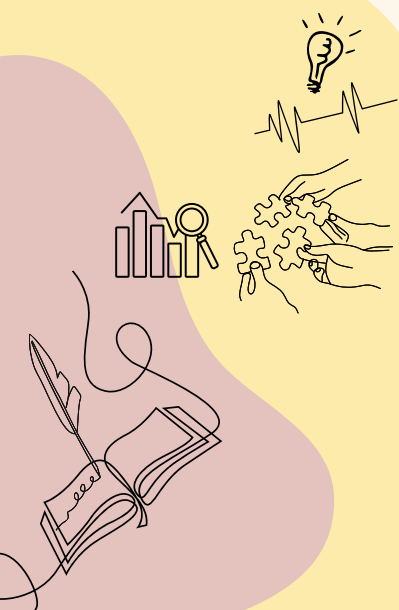


IRIWI

I Realised
I Wasn't Interested ...

Inspirational Stories of
Science Career Transitions



IndiaBioscience

Story of the book

In 2020, Karishma gave a career talk at an institute in India. Attending her talk, Gayatri was struck by the words Karishma used to describe her career transition from medicine to scientific research. Karishma had said that at the end of her medical training, **“I realised that I was not interested in the practice of medicine”**. This description resonated with Gayatri, who had used the same words earlier, given her transition from laboratory bench-based scientific research to research in science policy and institution building. A few conversations later, Gayatri and Karishma pitched the idea of developing a collection of stories around science career transitions to IndiaBioscience. With support from Premas Life Sciences, this book features inspirational career stories of diverse science professionals working in India. The stories capture their unique career journeys, including turning points along their career transitions, or their IRIWI moments.

Credits

Concept

Gayatri Saberwal and Karishma S Kaushik

Design, Illustration and Layout

Moumita Mazumdar

Interviews

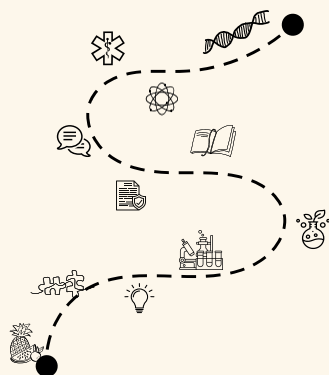
The interviews of Argha Manna, Mrutyunjay Suar, Parul Ganju and Sarah Iqbal were conducted by Adita Joshi. All other interviews were conducted by Banya Kar and Hina Lateef Nizami.

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Gayatri Saberwal and Karishma S Kaushik



The material represents the views of the interviewees and authors, and not their employers.



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Foreword: Embracing New Horizons

I am extremely happy that Karishma Kaushik and Gayatri Saberwal have taken this initiative to put together this book titled “IRIWI: *I realised I wasn't interested. Inspirational Stories of Science Career Transitions*”. Karishma and Gayatri shared the idea for this book- a collection of stories of science professionals who had transitioned out of academic research - with me when I was helming IndiaBioscience. IndiaBioscience was quick to extend its support as the conversations and themes to be captured in this book aligned with and complemented its engagement with careers in science - through its in-house skill-building workshop “Crafting your Career”, outreach talks and articles. Support from Premas Life Sciences Ltd was quick to follow. On a personal note, the idea for such a book struck a chord with me as I had made many transitions in my career - some small and some big. I moved from being a researcher in chronobiology to graduate studies in behavioural neurobiology: *IRIWI moment #1- change in the theme of research*. I transitioned from the fascinating study of parasitic manipulations of behaviour to predictors of mental health in a population: *IRIWI moment #2- change in modality (wet lab to dry lab) and applicability of research*. Most recently, I transitioned out of academic research into science facilitation: *IRIWI moment #3- desire to move out of the faculty career trajectory and engage with the scientific community in a broader and more capacity building space*. These IRIWI moments were initially shrouded with a sense of guilt - guilt for moving away from what I have been intensively trained in. Careers in science are often discussed as linear and immutable. Opportunities change, situations change, science advances, people change- with all of these, careers change.

For many, the journey within the walls of academic research becomes a cherished vocation - a calling that fuels their ambitions and shapes their identities. However, the scientific landscape is evolving, and the paths available to those within academia are expanding. Today, a growing number of individuals (as Gayatri, Karishma and myself did) find themselves at a crossroads, contemplating a transition out of their academic research careers. It is a critical juncture, filled with uncertainty, self-reflection, and a myriad of questions. What lies beyond? How does one navigate the uncharted territory of transitioning into new professional realms? How can the unique skills acquired through years of scientific pursuit be harnessed to create fulfilling and impactful careers outside of academic research?

IRIWI is a delightful collection of stories of science professionals who have made major transitions in their careers and who are passionate about, and successful in the avenues that they pursue. It will expose the reader to a more balanced view of what a career in science can look like.

Conceptualised and curated by Karishma and Gayatri, this book is born out of their collective wisdom, insights, and personal experiences of transitioning careers in science. Gayatri's journey has taken her from research in the life sciences to policy research and institution building. Karishma's path has traversed being a doctor, life science researcher, science communicator, and now a science facilitator. Both journeys have been peppered with IRIWI moments. As a bystander to the creation of this booklet, I have witnessed the meticulous thought that went into selecting whom to interview for this work and what to ask them about their career journeys.

IRIWI is not meant to be a practical guide; it is meant to be a starting point for a discussion around transitions in careers in science, it is meant to empower and nudge those who are professionally unfulfilled towards their own 'IRIWI' moment, and it is meant to be an engaging read about a diverse set of science professionals. Within these pages, you will embark on a journey that compels you to examine your strengths, values, and aspirations.

It is my firm belief that IRIWI will serve as an invaluable resource for those contemplating a transition out of academic careers as well as those curious about the diversities of careers in science, in India. Regardless of your scientific background or career stage, this book will inspire you towards discovering new pathways, redefine success, and harness the power of your expertise to make a lasting impact on the world.

I am honoured to introduce this collection of personal reflections, and I am confident that it will inspire and empower countless individuals who are ready to embark on their own journeys of personal and professional reinvention. I look forward to a more fluid approach to what a career in science means and a celebration of IRIWI moments.

- Shantala Hari Dass

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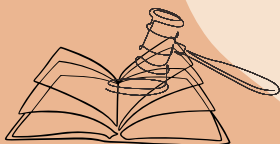


Career Stories



Amitavo Mitra

From the lab bench to the law book



“He is no lawyer who cannot take two sides,” said English essayist Charles Lamb. When we sat down with the scientist-lawyer Amitavo Mitra, we realised that we could not agree more with Lamb’s statement. Amitavo combines his training in science as a molecular biologist with a career in law as a patent law expert, specialising in the domains of biotechnology, biomedical devices, and pharmaceuticals. We met Amitavo not knowing much about the relationship between science and law; how they converge or conflict!

Biology, where it all began

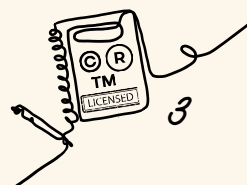
Quite early in life, Amitavo traveled across the oceans for an education. When the plan to get into engineering or medicine—supposedly, the only two career choices in the ‘90s—did not work out, Amitavo joined an undergraduate course in biology at the University of New Hampshire, USA. Four years of this course piqued his interest in biology further and he joined Dartmouth College for his PhD, where he worked on *Drosophila* genetics.

Amitavo reiterates the common theme that, be it in India or the USA, the ‘ideal’ goal after a PhD is to get an academic position. Most likely you are surrounded by people who, like you, have spent most of their working life in academia and have a limited perspective on careers beyond their silos. **“In the labs, everyone talks about how to become a professor. It is because of what we see around us”**. Amitavo adds, **“You do a PhD because you want to learn and explore something new. It is not about getting into a PhD program only to become a professor.”**

He remembers how as a freshly minted PhD, he had heard about industry jobs as a researcher or consultant, but nothing beyond these career choices. Although Amitavo joined a postdoctoral program at the Tufts Medical Center, he was keen on transitioning to a different career soon and had decided against the ultra-competitive race to secure a tenure-track academic position.

During the final years of his PhD, Amitavo had done the math, and knew that there were just not enough jobs in academia to absorb all the PhDs and postdocs being churned out. **“Five to six years in a high-profile lab for a PhD, followed by another six to seven years of a postdoctoral fellowship is what it takes to get a fighting chance at academic positions in the USA. The situation is the same in India. One of the reasons is the ever-expanding number of PhDs. The second is that professors never retire; once a professor, you die a professor.”**

Regardless, he had also realised that he did not want to continue with



slow-paced bench research. And thus, he decided that sooner or later, he would take up a position in the industry—maybe in the field of clinical research. But life had other plans!

Again a student—this time, a student of law

Back in India after his postdoc, Amitavo was job hunting. A chance conversation with a friend led to Amitavo exploring patent law as a career. He was offered a job at a law firm, where he joined as an Associate in 2013. Within a year, Amitavo started attending classes at the Faculty of Law, Delhi University for his Bachelor of Laws degree. ***“I worked during the day and attended classes in the evenings. It was quite tiring but worth it,”*** he says. ***“This is my history—how I started my journey in law.”***

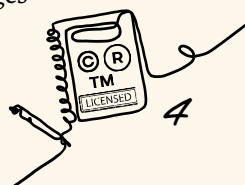
Amitavo has moved between firms and progressed to partner at Sai Krishna and Associates, an award-winning law firm. He says a law degree is not essential for a career in patent law but does recommend it. ***“When you spend so much time answering questions on the law, a degree definitely gives you an edge.”*** He adds that although a lot of it can be picked up on the job during practice, a formal degree helps navigate this niche area through a better understanding of the law.

A PhD in the confusing world of patents

The world of patents with its data, forms, and procedures can be a confusing one. Here, PhDs are sought-after assets. The years spent making sense of research publications do not go in vain; the training kicks in when hardcore technical documents need to be dealt with in a patent office.

