

# Young ambitious cardiologists and scientific research – reasons to get involved

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## Reasons to get involved into research – clinical research

Young ambitious cardiologists and scientific research: how valuable is it to get involved into research? Is it important to get an insight into research at all? Is it worth the effort in addition to all the clinical work and is it even worthwhile to come into contact with basic research? There are several reasons that underline the importance and benefits of doing scientific research, not so much although, but especially in parallel to a clinical career.

Already during the medical school but even more after having finished the studies at the university one is permanently confronted with a number of (sometimes) confusing clinical studies. As a physician it is important to develop a sane judgment of one's own in order to understand and also to practice evidence-based medicine. Moreover there are countless articles by distinguished researchers as well as from pharmacological companies trying to convince the physician how helpful the use of various drugs and novel approaches might be. In the end one cannot see the wood for the trees. This is the first reason of doing research e.g. by participating in clinical trials, namely to gain insights into science yourself in order to develop scientific thinking. Finally, this renders delivery of sophisticated judgments for a distinguished clinical practice without manipulations due to doubtful ratios and figures.

## How to manage a postdoc period as an MD – basic research

Having completed a medical thesis (doctor medicinae, abbreviated Dr. med. e.g. in Germany), which is equivalent to the Anglo-American MD, or a project being comparable to a PhD thesis, there is a possibility of delving into special fields of research, either in parallel to the clinical training

or more easily with a special start-up research grant for a defined period in a laboratory of your choice.

It should be mentioned that a pure 'after-work research' after having finished a regular working day in the clinics may not be optimal at the beginning of a career. To further concentrate on research one should aim to obtain a grant or find an internal solution to be largely off clinical duties for at least one year (maybe even 18 months). This precious time can be intensively spent doing scientific work. During this period one can improve knowledge, scientific skills and establish new techniques that later can be used in parallel to the clinical training when having an MD or PhD student on one's own. There is also a chance to spend time abroad, which could be very helpful for several reasons: meeting people there who spend the effort on similar subjects might help to improve technical and scientific knowledge in the future. Furthermore, new insights into a different mode of operations can inspire one's own approach. It is always an advantage to bring an exciting new technique back to the 'home lab' since it sometimes can offer an irreplaceable position in one's own research group. In addition to the possibility of finding answers to important questions, using new techniques, this might open new opportunities of collaboration with other groups. And last but not least, being a member of a well-known research group might increase the value of one's curriculum vitae.

There are more reasons which underlie a decision to get involved into research. Scientific grants and recognition of colleagues might be easier achieved with publications in journals of high impact [1, 2]. The completion of a manuscript takes time! An inexperienced young researcher should not underestimate the current review processes from high impact journals. It takes some time for a paper for first submission to become an accepted article. Normally, the review process requires additional

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experiments to improve the paper and convince the reviewers. On top of that, a research period is a chance to inspire and instruct young colleagues (e.g. MD or PhD students) and lab technicians in order to find the balance between research and clinical work. Responsibility for a project and the people involved in it offers a chance to learn how to manage people thereby increasing personal skills. People who combine research and clinical work might be more prepared for leading positions due to their diverse qualifications.

### Most exciting – translational research leads to novel findings

Another reason why it is worth getting involved into research is the fascination of being a part of a process of discovering novel laboratory results to develop clinical applications and practical advances in health care. A clinician-scientist may have many advantages in order to carry out translational research. The fundamental clinical knowledge and experience with unsolved problems in health care are cornerstones to develop new hypotheses and ideas aiming at novel clinical therapies. Moreover, translation of new findings obtained from basic research projects into testable hypotheses for evaluation in clinical trials in human subjects can be directly transferred. To give an example from our laboratory: we showed that the diastolic dysfunction in isolated human end stage myocardium could be markedly reduced by the inhibition of the late Na current [3]. Ranolazine is now only used and prescribed to patients with chronic angina pectoris but many researchers speculate about possible additional beneficial effects of late  $I_{Na}$  inhibition [4-6]. After having intensively investigated underlying mechanisms we have initiated a clinical trial (which is in progress now). Taken together, bench investigations were transferred to the bedside by the same working group of cardiologists doing the research.

