

TEACHER'S ACTIVITY REPORT 2019-2020

FACULTY: Science

DEPARTMENT/ COMMITTEE: Biochemistry

IQAC ACTIVITY No: SVC/2019-20/BIOCHEM/SOC/3

NAME OF THE ACTIVITY: Interview with Prof Venkataraman Ramakrishnan, Nobel Laureate, Cambridge University, England

DATE	FACULTY	DEPARTMENT/COMMITTEE	COORDINATORS NAME
December, 2019	Science	Biochemistry Biochemical Society "Catalysis"	Dr. Nandita Narayanasamy Dr Anju Kaicker Dr. Shalini Sen
TIME	VENUE	NUMBER OF PARTICIPANTS	NATURE: Outdoor/Indoor
11:30 am – 1.30 pm	Oberoi Sheraton Hotel, New Delhi	3 staff and 4 students	Outdoor
SUPPORT/ASSISTANCE:	No Funding		

BRIEF INFORMATION ABOUT THE ACTIVITY (CRITERION NO.- II, V and VII):

TOPIC/SUBJECT OF THE ACTIVITY	Conduct of an interview with an eminent personality
OBJECTIVES	<ul style="list-style-type: none"> To provide students with the opportunity to interact with a Nobel laureate in the chosen area of science and technology. Train them in the conduct of an interview and to translate the interview into a published document after proper editing
METHODOLOGY	<ul style="list-style-type: none"> Screen for a suitable personality for the given subject. Obtain their consent for the interview and fix a convenient place and time. Conduct the interview with prepared and extempore questions. Write, edit, format and publish in the Department Annual magazine 'Expressions'.
OUTCOMES	<ul style="list-style-type: none"> Students learn the importance of background reading required to conduct an interview. They appreciate the discipline and decorum necessary when interacting with scientists and administrators in a professional space Hands on experience in journalistic skills. Positive encouragement and inspiration towards higher education and research.

PROOFS & DOCUMENTS ATTACHED (Tick mark the proofs attached):

Notice & Letters	Student list of participation ✓	Activity report ✓	Photos ✓	Feedback form
Feedback analysis	News clip with details	Certificate	Any other	

IQAC Document No:	Criterion No:	Metric No:
Departmental file no	IQAC file No;	

NAME OF TEACHER & SIGNATURE	NAME OF HEAD/ COMMITTEE INCHARGE & SIGNATURE	IQAC COORDINATOR (SEAL & SIGNATURE)
Dr Nandita Narayanasamy Dr Anju Kaicker Dr Shalini Sen	Dr. Vandana Malhotra Teacher in Charge Department of Biochemistry	Dr. N.Latha IQAC Coordinator Sri Venkateswara College

For Reference

Criterion I	Curricular Aspects (planning & Implementation)	Criterion V	Student Support & Progression
Criterion II	Teaching Learning & Evaluation	Criterion VI	Governance
Criterion III	Research, Innovations & Extension	Criterion VII	Institutional Values & Best Practices
Criterion IV	Learning Resources and Infrastructure		

Proofs:

- **Photo**



The editorial team had the extreme good fortune of having an interaction with **Nobel Laureate Professor Venkatraman Ramakrishnan** in his hotel suite at the Oberoi. The interview lasted for around 1 hour and it has been published in the magazine.

- **Interview Report**

An hour with the man behind the ribosome



Professor Venkatraman Ramakrishnan is an Indian-British-American Structural biologist. He was born in Chidambaram, Tamil Nadu to C.V. Ramakrishnan and R. Rajalaxmi. After graduating from Maharaja Sayajirao University of Baroda with a Bachelor of Science degree in Physics, he obtained his PhD in Physics from Ohio University. He spent two years studying biology as a graduate student at the University of California, San Diego. He worked on ribosomes initially at Yale University and later at Brookhaven National Laboratory and University of Utah. Since 1999, he has been a group leader at the MRC Laboratory of Molecular Biology in Cambridge, England. He shared the Nobel Prize in Chemistry with Thomas A. Steitz and Ada Yonath in 2009 "for studies of the structure and function of the ribosome". He is currently the President of Royal Society (elected in 2015). Besides determining the complete molecular structure of the 30S subunit of the ribosome and its complexes with several antibiotics, Professor Venki has also worked on histone and chromatin structure.

'It was our dream in this edition of the magazine to have an interview with a Nobel Laureate. With much aspiration we mailed both Prof. Yoshinori Ohsumi and Prof. Venki but unfortunately we received a negative response. Serendipitously, we got to know Prof Venki was visiting AIIMS for a popular lecture. This time when we approached him, he happily agreed and in his graceful presence at his hotel suite at the Oberoi, we had the good fortune to spend an hour with him.'