Intrigued, we had to ask Amitavo what his day usually looks like. At this point, the researcher in him takes over and he deconstructs the process of patenting for us. PhDs hired as technical consultants speak to scientists to figure out their invention, apply principles of patent law to check if an invention qualifies for a patent, and then prepare detailed descriptions for the patent application. When we quiz him further on how a background in research finds relevance in patent law, ***“Patent agents help bridge the gap between technicality and legality in patent applications,”*** explains Amitavo. Away from the bench, yet very close to the cutting edge of research!

Having climbed the ladder, Amitavo's role has shifted from being focused mainly on science to a good balance of science and law. As we chat about the challenges of his job, Amitavo explains that as in any other job, one needs to be open to learning and adapting to overcome challenges. Then, he quirkily



adds, *“If you did a PhD in science, you worked on laws of nature. The law is something that humans wrote. You can do it.”*

But what will the neighbors think?

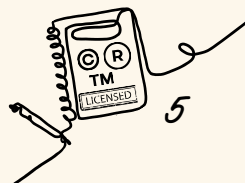
Amitavo knew that PhDs are expected to become professors, and anything else is almost considered a failure. Thankfully, Amitavo did not have to deal with this prejudice. But he recalls occasionally being asked, *“Why law after a PhD?”* or *“How did you break the news of leaving academia to your parents?”* Amitavo makes no bones about it—*“Choosing a path is nobody’s business but my own.”*

Although Amitavo did not know if he would join the industry, do clinical research, or take up patent law, he was unequivocal that he wanted to move away from bench research. He was ready to leave academia and explore. And he was okay, or rather better than okay, with this decision. *“Do not worry about what your neighbor thinks. If there is something you want to do and it is a good option for you, do it. You will be okay in life.”*

By the end of our conversation, we see how Amitavo could easily see two sides, that of science and law. Almost a decade after switching from academia, he recalls how there was not much information about non-academic careers back then. Today, lack of information cannot be a valid excuse. But, we need more stories of people exploring careers outside of academia to normalise the process. While listening to Amitavo, our thoughts kept gravitating back to the seed idea that led to these conversations: **The narrative around a non-academic career needs to change; after all, it’s good to get a different perspective on the world!**



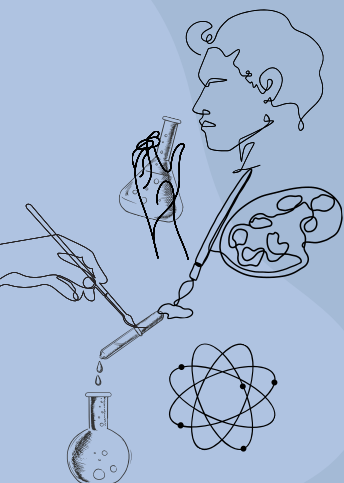
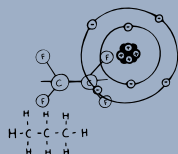
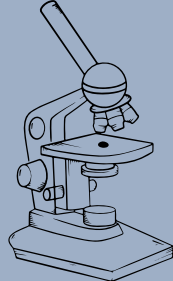
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Argha Manna

From studying the mystery of science
to drawing the history of science



“I was never good at illustrations. I developed an art portfolio that was often rejected at job interviews due to lack of finesse.” When we sat down with Argha Manna, the science illustrator of international repute who draws the history of science, it became clear from the start that his journey was uniquely his, like no other. His journey—defined by his struggles, perseverance, and success—provides many lessons for those trying to make sense of their circumstances and move forward.

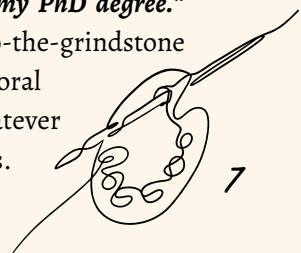
Argha’s journey in science started when he entered a Master’s program at the University College of Science and Technology, University of Calcutta, and experienced for the first time how science was done; until then, studying science was never an active, well-thought-out choice. In Argha’s words, he hated biology in school and was interested in physics. But as fate would have it, he had to choose physiology for his Bachelor’s degree because he had not scored well enough to bag a seat in the physical science courses. It would only be much later, and through an unexpected and different medium of expression, that Argha’s education in biology and interest in physics would meet. He describes his science education as a very run-of-the-mill journey from Bachelor’s to Master’s to qualifying the national eligibility test to get into a research lab—the Bose Institute. This is where Argha’s story takes a turn.

I see, I understand

At the Bose Institute, in a lab that researched cancer cell biology, Argha for the first time looked at cancer cells (their migration pattern in three dimensions) through the lens of physics—his first love. This was in 2009. Argha did not imagine that a decade later, the physics of cancer cells would be introduced as a special programme at universities in the USA. Not knowing what the future had in store, he decided to become a scientist. ***“The microscope for me was like a new toy in a child’s hand. I was very interested in visuals. I wanted to “see” my experiments — like what protein interaction looked like! Experimental data in the form of visuals made me happy. At lab meetings, I “drew” my notes as visual stories.”*** Little did Argha know that he was not just drawing things, but was being drawn to a new career path.

A PhD is not just a degree!

“I finished my doctoral research, published well, but did not get my PhD degree.” There are a few ways to get a PhD. One can follow the nose-to-the-grindstone style where your thesis is your sole goal. Or, one can use the doctoral research time to build a repertoire of experiences and skills. Whatever choice one makes, planning and execution are critical for success.



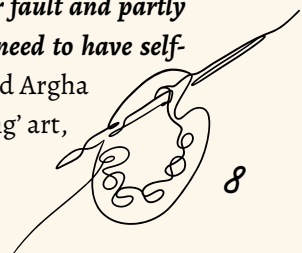
Argha reminisces how he planned his PhD wrong—one of the reasons why he could not submit his thesis despite achieving his research goals and publishing. ***“I did not act like a PhD student; I acted like a scientist. I thought I was a genius because I had good ideas. I did not plan, and I did not focus on writing.”*** Well, genius or not, everybody needs a plan, and Argha urges PhD researchers of today to plan their PhD journey well, focus on their thesis and on writing, and stick to a timeline.

As we chat more about his PhD days, Argha reminisces how disagreement with his PhD supervisor over collaborating and taking his research out of the lab further hindered Argha’s work. The delay, drying up of the scholarship, the need of a job to sustain himself, and an inflexible laboratory environment, which did not allow him to take up a job while working on his thesis, drove Argha to drop his thesis submission. He was soon looking for any work available to take care of his family.

The switch

“I had shared my research plan with a collaborator as an illustration of my ideas”, reminisces Argha. So, it is not surprising that after leaving the lab, he had his heart set on trying his luck at being an illustrator. ***“Art made me happy. I sat at home for two months and worked on a portfolio. I would visit media houses with this portfolio in hand.”*** They say, do what you love and you will never have to ‘work’ a single day in your life again. The reality was harsher, though. Argha was turned away from everywhere because he was not a trained illustrator and his drawings were considered amateur. After many unsuccessful attempts, he was offered the position of a science journalist at ABP Pvt Ltd. for his training in science, although he had wanted to join the media house as an illustrator.

Argha spent the next three years practicing his craft with the professional illustrators at ABP Pvt Ltd. — a request that the good people at ABP Pvt Ltd. obliged. Now, Argha was a journalist from 9 am to 5 pm and a student of art from 5 pm to 9 pm. This switch from a lab to a media house, imposed by circumstances, was not easy. Days were clouded with self-doubt and anger. Here, Argha’s boss at ABP Pvt Ltd. shared some very wise words— ***“You have had some bad years. You should accept that your thesis was partly your fault and partly not. You can do whatever you want—science or art—but first you need to have self-confidence.”*** This, and finding a teacher who nurtured him, helped Argha break free from the rut. At the end of these three years of ‘learning’ art,



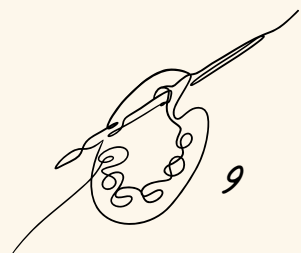
Argha launched a blog with a collection of his artwork. The rest, as they say, is history.

A researcher, an illustrator, 365 days of the year

Since then, Argha has added many feathers to his cap: being an Artist-in-Residence and Faculty of Humanities and Social Sciences at IIT Gandhinagar, a Visiting Artist at MIT, a Consultant for visual art and graphics at University of Oslo, Norway (CoFUTURE project), a Sub-editor at ABP Pvt Ltd., and a Contributing Artist at Sci-Illustrate. His blog called 'Drawing History of Science' showcases some of his best works of visual science communication—intricate illustrations and comics portraying human stories in science. When quizzed if a degree or formal training in art would have been more apt for his career, Argha maintains that he would have had it no other way. His first love is still science. Argha has continued his journey in science, albeit at his drawing board. His signature style is to use his science training to interpret scientific findings or research the history of science in digital archives and, convert them into visual stories using his craft. Lessons learnt from his PhD experience are hard-wired into his process. ***“I’m not Picasso. I’m ordinary. And I started my journey as a student of art.”*** So, 365 days a year, Argha is at his drawing board practicing and getting better. So much for the belief that one needs a laboratory to enjoy science!



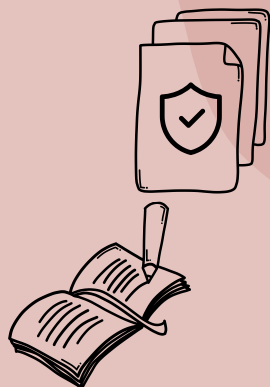
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Chagun Basha

At the interface of science and policy



When someone starts by telling you that their life is a set of anomalies, you know that there is going to be a great story in the conversation. We sat down with Chagun Basha to talk about his journey from engineering to science policy. Every time he said, **“Oh, here is another anomaly”**, we laughed. But in hindsight, we realised that every anomaly was instrumental in shaping his career. Years ago, Chagun started out as a research engineer who, albeit his interest, was not given the opportunity to do much research. Today, at the Office of the Principal Scientific Advisor to the Government of India, Chagun works towards shaping science and technology policy in the country.

