Yamuna Krishnan

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https://krishnanlab.uchicago.edu/

Prof. Yamuna Krishnan is The Louis Block Professor of Chemistry and the College at the University of Chicago. She has pioneered the interface between DNA nanotechnology and cell biology. Her lab has developed a versatile chemical imaging technology to quantitatively image second messengers in real time, in living cells and genetic model organisms. While her lab is engaged in basic biology - discovering new organellar channels and transporters – she has co-founded two companies – Esya Inc & Macrologic Inc, that utilize her organelle-targeting technology for diagnostics and therapeutics respectively.

Career and recognitions

Always fascinated by science, Yamuna Krishnan grew up in Chennai, India, repeating at home all the little experiments she read about in school – like making soap from oil and dissecting dead frogs with kitchen cutlery – using the infinite resources of her mother's kitchen and her father's garden. She graduated with a degree in Chemistry from a small and relatively unknown college, the Women's Christian College located 1 km from her childhood home. Then she was selected for a PhD in Organic Chemistry at the Indian Institute of Science in Bangalore where she studied the self-assembly of lipids. For her postdoctoral work, she joined Shankar Balasubramanian in 2002 at the University of Cambridge, enabled by the 1851 Research Fellowship, to study the self-assembly of DNA into four-stranded structures called quadruplexes. Her first visit to the National Centre for Biological Sciences (NCBS) in 2005 sparked a life-long obsession with biology and how cells do weird and wonderful things. In 2009, she developed the prototype DNA nanodevice to measure ions in organelles in her lab at the NCBS. Thereafter in 2014, she was parachuted into the University of Chicago at the Department of Chemistry, where her lab fully developed the technology, revealing new insights into how cells functioned with every new ion they imaged in cells.

She is a recipient of the NIH Director's Pioneer Award, the Ono Pharma Breakthrough Science Award, the Infosys Prize for Physical Sciences, Shanti Swarup Bhatnagar Prize in the Chemical Sciences and the Sun Pharma Foundation Award for Basic Medical Research. She is a fellow of the American Association for the Advancement of Science, featured on LSDP's top 100 global thinkers (2014), and Cell's 40 under 40 list of scientists shaping current and future trends in biology.