

alumni



2014 started off with a splendid Chinese New Year's Festival jointly organized by the Alumni Association and Chinese guest scientists.

Reviewing Half A Century

Since its foundation in 1964, the German Cancer Research Center (DKFZ) has experienced a remarkable transition: Find out how the originally missing linkage to clinical application has been overcome. Which kind of factors determine how and in what direction research will develop? The DKFZ has answered some questions, but new challenges have to be faced. Essential is the recruitment of ambitious talents from all over the world. The emerging field of neurooncology gives a colorful example of collaboration between people from various disciplines and nationalities.

1+4

Promoting Life Sciences

Curiosity in sciences, particularly in biomedicine, is an important premise for innovations and progress in research. Therefore, the Heidelberg Life-Science Lab has established a sophisticated program to promote enthusiasm already in adolescents. Read more about the variety of educational offers. Furthermore, the efforts of an Alumni Club to carry on the spirit of the stimulating community experienced at the Life-Science Lab are described. Former participants of the Lab launched a couple of appealing offers and activities for the next generation of scholars.

5+6

Cutting-edge Research

When DKFZ scientists and Israeli cancer researchers once again met for a Research School, three intense days of scientific discussions and development of new ideas awaited the participants in the middle of the Negev Desert. The main focus was on the availability of suitable preclinical tumor models that better mimic the human pathology of cancer. Other issues like the role of cancer stem cells were addressed, with a particularly entertaining lecture by Uri Alon. Further, a new approach into writing grant applications proved that this can really be fun.

12

editorial

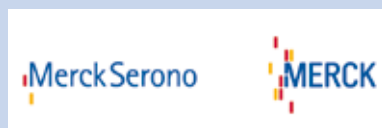
Dear Alumni, Colleagues, and Friends,

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IMAGE CREDITS

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In striking coincidence the year 2014 marks both the 50th Anniversary of the DKFZ and the 10-year Jubilee of the DKFZ Alumni Association. From its start in 1964 as a “German” Cancer Research Center with a “classical” structure of 7 “institutes” until today the DKFZ has transformed into a flexible and modern international science place, with approximately 1500 scientists of the roughly 2800 staff members and 900 affiliated DKFZ members coming from 63 nations (page 6). This strong representation of international scientists is also reflected among the Alumni Association where an estimated 40 percent of the members have their home country outside Germany. International scientists have a major impact on the research productivity of the DKFZ, some currently particularly successful are featured on pages 4 and 5. It is only logical that the Alumni Association has initiated a “DKFZ Alumni Association Award for International Scientists”, worth 5,000 euro that will be awarded bi-annually. On June 27, the occasion of the reception during this year’s Anniversary Alumni Meeting, it will be presented for the first time. Being not only successful in cancer research, international scientists are also actively participating in social events at the DKFZ, as documented by the spectacular and enjoyable performances during the Chinese New Year Reception organized by Thomas Chen and Chen Chen on behalf of the Alumni Association (pages 2 and 3). It is intended to continue this international character of Alumni New Year receptions – suggestions for 2015 are very welcome. Finally, international scientists regularly make up a major proportion of participants in both welcome tours and visits to cultural places and to biopharmaceutical companies organized by Gerhard van Kaick (pages 16 and 17).

One of the highlights of this year will be the Anniversary Alumni meeting from June 26-28 (www.dkfz.de/en/

www.dkfz.de/en/alumni/index.html). An attractive scientific agenda highlighting “Personalized Cancer Medicine”, presented by a prominent international faculty, has been put together. It will be complemented by a cultural program with visits to distinguished local sights. Please join us for this – I trust – memorable event.

It is obvious that the Alumni Association is receiving increasing attention, documented particularly by the more than 100 new members during the past twelve months and the strong appearance of Alumni and friends during the recent DKFZ-Alumni Reception on the occasion of the AACR Meeting in San Diego. A new activity has been initiated by Lindsay Murrells: She suggested to establish an Alumni “Stammtisch” in science areas in the USA such as Boston (page 13) and San Francisco (www.dkfz.de/en/alumni/DKFZAlumniDinnerSanFrancisco.html). This seems to be an excellent initiative to increase the attention to the Alumni Association and its efforts in international networking.

What is left is to thank all friends, supporters and sponsors of the Alumni Association. In particular I thank my fellow Board Members Gerhard van Kaick, Konrad Buschbeck, Lindsay Murrells and – particularly Elfriede Mang – for continued activity and encouragement, Dagmar Anders for talented artistry layout and design of the newsletter, and last not least the Directors of the DKFZ Management Board Otmar D. Wiestler and Josef Puchta for continued generous support.