From the world of engineers

Coming from a family of engineers, Chagun looks back and feels that becoming an engineer was inevitable. Getting a technical degree was considered a sure shot at landing a job. After completing his 10th standard, Chagun took up a three-year diploma course in electronics and then made a lateral entry into an electronics engineering degree course. It's not the standard route to an engineering degree—an anomaly, as Chagun calls it.

When we inquired about his path to research, came the reply, **“I never wanted to do a PhD”**. Ironically, he adds that he had a lot of research ideas, which he wanted to pursue, after his degree. So, when everyone around him was joining the software industry, Chagun chose to stick with electronics and took up the role of a research engineer right after his degree. However, for someone who had won 120 engineering research challenges at student tech fests in just two years, working on someone else's ideas was not intellectually stimulating enough. So, he started looking for research roles in the domain of system-on-chip electronics. At this time, Chagun was open to all options: a job or a PhD, in India or abroad.

The circle of knowledge

A phone call from France inducted Chagun into the tribe of PhDs. He was offered a research position, which required him to do a PhD, at the University of Rennes. **“I was offered a salary with the freedom to pursue academic research. And at the end of it, I was getting a degree. I didn't think twice.”** Chagun immediately adds that, in his excitement, he had not thought about the daunting tasks that a PhD demands, including writing a thesis.



With almost no previous research experience and starting a PhD program without a Master's degree (yet another anomaly), Chagun says his learning curve was extremely steep. Chagun's first lesson was in research methodology; he had to learn how to think critically and do research both as an individual and in a team. ***"When I look back now, it was an enjoyable pain"***, Chagun adds humorously. Every time he mentions the freedom he enjoyed to pursue ideas during his PhD, his face lights up with a smile.

Interesting analogies were discussed in the living room of Chagun's supervisor over black coffee: ***"If there is a big circle, consider it to be the entire knowledge system of the world. When you are doing a PhD, you are pushing the boundary out by a dot. If you are one dot, there are millions of others and that's how the circle is getting bigger and bigger. Every dot is a new idea."*** These were Chagun's first lessons—a PhD thesis should be built on a new idea (problem), and a literature review should not be used to copy ideas or club multiple ideas to make one. Over time, Chagun understood the importance of developing a 360-degree perspective on every problem. ***"How a problem could be seen from a mathematical point of view, a social science point of view, an environmental point of view—a multidisciplinary approach. In fact, one of the courses I took during my PhD coursework was human psychology"***, Chagun reminisces about the early days of his PhD. As we chat more, Chagun excitedly explains to us the mentorship style of his supervisor: a mixture of lighthouse moments where you look at the whole spectrum of the problem and torch moments that focus on the immediate problem at hand. ***"This helped me. It's a style that I now use when I teach science and technology policy at the Indian Institute of Science."***

Not a jump, but a transition!

"It's neither a jump nor a switch. It's a transition. As long as we think it's a jump or a drastic change, we are already labeling it as an 'alternative career'." Before we delve into Chagun's transition from space electronics research to science policy, Chagun establishes that every career track outside of academia is equally crucial to the scientific enterprise as is research.

In space electronics, systems are tested through bench-based simulation. One spends weeks testing for results. In the final years of his PhD, Chagun was struck by the realization that he did not want to do this for the rest of his life. ***"This was exciting work and it paid well. But I was skeptical if this would be as exciting later as it is now."*** A considerable amount of time was thus spent on exploring pathways that could be taken



post PhD. A website called ‘versatile PhD’ opened up the world of careers outside academia for Chagun. Coincidentally, during Chagun’s phase of exploration, UN Climate Change Conference (COP21) in Paris happened. Chagun saw this as an opportunity to understand how policy works in science; he joined a student delegation and participated. And the rest as they say is history.

A career in science policy and diplomacy

By the end of his PhD, Chagun had figured out that he wanted to join the science policy space in India. He had done his homework to find and connect with the right people. He was waiting for the right opportunity, which came in the form of the DST-Science, Technology and Innovation Policy Fellowship at IISc. Again, a steep learning curve awaited Chagun. He was one of the first to join the fellowship and not being from the academic field of science policy (a field of social science called science and technology studies) was a challenge. Also, the formal science-policy practice space was quite nascent in the country. This is when Chagun realised the need for a community. Informal conversations at IISc led to the making of the Science Policy Forum. One thing led to another; workshops and conferences followed and a community emerged.

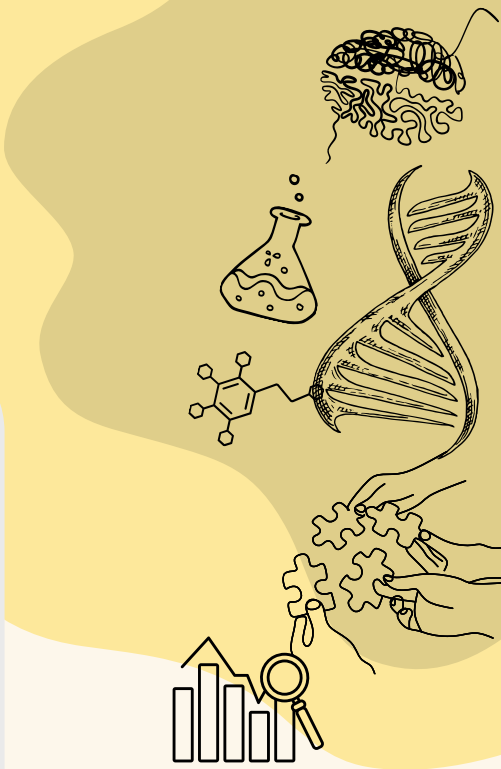
Chagun is currently with the Office of Principal Scientific Adviser to the Government of India as Chief Policy Advisor. His career has been marked by many milestone moments: engagement with The Organisation for Economic Co-operation and Development (OECD) leading to India becoming a member of the committee on S&T policy, the drafting of STIP 2020, and many more.

As we come to the end of our conversation, we quiz Chagun about the ideal path to science policy after a PhD. Chagun’s experience in the field cautions to not make a career transition just based on interest. ***“It is a critical decision. A lot of thinking and exposure should be involved in this decision.”*** Before deciding, Chagun recommends questioning oneself repeatedly, followed by testing the waters first by writing policy papers and seeking feedback from peers in the field. ***“Policy may sound very empowering (and fancy), but the reality is different. There are so many possibilities under the umbrella of policy. You can be a policy researcher, analyst, critic, journalist, or policy-maker. This understanding should come first before a decision is made.”***



[linkedin.com/in/chagunbasha/?originalSubdomain=in](https://www.linkedin.com/in/chagunbasha/?originalSubdomain=in)





Debjani Saha

Business with the Sciences

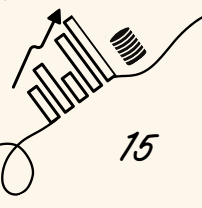


As a science student in class 12, Debjani Saha was quite clear about two things when it came to the next step in her education. One is that she was interested in studying biology. Two—and much against the norm of ‘accepted’ career choices—that this didn’t equate with an interest in studying medicine. This was around two decades ago. When we sat down to chat with Debjani, now the Assistant General Manager-Marketing at Premas Life Sciences, her career decisions turned out to be based on timely realisations and astute clarity. From training at the bench for her PhD at IISc Bangalore, to navigating the world of science business for a decade now, there are many lessons for those wondering where they really belong.

Biology: yes! Dissections: no!

Debjani credits a teacher from her school years for igniting her interest in biology. It was ironic that she dreaded small animal dissections, then a part of biology experiments at school, but loved the subject. Since she felt she was a “non-dexterous person”, she decided that pursuing a career in medicine wouldn’t be a wise choice. This was perhaps the earliest display of good judgement in making decisions for her professional life. With a path in medicine ruled out, she studied biochemistry for her Bachelor’s degree at Delhi University, and then went on to pursue her Master’s at The Maharaja Sayajirao University of Baroda. Debjani credits her Master’s with causing a **‘paradigm shift’** in her life. For the first time, she was living away from home and discovering, in her words, the **“first taste of independence and making my own decisions”**. It was a term project in this Master’s program that piqued her interest in scientific research, in the field of mRNA splicing. Here began Debjani’s quest to find a PhD position and she found an opportunity at the Indian Institute of Science (IISc) Bangalore. She met her future supervisor on a Saturday afternoon to learn more about the details of her research, and lo and behold, the project was going to be on mRNA splicing! While Debjani fondly recalls the grad school tenure in Bangalore as some of the best years of her life, she also agrees that a PhD is always a mixed bag. **“There were good days, there were bad days, and there were very bad days.”** This teaches you resilience and resourcefulness, she believes. Is there something she could have done better? **“I should have networked a lot more and not been a frog in the well.”**

Debjani completed a part of her dissertation at the University of Manchester, United Kingdom, and graduated in a little over six years. Yet again, only a couple of years into her PhD, she had a realisation like the one many years earlier – that a career involving dexterous benchwork wasn’t for her.



What followed was a quest to figure out career options—in industry or academia—that didn't involve bench research.

There's never a point of no return

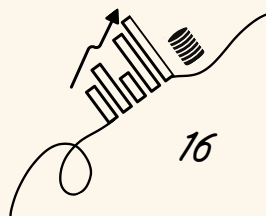
Debjani quickly realised that signing up for postdoctoral research was considered the default post-PhD option and anything else was considered a point of no return to academia. She was also staring at an important personal decision: whether or not to move back to Delhi. Around that time, Premas Life Sciences advertised an opening for a Product Manager based in the city. While she felt the need for more clarity on the career path in the industry, she decided to take the plunge anyway and interviewed for the position. ***“I knew zilch about what a product manager does, so I gave a description of my research work in the covering letter”***, Debjani reminisces. One thing led to the other, and she was offered the job. The decision to switch gears from academia to industry was less understood back then, so she was advised to ***“Sleep over it before making a decision”***. This was coupled with words of wisdom from her seniors, who encouraged her, and reminded her that ***“There's never a point of no return”***. Debjani accepted the offer and, thankfully, never came to that much-feared 'point of return'. She continues to build on over a decade of work at Premas, starting as a newbie in a 'techno-commercial' role, to being a leader in the organisation today.

