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Biomedical synergy

The BME news hub

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Final year

Obsessed with excellence

- Kamal Ranadive (By R Bhisey)



“

She instilled the spirit of nationalism in her colleagues, enough that most of them returned to work in India, making Cancer Research Institute a renowned centre for cancer research

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Kamal Samarth was born in Pune in 1917. Her father taught biology at Ferguson College, Pune and ensured that all his children, including his daughters, were well educated. Of all his children, Kamal was the brightest. She went to a girls high school 'Huzurpaga: the H.H.C.P. High School for girls' and studied botany at Ferguson College. Further she joined the Agriculture College, Pune where she worked on the cytogenetics of *Annonaceae* for her Master's degree. Following her marriage to J.T. Ranadive, Kamal Ranadive moved to Bombay close to Tata Memorial Hospital which brought her in contact with V.R. Khanolkar, a renowned pathologist and great visionary, who founded the Indian Cancer Research Centre.

Kamal worked under his guidance for the Ph.D. degree from the University of Bombay. After a post doctoral stint in the laboratory of George Gey who developed the HeLa cell line at Johns Hopkins University Hospital, Kamal Ranadive returned to India and established the first tissue culture laboratory at the Indian Cancer Research Centre. In the early 1960s tissue culture media and other reagents had to be prepared in the laboratory. To fulfill these needs Dr Ranadive recruited a team of biologists and biochemists.

Quick to recognize talent, sincerity and integrity in her colleagues and students, Kamal Ranadive encouraged them to work in various areas of cancer biology. She strongly believed that scientists who went abroad for postdoctoral work should return to India and develop new areas of research in their perspective laboratories. A staunch nationalist, she instilled the same spirit in her colleagues, enough that most of them returned to work in India, making Cancer Research Institute a renowned centre for cancer research. Her unique quality for allowing individual scientific talents to bloom, in fact resulted in the formation of three new divisions, carcinogenesis, cell biology and immunology besides tissue culture.

Her work on animal models for understanding pathophysiology of cancer was extremely important. She was among the first to recognize the connection between cancer susceptibility and interaction between hormones and tumor virus. The so called Indian Cancer Research Institute (ICRC) mouse studied by her group turned out to be an excellent model for work on leukemia, breast cancer and cancer of oesophagus. In addition to this she continued her work on leprosy bacteria, which eventually led to the preparation of a Leprosy vaccine.

Dr Ranadive, fondly addressed as “Bai” by her colleagues and students had an imposing personality. A strict disciplinarian, she instilled the spirit of hard work in her students; her lab was busy till late in the night! She was the recipient of many awards including Padma Vibhushan and the Watumal Foundation award for her work in the field of leprosy.

Courtesy: Women in Science-An Indian Academy of science Initiative

She founded the Indian Women Scientist Association (IWSA) with the goal of spreading science to masses particularly women and children. IWSA, a hostel for working women and a building that houses a community centre besides IWSA office, continues to hold many activities even today. After her retirement, Dr Ranadive worked on the nutrition and health of tribal women and children in Rajur in Maharashtra. This project was a huge success, providing awareness about nutrition and medical care to tribals and training women health workers as primary health care givers.

Those of us who were fortunate to know Dr Ranadive closely recall her generosity and hospitality. Discussions would always veer to science, new ideas, achievements and what needed to be pursued and was relevant to the country's need. I did not work under her although my husband was her doctoral student and later a colleague. I came to realize her total sincerity and commitment to science when she visited us in Philadelphia in 1969. Before the visit, she had asked us to invite Indian post-docs with whom she could have an informal chat. The reason was obviously to find out if any of them would return to India.

How would one remember this somewhat private, yet warm hearted and highly revered daughter of India? With her generosity, integrity and obsession with advancement of excellence in science, Dr Ranadive made an indelible impression on my mind.

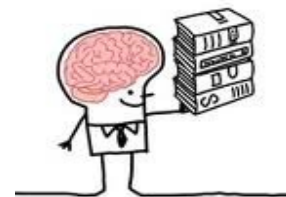


Did you know?

Petabytes of memory! Guess where?

The human brain consists of about one billion neurons. Each neuron forms about 1,000 connections to other neurons, amounting to more than a trillion connections. The result, around 2.5 petabytes (or a million gigabytes) of memory!