With best wishes from Heidelberg

anniversary

Five Decades of Research at the DKFZ

by Sibylle Kohlstädt

Since its foundation in 1964, the German Cancer Research Center (DKFZ) has experienced a remarkable transition. Its mission comprises not only the investigation into biological causes of cancer, but also the translation from bench to bedside in order to improve prevention, diagnostics and therapy of the dreadful disease. Today, the German Cancer Research Center rightly claims a position among the leading biomedical institutions worldwide.

At the end of the 1970s, DKFZ researchers scoured food and the environment for carcinogenic nitrosamines. Today, stem cells or tumor genotypes are important subjects in the DKFZ.

Who decides what to research? In fact, a huge number of factors determine how and in what direction research will develop. Results build on each other. The result of the preceding experiment specifies what is to be done next. A prime example for this: As soon as papilloma viruses had been identified as a cause of cervical cancer, scientists were able to develop a vaccine against the pathogen that protects against cancer. It is often technological breakthroughs that revolutionize entire disciplines. New inventions enable questions to be answered that were considered before as unsolvable. Without top high-performance sequencers, there could be no personalized oncology. Without a computer tomography scanner, there could be no three-dimensional radiation planning.

Some questions have been answered: Already small quantities of nitrosamines cause cancer and tobacco smoke is the main cause of lung cancer. To this end, no further data need be collected. Many a result does not initially lead to the hope for success, but it can be good for a surprise: The death receptor CD95 is not suitable for killing cancer cells via apoptosis, but is still the basis for a novel cancer therapy. Most subjects must be investigated from several sides, but from time to time an undertaking turns out to be a dead end. New concepts must first assert themselves: while, previously, the avoidance

of environmental toxins was considered the only possible form of cancer prevention, scientists today are investigating how life style – for example exercise or body weight – influence the cancer risk.

A nation-wide unique cluster in the field of neurooncology belongs to recent research developments at the DKFZ. Scientists from various disciplines investigate the causes of brain tumors in children and adults and develop innovative therapy approaches for this highly malignant cancer entity. The DKFZ has long made up for the originally missing linkage to clinical practice. In particular, the National Center for Tumor Diseases (NCT) Heidelberg, which already celebrates its 10th anniversary this year, has become an important bridge to interdisciplinary patient care.

Essential for research progress in general is the recruitment of ambitious talents from all over the world. The success of the DKFZ strongly relies on excellent and exceptionally committed staff members. The Center benefits from the collaboration between people from various disciplines and nationalities. Therefore, it networks locally, nationally, and internationally with strong partners from research, medicine, and industry. In the German Consortium for Translational Cancer Research (DKTK), one of six German Centers for Health Research, the DKFZ maintains translational centers at seven university partnering sites. Combining excellent university hospitals with high-profile research at a Helmholtz Center is an important contribution to improving the chances of cancer patients. In view of the coming years, the DKFZ's vision is to prevent or heal cancer. At the very least it aims to render cancer a manageable disease so that more patients with the diagnosis can live longer and with a good quality of life.

January 28th, 1964

Establishment of the German Cancer Research Center (DKFZ) as Foundation under Public Law

September 25th, 1972

Inauguration of the DKFZ Main building

May 1st, 1983

Harald zur Hausen is appointed Chairman of the Management Board

April 1986

Foundation of the Cancer Information Service (Krebsinformationsdienst, KID)

1990

First clinical use of the Multi Leaf Collimator

1992

Clinical Cooperation Units form the basis for translational cancer research

May 4th, 1992

Inauguration of the building for the Research Program Applied Tumor Virology

June 30th 1995

Genome research becomes part of cancer research

1999

Foundation of the Life-Science Lab

May 1999

Establishment of a smoking quit line

December 10th, 2002

Inauguration of the building for genome research and bioinformatics

January 1st, 2004

Otmar D. Wiestler is appointed Chairman of the Management Board

July 1st, 2004

Foundation of the National Center for Tumor Diseases (NCT) Heidelberg

January 25th, 2006

Strategic Alliance with Siemens Healthcare

2006

A HPV vaccine to prevent cervical cancer developed at the DKFZ is launched on the US market

October 20th, 2010

Inauguration of the reconstructed DKFZ Main Building

November 2nd, 2010

Inauguration of the building of the National Center for Tumor Diseases (NCT) Heidelberg

October 2011

Start of the first ever phase I/IIa clinical trial using parvoviruses against brain tumors

October 18th 2012

Official launch of the German Cancer Consortium (DKTK)

April 23rd, 2014

Visit of Chancellor Merkel on the occasion of the DKFZ's 50th Anniversary

reception

Under the Magic Spell of Chinese Myths and Tradition

by Lindsay Murrells with Chen Chen and Tianhui (Thomas) Chen



One of the highlights in the Alumni Association calendar is the New Year Reception for guest scientists and alumni. This year the event included a new twist: Instead of the reception being organized for the guest scientists and alumni, the event was organized together with them.

