Priv.Doz. Dr. Ach:

On the 26th of September a member of our team visited Dr. Ach and his “Centrum für Bioethik” in Münster, Germany. We were very glad, that Dr. Ach invited us and gave us the chance to talk to him about synthetic biology and its ethical perspective.

Figure 1: Image of Prof. Dr. Ach from the University in Münster

Talking about the negative opinion of many people towards genetic engineering:

- When we talk about the reasons why many people are sceptic in regard to genetic engineering or synthetic biology one can think of a couple of different aspects that might play a role here, for example: Apart from risk assessment and risk management issues there is the idea of crossing a morally relevant line. Should we really step in the genome/the nature? Are nature and organisms nothing more than Lego bricks, that we can play with?
- Also, when we talk about genetic engineering there is a further problem: We as humans normally think in categories. But genetic engineering puts some of our categories under stress. What is life? What is nature? What can be considered as natural?

On the image of synthetic biology:

Another point which we have to mention in connection with synthetic biology is, that the work of biologists, that our understanding of biology as a science, underwent profound change in connection to synthetic biology. Today’s biology very often seems to follow an engineering model of doing science: I completely do understand something in the very moment I am able to build it on my own.

Synthetic biology aims at organisms, which can be build or improved by chance, using either a top down or a bottom up approach. This is a completely different image of nature and biology than for example an Aristotelian view. Instead of learning from nature and trying to get a as close as possible understanding of nature our association with the nature nowadays seems more and more to exhibit the character of a game: Trying out what can be done with "natural brick stones" and "learning by doing".

How do you evaluate humans intervening into the genome of organisms /the nature? Is it allowed to intervene in these parts of life?

- There are some who think that "nature" is intrinsically valuable. That's the biocentric point of view. Form this it would follow that we have to pay special attention to living organisms and protect them from any kind of technical manipulation, i.e. from genetic engineering etc. Nowadays biocentrism is a minority view. One problem with this view is, that most of biocentrists seem to think that living organisms are intrinsically valuable only in case they have reached or do exhibit a certain king of complexity. But there is a problem with this theory then: Where does a complex enough biological system start?

About the aspect of communication

In my opinion there should not be a division of labors between scientists on the one hand ethicists on the other hand. [..] Instead of this we are in need of an integrated approach of doing science and ethics.

- In my view an interdisciplinary and integrated approach is very important for the success of a single project as well as for science and technology as a whole. Ethical reasoning has to be included as early as possible in scientific projects. Work in the lab and ethical reasoning about this work should not be seen as two separated topics. They strongly belong together.
- Apart from this communication with "the public" is of great importance also. Here transparency is the crucially important factor: If you are not honest, people will criticize you no matter what you are doing exactly. Think of the history of so called "green" gene technology again: There we faced the situation that a lot of scientists claimed (in public at least) that there were no risks associated with this technology. Now, everybody knows, that there is nothing like a no-risk-technology. As a result parts of the public came to think that scientists have something to hide. But if there is something to hide: What could this be if not grave risks or dangers? So we had a situation where no-risk-scenarios on the one hand and catastrophic scenarios on the other hand ruled out the chance for reasonable discussion from the outset. So transparency and public participation is a must and – again – worth its price in my view.

About responsibility of scientists:

- First of all: Scientists have to do good science. This, apart from other things, means sticking to some epistemological values. Good scientists have to honestly follow/integrate the data they generate; they have to exhibit a critical stance in regard to their work, constantly and in a systematic way questioning all the different steps of their work in a critical manner
- Apart from this there is a “duty to inform”. It is scientists who are in a position to inform the public about what is going on in science. Due to the complexity of modern science and technology lays (and in some respect at least all of us are lays) have to trust in what scientists are saying about there work and about the prospects as well as the risks or potential dangers of their work. Against this background scientist are obligated to inform “the public” – in order to inform and enhance public discussion. In the end it is up to the public, i.e. it is up to us, to decide what kind of science we want to have, what kinds of risks we as a society want to take etc.