We, as aspiring researchers, have seen a lot of your interviews and you are extremely passionate about what you do. Where does your passion for science come from?

The passion for science is something that grows naturally. One has to be somewhat interested in science before actually going into it. I could have easily gone into engineering or medicine but after being a recipient of the national science talent scholarship and not being able to get into any of the IITs or Christian Medical College, I decided to pursue the line of basic science because of my interest in mathematics and physics.

Was there any particular reason for your transition from the field of physics to biology?

The interest in biology came at a much later stage for me, I did my PhD in physics and only during that time did I realize that this is not something I would be able to continue for the rest of my life. Shifting to biology was a rather huge transition for me, since I had to take courses of 2nd year undergraduates like molecular biology and cell biology even during my PhD. The thing about biology that interested me was the fact that there were still fundamental discoveries being made in this field which would give me an opportunity to contribute something worthwhile to this field.

Sir, how would you describe yourself as a student?

During my graduation, I was a diligent student who used to complete his work on time but during my research when I started to lose interest, I indulged more into my hobbies and other extracurricular activities. I was never a student who was just into books. I had various hobbies and I feel it's necessary to have such hobbies as science is very hard and sometimes you just need some time off to have a different way of looking into the problem.

Sir, Science is something that is considered very serious, how important is it for science to be fun?

I feel science should always be fun. If one is not having fun, one should not be doing it. Life is too short for us to be doing something that we do not like. The day-to-day activities in science can for an outsider seem very tedious and boring, particularly in the case of biochemists, where something like pipetting would seem as if we are transferring one transparent liquid to another, but we as scientists have some problem in mind for



How important is it for scientists to have a good sense of humour?

'I think everyone should have a sense of humour. I know scientists who have no sense of humour, and are very serious and totally humour less.'

which we are looking for an answer and this would be somewhat like detective work for us. If we are not having fun in tackling a problem then maybe we are not looking at the correct problem.

In India, particularly for the school kids the system makes science to be so serious and not at all fun. Do you feel that is what is pulling kids away from science?

That is absolutely correct, science is being taught as a route to collection of facts, where students mug up things for the examinations which they promptly forget afterwards. Science on the other hand should be taught as an exploration of facts where facts are discovered through experiments, projects or even answers to a particular question. There are different teaching techniques which professors utilize, one such is by Professor Eric Mazur of Harvard who actually never takes any lectures, and the lecture material is given beforehand to the students. In his class he gives a problem with generally two choices and allows the students through healthy discussion and debate, to come up with the correct choice. This allows the concept to stay in one's memory as it is something that one had arrived through logical reasoning.

While growing up, were you influenced by any particular researcher or any individual whom you had aspired to be like?

During my early days, I was particularly intrigued by Richard Feynman and his Feynman's lectures. Being an Indian, there were the likes of Ramanujan and Chandrashekar whose works I also followed. Marie Curie, was someone I had admired, as in those times women didn't get any facilities in science and still she worked with her husband and went on to win two Nobel prizes, one after the death of her husband. That is something truly amazing. In biology, Francis Crick was someone I followed but James Watson, particularly, really influenced me. I was truly intrigued by his book "Double Helix". Before that book, biology was seen as something with too much learning but even though the book was a controversial one it showed that biology is more about reaching to the answer than actually testing one's memory power.

Sir, how do you consider the competition in the scientific world? Is it a healthy one?

Competition is good for science but not for scientists! For scientists, it is very stressful and if the competition becomes the only driving force then it leads to unhealthy competition. Competition is a natural phenomenon in the scientific world since no single idea is unique to a particular person or group. If one group has an idea there would be a dozen more such groups thinking about the same idea. Though for science competition leads to faster results with good efficacy, without it there would be monopoly which would lead to unsatisfactory answers and sluggish work.

How do you stay focused on your research work? You must be getting a lot of calls and invitations regarding lecture and talks. How difficult is it to continue your research?

It has been really hard to balance out the lab work with the administrative duties, particularly after I became the president of the Royal Society. I am not particularly happy with the amount of time that I have been able to give to my lab but I am lucky since my lab is independent enough to be functional even when I am not available. I personally feel a scientist's foremost duty should be to their lab since there are many students who have put their career in their hands.

What qualities do you look for in a candidate before you hire them?

The student should have reasonably good grades. The second thing that we look at is how much effort has the student invested in pursuing research in their area of interest. The third thing: why are they interested to come to my lab? There has to be a good reason other than I am well known. Why are they interested in the problem? What do they hope to get out of it?