The idea came about during one of the regular lunchtime meetings of the Alumni Board. Back in October 2013, members of the Board decided that a more thematic approach should be taken for the Guest Scientist Receptions. With so many Chinese working at the DKFZ, the choice for 2014 was obvious and as luck would have it, the timing was perfect: Chinese Spring Festival it was!

With Tianhui (Thomas) Chen, Manfred Schwab, Chairman of the Alumni Association, identified a competent organizer for the Chinese activities. The scientist who works at the DKFZ recruited a large group of dedicated volunteers from the DKFZ's Chinese community, including Chen Chen who was in charge of the music. After four months of hard work and collaboration, the organizing team put together an appealing program for the reception in January 2014.

Several elements are essential for a Chinese New Year (Spring Festival) celebration. Therefore, the DKFZ lecture theater was festively decorated with traditional red lanterns and the reception was opened with Chinese classical music and welcome speeches from



An interlude of classical Chinese music was presented by Chen Chen

Manfred Schwab, Thomas Chen and guest of honour, Weimin Zhao, Director of the Department of Education at Chinese Consulate-General in Frankfurt. We were also delighted to welcome another guest, Mrs Petra Thiel, German Director of the Confucius Institute of Heidelberg University.



Tianhui (Thomas) Chen

Manfred Schwab introduced the achievements and highlights of the Association in 2013. These included the Alumni Club event in December with the topic "Personalized Medicine", organized by Gerhard van Kaick and the visit of Manfred Schwab to our alumni in China. Events for 2014 include the 10th Anniversary celebrations of the Alumni Association, culminating with the 6th General Alumni Meeting in June. Manfred Schwab also provided a taster of some of the symbolism and art of Chinese calligraphy and explained that words are not just composed of letters, but symbols that tell a story. Did you know that one of the roots of the first symbol that creates the name "Germany" means "country of high morality"?



Weimin Zhao (left) and Yang Zheng

Otmar D. Wiestler, Chairman and Scientific Director of the DKFZ Management Board, presented some of the DKFZ scientific highlights of the past year, with particular emphasis on the contribution of international colleagues (further detailed on pages 4+5).

中國春節元素



Hui Li on the piano

One of the recurring themes throughout the evening was the Chinese tradition of naming each year according to one of twelve animals of the Chinese Zodiac. Tradition states that people born in a particular year often possess traits associated with the animal of their birth. The animal for 2014 is the horse (more about this later).

Emphasizing the traits of the animal of his birth year, the monkey, Andreas Potschka, an alumnus of the DKFZ Life-Science Lab (LSL), gave an entertaining talk about his career path from the LSL to his current position of Junior Group Leader at the Interdisciplinary Center for Scientific Computing (IWR) at Heidelberg University.



Andreas Potschka

A 15-strong choir, composed of Chinese colleagues, conducted by Chen Chen, presented a traditional Chinese song "Jasmine Flower" – a fitting introduction by Thomas Chen, who gave a brief introduction to Chinese Spring Festival with colorful photos and interesting stories (see also info box). He listed the traits of those born with the sign of this year's animal, the horse. These include being cheerful, fun, talented, popular and independent...

马

To end the formal program, the audience was transported to China: Chenchen Tang (Huangmei Opera) accompanied by Han Wang on the Gu-zhen (Chinese Zither) and Di Wu on the Pipa (Chinese Lute) filled the lecture theater with exotic Chinese music.



Han Wang impressed the audience with exotic, lilting Chinese music on the Gu-zhen