### Our system – an example

In our department scientists who also do clinical work are treated preferentially as regards rotation to important clinical facilities (fast track). This fast track mainly consists of:

- 1-2 years of basic science,
- 1 year of normal ward and emergency room (ER),
- 1 year of echocardiography & electrophysiology,
- 1 year of chest pain unit (CPU),
- 1 year of rotation (e.g. collaborating general hospital),
- 1 year of catheter laboratory,
- 1 year of intensive care unit (ICU).

Therefore, a break in the clinical training to perform research will not result in disadvantages of clinical education. When supporting young ambitious cardiologists it is of particular importance to take care of them, to motivate them and on top of that to support the clinical track of early career research. Research must be worth it.

### Summary

As far as we are concerned as clinicians and scientists, we regard as our most important task to combine two very opposite spheres: empathizing with the anxious patient who suffers from serious heart complaints and to do sheer natural scientific research with dead tools in order to help living beings.

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Young investigator award ceremony at the European Society of Cardiology (ESC) Congress 2009 in Barcelona. From the left: Dr Sossalla and Prof. Fausto Pinto, PhD, chairman of the ESC Congress Programme Committee

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## The best examples to follow

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It was with great pleasure and attention that during this year's Congress of the European Society of Cardiology in Barcelona I was listening to the presentations of the best works nominated for the ESC awards for the best young doctors. Listening to those young and talented Colleagues I realised that it is thanks to such

Personalities and their Mentors that contemporary medicine is developing and that yet more question marks and barriers still facing contemporary cardiology are overcome. I strongly supported the group of the best doctors, and therefore, without a shadow of a doubt, Dr Samuel Sossalla from the University of Göttingen in Germany.

Together with my sincere and well-deserved congratulations, I announce my request addressed to the Laureate and His Mentor, Professor Lars S. Meier, to share with the Readers of our quarterly *Kardiologia Polska* their experience in creating modern and very effective solutions in the service of all patients, doctors and medicine itself, implemented at the Cardiology and Pulmonology Ward of the University of Göttingen in Germany.

It is a very concrete example of how effectively science develops in medicine and basic research when the talent and passion of a young doctor and researcher are accompanied by a well-organised system of residencies, where the most gifted and ambitious doctors follow a recommended 1-2 years' path of basic research. Everybody becomes a beneficiary of such training, starting from the ambitious resident who later in his clinical and

scientific practice is far more confident, and the university or medical school where research is conducted. However, the most important advantage of this educational system will be gained by the patients, especially those with challenging diagnostics and therapy, as experimental and clinical research gives rise to new research hypotheses and the possibility to search for answers.

I am convinced that Professor Lars S. Meier will educate a new generation of excellent cardiologists, pulmonologists and researchers with talents similar to those of Dr Samuel Sossalla. In his centre in Göttingen, Professor Lars S. Meier created an excellent system of clinical and research instruction to which the most talented young doctors and scientists are invited. For this reason he is doomed for success. Congratulations!

I recall the words of a great pioneer in world transplantology, Dr Norman Shumway of Stanford University, who said that if it had not been for all those years spent in research laboratories, both throughout studies and after, he would never have been able to take the clinical challenge of transplanting a human heart.

Congratulating the Laureates receiving the prestigious award of the European Society of Cardiology and thanking them for this article, I would like to invite everybody to follow the good example in Polish science and medicine, without deliberating on futile questions as to whether it is worth it.

Congratulations to Dr Samuel Sossalla on being awarded with the prestigious accolade.

Congratulations to His Mentor, Professor Lars S. Maier, on his vision of shaping young doctors and scientists.