Do you feel restricted access journals stand in the way of open science, especially for budding scientists from institutes that do not have much funds to invest?

The world is moving towards open-access journals. The agencies that fund research projects feel that there should not be a price to access the work already funded by them. There is a big movement towards open access journals which serves to level the playing field.

But there is a downside to open access journals, as we witness a rise in paid publications which are not of very good quality. How should that be countered?

Yes, that's a very big problem. Open access is simply a state, it doesn't reflect quality. There are hundreds of journals, simply set up on a computer server, which simply publish papers at a cost of about 500 dollars. The average public cannot simply distinguish predatory journals from real ones on the basis of their name and editorial board as these fake journals have very scientific names and often pay people to be on their editorial board. But people in the field can distinguish and therefore they wouldn't publish their work in such journals. A cause for rise in predatory journals is the temptation faced by researchers to focus on the number, rather than quality, of the research papers published. This is because often more papers in CV are rewarded by institutes with promotions, highlighting the poor management on behalf of research institutions.

Why did you choose to study the ribosome structure?

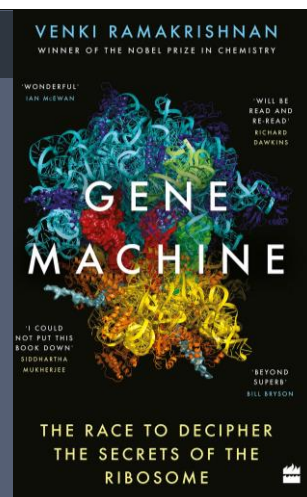
It was completely accidental. I read an article about ribosomes in the "Scientific American". So I wrote to authors of the article and asked if I could work under them for a Postdoc. But I still had to decide if the subject was worth pursuing. So it was a combination of an accident and an actual decision.

Everybody says you have to ask a unique question and keep pursuing it. But what about reinventing the wheel? Usually, it's not encouraged to go through the same question in a different way.

There are pros and cons to it. If you approach the same question in a different way, you have to at least change something. The end result should be that you have come up with a better technique of doing something or one has learnt something that wasn't known before.

Professor Venky is also the author of the book 'Gene Machine: The Race to Decipher The Secrets of the Ribosome'. The book describes his journey from his early days, everything in between to his current research works. He also shares some beautiful experiences about his life journeys in his book. If you have not read the book, we don't see any reasons on why you shouldn't!

PS: If you are lucky enough, you might also get his signature on your book the next time he visits India!!



How important do you think rejections are especially to students like us who are prone to failure? What value should we put in these rejections; how should we move forward with them?

If you are doing science, or anything, it's very hard to not take a rejection personally. Because ultimately someone is saying: you're not good enough. I think you need to have an inner psychological strength. A good example is business people. For instance, in a shoe store, for every 10 customers that walk

in, 9 will walk out without buying anything. If the retailer takes every one of them as a rejection, then they won't last in business. So if while pursuing a subject of interest, things don't work out, one should try other methods. When I applied for university jobs after my Postdoc, I was rejected 50 times. The only job I got was because my professor knew of a job that required my expertise. But I had back up plans as well. I had thought of being a computer programmer or a high school teacher. So, you need to have in mind what else you can do if your main goals don't work out.

"Four months before the Nobel Prize, James Watson told me that I shouldn't worry about the Nobel Prize."

What was the first thought that crossed your mind when you received a call informing you that you won the Nobel Prize?

I didn't believe it for complicated reasons. One is that, often other prizes are awarded for making contributions in science, but most of them had gone to other people. So I thought that maybe I would be left out. Maybe the community didn't think that I was one of the important contributors. Another reason was that I had an argument with a person who ended up being on the Nobel Committee. So, I thought I won't get it. But it turns out to be that he is a very modest guy. Four months before the Nobel Prize, James Watson told me that I shouldn't worry about the Nobel Prize. [laughs]

Whose work in India do you closely follow?

There are very few people in my field that I follow, one of them is in the Indian Institute of Science. There are many good scientists in India, many of them are Fellows of the Royal Society and of US National Academy. But the fall off is quite dramatic. In India, very few institutes perform work of international caliber. Beyond these elite institutions, the quality of research falls. USA has 50-100 universities that are doing first grade work and even a smaller country like UK has dozens of university which are doing good work. A populated country like India, with more than a billion people, should have many such good institutes. The government should realize that there is a direct link between R&D and future prosperity. Politicians tend to think in 3-5 year frame cycle, because they are worried about re-election. They invest more on aspects with immediate visible outcomes like roads and healthcare. But they have to set some money aside, like a farmer has to sacrifice some part of his/her income by setting aside seeds for the next crop. So, there has to be some investment for the future.