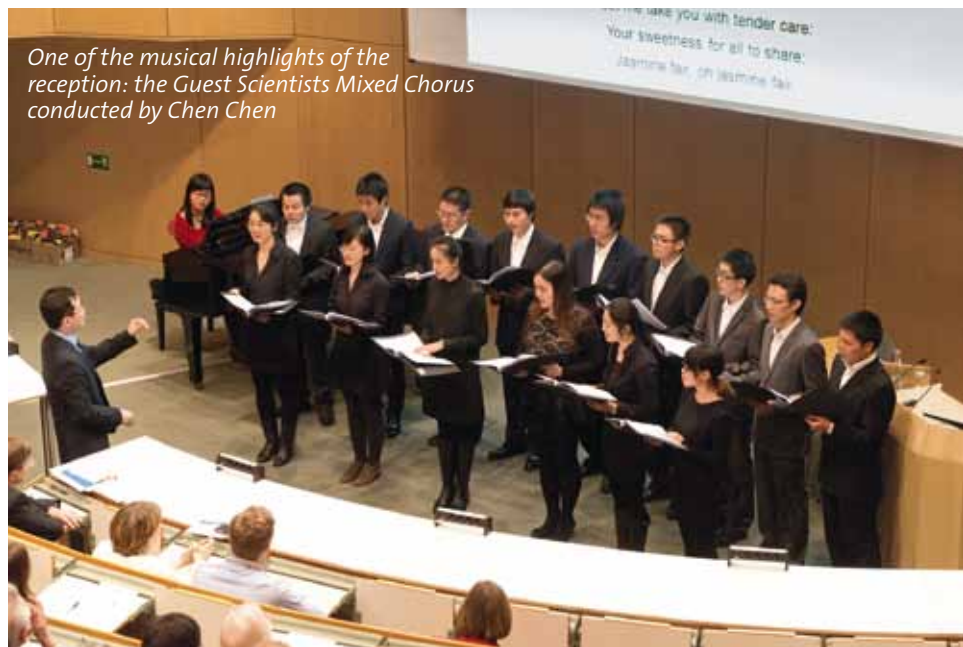
Later in the foyer, Martin Hauschild and the staff of the DKFZ Casino rounded off the evening with a splendid Chinese buffet that had been prepared under the close supervision of Yanxiang Jiang, an expert in cooking Chinese dumplings. Over excellent food and wine, DKFZ Alumni and staff exchanged memories and forged friendships, with many discussions extending into the late evening.



Di Wu on the Pipa, the chinese lute

Why do the Chinese celebrate Spring Festival?

According to the most popular Chinese myth, the origin of Spring Festival celebrations was to scare away a man-eating monster called Nian that once a year, at midnight on New Year's Eve, came to terrify local villagers. The villagers finally discovered that Nian was afraid of red color, fire and noises. Thereafter, Chinese people always celebrate Spring Festival by wearing red, decorating their houses in red and lighting firecrackers to scare away Nian.



One of the musical highlights of the reception: the Guest Scientists Mixed Chorus conducted by Chen Chen

guest scientists

DKFZ – A Fruitful Environment for International Colleagues

by Otmar D. Wiestler and Claudia Mayer

Being a major national cancer research center, the DKFZ offers an attractive environment for many international colleagues. More than one third of our scientists and graduate students come from abroad to spend an important period of their career at the institute. During this year's Reception for Alumni and guest scientists in January 2014, Otmar D. Wiestler, CEO and Scientific Director of the DKFZ, took the opportunity to present research highlights from international colleagues at the DKFZ.

Brain tumors have become the number one cause of cancer related mortality in children. In recent years, many important achievements from genetic and epigenetic analyses contributed to a better understanding of the molecular basis of childhood tumors. In 2010,

David Jones from Great Britain joined the

Division Pediatric Neurooncology headed by Stefan Pfister. With his recent findings on pilocytic astrocytoma, the most common childhood brain tumor, he was able to identify new therapeutic targets in this disease.

Applying high-throughput sequencing techniques, he showed that molecular changes in one specific oncogenic pathway (mitogen-activated protein kinase – MAPK) affected all tumor samples analyzed and thus revealed the single pathway character of this disease (Jones et al., Nature Genetics, 2013).

Paul Northcott from Canada, scientists in the same division, was awarded a Roman Herzog research fellowship by the Non-profit Hertie Foundation. He has focused his investigations on molecular changes of medulloblastoma, another childhood brain tumor. The stratification of medulloblastoma into different subgroups by microarray expression profiling and by whole genome sequencing has changed the view on this

malignant childhood brain tumor significantly. Paul Northcott and his team could now unmask novel driver mutations in each medulloblastoma subgroup by next-generation sequencing and complementary high-density genomic technology. These data are currently making their way into clinical trials integrating conventional and molecularly targeted therapies (Northcott et al., Nature Reviews Cancer 2012).

The Austrian scientist **Bernhard Radlwimmer** is a group leader in the Division Molecular Genetics headed by Peter Lichter. In order to analyze tumor metabolism in glioblastoma, he has made use of screening approaches to identify sets of genes possibly suitable as tumor markers or therapy targets. Recently, he found increased expression of branched-chain amino acid transaminase 1 (BCAT1), an enzyme that initiates the catabolism of branched-chain amino acids (BCAAs) in a subset of glioblastomas. As the expression of this enzyme is necessary for tumor growth and disease progression, BCAT1 and the involved metabolic pathway may serve as a target for glioblastoma therapy in a special subgroup of these malignant gliomas (Tönjes et al., Nature Medicine, 2013).

