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â€œPicking up science is a lot more difficult than picking up businessâ€?

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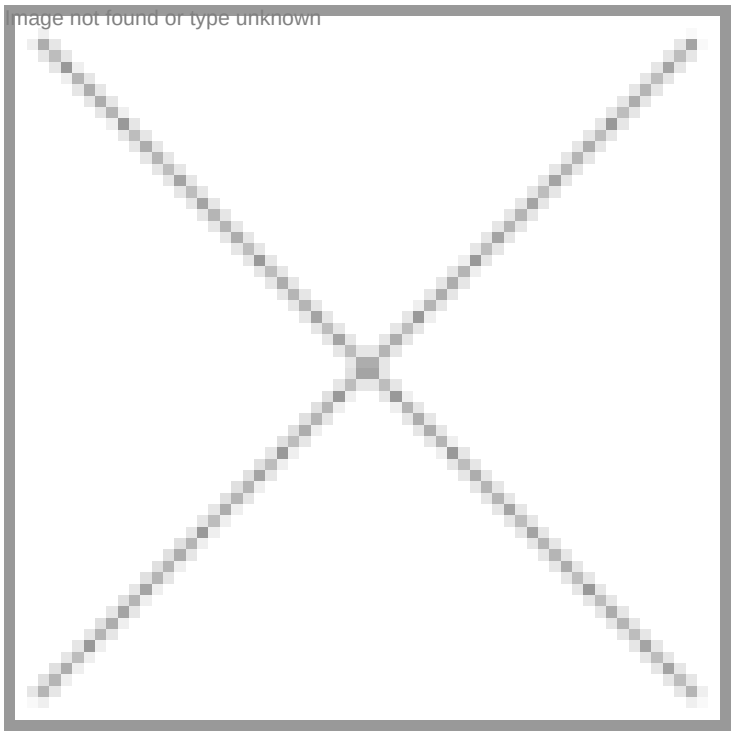

"Picking up science is a lot more difficult than picking up business"

-Sir Gregory Winter, joint head, division of protein and nucleic acid chemistry, Laboratory of Molecular Biology, Cambridge

Sir Gregory Winter is a British pioneer of therapeutic monoclonal antibodies. He invented techniques to both humanize (1986) and, later, to fully-humanize, antibodies for therapeutic uses. Currently he is the joint head of the division of protein and nucleic acid chemistry-biotechnology at the Laboratory of Molecular Biology, Cambridge, an institution funded by the UK Medical Research Council. He is also the deputy director of the MRC's Center for Protein Engineering. Sir Gregory Winter was knighted in 2004. He is a Fellow of Trinity College, University of Cambridge.

P Chitra, a microbiology student of Kolkata-based Lady Brabourne College, chatted up with Sir Gregory Winter when he was in the city recently to deliver the first of the "Sir JC Bose Memorial Lecture" series at West Bengal Institute of Technology. Some excerpts:

What has been the most challenging part of antibody engineering?

In the early days, it was having the ideas for the technology and then getting them to work, especially when you are not really sure whether they will work. It has taken me most of my life, and it was certainly challenging.

What do you think is the next big question that remains to be explored in your field?

I don't know if there is a big question that remains to be explored in the field of antibody technology. The major remaining issues relate to target selection rather than the technology. The technology already does the job. If we take the wider field of biologicals, I think there is still a lot more that could be done with vaccine technology. I don't think that our knowledge of modern immunology has yet had the impact in vaccine development that it has had in the field of antibody drugs.

Is this a good time for amateur entrepreneurs in the bioscience industry?

Yes, I think it is a very good time for amateur entrepreneurs. Especially for a biologist with little or no knowledge of business, provided you are prepared to keep an open mind and learn about other areas. Picking up science is a lot more difficult than picking up business. So you are in a better position than someone from business trying to get a grip on science. Besides, the whole field is exploding. There are a huge number of opportunities, important things to do, and technical problems to solve whether it is medicine or food- you can make a huge impact.

What is the advice you give to someone who would like to start a venture?

You need money, and must be willing and able to contribute expertise, ideas and hard work.

The money is usually the first hurdle. In India, I understand that it can be difficult to get money for company start-ups, as banks are not used to funding biotech and want security for their loans. However, my advice is to try to get venture funding, and do not put your own or family money or property into a venture. You will have to put in your ideas, time, labor and reputation anyway, and that is enough. Don't risk losing everything. I've never put any money into any of the companies that I have set up. So if the investors want you to put in anything more than a nominal amount, then you should probably find another group of investors.

Venture funds will invest in you, and without security, because the gain they make is so huge that it is worth the risk. However, they do need to believe that you will deliver. So you will have to think through your ideas carefully, come up with a business plan that makes technical sense and be able to present it well. Venture funds also want to be sure that you have the capability to inspire other people, and can sell a vision if not a product.

So make sure you present well. Have a simple story. If it is too technical they won't understand it. Pitch your plans at a simple level, and have a series of pitches for two minutes, five minutes, 10 minutes but no longer than that.

Also, don't take 'no' for an answer, for you will be declined many times. You just simply have to try and try again. Try to learn why people are not interested and their concerns.

Find out why they didn't invest in you. The best thing to do is get them involved, give them your ideas and let them help you shape the ideas. You have to be flexible enough and able to adapt to a changing market.

What is the best advice you have been given and can offer?

The best advice I got was probably from Fred Sanger. When I asked him about experiments that weren't working, he said, "Usually, you just have to fiddle around with the conditions to get it to work." That was a wise and simple bit of advice because quite often you can be put off when things don't work and things rarely work the first time or the second or the third, you just have to fiddle with them till you get the conditions right.

The other good advice I got comes from my old supervisor Brian Hartley. "Focus on important problems". It is often interesting and exciting to see what happens in an experiment, but it's much better to be working on something that is really important. So chose your science to address important problems.

I haven't yet come up with any advice that I could give that is likely to be as useful as the advice I have been given. However I would add. Try to be original and creative, and see the problem all the way through.

Do you have a scientific role model? If so who and why?

I have been lucky at the MRC Laboratory of Molecular Biology in being able to rub shoulders with several heroes, including Crick, Brenner, Perutz, Klug, Sanger and Milstein. Of these Sanger and Milstein had the greatest effect in shaping my early career. Sanger was a great man but very understated. He never pretended to be a great intellectual, but in reality he was. He would ask questions that were penetrating, at first sight so simple but so penetrating, that you soon began to realize the flaws

in your half-formed ideas. He would quickly cut to the core of a problem. He was a wise old man with a very light touch who encouraged independent thinking.

Milstein mentored me through my tribulations with antibodies. The MRC had made a mistake in not patenting monoclonal antibodies; the Establishment blamed him even though it wasn't really his fault. Milstein had no intention of the same thing happening again. So we made sure that the technology was patented, and that the MRC were aware of its potential at the highest level. We then had to make sure that the licensing policy developed by the MRC would stimulate the development of as many new drugs as possible. We were both learning on the job, and there were arguments about the best course. Milstein hated confrontation but had huge moral courage, and would never give way if he thought something was wrong. He had a strong Argentinian accent, but his written English was very good. He was very particular to find exactly the right words to convey his meaning, and made sure that ideas were written up rigorously. I learned a lot from him.