

NUS Home | Search: in NUS Websites



New
NUS' M

[Press Releases](#) |
 [Media Coverage](#) |
 [Knowledge Enterprise](#) |
 [President's Speeches](#) |
 [NUS Publications](#) |
 [Calendar](#)

KNOWLEDGE ENTERPRISE online

ALSO IN THIS ISSUE

- [Editor's Roundup](#)
- [New Appointments](#)
- [Newcomers](#)
- [Global recognition of NUS Biz School](#)
- [GEMS at NUS](#)
- [UM at NUS Arts Festival](#)
- [Ideas of a university](#)
- [Charting a future in global landscape](#)
- [NUS Board of Trustees](#)
- [Nanobiomechanics at NUS: An emerging technology](#)
- [NEWS BITES: Golfers' new record/New one-stop sports portal](#)
- [NUS leads 1st higher education forum for APRU senior staff](#)
- [Biz School extends strategic ties](#)
- [Winning proposal to rent a car](#)
- [Open minds, open doors: staying competitive in the global arena](#)
- [Fruits of diligence and commitment](#)
- [FASS-Stanford Roundtable on issues confronting Asia](#)
- [Back to nature... and tradition](#)
- [ME students work on designs for industry](#)
- [Heavy lifting tactics win award](#)
- [SDE's project managers and award winners](#)
- [Nurturing citizens for a world of increasing cultural complexity](#)
- [Harvard College partners in Asia](#)
- [Researchers get synergy boost](#)
- [Lien Ying Chow Professors of Medicine](#)
- [Global village for sustainable development](#)

Nanobiomechanics at NUS: An emerging technology



-Lo Tien Yin

NANOBIOMECHANICS is an emerging technology, according to Technology Review published by the Massachusetts Institute of Technology (MIT) which every year, identifies 10 technologies that would soon have significant impact on our lives. As a vote of confidence for NUS, work by the University in Nanobiomechanics has been cited alongside those by universities such as MIT and Harvard. In Nanobiomechanics, scientists are able to gain new understanding of diseases through measuring the tiny forces acting on cells.



NANOBIOMECHANICS: Associate Professor Lim Chwee Teck (seated) and Dr Kevin Tan (right) looking into nano mysteries of malaria-infected blood cells at NUS.

The news comes in the wake of the establishment of the Global Enterprise for Micro-Mechanics and Molecular Medicine (GEM⁴) of which NUS is a founding member. Researchers of GEM⁴ use tools like atomic force microscopes, laser tweezers, and microplate stretchers to study changes in human cells in infectious diseases like malaria and sickle cell anaemia, cancers of the liver and pancreas, as well as cardiovascular diseases. Researchers Associate Professor Lim Chwee Teck, NUS Division of Bioengineering and Department of Mechanical Engineering and Dr Kevin Tan, NUS Department of Microbiology have produced significant findings on the changes red blood cells undergo as the malaria parasite matures within its hosts, including the role specific proteins play in conferring rigidity to the infected cell membrane. The two researchers, together with their collaborators at MIT and Pasteur Institute, were cited in the annual report on the emerging technologies in *Technology Review*.

Nine other technologies identified were Nanomedicine, Epigenetics (altering gene function without altering DNA), Comparative Interactomics (visualising body's complexity), Cognitive Radio (smart

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[back to KE home](#)

sensing of environment and location), Nuclear Reprogramming (inducing changes in gene activity by introducing nuclei into a new cytoplasmic environment), Diffusion Tensor Imaging (method for imaging the fibrous structure of organs such as the brain), Pervasive Wireless, Universal Authentication (online privacy protection) and Stretchable Silicon.

NEWS BITES

Golfers' new record



AT THE NUS-NUSS Centennial Golf Challenge (19 Feb) 1,453 golfers met the criteria set by the Guinness World Record office in London. It is now official and they have set a new world record for the largest number of golfers teeing off simultaneously. For their attempts to be counted, golfers had to tee off at the same time, from a teeing box measuring five metres square into a target area of 60 degrees from the front of the box. The ball had to travel a minimum of 91 metres.

New one-stop sports portal

FEELING lethargic? Pump up your adrenalin and visit www.nus.edu.sg/osa/sports/ by the NUS Sports and Recreation Centre and the NUS Students' Sports Club.

Launched recently, it's a one-stop portal for all your sporting needs at the University. For example, if you are looking for a sport, it's just a click away. And did you know that you have a choice of 30 different kinds of sporting activities to choose from – from something "exotic-sounding" such as Nam Wah Pai to good old aerobics? Online facility booking is now even easier with GIRO payment. Log into the website for upcoming events and keep abreast of sporting news at NUS through their e-newsletter.

Let your fingers do some exercise at least... click away!

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