Ana Martin-Villalba from Spain heads the Division Molecular Neurobiology. For more than ten years, her team has

been working on the revelation of the complex functions of the death receptor CD95 in the central nervous system. The researchers are interested in

the function and regulation of neural stem cells in both the developing and the adult brain. Memory impairment has been associated with age-related decline in adult hippocampal neurogenesis. Ana Martin-Villalba's team recently showed

that upregulating Wnt signaling by reducing the expression of the Wnt antagonist Dickkopf-1 (Dkk1) can counteract such an age-related decrease in neurogenesis and its associated cognitive decline (Seib et al., Cell Stem Cell, 2013).

The research of the Junior Research Group Normal and neoplastic CNS stem cells headed by **Hai-Kun Liu** from China focuses on neurogenesis in the adult brain. By generating a transgenic mouse with an inducible knockout of CHD7 in neural stem cells, the team discovered that CHD7 regulates chromatin density of promoter regions of the important transcription factors Sox4 and Sox11. A loss of CHD7 leads to downregulation of these factors and results in impaired differentiation of neural stem cells. This study also helped to unravel epigenetic mechanisms involved in CHARGE syndrome, brain tumorigenesis and autism (Feng et al., Cell Stem Cell, 2013).



Anders Lind-roth from Sweden is working as a guest scientist in the Division of Epigenomics and Cancer Risk Factors

headed by Christoph Plass. He is analyzing global reprogramming of epigenetic patterns, including gains or losses in DNA methylation and changes of histone marks. His recent data provide insights into the molecular mechanism of the histone K27M mutant H3.3, leading to a global reduction of the repressive histone mark H3K27me3. Applying modern technologies such as chromatin immunoprecipitation, next-generation sequencing and whole-genome bisulfite sequencing in primary gliomas, he could demonstrate that reduced H3K27me3 levels and DNA hypomethylation act in concert to activate gene expression in K27M mutant gliomas (Bender et al, *Cancer Cell* 2013, Plass et al *Nat Rev Genet.* 2013).

During her PhD studies in Andreas Trumpp's Division Stem Cells and Cancer, **Irène Baccelli** from France developed a transplantation test for the experimental detection of metastasis-initiating cells. Together with an interdisciplinary team, she isolated circulating tumor cells from the blood of breast cancer patients and directly transplanted them into the bone marrow of immunodeficient mice. In several cases, metastases started forming in the bones, lungs and livers of some animals, proving that circulating tumor cells include a subfraction of metastasis stem cells. Baccelli also discovered several molecules at increased levels on the surface



of metastasis-forming tumor stem cells. Researchers may be able to use these molecules to develop tests for detecting metastatic stem cells or applying targeted treatments. (Baccelli et al, *Nature Biotech* 2013). Dr. Irène Baccelli is currently conducting research at the University of Montreal in Canada.

Dharanija Madhavan, a graduate student from India in the Research Group Molecular Epidemiology of Barbara Burwinkel, discovered another potential blood-based prognostic biomarker for metastatic breast cancer. She could identify a panel of circulating miRNAs associated with the status of circulating tumor cells and their potential as prognostic markers in patients with metastatic breast cancer (Madhavan et al., *Clin Cancer Res* 2012).



Rajiv Kumar, Deputy Head of the Division Molecular Genetic Epidemiology of Kari Hemminki, works on molecular characteristics of melanoma. The researcher from India investigated a melanoma-prone family through linkage analysis and high-throughput sequencing and identified a disease-segregating germline mutation in the promoter of the telomerase reverse transcriptase (TERT) gene. It encodes the catalytic subunit of telomerase. He also discovered TERT mutations in a significant proportion of human cell lines derived from metastatic melanomas, in primary melanomas and in metastatic tumor tissues indicating that this gene plays a major role in the formation of malignant melanomas. (Kumar et al, *Science*, 2013).



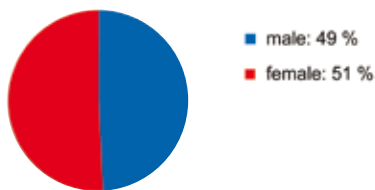
These are only some selected examples which emphasize the important impact of our international colleagues to the DKFZ research portfolio. However, it is also the cultural diversity that makes the international environment in our research center so exciting and valuable. The splendid organization of this year's Alumni and guest scientist reception program by our Chinese colleagues has been a wonderful experience for all participants.

