



Building Bridges for the Medicine of Tomorrow

The direct application of insights from basic biomedical research to the prevention, diagnosis and treatment of diseases – this is the key process of translational research in medicine. Clinicians and scientists working in basic research develop new methods for the clinic on the one hand and reflect observations made on patients back to the laboratory on the other.

The GSF – Research Center for Environment and Health combines all essential cornerstones for successful translational research in its approach: Excellent basic research, the close network with clinical partners as well as research platforms used throughout the world offer a common foundation for the exchange of knowledge. This is the GSF's contribution to new approaches to individualized diagnosis, prevention and causal therapy.

Monday morning, 9:00, Hämatologikum in Munich Großhadern: Scientists from the GSF Institutes of Molecular Immunology as well as Clinical Molecular Biology and Tumor Genetics are meeting with physicians from Klinikum Großhadern, the university hospital of Ludwig-Maximilians-University, for their „jour fixe.“ They are discussing intermediate results of the ongoing clinical study on im-

muno-therapy for kidney cancer patients. Both sides, scientists in basic research and clinicians, highly appreciate these meetings, from which they take new suggestions and ideas back to their everyday work in the laboratory and hospital, respectively.

Building the bridge from the laboratory to the hospital – summed up by experts in the field as „Translational Research“ – has long been

a fact at the GSF-Research Center. In this context the day on which the first Clinical Cooperation Group (KKG) for Aerosol Medicine was established in 1995 was a memorable date. Scientists from the GSF Institute of Inhalation Biology and representatives of what is now the Asklepios-Fachkliniken in Gauting established a project group for the purpose of linking clinically relevant questions from clinical everyday life with experimental research. In the long term new diagnostic and therapeutic strategies were supposed to enter clinical practice in the form of clinical studies.

The concept was successful and was soon to find the approval of decision-making bodies involved in science policy. Thirteen such translational working groups have been established to date.

Pillars of the Concept of Success

“The Clinical Cooperation Groups were, however, just one of the pillars we used to establish and further extend our concept on translational research,” says Prof. Günther Wess, the President of the GSF. The central pillar for a translational medicine of tomorrow is the excellent basic research in the life sciences. Last but not least it is the experimental facilities, such as the German Mouse Clinic or the Genome Analysis Center, as well as research platforms close to the clinic, such as the Immune Monitoring Platform, which are used by scientists all over the world, that form important components of translational research. Another pillar is the unique close link between biomedicine and environmental research in the research program of the GSF. “And finally it is the long-standing and close network with numerous external clinical partners which allows us to take completely new individualized approaches to diagnosis and prevention as well as causal therapy.” Wess explains.

Concepts are not designed to be kept in the drawer, they must be implemented in practice. At the GSF a variety of milestones witness the fruits of translational research. They

build the bridge from the exploration of basic biological mechanisms to the direct benefit for the patient. This includes, e.g., the first successful bone marrow transplant, which resulted in a breakthrough in the treatment of leukemias under Prof. Hans-Jochem Kolb at the GSF Institute of Molecular Immunology in cooperation with clinics. It also includes the regional deep hyperthermia developed by Prof. Rolf Issels from the GSF Institute of Molecular Immunology, which is currently applied to tumor treatment in a model project.

Ideas for Tomorrow

But the GSF does not want to rest on its laurels. In its new research program the next steps for the further extension of the focus of “Translational Research” have already been determined.

The range of subjects of the 13 Clinical Cooperation Groups will be extended to include new issues. In addition to the short-term projects initiated so far, there will be long-term studies of a multidisciplinary character.

In view of the increasing socio-economic significance of lung diseases, the GSF is planning to establish an interdisciplinary translation center for lung diseases together with Ludwig-Maximilians-University Munich. This center is expected to give new impulses to lung research in Germany.

The start-up of another service facility for scientists and their clinical partners, a GMP cleanroom system for the production of cell preparations is also underway.

So the GSF will continue to make its contribution to the development of translational research on an international level in the future.



Another service facility for scientists and clinical partners is already being set up: The planned GMP laboratory (GMP = Good Manufacturing Practice) at the IZB (Innovations- und Gründerzentrum) will include an area for the production of cell preparations and a separate quality control area, where compliance of the preparations with the given specifications will be verified before approval.