NUS National University of Singapore Engineering

Department of Biomedical Engineering

Dr. LIM Chwee Teck

Director, Institute for Health Innovation & Technology (iHealthtech)
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Website (https://www.eng.nus.edu.sg/bme/research/mechanobioengineering-laboratory/)

Google Scholar (http://scholar.google.com/citations?user=sUh03wgAAAAJ&hl=en)

Location

EA-05-10

Education

- PhD. University of Cambridge, UK.
- BEng (First Class Hon). NUS.

Research Interest

1. Human disease mechanobiology
2. Microfluidic biomedical technologies
3. 2D materials for biomedical applications
4. Soft wearable technologies

Technopreneurship & Startups

1. Co-founder, Microtube Technologies
2. Co-founder, Flexosense
3. Co-founder, Clearbridge mFluidics
4. Co-founder, Clearbridge NanoMedics

5. Co-founder, Biolidics Ltd (previously known as Clearbridge BioMedics)
6. Co-founder and Affiliated Partner, Clearbridge Accelerator
7. Co-founder, Robust Dynamics

Selected Awards & Honours

1. Finalist, "Science Breakthroughs of the Year" Falling Walls Remote, Berlin, 2020
2. Elected Fellow, National Academy of Inventors 2020
3. Elected Fellow, Singapore National Academy of Science 2020
4. Highly Cited Researcher 2019
5. IP Champion, IPOS-WIPO IP Awards 2019
6. Highly Cited Researcher 2018
7. HFSP Award 2018
8. Most Innovative Award, Engineering Medical Innovation Global Competition, 2017
9. Winner, IDTechEx Launchpad, Berlin, Germany, 2017
10. NUSS Professor, 2017 to present
11. International Precision Medicine Conference (IPMC) Prize 2017
12. Winner, Modern Aging Singapore 2016
13. ASEAN Outstanding Engineering Achievement Award 2016
14. 14 Inspiring Innovators From Asia, Asian Scientist, 2016
15. Elected Fellow, International Academy of Medical and Biological Engineering
16. IES Prestigious Engineering Achievement Award 2016
17. JT Award, TechPlanter Singapore, 2016
18. Seven Singaporean Scientists to Watch, Asian Scientist, 2016
19. Asian Scientist Top 100 List 2016
20. Elected Fellow, American Institute for Medical & Biological Engineering
21. Elected Fellow, Academy of Engineering, Singapore
22. Vladimir K. Zworykin Award, International Federation for Medical and Biological Engineering 2015
23. Provost's Chair Professorship, 2014 – 2017
24. Outstanding Researcher Award, NUS University Awards 2014
25. Outstanding Innovator Award, NUS Innovation & Enterprise Awards 2014
26. TIE50 Award, TIEcon 2014
27. Credit Suisse Technopreneur of the Year Award 2012
28. Wall Street Journal Asian Innovation Audience Choice Awards 2012
29. Gold, Wall Street Journal Asian Innovation Awards 2012
30. TechVenture Most Disruptive Technology Award 2012
31. First Prize, Asian Entrepreneurship Award 2012
32. InnovFest Promising Start-Up Award 2012
33. HFSP Award 2012
34. NGS Excellent Mentoring Award 2011/2012.
35. Rising Star Innovator Award, TechVenture 2011
36. President's Technology Award 2011
37. Faculty Research Award 2011
38. Elected Council Member, World Council of Biomechanics 2010 – present
39. Most Cited Article, Acta Biomaterialia, 2006 – 2010
40. IES Prestigious Engineering Achievement Award 2010
41. Most Cited Author 2005-2008, Acta Biomaterialia
42. Cited in MIT Technology Review: 10 Emerging Technologies and their impact, 2006
43. MRS Outstanding Paper Award, MRS Fall Meeting 2004

Refer to my website for more details.

Membership in Scientific/Professional Organization

- Fellow, National Academy of Inventors (USA)
- Fellow, Singapore National Academy of Science
- Fellow, American Institute of Medical and Biological Engineering
- Fellow, International Academy of Medical and Biological Engineering
- Fellow, Academy of Engineering, Singapore
- Council Member, World Council of Biomechanics
- Council Board Member, World Association for Chinese Biomedical Engineers
- Executive Member, Biomedical Engineering Society, Singapore
- Executive Committee Member, Global Enterprise on Micro Mechanics & Molecular Medicine (GEM4)
- Associate Editor and Editorial Board Member of 20 international journals

