INTERVIEW WITH KEMAL MALIK

"Even more room for life science research"

Mr. Malik, Bayer is going to be a pure life science company in the future. What does this mean for Bayer's research?

At first glance, there are enormous differences between people and plants, for example, but in fact significant parts of their DNA are surprisingly similar. We want to take greater advantage of this fact and pool our life science expertise. After all, the commonalities in the molecular details of various species offer new approaches for interdisciplinary research projects and joint technology platforms from which all areas of research can benefit – particular in the early phase. We will therefore encourage our life science researchers from various disciplines such as chemistry, biology, physics, engineering and information technology to work closer together in future projects so as to leverage expertise in an interdisciplinary manner.

What form will this interdisciplinary cooperation actually take?

An important element here is that we are giving our new ideas more room. Take metabolomics, for example: through the analysis of molecular fragments, this field of research can enable the development of diagnostic procedures for diseases or the identification of targets for new crop protection products. The aim here is to more intensively exchange acquired knowledge and further improve the quality of research – all within a framework that promotes innovation and new ideas, fully in keeping with our slogan "passion to innovate, power to change."

In some cases, promising developments emerge from start-up companies. How do you account for this in your innovation strategy?

That's right, even if our research and development department were three times its current size, we still wouldn't be able to generate as many ideas as the global academic and start-up scene produces. It is simply no longer possible today for a company to cover all areas of innovation itself. We are therefore also focusing closely on promoting a culture of entrepreneurship and partnering. After all, the entrepreneurial culture at universities and start-ups around the world is unique and cannot be replicated within a company. It is exactly because start-ups are different that we wish to find a way of accessing their innovations. Good cooperation is an art, and that is

why we want to ensure that we have world-class capabilities in partnering.

How would you proceed if you were establishing your own start-up company today?

The most important thing is to be passionate about it. You can't be involved with something simply because it happens to be trendy. You have to tackle it with conviction – something in which you can make full use of all your capabilities. In my opinion, one of the most exciting fields of biotechnology is the human genome and everything associated with it. That's because the human genome sequence is 99.5 percent identical no matter how individual we are. Only some of the genes contain sequence differences that make each of us unique. The task here is to identify the crucial differences that can be used, for example, to develop individual therapies. There have been enormous technical advances: today we can sequence a human genome in just a few days for about US$1,000. In my view, all of this offers tremendous potential for committed and innovative researchers. I am particularly excited about the potential of new technologies such as DNA editing.

This inevitably leads to the topic of open innovation. What does that mean for you?

I see the concept of making the innovation process more accessible as an outstanding opportunity to combine research potential. For example, our Grants4 initiatives at HealthCare provide support in the evaluation of innovative ideas for drug and therapeutic targets. We make available funding, tools and know-how – and in return we receive innovative ideas from academic partners in the areas of oncology, cardiology, hematology and gynecology. Furthermore, we support software and hardware applications in the health care sector.

We also provide young start-up companies with laboratory facilities and access to global know-how and technical equipment from the Bayer research network in our CoLaborators, our new centers for young life science companies. The CoLaborators are located in the immediate vicinity of our pharmaceutical research laboratories in San Francisco and Berlin. The aim of the concept is to support academic researchers in further developing their companies. At the same time, we want to be recognized as the partner of choice for young, ambitious companies that are looking for possible cooperation partners in the pharmaceutical industry.

Have such collaborations already yielded concrete successes?

First of all, this cooperation with external partners has provided new impetus to our research in general and promotes out-of-the-box thinking. This is a tremendously important process to initiate innovations – for example in cancer therapy. We are working very closely together with institutions such as the German Cancer Research Center (DKFZ) and have already jointly developed a preclinical candidate right from the initial idea. We are now planning to transition this candidate to clinical development. (See also the cover story "Unleashing the immune response to cancer.") Or take our commitment to bee health. Here we can see very clearly how collaborations pay off: the health of these insects – which incidentally play an important role in safeguarding our food supply – is impacted by a wide variety of factors including agriculture, disease, parasites and extreme weather conditions. Researchers therefore have to explore this issue from various perspectives and disciplines. We can only do this in cooperation with numerous bee research institutes and with agricultural and insect experts from around the world.

And in wheat research as well, we have assembled a global network of innovative research institutes and breeding stations – including the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia. This combined knowledge helps in the development of new wheat varieties with traits such as drought tolerance, heat resistance or improved fertilizer use.

Kemal Malik is a member of the Board of Management of Bayer AG. He is responsible for innovation and the North and Latin America regions.

Yet outstanding research in conventional laboratories alone does not suffice in the digital age ...

That's right. We also have to directly address the relevant target groups for whom – and with whom – we conduct research, as these target groups benefit from our products and from collaboration with us. Numerous channels are open to us today due particularly to increasing digitization. I'm not just talking about the well-known social networks, but also specialized digital platforms, where we can make direct contact with researchers and other companies and thus attract cooperation partners or promising young researchers.