international staff

The Value of Culture by Heike Langlotz

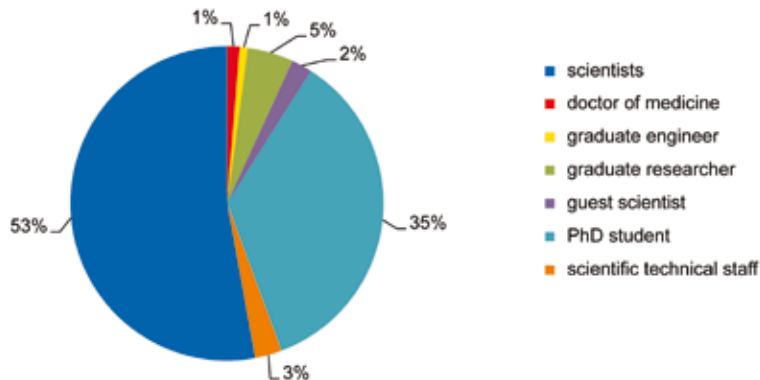
I have been working at the DKFZ for more than 28 years now, but still the process of welcoming and hosting foreign coworkers at the DKFZ comes up with a lot of challenges and curiosities. One might expect that you get used to a certain routine, yet the surprises seem to be a never-ending story. It's almost a fixture – what a luck! After having completed an integrated degree program as business economist I dropped into Human Resources at the DKFZ in 1991. Ever since, the former 'Guest Scientist and Guesthouse position' has undergone a great change. As of 1991 the DKFZ hosted about 150 non-German Guest-Scientists' per year, being mostly recruited by awarding scholarships. The on-site PostDoc Program was one of the first options for foreign scientist to join the DKFZ.

Gender ratio



Times have changed a lot since then. In the meantime our foundation is a multinational and intercultural host. With almost 900 scientists out of 63 nations, most of them being employed, the DKFZ experiences the prosperity of cultural diversity. Being strongly influenced by this development I initiated an International Staff Services for foreign colleagues in late 2011. All guest scientists can ask me for support in authority affairs (registration, residence permits, applications on child and parental allowances). Additionally, I provide help in finding childcare or a school for the accompanying offspring. Within the International Staff Services I put great effort in adapting myself to the habits of other cultures and nations. Having completed intercultural

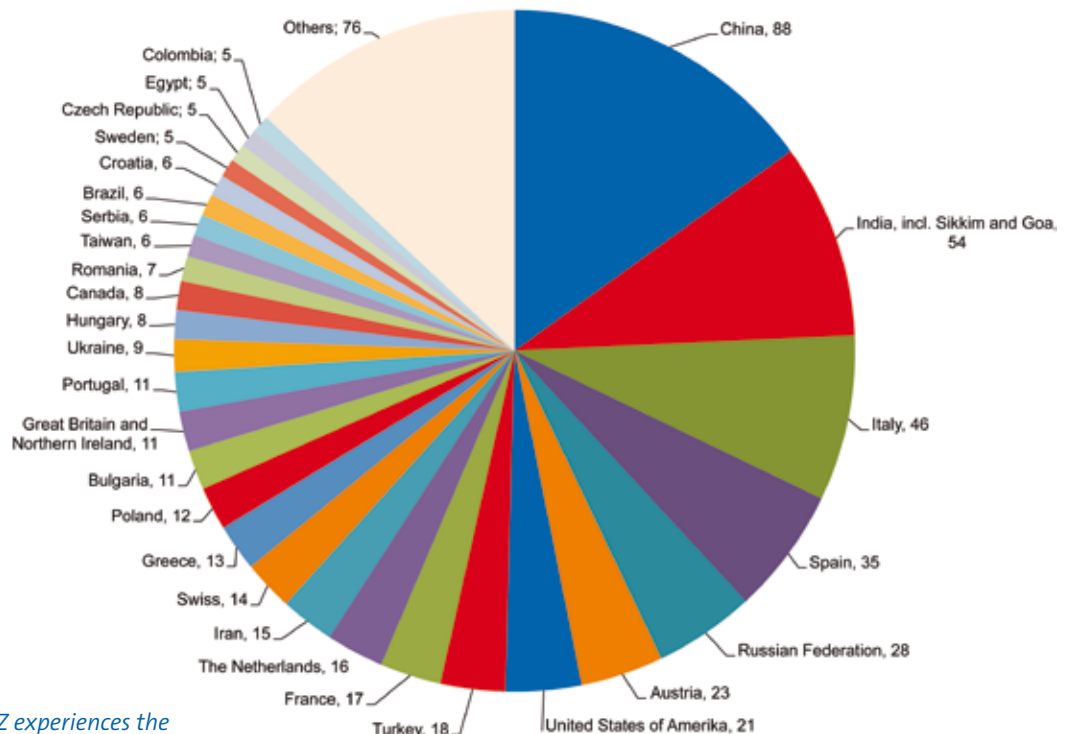
Professional Groups at the DKFZ



trainings, it is elementary to reflect on past situations. But even being trained on intercultural matters, situations may come up where I just feel run over. Once for example, a scientist accompanied by his spouse and child turned up in my office on early Monday morning and – despite having an appointment – urgently asked to move to a different apartment, right away with no delay! How is one supposed to answer such a situation? With booking rates of more than 90 percent in the guesthouses, it was simply impossible at this point of time.

