

## Interview with Dr. Ashwini Nangia - Professor of Chemistry at the Central University of Hyderabad



Dr. Ashwini Nangia is a Professor of Chemistry at the Central University of Hyderabad. He has an MSc degree from IIT Kanpur and has a PhD from Yale University. He is the founder of Crystalin Research on the University campus.

Dr. Nangia is a member of the International Program Committee of International Union of Crystallography Congress at Osaka, INSA National Committee on Crystallography, INSA National Committee on Crystallography and a member of the editorial boards of CrystEngComm and Crystal Growth & Design. He was the Associate Editor of ACS journal Crystal Growth & Design and is on the Advisory Board of Chemistry - An Asian J. and Journal of Pharmaceutical Sciences.

### Mr. Ashwini Nangia

He was awarded the Young Associate of the Indian Academy of Sciences, Bangalore, the Raja Ramanna Fellowship by DST and is a JC Bose National Fellow. He was elected Fellow of the Royal Society of Chemistry, London, Indian Academy of Sciences, Bangalore, Indian National Science Academy, New Delhi, and National Academy of Sciences (India), Allahabad, and AP/TS Akademi of Sciences, Hyderabad.

Crystalin Research is a new scientific enterprise started at the Technology Business Incubator facility on University of Hyderabad campus, spearheaded by Dr. Nangia. He has recently been appointed as the Director of the National Chemical Laboratories (NCL).

**ET: The scientist-entrepreneur has been relatively uncommon in Indian start-ups. Can you please elaborate your journey of turning into an entrepreneur and what inspired you to take this path less trodden?**

**AN:** Actually, I will only partly agree on this. There are several scientist-entrepreneurs I have come across. What is a rare species, and there is a slight distinction here, is the breed of academic-entrepreneurs. Yes, the latter route is indeed the path less travelled, at least in India. In the US and UK, it is quite common to find high profile academics, including several Nobel laureates running more than one start-up company at a time and also using their exit option with smart acumen. The start was slow for Indian academics, for both tradition and infrastructure and administrative reasons. It is only as recent as 2009 that the Government of India came out with its bold paper "Knowledge to Equity" which makes it now possible for academics and scientists to wear two hats, and have a stake in start-ups as technical founders.

In my case, I work in the area of solid state and supramolecular chemistry, also known as crystal engineering, which deals with the structures and properties of crystalline materials. About 80% of drugs are sold as tablets and these are generally crystalline in nature. As a matter of fact, and interestingly, different crystal forms of drugs have significantly different physical and bioavailability behaviour, the topic of polymorphism having immense significance to the pharmaceutical industry. To cut a long story short, this is the background of how one thing led to another and I decided, after taking permission from the University of Hyderabad, to start a venture in pharmaceutical solid-state discovery and innovation by the name Crystalin Research in 2010.

**ET: Your start-up 'Crystalin Research' is India's first scientific enterprise focusing exclusively on R&D in solid-state crystalline forms for the pharmaceutical industry. How did playing a dual role of an academician and an entrepreneur help in earning and sustaining your set-up?**

**AN:** You are correct. We are perhaps the first R&D company in solid crystal forms growing out of an academic background in India. The dividing line between being bold or stupid is razor thin. I guess we started at the right time in the right ecosystem. The culture of Technology Business Incubators on University/ Institute campuses started to become known and growing about 5 years ago. So we got the early bird advantage. My academic background and the nature of work on pharmaceutical crystal forms (e.g. polymorphs, salts etc.) actually feed into each other. The subject is highly technical and requires state of the art instrumentation and up to date knowledge of the field. So my academic activity in the crystal engineering field actually helped to sustain the venture and earn the confidence of people looking for our expertise on crystalline drug projects.

**ET: Does India have the supporting infrastructure to help Scientists, like you, to become entrepreneurs?**

**AN:** I think I have in part answered the question. Yes, it does now. In that sense, things are changing for the better since recent times. The call of our Honourable Prime Minister Shri Narendra Modi is a natural follow up to the present needs of this country. Make in India, Innovate in India, Invent in India - the infrastructure and support systems are in place to make things happen for Young India.

**ET: Traditionally, Scientists have different objectives than businessmen. What are the challenges you faced in your quest to marry a scientific mind-set with a business culture?**

**AN:** This is a classic artificial divide. Louis Pasteur, whose name most of us know, actually was the first scientist to do science with a purpose. He married curiosity and understanding by solving problems with a practical end; his famous quote "There are no such things as applied sciences, only application of science." In the 1800s, two serious problems were plaguing the human population (among others, I suppose) - illness from spoilt milk and death from rabies. He started the new disciplines of what we call today microbiology (sterilization) and immunology (vaccination) to solve problems of human suffering (at that time). If one can do fundamental sciences, that's great. If one can do applied technology, that's even better. But if one can do both at the same time, it's a win-win game. And it is only natural that the government and taxpayers who are funding most of the public research ask the question: "What have scientists done for me lately?" I think the divisions between science, technology and business were a luxury of the past times. Today's need is to multi-task all in one.

**ET: What is your advice to budding scientists who wish to begin their own entrepreneurial journey?**

**AN:** The old order was one specialized in a given field or topic and could reasonably hope to make a successful career. Today, expert knowledge in a given domain is surely a necessary start point. But one must add on a host of other elements, collaborations, networks, etc. to be successful as a scientist-entrepreneur or in any profession. I had an opportunity to hear about half a dozen MIT-Harvard Professors at a meeting last year in Boston. It's amazing how they seamlessly navigate across science disciplines to technology and applications and bring in a dash of business angle too, all in a 30 minute talk. That is the message for the next generation of scientists.

[back to top ^](#)