For comparison, if your brain worked like a digital video recorder in a television, this would be enough to hold three million hours of TV shows. You would have to leave the TV running continuously for more than 300 years to use up all that storage.

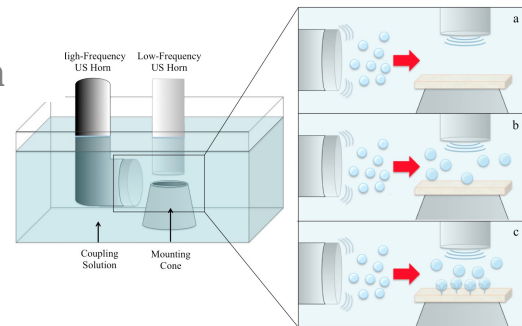




Eureka!

Ultrasound helps drugs get under your skin

Massachusetts Institute of Technology (MIT) engineers have found a way of harnessing ultrasound waves for non-invasive drug delivery or needle-free vaccinations.



Ultrasound — sound waves with frequencies greater than the upper limit of human hearing — can increase skin permeability by lightly wearing away the top layer of the skin, an effect that is transient and pain-free.

“This could be used for topical drugs such as steroids — cortisol, for example — systemic drugs and proteins such as insulin, as well as antigens for vaccination, among many others,” says Carl Schoellhammer, MIT graduate student in chemical engineering and co-author of the study, the *Journal of Controlled Release* reports.

Researchers found that applying two separate beams of ultrasound waves — one each of low and high frequency — can uniformly boost permeability across a region of skin more rapidly than using a single beam of ultrasound waves, according to an MIT statement.

“It’s a very innovative way to improve the technology, increasing the amount of drug that can be delivered through the skin and expanding the types of drugs that could be delivered this way,” says Samir Mitragotri, professor of chemical engineering at the University of California, Santa Barbara, who was not part of the research team.

Daniel Blankschtein, Robert Langer and Douglas Hart, professors at MIT and Baris Polat, former doctoral student in the Blankschtein and Langer groups, co-authored the study.

Courtesy: *The Hindu* Image source: *web.mit.edu*



Laugh out loud!

1) Electrical lab final viva examination:

Examiner to Student: What type of electrical transmission wire system is used for high voltage transmission.

Student: 3 Phase.

Examiner: How many wires are needed?

Student: 3 wires, one for each phase.

Examiner: Then, what is the fourth one in some cases?

Student: The 4th is for the birds to sit.

Scripting Success - Srishti V5.0

Our Department came together in full strength to conduct the National Level Technical Symposium 'SRISHTI 2K12' – Version 5.0 on August 29th 2012.



The inauguration was presided over by the Chief Guest Dr.E.Ravindra Mohan, Senior Consultant, Global Hospitals and Health City, Chennai and the Guest of Honor, Mr.C.Govindakrishnan, Founder, Nethrodaya. The inauguration also served as a platform for the release of the Department magazine 'Samhita'.

Technical events included paper presentation, poster presentation, quiz and Mat lab programming. Non-technical events included gaming, multitasking, dumb charades, treasure hunt and mock interview. The symposium was an unprecedented success and witnessed the participation of around 1000 students from various cities.



An amount of Rs.19,195 was collected during the event for 'Karunai villa', a home for the mentally challenged.



And in other news

Vergheese Kurien (26 November 1921 – 9 September 2012)

From one milk project to a larger one, the "Milkman of India" saw India emerge from a milk-deficient country into the largest milk producer in the world, overtaking even the once milk-abundant Netherlands.

It is because of Dr. Kurien that India today contributes about 17 per cent of the total milk production in the world. Amul, with a turnover of over Rs. 13,000 crore, is Asia's top milk-producing brand and is counted, with one of the best recall values, among the world's leading brands in any sector.

ISRO's ton

The Indian Space Research Organisation (ISRO) made history as it launched its 100th indigenous mission. The space agency's old warhorse, the Polar Satellite Launch Vehicle (PSLV), successfully blasted off into space at 9:53 am with two foreign satellites from the spaceport of Sriharikota in Andhra Pradesh. So far, ISRO has launched 63 Indian-made satellites and 36 indigenous rockets.