The perspective shift

No journey worth remembering is free of ups and downs, and Debjani has had her fair share. In a career switch from the academic lab bench to business, there had to be a learning curve. ***“The position was connected to science, but the commercial part was completely new to me, and I was just trying to stay afloat”***, Debjani remarks, remembering the beginning. As time passed, she realised the need to unlearn the super-specialised niche vision that one tends to develop during a PhD. While the challenges were manifold, the foremost was to understand the business side of things. It involved a complete shift in perspective – from being a consumer of commercial scientific services at the bench to switching places and now being the 'seller' of these solutions. In such moments of change and self-doubt, it certainly didn't help that many of her friends had opted to pursue postdocs. ***“I'll be honest. The first couple of years, I was struggling and second-guessing my decisions”***, she states in no uncertain terms.

Preparing for life post PhD

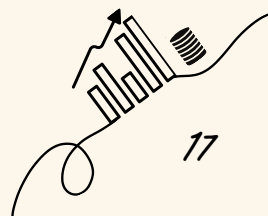
Things did change with time and, in Debjani's own words, ***“Today,***



if I were to do things all over again, I'd make the same decisions as I did." When we wondered if the positive changes in the journey were brought about by acquiring professional qualifications in the business or management side of things, Debjani smiles **"Not really, but ten years down the line, I'm contemplating this now"**. We couldn't finish without prodding Debjani for that one skill a PhD student must acquire for career progression, especially if one is inclined towards the industry. **"Networking and 'selling' the work that you're doing"**, she says clearly. Also, with the advent of so many digital avenues, approaching someone is easier than ever before. **"The worst that could happen is someone not responding to you"**, she reminds us.



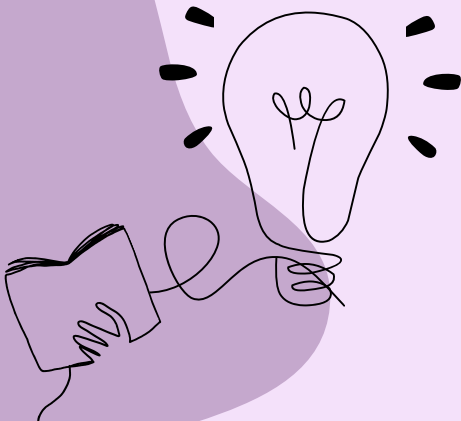
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H Krishnamurthy

Building solutions for a science research ecosystem



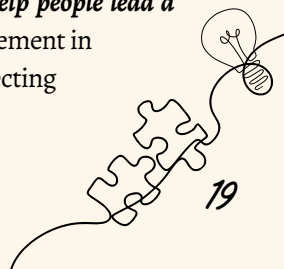
“If a cab driver has managed to drop me five minutes faster than expected at the airport, HE has done science to me - not just us at the NCBS.” This was but one of the many insights we obtained, while talking to H Krishnamurthy, who is head of the Central Imaging and Flow Cytometry Facility at the National Centre for Biological Sciences (NCBS). By the time we finished, we were probably left questioning our own basis of calling someone a scientist or otherwise. But, did he always have this clarity about what ‘science’ and ‘scientists’ really mean to him? Well, this one makes for a story of serendipity, timing and realisations, and of defining, building, and ultimately redefining things.

Education—the no-plan game plan

Krishnamurthy was born in a family that had been practicing medicine for the past seven generations, a trend that changed only in his generation. He lost his father quite early in childhood and because his mother wasn’t well either, his grandmother took care of his upbringing. When it came to choosing where to head after schooling, his reason was clear and quite unusual: ***“I joined college because my friends said that’s where you get to enjoy life.”*** So, Krishnamurthy – or “Kitty”, as his friends call him – pursued science, and specialised in Zoology (Reproductive Biology). After his Master’s degree, he was back to the same question, ***“What next?”*** Again, he did what a friend suggested. He interviewed and was selected for a Junior Research Fellow position at the Indian Institute of Science, Bangalore. The lab was headed by Prof. NR Moudgal, a reproductive biologist par excellence. Here, Krishnamurthy’s colleagues were impressed with his ability to ask interesting questions and suggested he would be better off pursuing a PhD. So, he did! A thesis and some bureaucratic curve balls later, he completed his PhD. The next stop? A research job—not a postdoc—in Germany!

What’s science got to do with life!

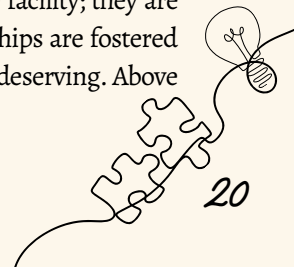
While Krishnamurthy came to Germany on the advice and referral of NR Moudgal, the time here turned out to be a pivotal point in his own understanding of science and research. He would ask people about their motivation behind doing a PhD and a common thread that emerged was their belief that a PhD taught them how to think better. It was his encounter with this way of living that reset the definition of science for him. In his own words, ***“Whatever work we do today, it should help people lead a shade better life tomorrow.”*** While some may argue about the service element in this definition of science, Krishnamurthy’s journey has ended up reflecting this belief.



Building—from a community to an ecosystem

Moving on from Germany, Krishnamurthy's next major stop was at the Columbia University, New York, where he was Director of the flow cytometry facility. ***“I am an ordinary technician; why should a student of this country beg me for a half hour slot?”***, he wondered. Instead of providing services through the research facility, he began training the users. With this change, the facility could now be operator-free and the user fee collected rocketed to about four times from when he started. This change of ways was a mindset that Krishnamurthy would carry throughout his professional journey.

His next stop was the National Centre for Biological Sciences (NCBS), Bangalore. While he was interviewed for the job of managing the Central Imaging and Flow Cytometry Facility (CIFF) at NCBS by Prof. Satyajit Mayor (Jitu) and colleagues, he was candid in saying that I know a little bit of Flow Cytometry but not Imaging. However, Jitu convinced him that like Flow Cytometers, the same LASERs and optics are used in Microscopes and he could learn the imaging techniques on the job and that boosted his confidence. At NCBS, Krishnamurthy started off with managing the Imaging and Flow Facility – armed with one flow cytometer and one confocal microscope. He keeps acknowledging the support he received at NCBS which, when coupled with grants coming in, helped them get over a dozen microscopes for the facility. Not stopping at that, he got the medical device company Becton Dickinson (BD) to set up India's first Centre of Excellence in Flow Cytometry at CIFF, NCBS. Again, Krishnamurthy decided to train the end-users coming from all over the country and would teach the basics of imaging and flow cytometry to each user. He has been teaching flow cytometry in 14 different countries, through the International Society for Advancement in Cytometry. While he progressed to become the Head of Research Facilities at NCBS, Krishnamurthy's solution mindset was always at play. For instance, he has set up a flow cytometry based plant ploidy centre at CIFF for selection of di-haploids (important in plant breeding programs). Earlier, samples were being sent abroad for this 30-sec exercise; imagine the time and money saved! This is just one of the many lab solution examples that he recounts during our conversation. We could say that Krishnamurthy runs a state-of-the-art imaging and flow cytometry facility in a research institute to meet its research needs. However, as he shared anecdote after anecdote, the reality dawned on us. What he has established here is an ecosystem that nurtures. It also runs like clockwork. No trainees are allowed to stay over two years in the facility; they are sent out as assets for the research enterprise. Public-private partnerships are fostered to not just make technology available but also to fund education of the deserving. Above all, the joy of science is shared with the young.



Teach and learn twice over

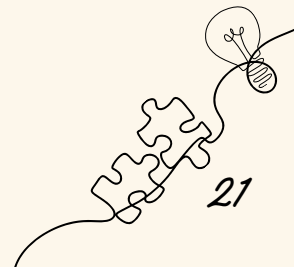
As a jury member of the L'Oréal Young Women in Science Scholarships, Krishnamurthy gets to see up close the adversities that some very promising young women face. When the scholarship is not enough to overcome their economical disadvantages, he has found a way to support their education. Krishnamurthy retains money allocated to him for teaching and uses it to support and encourage these young women. He remembers them all—where they are from, what they do, and what they want to do. Further, on weekends, school children fill the research facility, CIFF at NCBS. ***“I do not bring the school children here to teach them anything. I have nothing to teach. If you want to learn anything in life...teaching is the best way of learning. And children are the best teachers. I teach to know how much I don't know.”*** Krishnamurthy amusedly explains that during demonstrative cell death experiments done for the children, he gets surprised by the novelty and ingenuity of their responses to his questions. And here he wonders again: ***Who is the scientist—I or these children?***

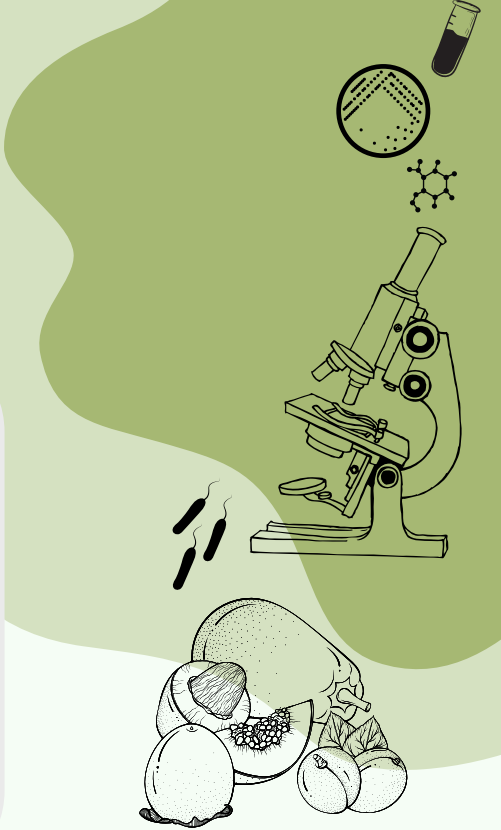
There's joy in just 'doing'

As with any career path, Krishnamurthy too has seen his shares of ***“Now what?”*** and ***“How even?”*** However, what kept shining through the conversation was his ***“Okay, let's fix it”*** attitude. A few weeks before this meeting, Krishnamurthy received a call for help from his alma mater—Vijaya College, Bangalore. Having no means to teach undergrads advanced microscopy techniques – a new addition to the curriculum – the teacher enquired if NCBS could help. Krishnamurthy understood the limitations. Each of these high-end microscopes costs millions of rupees. How could the colleges get hold of these instruments? Well, the answer was simple. The national research institutes could pitch in. Soon, Krishnamurthy was writing to research institutes in Bangalore with a plan to adopt colleges and enable their access to advanced microscopes. ***“Do not be too careful. Feel free to make mistakes. Doing and failing is better than not doing”*** Krishnamurthy vividly recollects Prof. Vijay Raghavan sharing these words with him at an MoU signing ceremony. The words seem to have stuck.