Last semester we studied about protein translation, the various factors involved and how the subunits are assembled; we felt that everything is already done. But since you are a pioneer in this field, what do you feel remains to be done?

There are a lot of things we need to understand: the working of mitochondrial ribosomes; how ribosomes in eukaryotic cells initiate translation; regulation of initiation by factors and by things that control those factors; the regulation of ribosomes; and a detailed understanding of ribosome assembly. So there are many things still left to learn. It will carry on for long even after I have left the field.

Why do you think India is still lagging behind in Science compared to the western world?

There was science everywhere for centuries all over the world. However, if you think of Modern Science originating in the 16 -17th century, India had never actually caught up. The latest wave of science, started in Europe with Newton's laws, Galileo, the discovery of the cell, and so on. Thus Europe had a head start. But some countries have made amazing efforts and have almost caught up, like Japan, South Korea and China. One of the reasons India lags is because it doesn't invest enough in Science. The average investment of the advanced countries is 2.4% and Indian investment is only 0.7% of their GDP. That's 3-4 times less investment, in relative terms of percentage. In terms of actual numbers, it would be even lower, as countries like USA and China have higher GDP than India. Private R&D in India is very, very low. In most countries, Private to Public ratio (in R&D) is 2:1. But in India, it's more like 1:2. So India has to improve private R&D and the government has to catalyze that by measures like providing incentives. Not all people with PhD can be professors, thus the industry would generate jobs for them as well.

We as teachers have this issue that Social Media has created quite a disruption in learning processes. There are too many distractions, no personal communications. The psychological health of students is being affected.

That is a big problem. I am not on Facebook or Twitter. But I do notice Indians are constantly on Whatsapp. Long text exchanges can lead to misunderstandings. A face-to-face conversation involves non-verbal communication as well, one can notice the person's expressions, whether they like/dislike something, one can quickly adjust. But on social media an argument seems like people are shouting on text on each other. Every kind of technology was considered a disease at its time, maybe we have to learn to manage it. We have to make sure we have time to actually talk to people. Today I feel there's isolation. In the old days, there would be three or four newspapers and one or two TV channels, so everyone would have the same information. They didn't have multiple sources of information. Even for movie, everyone's watching different things on Netflix or Youtube which also leads to some kind of fragmentation. But people would argue they have more choice. They're not stuck watching 1 horrible movie [laughs]. There are advantages and limitations. One thing college can do is encourage students to work together on projects, as real science often involves team work. Encouraging team work is a good idea, it also prevents isolation.

If given a chance, what message would you want to deliver to your younger self or to us students?

[laughs] That's a question almost everybody asks. I am quite happy with my life. But one thing I would say is, try to do things that you really care about and don't waste time on things you don't care about. It's a fairly simple thing, but it can affect the way we act. A lot of times we do things we simply don't care about, mostly due to some sort of inertia, we don't want to change.

And with this final question, the one-hour long conversation came to an end. We didn't even realize how swiftly the time passed. We wished for it to go longer but amid his committed schedule, we had to bid him our farewell. No wonder they say every good thing comes to an end. But before we left his suite, Professor Venki offered us a bowl of chocolates with a beautiful smile on his face. Along with the memories of the conversation about all his experiences, the take home message for us students was always to remain humble no matter how big a feat you achieve!

The Team!!!!!!!



From Left to Right:

Dr Shalini Sen, Professor Venki

Ramakrishnan, Dr Nandita

Narayanasamy, Dr Anju Kaicker,

Sumeru Panta, Subhro Basu, Saruby

Sharma and Gurleen Kaur

Attendance :

Date: Dec 2019

Time: 11.30 -1.30 pm

Venue: Oberoi Sheraton Hotel, New Delhi

Criterion No: II/V/VII

Sr. No.	Name of the student	Group
1.	Sumeru Panta	BSc (H) Biochemistry III yr
2.	Gurleen Kaur	BSc (H) Biochemistry III yr
3.	Saruby sharma	BSc (H) Biochemistry II yr
4.	Subhro Basu	BSc (H) Biochemistry II yr



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Dr. Padma Priyadarshini
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Department of Biochemistry

Shri D. Venkat Ramana
A.O(I/C)

This is to certify that the Activity report (Teacher/Department /Society/Association) has been submitted for documentation to IQAC, Sri Venkateswara College, University of Delhi.

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