Interview: Burak Erman & Hakan Orer – Professors, Drug Research Center, Koç Univeristy – Turkey



18.06.2015

Tags: basic research, AstraZeneca, University, Academia, investment, R&D, innovation

Professor Burak Erman, the leader of the Drug Research Center at Koç University, and his colleague Hakan Orer, discuss the early activities of the center as a catalyst for collaboration and communication between the pharmaceutical industry and academic sciences in Turkey, as well as the center's achievements so far, including their participation in the design and synthesis of the first unique Turkish molecule.

How was the Koç University Drug Research Center started?

As a faculty member in the engineering school at Koç University with an interest in biological engineering, I had noticed the Turkish markets hunger for research for several years. Five years ago I was able to get the support of the university to found the Drug Research Center, and we started originally with the participation of 25 staff members from the medical school, engineering and sciences, law school and school of economics. The main objective of this organization is to carry out and promote pre-clinical drug research.

Our first real foray into such research was in the context of the Basic Drug Research Center (ITAM), which was a collaborative research project between six universities funded by a two million Turkish Lira (worth one million USD at the time) grant from the Istanbul Development Agency. This project had two aims; first to establish a network or framework for interaction between the industry and

academia, and second to generate new molecules for preclinical research and development.

We were very successful on the first point, as we hosted a series of six conferences that sought brought all relevant stakeholders together to discuss a variety of points related to scientific research in Turkey, including developing a strategic framework for supporting scientific research in Turkey.

As for the second objective, we were able to generate several lead molecules including ten in the area of inflammation. The synthesis of the molecules was performed by Istanbul University, while Koç University carried out the in-silico modeling, and later the laboratory testing. A few of these molecules have proven to be quite promising, and we hope to begin the animal testing phase soon.

g pharmaceutical R&D in Turkey?



The development of pharmaceutical research in Turkey is ultimately dependent on the overall scientific output of Turkey, and thus Turkish academia. At present, there are some significant issues in the Turkish University system, the most significant one being the rather weak scientific publishing culture; in Turkey you publish to get promoted, instead of being contractually obligated to publish, and as such Turkish universities tend to do more education rather than research. This has real repercussions, as publishing academic research is a key channel for connecting with the global scientific community.

Koç remains one of the best-known Turkish universities at the international level largely because it is the only Turkish university to contractually obligate faculty to publish. It is a priority for the university to be known as a research oriented institution, and we are in fact the only research center in Turkey with the full spectrum of capabilities from in-silico modeling, to pharacoeconomic modeling and regulatory analysis.

However, Turkish academia has significant research capacity that could be directed towards pharmaceutical R&D in some cases. The challenge is that the framework for industry-academic collaboration is quite weak, and limited in scope. The government is trying to support pharmaceutical and medical device research in industry, but has not sought to involve academia in any significant way. Yet, the Turkish pharmaceutical industry is based on manufacturing and

marketing, but there is a lot innovative potential that is not being used, partly because companies are not in a position to take significant financial risks on research. As such, we see the need for Turkish academia needs to take initiative, and develop an innovation oriented strategy for academic research, so that we can provide the industry with innovative research material to develop commercially; perhaps in areas that the industry has expressed interest in, such as drug repositioning.

How is AstraZeneca helping you to overcome these hurdles?

AstraZeneca has recognized the scientific potential in Turkey, and is encouraging by collaborating with us on some research. While many pharmaceutical companies have invested in R&D in Turkey, AstraZeneca is the only company that has expressed any significant interest in pre-clinical innovation in Turkey, and they very much know the challenges posed by working in Turkey. We were of course very happy to be chosen as a collaborator in Turkey, and through this partnership, we are learning about pharmaceutical research.

Specifically, AstraZeneca has signed a collaboration agreement Koç University that gave us responsibility for preclinical testing and research for a few candidate molecules, as well as access to their broader open innovation chemical library. Since we began, we have made significant progress with a few of the molecules, and we hope at least one may be a candidate for animal testing moving forward.

What is the ideal structure for innovation in Turkey?

Turkey has the full spectrum of capabilities, but lacks organization and direction. A good scientist should be able to find their way in terms of who is researching what, where they can get funding, and who is interested in research of their kind.

What is your recipe for success?

We are good at fundamental research, we have the necessary capabilities and are building experience quickly. Koç University has a very open and collaborative environment between departments like engineering and medicine, and this leads to more creativity and innovation. Incentives are also a key factor, as at Koç we are motivated to research and publish, and we must work to develop this climate more broadly in Turkey to orient more academic institutions more strongly towards research. Furthermore, having an open and favorable environment for collaboration is an essential factor for innovation in the pharmaceutical industry today given the financial risk associated with R&D, and I think we have made a strong step in the right direction

with ITAM.

Do you have a five-year vision for drug research in Turkey?

I hope that in the coming years I will be able to say that we have strong, powerful universities that prioritize carrying out and publishing challenging and good quality research. If necessary a distinction can be drawn between research universities and educational universities, however the framework and terminology is unimportant as long as more Turkish academics start publishing more research in the coming years, and are properly incentivized to do so.

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