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Hari Muraleedharan

On a journey fated to be 'fruitful'



We met Hari Muraleedharan at possibly the most poignant time of his life. He had lost his mother to a long-term illness barely a few weeks before this interview. As sorrowful as this was, the timing also turned out to be strangely relevant. Hari, the microbiologist-turned-farmer, was pondering existential thoughts such as *'Why am I doing this?'* Over about an hour, he recounted his journey from being a microbiologist at the lab bench to being a farmer growing over a thousand varieties of fruits from all over the world.

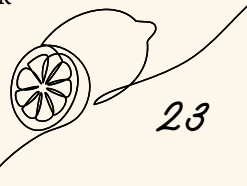
Sowing seeds of the unknown future

As a high school student, Hari loved studying biology but wasn't fond of physics and maths. So, when it came to picking a major for his Bachelor's degree, he chose microbiology. It was the early 1990s and microbiology as a specialisation was quite new at his college in Coimbatore. ***"COVID finally made people look up to us microbiologists!"***, says Hari with amusement. By the end of his Master's degree, Hari was interested in research and started looking for PhD positions. The one he eventually chose to pursue had an interdisciplinary twist—microbiology mixed with oceanography – and he researched the cholera-causing microbe *Vibrio cholerae* in the coastal waters of Rameswaram in Tamil Nadu. A highlight of this period was a meeting with **Dr APJ Abdul Kalam** before the latter became the President of India. Hari remembers Dr Kalam's words to him (translated from Tamil), ***"It's a great feeling to see you do research in my native place."***

A few brief post-PhD stints later, Hari joined the Murugappa Chettiar Research Centre (MCRC) in Chennai. In his tenure there, Hari and his team developed more than 18 agriculture-related technologies that benefitted five to ten thousand people in rural areas. These technologies and processes covered a wide range of products, such as handmade paper, charcoal briquettes and indigo dye, and helped farmers use techniques such as chromatograms and microbiological techniques to examine soil. However, his life was about to change course. In hindsight though, this might have been the time when the seeds of his interest in farming were sprouting.

When life gives you lemons, remember that they too are fruits!

Two years into his tenure at MCRC, Hari decided to resign from the job. His mother was ailing with an autoimmune condition, and he moved back to his hometown in Kerala to be with her. Here, Hari started developing what he calls **"an easy newspaper-learning method"**



for science". He would prepare newspaper-like charts with information on a science subject, and he made them for more than 400 subjects. However, his "Aha!" moment came when he started making a chart for different varieties of fruits. He made chart after chart on fruits - over 40 in total - but the list of fruits would just keep growing. **"I thought, we Malayalees know only chakka-manga, that means jackfruit and mango!"**, Hari chuckles. Noticing that all the new fruits he learnt were tropical in nature, he began wondering why they were not being grown in Kerala yet.

Intrigued, Hari set out on a quest to find the geographical origins and sources of these fruits. He combed through his social media to find friends and acquaintances living around the globe, and found some sources in Brazil, Peru and Mexico, for example. What followed were midnight calls and the use of Spanish-English translating apps, to manage the time and language constraints. After a great deal of effort, Hari managed to get the seeds he wanted. Cut to today: Hari grows 1100 varieties of tropical fruits on his farm Green Grama in the Kottarakkara area of Kerala.

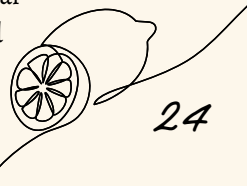
All the world's a lab

While listening to Hari, our thoughts kept gravitating back to a pertinent question: Do you only have to work at a lab bench to offer justice to your PhD degree? Well, this story clearly challenges this stereotype. Hari applies his knowledge of Mendelian genetics and crosses fruit-bearing plants to achieve desired fruit traits. An example of one such experiment is the 'Green Grama Sweet 17 Plum Cherry'. He also uses his expertise in microbiology to optimise soil microbial content in an effort to improve the growing conditions for his fruit trees. He also has over 30 farming consultations where he helps others improve their farming techniques.

Sometime before the COVID-19 pandemic started, Hari was invited to deliver a motivational talk at a school in Kollam. After his talk, Hari was approached by a student of the fifth standard, who touched him and said **"Sir, this is the first time I'm touching a scientist."** Talk about humanizing an aspiration!

Finding the path to spring through a gloomy winter

Hari's **Green Grama** venture has been covered by the local and national press many times, where he is often highlighted as a 'scientist-turned



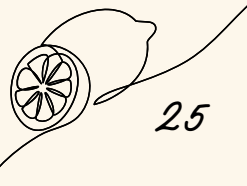
farmer'. However, things were not always so upbeat. "Before this, even my relatives used to say, 'He's a scientist and not doing a job. He's a fool.'", recalls Hari, looking back at a time when words of support were hard to come by. "But, practice makes a man perfect.", he smiles. Hari's work started being picked up by the media, so much so that many celebrities got in touch with him to show appreciation and learn more about his venture. The list of such celebrities includes cultural icons of Kerala, actor Mammooty and singer KJ Yesudas.

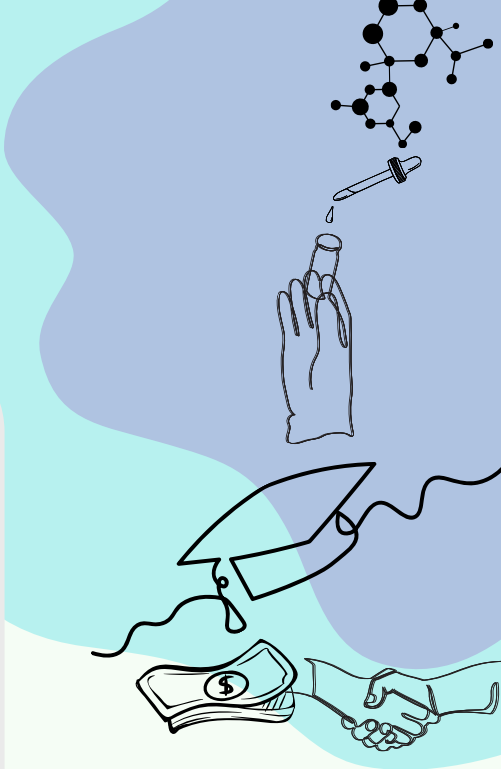
We prodded Hari for life lessons that he learned through this transition. "***I wondered, 18 technologies, over 30 international papers, four books, and no one knew who Hari Muraleedharan was. And then, I planted a fruit tree, and now I'm getting calls from all over the world!***" However, he also acknowledges a hard-hitting truth. "***We don't respect farmers enough. I don't know if I'm getting this respect for my work, or it may be because of my degree or the fact that I grow these expensive, exotic fruits.***"

So, what does he do with all those fruits on the farm? "***The first rights on my fruit are those of the squirrels and birds!***" Next in line are the visitors to the farm, followed by Hari's neighbours and friends. "***The fruit that is number one in the world in terms of sweetness and flavour – it's ten times sweeter than sugar – is only with me!***", he tells us with a twinkle in his eye. There's no fruit sweeter than the outcome of unwavering faith, labour, and patience. So, yes, Hari does have the sweetest fruit in the world.



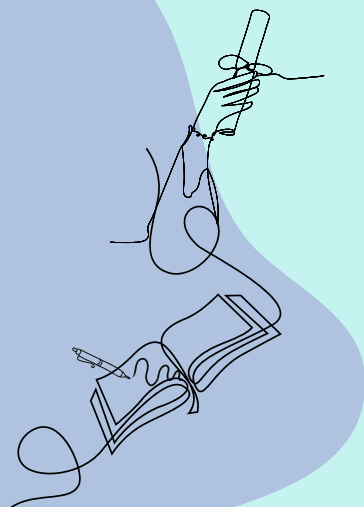
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Mrutyunjay Suar

The journey of an 'enterprising scientist'



When we sat down with Mrutyunjay Suar, we were expecting a simple answer to the question—*How did he become the CEO of the Technology Business Incubator of KIIT Deemed to be University (KIIT-TBI)?* However, his answer captured the winding journey of a young man whose desire to escape a mundane life at home led to a serendipitous entry into biotechnology, and eventually scientific leadership. Mrutyunjay has been responsible for establishing and nurturing KIIT-TBI, an incubator which has led to 200 start-up companies and over 4000 jobs, and a recognised Centre of Excellence in Incubation and Entrepreneurship, in Bhubaneswar, Odisha.

