc Research Newsletter, Kernel (Link)