Leading by example

- ◆ Dr. A. Kavitha, Associate Prof and Head, delivered an invited lecture on “Advances in Biomedical Engineering’ at VEL’s University, Chennai in the month of August,2012
- ◆ Dr. Sachin G. Sarate was appointed as a "Member of the advisory board for DST CSI project on Vipassana Meditation study" by Dr. Bindu Kutty, Prof and Head Dept of Neurophysiology, National Institute of Mental Health and Neuro Sciences, Bangalore in the month of July,2012
- ◆ Dr.N.Sriraam served as resource person for a one day workshop on “SMART Ph.D planning- A Realistic Approach towards Goal” organized by Institute of Engineers Staff Chapter of National Engineering College, K.R.Nagar, Kovilpatti on 11th August 2012
- ◆ The paper titled “Phytochemical Screening, Antimicrobial Activity and In Vitro Antioxidant Investigation of Methanolic Extract of Seeds from *Helianthus annuus L.*” was published in the International Journal *Che Sci Rev Lett* 2012, 1(1), 30–34, ISSN 2278-6783 by Dr.Subashini Rajakannu with Sritharan Umamaheswari Rakshitha.
- ◆ Dr.Mallika Jainu, Asst.Prof, has published her research article: Non-alcoholic steatohepatitis experimental model induction in rats in the International journal of Pharma & Biosciences with Supraneni krishna mohan and Saraswathi Volume 3 Issue 3; 2012.
- ◆ The paper titled Performance Evaluation of Classifiers for Detection of Alcoholics Using Electroencephalograms (EEG) has been published in an International Journal by Dr. N. Sriraam with T. K. Padma Shri; J. Med. Imaging Health Informatics, USA, vol. 2, 289-295 ,September 2012.
- ◆ Dr.V.Mahesh, attended a Workshop on "Building Technology Ventures” at VIT Chennai from 16th August to 18th August 2012.
- ◆ Ms.B.Geethanjali , attended a two day workshop on Recent Development of VLSI , Embedded and Image Processing in health care Application at PSNA College of Engineering &Technology, Coimbatore starting from 24th August 2012.
- ◆ Dr. S. Pravin Kumar, Dr. V. Mahesh and Ms. B. Geethanjali attended the cluster pre-project proposal meet at Pondicherry Institute of Medical Science (PIMS) for presenting their projects on 27th and 28th August 2012.
- ◆ Dr.Mallika Jainu and Dr.S.Pravin Kumar were awarded the Best Faculty Award 2012 during the Teachers Day Celebrations
- ◆ Mr.R.SivaramaKrishnan secured the second prize in Anthakshari event and Pattimandram which was conducted for the faculty.

On the technical front ...

- ❖ A team comprising of **Akshaya.C, Akshaya.H, Manoj.M and Praveen.C** from Final year were selected among top 20 teams to take part in the ABLE-BEST 2012 in Bangalore. (photo)
- ❖ Two teams including **Akshaya.H and Anjana Vencatesan ; Arun Srinivas, Deepak, Navathej, Ganesh Kumar** were selected in the Texas Instruments Analog Design Contest 2012
- ❖ **Utthara** and **Renita.A** of Final year participated in the Kernel 2012 Biolympics and bagged 1st prize in Technical Quiz and Cocktail: also came second in Treasure Hunt.



Basking in glory

- ❖ **Subash Raja.M ,P.Prasanth, Visalatchi.R** of second year participated in Zonal Basketball, Volley Ball tournaments and in National Chess Competitions respectively.
- ❖ **Deepa Rohini.T, Thirumagal.K, Renuga Devi.S, Saranya.A, Vaishnavi.R, Ajitha Bharathi.A. V,Sree Priya Dharshini and Divya Bharathi.S** of Third year organized Tree Plantation and conducted various competitions as a part of **TechFest Green Campus Challenge, IIT Bombay.**
- ❖

Philanthropy

- ❖ **Sasikala.T, Divya Bharathi.S, Surya Kumar, Shyamalee, Lavanya** of Third year organized a workshop on Robotics for school students from and volunteered for organizing a special field trip for kids to Madhavaram Horticulture Training Center as a part of **BHUMI** a Non-profit Organization.



What's new?

I-CELL laboratory has been set up in the Clinical Engineering Lab to assist students who are interested in research activities.

Tutorial classes are organized for the II and III year students by the **Final year students** to help them get high scores in the forthcoming semester exams.



*Photo by
Praveen.Richard Ebenezer
Final year*