Selected Journal Publications

1. Phuong Le, et al, Adhesion-mediated heterogeneous actin organization governs apoptotic cell extrusion, Nature Communications, 2020. (*in press*)
2. Doss, B L et al, Cell response to substrate rigidity is regulated by active and passive cytoskeletal stress, PNAS, 117, 23, 12817-12825 2020.
3. Jain, S et al, The role of single cell mechanical behavior and polarity in driving collective cell migration, Nature Physics, 1-8, 2020.
4. Sun, A X Y, et al, Potassium channel dysfunction in human neuronal models of Angelman syndrome, Science, 366, 6472, 1486-1492, 2019.
5. Lim, S B et al, Addressing cellular heterogeneity in tumor and circulation for refined prognostication, PNAS, 116, 36, 17957-17962, 2019.
6. Xi, W et al, Material Approaches to Active Tissue Mechanics, Nature Reviews Materials, 4, 23–44, 2019.
7. Ding, X G et al, Defect Engineered Bioactive Transition Metal Dichalcogenides Quantum Dots, Nature Communications, 10, 41, 2019.
8. Saw, T B, W Xi, B Ladoux, C T Lim, Biological tissues as active nematic liquid crystals, Advanced Materials, 30, 47, 2018.
9. Chaudhuri, P K et al, Mechanobiology of Tumor Growth, Chemical Reviews, 118, 14, 6499-6515, 2018. (F1000 recommended as being of special significance)
10. Sun, S Y et al, Flagellum couples cell shape to motility in Trypanosoma brucei, PNAS, 201722618, 2018.
11. Sreekanth, K V et al, Biosensing with the singular phase of an ultrathin metal-dielectric nanophotonic cavity, Nature Communications, 9, 369, 2018.
12. Khoo, B L et al, Expansion of patient-derived circulating tumor cells from liquid biopsies using a CTC microfluidic culture device, Nature Protocols, 13, 34-58, 2018.
13. Kenry et al, When stem cells meet graphene: Opportunities and challenges in regenerative medicine, Biomaterials, 155, 236-250, 2018.
14. Lim, S B et al, An extracellular matrix-related prognostic and predictive indicator for early-stage non-small cell lung cancer, Nature Communications, 8, 1734, 2017.
15. Xi, W et al., Soft tubular microfluidics for 2D and 3D applications, PNAS, 114, 40, 10590–10595, 2017.
16. Saw, T B et al, Topological defects in epithelia govern cell death and extrusion, Nature, 544, 212-216, 2017.
17. Khoo, B L et al, Liquid biopsy and therapeutic response: Circulating tumor cell cultures for evaluation of anticancer treatment. Science Advances, 2, 7, e1600274, 2016.

18. Yeo, J C et al, Flexible and stretchable strain sensing actuator for wearable soft robotics application, Advanced Materials Technologies, 1, 3, 2016.
19. Yeo, T et al, Microfluidic enrichment for the single cell analysis of circulating tumor cells, Scientific Reports, 6, 22076, 2016.
20. Warkiani, M E, et al, Ultra-fast, label-free isolation of circulating tumor cells from blood using spiral microfluidics, Nature Protocols, 14, 1, 128-37, 2016.
21. Wang, J et al, Haem-activated promiscuous targeting of artemisinin in Plasmodium falciparum, Nature Communications, 6, 10111, 2015.
22. Gupta, M et al, Adaptive rheology and ordering of cell cytoskeleton govern matrix rigidity sensing, Nature Communications, 6, 7525, 2015.
23. Vedula, S R K et al, Mechanics of epithelial closure over non-adherent environments, Nature Communications, 6, 6111, 2015.
24. Lee, W C et al, Multivariate biophysical markers predictive of mesenchymal stromal cell multi potency, PNAS, 111, 42, E4409-18, 2014.
25. Yao, M et al, Force-dependent conformational switch of a-catenin controls vinculin binding, Nature Communications, 5, 4525, 2014.
26. Vedula, S R K et al, Epithelial bridges maintain tissue integrity during collective cell migration, Nature Materials, 13, 87-96, 2014.
27. Hou H W et al, Isolation and retrieval of circulating tumor cells using centrifugal forces, Scientific Reports, 3, 1259, 2013.
28. Thiery, J P, C T Lim, Tumor dissemination: An EMT affair, Cancer Cell, 23, 3, 272-273, 2013.
29. Vedula, S R K et al, Emerging modes of collective cell migration induced by geometrical constraints, PNAS, 109, 32, 12974-12979, 2012. (F1000 recommended as being of special significance)
30. Lee, W C et al, The origin of enhanced stem cell growth and differentiation on graphene and graphene oxide, ACS Nano, 5, 9, 7334-7341, 2011.

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