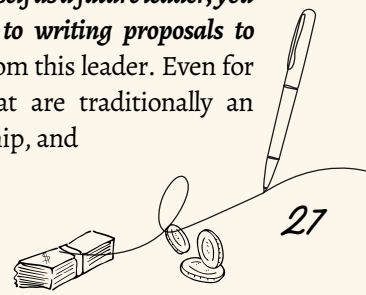
Looking back, Mrutyunjay says he clearly enjoyed science, especially biology. Therefore, as was the norm in the 1990s, pursuing medicine was the obvious career choice. So, he did not hesitate to toil for the medical school entrance examinations, while finishing his BSc degree, and went on to secure admission. However, this would have meant staying close to home, in Odisha, under the watchful eyes of his parents—something that the newly minted graduate wanted to escape. Writing the entrance examination for a Masters in Biotechnology, and eventually joining Goa University, was the get around. This was the beginning of the journey that took him from being a student in Goa to a researcher at the University of Delhi and ETH Zurich, to the CEO of an incubator in Bhubaneswar, Odisha—a full circle.

So what are some key qualities that have defined his path? Mrutyunjay pins it down to having a vision, enabling teamwork, and building strategic solutions.

Failing to plan, planning to fail?

Whether it is striding towards an independent career after a postdoc, or building a world-class facility for research and innovation, a job well planned is proverbially half done. On the first day of his postdoc stint, Mrutyunjay categorically conveyed to his mentor, ***“This will be my first and last postdoc. I want to go back to my country, my state. I want to build something exciting in the biotech sector.”*** Mrutyunjay returned back to India to set up and lead the School of Biotechnology at KIIT University. Not stopping at that, he also set up a successful technology incubator at the university. At one point, he showed his five-year plan to the management at KIIT University, and was told ***“If we achieve even twenty percent of this, we’d be very happy!”***

Plans can take you only so far without action and accountability, and it helps to remember that no action is too small. ***“If you want to build yourself as a future leader, you should know everything, from cleaning glassware in the lab to writing proposals to submitting a Utilisation Certificate”***, is a humbling reminder from this leader. Even for setting up a research and innovation facility, aspects that are traditionally an afterthought—sustainability, brand-building, entrepreneurship, and



capacity-building—should be actionable objectives right from the start. Given how much he emphasises the importance of having a plan before you start, it would not be an exaggeration to call Mrutyunjay **‘the man with a plan!’**

Teamwork over lone talent

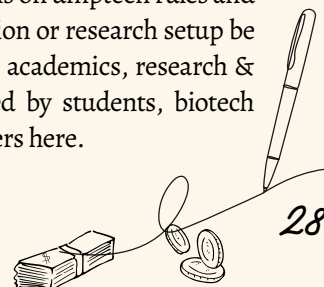
Scientific and technological advances are inarguably a collective effort, with even personal laurels resting on the groundwork laid by many others. Team science might be a fairly recent buzzword, but Mrutyunjay has been no stranger to the concept. ***“Wherever you put me, I’ll build a team that is enthusiastic to work.”*** This becomes especially important when a scientist assumes a leadership role, since this usually brings additional administrative responsibilities, leaving little time for research. ***“Decentralise power and bring in enablers for other realms”***, he says.

It is worth noting that he talks not just about building teams, but also listening to them and being the enabler they need. ***“If you make mistakes, take my name. If you do good, your name should come up.”*** is the little pep talk he uses to build confidence in the team. He believes that the freedom that KIIT University gave him to pursue his ambitious vision should be passed on to the team. **‘Freedom to the team’** is the key phrase, and Mrutyunjay reiterates it throughout our conversation.

Looking for challenges, building opportunities

“I look at problem statements, and then build and deploy a team.” Mrutyunjay recites this like a mantra while talking about his penchant for building strategic solutions and platforms. And the evidence dates back to an anecdote from his childhood: In his residential school, they would celebrate Saraswati Pooja to mark the arrival of spring. The catch? Students would have to wait till the afternoon for a small packet of boondi. To manage time as well as hunger, Mrutyunjay suggested that the students should also cook something in the meantime. No knives? No problem! ***“The students living in the hostels can get their steel glasses and we’ll use them to chop the vegetables.”*** Thirty-four years later, the school continues to follow the tradition he started with a little act that day.

Calling himself a practical person, Mrutyunjay says that he takes ambience, environment, and mindsets into consideration, and then builds a culture that people can actually adopt. If he is letting go of the traditional emphasis on umpteen rules and regulations, then how should the performance of the innovation or research setup be evaluated? He goes by a three-element matrix for evaluation: academics, research & innovation, and brand-building. The job placements bagged by students, biotech start-ups nurtured, and student placements are the key markers here.



Networking, as critical as your science!

Many researchers limit their professional experience to laboratory experiments, not realising that they have set out on journeys with other promising possibilities and disguised opportunities. A six-month visit to Switzerland, courtesy of his involvement in an Indo-Swiss project during his PhD, was the opportunity Mrutyunjay needed to explore what else he could do as a researcher. ***“Those six months were transformative for my career. Subsequently, I got three post-doc offers—something we work hard for as PhD students—and chose ETH Zurich.”***

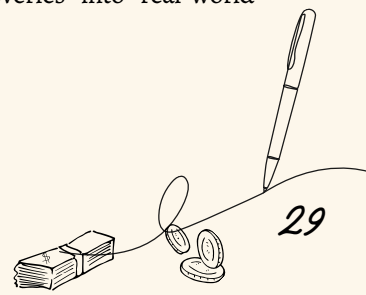
With a commitment of returning back to India, his postdoctoral stint in Switzerland was focussed on networking and building substantial relationships in the field of biotechnology. ***“My postdoc mentor once said, “Mrutyunjay visits the lab, does his work, and then vanishes”. I vanished in order to network and to generate resources. I focussed on building a good network within the scientific community in my field.”*** Very early on, Mrutyunjay was laying the foundation for the career that he had envisioned for himself. He states that it is important to invest equal amounts of energy in research and networking during one’s PhD and postdoc. It is extremely important to build long-lasting relationships and understand the scientific landscape beyond research—one must know funders, policy-makers, administrators, and organisations.

Finally, a successful administrator? No, an enterprising scientist!

Conventionally, being the Director of the School of Biotechnology at KIIT and then the CEO of KIIT-TBI would make Mrutyunjay an ‘administrator’. However, he chooses to call himself an ‘enterprising scientist’. ***“As a fresh postdoc, just 32 years old, I was initially not accepted as the Director by the ‘wise’ people.”*** But he decided to look beyond this and fell back on his trusted, hard-earned network to secure international funding, invite people of influence to the school, recruit talented individuals, and build an R&D- and IP-focussed biotech ecosystem in a state where the biotech enterprise was yet to take root. ***“My age was a challenge—I did not get big grants from the Government of India.”*** This could have been an unsurmountable challenge, but this enterprising scientist looked for solutions and built strategies to overcome the situation. ***“We sought international funding and got much-needed financial support to lay the foundations of this biotech ecosystem.”*** As the KIIT-TBI ecosystem grows further, this molecular microbiologist hopes to replicate his successful technology incubation model across multiple locations, to turn scientific discoveries into real-world solutions.



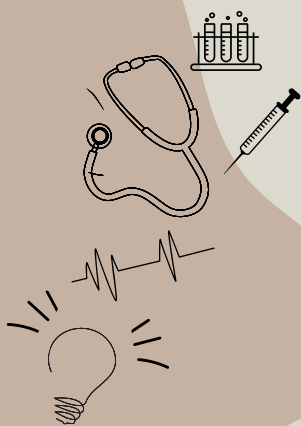
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Parul Ganju

Finding a problem and building a solution



In 2016, Parul Ganju, with her cofounder, took the chance of channeling her expert knowledge in skin biology into an entrepreneurial endeavour. Parul's drug discovery company Ahammune Biosciences aims to make vitiligo, the chronic skin pigmentation disorder, treatable. When we sat down with Parul to map her journey from being a scientist to a 'sciencepreneur', it turned out to be a stimulating conversation about the chances and challenges of building a scientific enterprise. Revelations were many, the first being that an entrepreneurial endeavour doesn't start with a solution but rather with a problem.

Love at first sight!

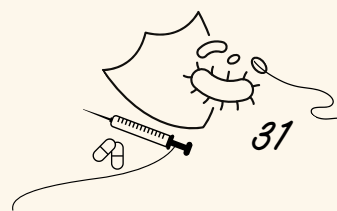
The first thing that strikes us as we chat with Parul is her love for immunology. As an undergraduate student of biochemistry at Sri Venkateswara College, New Delhi, Parul found the intricacy of the immune system with its delicate balance extremely fascinating. ***"With Kuby Immunology, it was love at first sight"***, says Parul. This was just the beginning of a love affair that would see Parul get a Master's degree in biochemistry at Delhi University, followed by a PhD at the National Institute of Immunology, (NII) New Delhi.

Parul credits her Master's experience at Delhi University for igniting her passion for scientific research. Unlike the norm, even during her Master's program, she was encouraged to ask the whys and the hows and given the freedom to find the answers. Building on this foundation, Parul chose and joined a PhD program at NII among others that she had qualified for. Yet again, this was a decision driven by her love for immunology.

Given a choice between a well-established research group and a new group, Parul joined a new skin biology group at NII as one of the first PhD students. She calls it her fortune to be one of the first in the group— ***"I was fortunate to see the program develop right from scratch. Developing questions, developing resources...it was such a lovely journey"***. The nurturing research environment, which Parul describes as the freedom to ask questions and independence to do things, further forged her research abilities and aptitude. Little did Parul know that this inclination to build something from scratch would eventually lead her to build her own drug discovery company.

Yes! I found a problem!

In the third year of her PhD, Parul faced a dilemma. Neither did she want to get into the grind of multiple postdocs nor did she



want to quit science and research. Meanwhile, her desire to build something from scratch was beginning to assert itself with more urgency. This is when the mundane task of collecting samples from patients with vitiligo turned into a eureka moment. Parul vividly remembers, ***“People who came to give their samples were so hopeful that a cure will be found. They were so unhappy with their condition. They were desperate for a treatment.”*** Parul had found her ‘problem’.

