CELEBRATING A CENTURY OF HKU'S RESEARCH EXCELLENCE AND BEYOND

AN INTERVIEW WITH PROFESSOR VANHOUTTE, PAUL MICHEL GEORGES REMI

Professor Vanhoutte served as Secretary-general and President of the International Union of Basic and Clinical Pharmacology (IUPHAR). He is currently Chair Professor in the Department of Pharmacology and Pharmacy of the University of Hong Kong. From 1992 to 2002, he served as the Vice President of Research and Development and the Director of Discovery Research at the Institut de Recherches Internationales Servier in Courbevoie (Paris, France). During his tenure as Director of Discovery Research at Servier, he supervised the discovery and preclinical development of drugs designed for the treatment of cardiovascular diseases, diabetes, obesity, central nervous system disorders, cancer, and osteoarthritis. Highly cited for his works, his major scientific contribution has been to appreciate and analyse the importance of endothelial cells in the control of the underlying vascular smooth muscle in health and disease, and to highlight the complexity of that regulation.

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1. Could you please share with us briefly about your key research areas?

Well, for the last 40, almost 50 years, my research has focused on the blood vessel wall, so I would characterise myself as a vascular biologist. That is somebody who tries to understand and possibly, from a therapeutic perspective, improve the function of the blood vessel wall. That is basically what I do – try to understand how these blood vessels function properly under physiological conditions, what goes wrong during disease, and hopefully how we can improve the ways that you can treat them if they become diseased.

2. How did you become involved in this research, were there any challenges encountered along the way and what motivates you to continue in these areas of research?

That's a long story. During my medical training, I started to work in the department of physiology of my University, in the City of Gent in my home country, Belgium. And I became increasingly interested and intrigued in research, so when I graduated as a MD, I continued and went on to do basic research. The laboratory where I was working at the University of Gent, was a very vascular and respiratory oriented research group. I started off trying to understand how changes in blood volume could contribute to the regulation of cardiovascular function. To try to understand specifically how the veins, the major reservoir of blood in our body, contribute to circulatory function. One thing led to another and I finally ended up working on isolated veins first, then on isolated arteries and so I became a vascular biologist.

Why do I continue to do what I do? Because every time I find the answer to a research question that I've asked, it's only a partial answer and as always in research, such partial answer immediately raises ten more questions. So I keep going! And I'm almost 71, but still as intrigued by what goes on there and try to find a few more answers before I finally retire or take the last long journey.

Research is about the questions that you ask and the tools that you use to find answers to. Often, you are confronted with the fact that the tools that are accessible to you do not provide the type of answers that you want. In other words, improvements in technology always represent a big step forward in science. So as one evolves in a scientific career, one of the challenges is to keep on moving and mastering the new technologies so that you can be there with the pack and still be competitive. And those are challenges, you see, because nowadays, since the description of the human genome, everything is genomic and genetic. At the time when I was in medical school, there was not even a specific course devoted to genetics! And this was a pretty fine medical school, to give you an example, my professor of pharmacology was a Nobel laureate. But a number of things that are on everybody's lips now simply did not exist then in terms of technology. So we have had to learn to master it, to understand the advantages of those techniques but always realise that they are only techniques and technologies, and have limitations. Ultimately, the most important thing in science is the question that you ask and try your best to answer it. That's how we proceeded.

TR : Because your research is of interest to a lot of people, so in terms of funding, were there any issues?

There are always issues, money does not stream in. There have been hard battles and very disappointing moments when grants were not funded. Everyone goes through that – papers get turned down, grants do not get funded. Those are difficult times but you have to get over it. And if you are wise, you do not depend on one grant. You try to have several rolling at the same time so that you always have a little safety net to work on and continue your research. In terms of career, when you run into a relatively dry period of funding, those are tough times. We know that when we go into research, we know that even if we are brilliant, our papers will not be accepted automatically, our grants will not be funded automatically. It is all part of the game, and the peer review system is not perfect but it's the best we can come up with.

3. Why do you think your research papers have been highly cited?

Of course, I am inclined to say: because they are good. If you work in an important area and of course since all our tissues have blood vessels, to be interested in those is important since cardiovascular disease still kills more people than cancer.. If you do the right work and if you are lucky, you will be cited. Let's accept it, in research there is not only hard work. Someone said that research is 5% inspiration, 95% transpiration but there is also a very important part of luck. Louis Pasteur, one of the founders of modern science, already said that luck only favours the prepared mind. Everybody is lucky in life, most people don't recognise luck. They don't see it when it comes by. You have to grab it and if you get your reasonable share of luck in your research, you'll make a few discoveries or interesting findings and if they are relevant to a number of people, they will be cited. There are two ways to be highly cited in scientific literature – one is to contribute important aspects, the other is to say very stupid things in which case you will be quoted forever! I hope that I belong to the first group.

4. Do they usually describe a new discovery, methodology, or synthesis of knowledge? Could you summarize the significance of your papers in layman's terms?

I would not consider myself to be an inventor properly spoken. I think I'm your typical applied scientist in medicine. I try to understand function and dysfunction. To do so I often bank on the existing knowledge, so that is what is called applied science. But that is extremely important of course, for the better understanding of the mechanisms underlying disease and to improve therapy. I'm not sitting behind my desk designing new chemical formulas to treat disease, you see, what I'm trying to do is to see how we can with the existing weapons do something about disease. And of course in the process, we have been lucky again and bumped into some very unexpected things and those then become our most highly cited articles.

Science is very interesting process. We usually start off by building up a hypothesis. My experience has been that the most interesting findings always were when my original hypothesis was wrong. If one finds something different from what was anticipated, then one bumps into something novel then can move on into the next level of knowledge and understanding.

5. What outcomes or impact on society do you hope to see as a result of your research? Where do you see your research heading in the future?

First of all, I honestly hope that our work over the last 40 years has improved the understanding of the function of the blood vessel wall and has helped clinicians to reach better decisions, better diagnosis and better therapeutic approaches. So that is a very important goal.

Another very important aspect is to look at one's own work with humility. We have to realise that I may be very highly cited now but five years down the line, no one will remember whom I was and what I've done. What pleases me the most from a professional point of view is that if I look back, I had this incredible privilege to work for the past 40 years with some of the brightest young

people that you can imagine. I think I have the illusion that I have impacted on their lives and have been able to teach them part of the scientific discipline, in other words that I will leave behind me a whole generation of people that are very good, top people in the field all over the world. That I think, in terms of education, is an important contribution. I always say that the key to success is to surround yourself with people who are younger than you, more intelligent than you. I have been very lucky to be able to do exactly that! Hopefully the work of my group has increased the overall pool of knowledge concerning the functioning of the vascular wall and I have have helped to educate young people to be good scientists. If I had to hope to achieve two things that would be the two.