As an institution like the DKFZ has to stick to employment law very strictly. Therefore, it is a big challenge to raise understanding to future third-country-scientists – at best already ahead of departure from their home. Altogether, the most important aspect of my work is to be open-minded for new situations, people and realities all the time. But of course, the efforts for a worrisome time living in Heidelberg has to be a mutual approach of host and guest. Anyway – it's ever worth a try.

Staff nationalities



As host of international co-workers the DKFZ experiences the prosperity of cultural diversity and in return puts great effort in providing an easy living and working time in Heidelberg. The different charts show the share of foreign staff members in professional groups and detail the proportion of guest scientists according to their home country. Both genders are represented in almost equal measure.

conference

Career Promotion and International Networking by Ines Fernandez Ulibarri

At the invitation of the Humboldt Foundation, the inaugural Research Alumni Conference in Berlin was held on November 27-29, 2013. The conference focused on the subject of “research alumni”, meaning foreign guest researchers who return to their home country after a research stay in Germany. They are ideal multipliers who can inform junior researchers in their specialist networks about the opportunities and potential for a research stay in Germany, and spark their enthusiasm.

For the first time, the conference brought together around 120 international guest scientists and representatives from German universities to exchange on experiences and ideas for future collaboration. Only universities selected in the sponsorship program “research alumni strategies” were invited to attend. Heidelberg University was nominated to participate and representatives of the Heidelberg Alumni International (HAI), Silke Rodenburg and Jana Friedrich, came to Berlin together with five selected research alumni from



Both doing research in Germany and continuing international collaboration is vastly dependent on third party funding. Representatives of respective organizations presented their support programs.

Heidelberg University and non-university organizations located in the city, among them also DKFZ Alumni. Alumni work in English-speaking countries has a long tradition in. According to their experience, alumni relations promote career success through international collaborations and exchanges.

For this reason, alumni international relations has recently attracted a lot of attention at German universities. The conference focused on the different traditions of alumni work and its role at German universities, ways of creating win-win-situa-

tions between research alumni and their host universities and funding universities for alumni. It was unanimously agreed that the universities' collaboration with their research alumni harbors great potential for the universities' internationalization. However, the subject is currently still in the pioneer-

ing phase: Who is responsible for research alumni activities at universities? How does the interaction between central and decentral research alumni activities and the Welcome Centers work? What offers are of interest to research alumni? How can the collaboration between previous guest researchers and their host institutes be shaped so that both can benefit from this? How can this be ensured in the long term? There are many funding opportunities available for alumni from German universities for either doing research in Germany or continuing international collaborations. During the conference, representatives of research funding organizations from DAAD (German Academic Exchange Service), DFG (German Research Organization), Helmholtz Association, Leibniz Association, Fraunhofer Gesellschaft, Max Planck Society and European organizations introduced their organization and promoted their attractive funding programs. The Alumni of the DKFZ are very grateful to Heidelberg Alumni International and the Alexander von Humboldt Foundation for counting on them in this great event.



Exchange on experiences and ideas for future collaborations: Ines Fernandez Ulibarri (table: 2nd right) with other participants of the Research Alumni Conference

science education

Fostering Curiosity and Interest in Research by Katrin Platzer

The Life-Science Lab which has been established at DKFZ in 2000 offers extra-curricular opportunities to talented middle and senior high school students with a particular interest in math and science. Areas in life sciences in which research is being conducted at the DKFZ and its partner institutions are in the focus of the activities.

Students get help to develop interdisciplinary competence and to achieve personal goals that are educationally significant. They are also encouraged to work independently and to take responsibility for research activities so as to experience the pleasure of discovery and to learn how to collaborate constructively.

The multi-year program is organized into six areas of activities:

1. Public Friday Lectures on scientific, theoretical, and philosophical topics aim to raise curiosity in the students.
2. Core research work takes place in scientist-mentored work groups in the fields of archeology, astrophysics, biophysics, chemistry, experimental physics, informatics, climatology, art, mathematics, molecular cell biology, neuropsychology, medicine, pharmacy, philosophy, political science, quantum physics, robotics, synthetic biology, systems biology, theoretical physics, commerce, virology and zoology.
3. Weekend seminars present opportunities to broaden the scope of work group research.
4. (Inter) national summer academies afford opportunities to put the acquired competence into an (inter) national context.
5. Research projects performed under scientific guidance promote the successful development of ideas or separate subprojects and facilitate self-organized and exploratory learning.
6. The Bio-Science Lab and Phys-Tech Lab give depth to the broad theoretical instruction in the areas of biochemistry, molecular and cell biology, as well as in physics and technology, through both mentor-initiated and independent practical laboratory work.