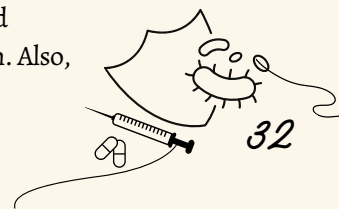
It seems the stars aligned for Parul’s entrepreneurial endeavor because her doctoral thesis supervisor Dr Rajesh S. Gokhale is a scientist-entrepreneur himself. ***“Having seen both sides of the world, Dr Gokhale helped me with my transition into entrepreneurship”***, says Parul. In addition to this guidance and the support of her family, Parul was careful to begin preparations for the challenge that lay ahead of her plunge.

Journey of ‘What ifs’

With the transition of its lead candidate drug to the human clinical stage, Ahammune Biosciences is positioned to be the first drug discovery company in the country to develop a targeted therapy for vitiligo. The startup has successfully raised equity investments and received government grants. There has been no dearth of recognition and encouragement. However, Parul’s definition of success is much simpler—the drug should work. Regardless, she acknowledges how every step towards this goal is an achievement for her and her coworkers. She adds, ***“Even getting the first equipment for the lab was a success for us; we celebrate each small thing.”***

When we asked Parul if luck had a part to play in her journey, she smiled and said, ***“Luck favors the prepared mind.”*** And we could not agree more! Parul adds that every step has been a struggle. When Parul decided that she would start a drug discovery company, she had never written a business plan. Once the decision was made, there was a long period of rigorous preparation. Talking to the right people and arming herself with information helped. As we chat more about her challenges, Parul cautions that nothing can prepare one enough for real-world experience. ***“It was like having to learn how to swim while being in the ocean.”***

Today, Parul fondly remembers this early phase of setting up the business as having been punctuated with ups and downs. In a career switch from the academic lab bench to entrepreneurship, there had to be a learning curve. Developing a business plan, setting up a lab, building a team, mastering an elevator pitch, and understanding legal jargon—everything had to start from scratch. Also,



a scientific enterprise comes with its unique set of problems: the chance of failure is high, significant investment is required, and the investor base interested in scientific companies is limited.

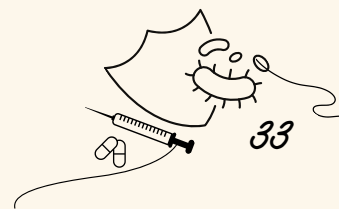
In Parul's own words, drug discovery is a journey of 'What ifs'. There are multiple steps to the final goal; and success at each step is followed by the question: What if we fail at the next step? Drug development takes years and is very expensive. Arguably, it has one of the riskiest product development programs with no money being made in the first few years. ***"You do not know if you are finding the right answers or the wrong answers till your product enters human trials, phase III. Drugs fail all the time."*** These words of Parul put the word 'risky' in the right perspective for us.

The scientist entrepreneur

While entrepreneurship as a career is everyday business for engineers in the Silicon Valley, it seldom crosses the minds of newly-minted PhDs, especially in India. Parul believes researchers need training early on in their PhD journey to start thinking along entrepreneurial lines. ***"We are now moving in the right direction"***, Parul adds as she talks about incubation centers being set up at research institutes to train students and support their entrepreneurial ventures. Excitedly Parul talks about the complementary mix of skills found in academia and industry and the wonders that would be possible through their collaboration. Science and business may be labeled as two different worlds, but in reality, there is much overlap! A researcher building a thesis upon a hypothesis is almost like an entrepreneur building a business upon an idea.



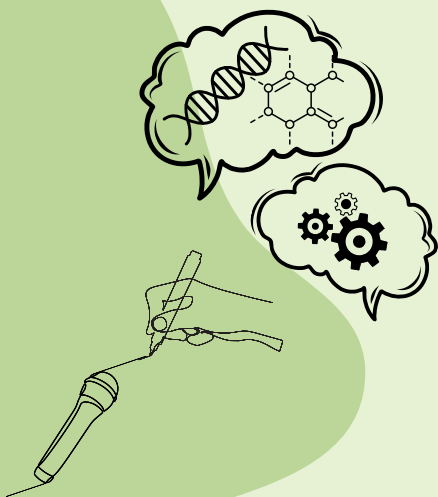
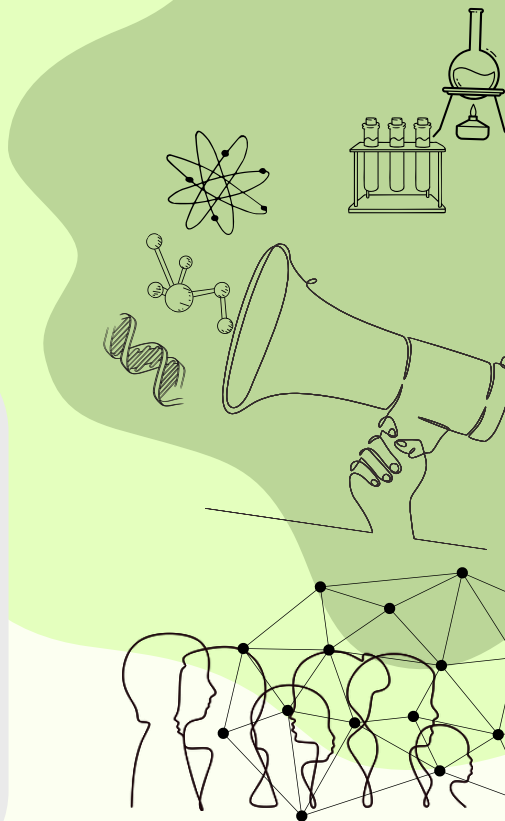
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Sarah Iqbal

Science is for everyone



“We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.” It’s been close to three decades since Carl Sagan, the American astronomer who said this, passed away. But things haven’t changed dramatically, have they? When we sat down to interview Sarah Iqbal, now an independent Science Engagement Consultant, her thoughts resonated with this quote. Sarah started out studying chemistry, then getting a PhD in biochemistry, which was followed by postdoctoral training in drug discovery, before she shifted gears to becoming a science engagement practitioner. Over the course of an hour, she let us pick her brains on what drove these shifts in her career, the learnings so far, and her vision for what’s yet to come.

Laying the foundation

Even as a student in the 10th standard in school, Sarah knew she wanted to go to Delhi University’s St. Stephen’s College for her undergrad. ***“I knew someone who had studied at this college and her personality really left a mark on me”***, she highlights how one can build role models from different life experiences. At home, there was no pressure from her academic parents towards picking science as a career. However, ***“critical thinking and a scientific outlook were underlying principles in our discussions as a family”***, Sarah is quick to add. She also reminds us that back in her time, arts, humanities and commerce were still considered as options meant only for those who couldn’t make it to the science stream. However, Sarah was caught in a fix because while she was inclined towards biology, St. Stephen’s didn’t offer an undergrad in the subject. It was then that her father – himself a professor of chemistry – made her decision easier: ***“It’s important to have a strong foundation in the fundamental sciences. You can later easily switch to the allied ones like biology.”*** While subsequently pursuing her Bachelor’s in chemistry, an internship at the Centre for DNA Fingerprinting and Diagnostics (CDFD, Hyderabad) gave her a flavour of what happens inside a biology lab. In her final year of college, Sarah applied to Oxford University for their Master’s and PhD programs in biochemistry. Her efforts at finding the right lab matched her with a professor who was looking for someone with a background in chemistry.

During her PhD, apart from getting trained in scientific research, Sarah made sure to also have experiences beyond the lab bench. She credits her PhD mentor for her well-rounded development. ***“In hindsight, my PhD supervisor was the one who inculcated not just scientific rigor, but also transferable skills like data organization and analysis, project management, communication, etc.”*** Towards the end of her PhD, while Sarah felt that the skills and knowledge gained here could be used to make a more ecosystem-level change back home, she also wasn’t ready to ‘settle’ yet!



“The sentiment of contributing to the Indian science ecosystem was growing, but I also considered science to be a global endeavour.” Further, after exposure to such a high-quality research environment, the prospect of setting up something of her own felt hugely challenging.

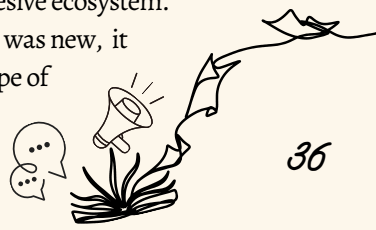
Not a light-bulb moment

Sarah graduated with a PhD in three years and realised that she wanted to spend some more time learning the ins and outs of scientific research - generating ideas, applying for grants, mentoring people, and so on. So, she took up a postdoc position at The Scripps Research Institute (Florida, USA), making the switch from basic research to a more translational field in a drug discovery setup. Her postdoc experience brought on her shift in perspective on the connection between science and society. Unlike in the university systems that she had exposure to, Scripps was aided by many philanthropic initiatives. This meant interactions with the donors about ongoing research. Also, the institution was fairly new at the time, so they would constantly reach out to the community to maintain relationships with them. ***“Earlier, I had a very bubble kind of vision for science. Here, I realised how both science and society could transform each other.”*** Sarah slowly started getting interested in public engagement with science, but it wasn't really a light-bulb moment. ***“As a person, I need to constantly learn, grow and face new challenges, but there was no defining moment where I thought ‘Let’s move to public science engagement’.”*** Or maybe, there was a moment waiting for her.

Winds of change

Sarah was following updates from a fairly new organisation back home in India – the DBT/Wellcome Trust India Alliance – and found it to be interesting, owing to their different research funding paradigm, with both local and international elements. The organisation advertised for a Public Engagement Officer and the expectations from the role involved improving the visibility of the organisation, conducting science outreach events, starting a newsletter, etc. It was here that her experiences of getting involved in a lot more than just research during her PhD and postdoc came in handy. Sarah prepared an application package in just a few hours and the rest followed.

After joining India Alliance, Sarah recalls realising that the science communication efforts in the country were scattered – she felt the lack of a cohesive ecosystem. She also reminds us that since her role at her own organisation was new, it involved a fair deal of heavy lifting on her part to define the scope of



the position itself. ***“I was juggling a lot of responsibilities, also because I wanted to learn.”*** Sarah is quick to clarify that these challenges come with the territory of any newly minted role. Sarah motivated the India Alliance-funded researchers to engage in science outreach, share lay summaries of their research, and talk to the media. She also conceptualised, found partners for, and contributed to public engagement projects on topics as diverse as the food security agrarian crisis and mental health at the workplace. She admits it initially felt difficult, but the winds changed as science communication got more recognition in the country. Sarah worked for the India Alliance for close to seven years, and she credits enablers along her journey, who helped her make things happen. ***“I have to say it was the support from the leadership that allowed me to experiment with ideas, formats and push the boundaries. Also, a very nimble financial setup helped us take the projects off the ground quickly.”***

Engagement fundamental to research

We were eager to get Sarah's insights on the challenges facing the broader science communication or science engagement community in India. She didn't even take a moment to answer this one! ***“We still lack professional recognition and incentives, or for that matter, a definition of the term science engagement itself. It's definitely not just writing annual reports, event reports, or articles on science.”*** Science engagement is so multidimensional that the current working definitions do a poor job of capturing the breadth of it, she believes. She also highlights the lack of funds to better understand public perception or understanding of science. ***“Even at the India Alliance, I had to constantly advocate for the need for public engagement and to recognise it as an integral part of funding or doing research.”***

Sarah left her full-time job at the India Alliance in search of opportunities to further learn, grow, seek challenges, and contribute to the Indian science communication ecosystem. She is now a Consultant to the Foundation for Advancing Science and Technology (FAST India) and a Strategic Advisor on their flagship event, the India Science Festival. This is in addition to other roles such as faculty member for a Health Communications course and continuing to work on the public engagement projects she co-founded. So, has she found a professional label that she feels comfortable using yet? ***“I'm still confused because I feel a professional label would restrict me. But a large part for the foreseeable future would be to work in public engagement.”***



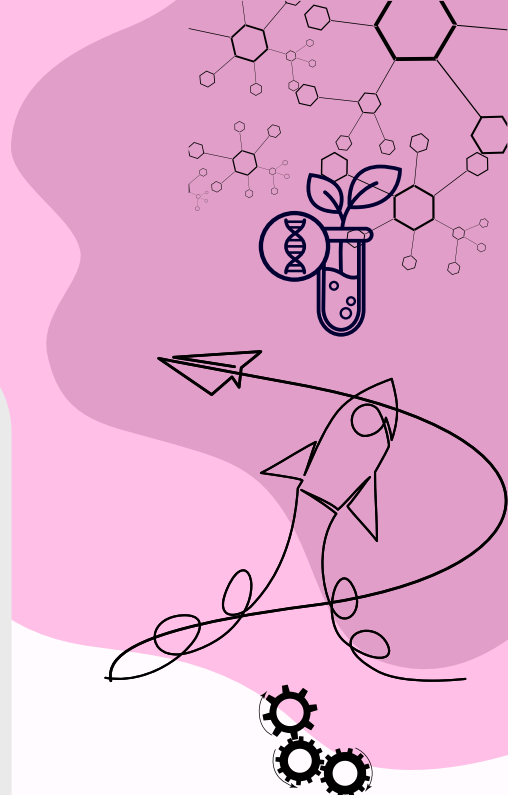
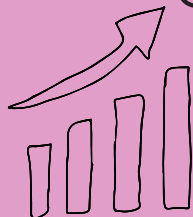
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Swetha Suresh

Helping drive innovation



“The only driver has been how can I grow, rather than what can I grow in.” Swetha Suresh has been clear about this motto throughout her professional journey. She started out studying biotech engineering, went on to do a PhD at Cambridge, and after a stint at IndiaBioscience, now heads the Innovation team at Swissnex in India. We were naturally curious about what drove her career transitions and her articulate answers didn't let us down over the course of this one-hour interview. What came through quite clearly was her growth mindset and that, if you can, you should take up only what you naturally gravitate towards. We have Swetha's word on that!

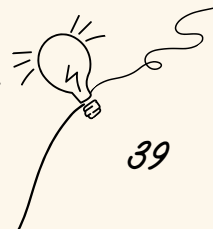
Always up for a challenge

Right from her school years, Swetha displayed academic brilliance coupled with clarity about what she wanted to study. For instance, after topping her school in 10th standard exams, she said to herself, ***“What subjects would be the most challenging ones – let me take those!”*** So, she chose to study physics, chemistry, math, and biology. After finishing school, Swetha cleared both engineering and medical entrance exams. ***“I was really keen on picking medicine, but being the squeamish person that I am, the thought of performing dissections put me off”***, chuckles Swetha. In order to still retain the flavor of biology, she chose to pursue an engineering degree in biotechnology. After graduating in 2007, she realised that there were not many niche companies looking to specifically hire biotech engineering graduates. Swetha applied for PhD positions and got a position at the University of Cambridge, apart from a couple of places in the US. She found that the one at Cambridge would take less time than in the US, which along with the brand value of Cambridge, made for an easy choice.

While picking the institution was a fairly easy call, the finer details remained to be finalised. Swetha knew that she was not inclined to computers and coding, so anything related to bioinformatics was ruled out. She applied to the Department of Pharmacology. Here, she matched with three research groups. One was working on infectious diseases, another on cell biology, and the third on cell-free systems. Again, because of her aversion to animal-based experiments, Swetha found it wise to pick the third one. ***“I know not everybody has a chance to understand what's easy for themselves.”*** Apart from learning the nitty-gritty of scientific research, what Swetha learnt here was a strong work ethic. ***“My supervisor taught me that no matter what result you get, what matters is if you did the job well and made a clear argument,”*** she remembers fondly.

Everything else is alternate, really?

Swetha completed her PhD in three years with four first-author publications.

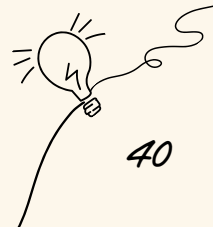


When she started this journey, her original aspiration was to become a professor. She was only 24 years old when she graduated and had a realisation. ***“Most of my peers and I wanted to be in high-growth careers, and I felt that academia didn’t offer a high-growth trajectory.”*** Her supervisor was a bit disappointed, but that was because he thought she was doing really well in academia, and not to hold her back from her aspirations, Swetha believes. ***“Tell me how many PhDs are produced in any part of the world and how many of them end up being a Professor. It’s a fallacy to believe that is the path and everything else is alternate. In fact, I’d argue that academic faculty is, in fact, the alternate career.”***, she states matter-of-factly. ***“I’m not denying that there are some really motivated people in academia, and I completely appreciate that.”*** But, one shouldn’t be driven by the sunk cost fallacy that if you’ve invested 5 years into a PhD, you can only build on that by becoming faculty, clarifies Swetha. Another thing that Swetha was sure about was eventually moving back to India. It might be hackneyed, but Swetha completely swears by ***“Follow your heart and everything falls into place.”*** So, she moved back to India with her first job at the then fledgling IndiaBioscience.

At IndiaBioscience, Swetha was the first hire. So, her responsibilities revolved around helping the vision find its wings. The goal was to pull together the Indian bioscience community and draw a charter into which its goals were incorporated. What transferable skills from her PhD helped Swetha? She responds with a harsh truth, ***“People need to respect you for them to listen to you. Having strong credentials from my PhD helped because they couldn’t look at me like someone who took up the job only because their PhD went south.”*** Also, her strong networking skills and the ability to drive innovation to create on-ground impact were indispensable here. Swetha also makes a point about how learning new skills never stops. ***“I also learned how different skills and professional relationships work”***, which she needed while navigating the administrative details at a budding organisation.

In the business of innovation

Swetha has now completed seven years at Swissnex India. So, what does her work entail as the Head of Innovation? ***“I lead a team where 50% of our bread and butter is to help ten Swiss startups in internationalising every year to India.”*** These startups must be doing something in deep tech, ***“so a simple e-commerce platform won’t count.”*** Apart from this, they also help larger organisations that are scouting for technologies in new markets. The rest is a part of the diplomatic efforts of Switzerland in India. When we asked Swetha about a typical day in her life at work, she quipped ***“More than a day in my life, it’s more what a month in my life looks like, because every day differs in terms of priorities.”***

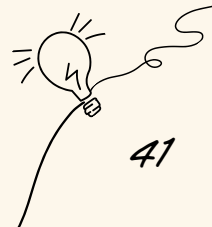


The work involves managerial abilities and thought-leadership, where she divides work amongst herself and everyone in the team. As a part of her job, she is also responsible for stakeholder management and reporting key performance indicators. Swetha reminds us of a skill that comes in handy while managing all of this, ***“You need the ability to say no to work beyond your domain.”***

The one gem we always try to mine out of our interviewees is their advice for a fresh PhD graduate looking to enter their field. ***“I think demonstration is everything when it comes to job interviews”***, Swetha states emphatically. She is of the belief that while having an active interest in the field is wonderful, it’s the ability to understand what the job entails and putting it into context that really matters. ***“Technology is one aspect, but design, aesthetics, branding, marketing, etc. are also a huge deal!”*** Swetha learnt this on the job, and wishes to see more candidates that appreciate this before taking the plunge. ***“This is especially important because a PhD inculcates the habit of going deep into a niche, whereas scouting for innovation needs you to appreciate the breadth of things”***, Swetha signs off.



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With support from Premas Life Sciences, this book features inspirational career stories of diverse science professionals working in India. The stories capture their unique career journeys, including turning points along their career transitions, or their 'I realised I wasn't interested ...' (IRIWI) moments.





जैवप्रौद्योगिकी विभाग
DEPARTMENT OF
BIOTECHNOLOGY

IRIWI: I Realised I Wasn't Interested ...





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