High school students at the Bio-Science Lab work to obtain their „Lab License“.

At the Bio-Science Lab with its course oriented approach participants are able to achieve a so-called ‘Lab driver’s license’ by attending basic lab courses in molecular biology, cell biology and biochemistry. There are also advanced courses available to help participants to deepen their basic knowledge and take it to a higher level.

The Phys-Tech lab takes a project-oriented approach. Student research projects such as the design and construction of a climate chamber or laser beam enabled

data transfer are financed by the Baden-Württemberg Foundation.

In 2013 the project ‘Low Cost PCR of the Phys-Tech Lab’ was honored with the Energy for Education Award. This remarkable achievement as one of many examples and the increasing numbers of applications for the participation in the Life-Science Lab surely prove that the education concept for pupils has worked out. There can be no doubt that the Life-Science Lab is a success story!



The Bio-Science Lab offers 12 workstations for high school students.

research promotion

Enthusiasm for Life Sciences with a Spirit of Giving Back

by Markus Schwabeland

Students at the Heidelberg Life-Science Lab (HLSL) experience a stimulating community. To preserve this spirit, to support young people's enthusiasm for the life-sciences and to help the Life-Science Lab with its education program, former participants of the Life-Science Lab in Heidelberg have established the Alumni of the Heidelberg Life-Science Lab e. V.



The association offers summer internships and research projects to the Life-Science Lab students and supports them in both financial and non-material ways.

The non-profit association has nearly 300 members who are mostly students or in PhD programs. It seeks to provide an active national as well as international network among the members. At the center of the club's work are events with scientific and interdisciplinary background that are offered in cooperation with scientists and companies. Those events are designed for the Alumni and members of the Heidelberg Life-Science Lab as well as interested external students. Among those events are alumni academies, where the participants meet for at least one week to gain deeper insight in one major scientific development and to discuss it in the context of their multifaceted backgrounds. In addition to that, seminars are offered to improve soft-skills and learn about topics outside the realm of science.

As a partner of the Life-Science Lab the Alumni club wants to support the students with natural scientific and engineering interests on different levels. There are "alumni-lectures" where members tell the students about their current work, and once a year there is an informal get-together where alumni members speak with the students about their studies and their choice of job. Above that the club hosts the annual summer dinner, where the students of the Life-Science Lab that

graduated from secondary school are officially bid farewell. But most of those students become members of the club association and stay active. They make up almost half of the 80 mentors of the Life-Science Lab.

A splendid example for this is Christian Stoy. Meanwhile, he is an irreplaceable pillar in the framework of the HLSL and its alumni club. Since his participation in the HLSL he has been interested in



Christian Stoy

the biological field, finally leading to a Diploma and PhD degree in biology. He also became part of the organizational side of the lab. While studying he stayed closely connected with the HLSL and its alumni club holding several key positions at a time. Moreover he worked on a HIWI job at the DKFZ and completed numerous internships in Germany and abroad. Currently, Christian is working on his PhD thesis with Prof. Stephan Herzig's team at the DKFZ Division Molecular Metabolic Control.

The Alumni of HLSL provide financial help for students who want to start cost-intensive projects and support students with less privileged backgrounds to be able to participate in the program. Very successful working group projects even have the chance of winning the annual working-group price.

A friendly Hello from a fraction of the Alumni of HLSL. Nearly 300 former Life-Science Lab participants have already become members of the club.



people

Awards & Special Honors

During a conference at Jadavpur University in Kolkata early this year, **Prof. Peter Bannasch** (far right), former Chairman of the Alumni Board, has been awarded the Lifetime Achievement Award 2013. The Indian Association of Pharmaceutical Scientists and Technologists honored the pathologist for his enormous contribution in the field of carcinogenesis and put special emphasis to his achievements in cellular and molecular pathology of early



The German National Academy of Sciences Leopoldina honored two DKFZ colleagues: **Prof. Ingrid Grummt** and **Prof. Stefan Hell**. Grummt, Head of the Division Molecular Biology of the Cell, received the Schleiden Medal for her achievements in cell biology. The biologist's work includes pioneering results on particular RNA molecules involved in the control of chromatin "packaging" which influences processes like aging and the development of cancer.



The German Association for Neuro-radiology (DGNR) honored four DKFZ researchers at a time: **Dr. Alexander Radbruch** (above), Head of the Research Group Neurooncological Imaging at the DKFZ and the Heidelberg University Medical Center, shares the Kurt-Decker-Prize of 3,000 Euro with Dr. Tobias Struffert from Erlangen. The two scientists studied multimodal imaging in neuro-oncology. Additionally, a prize money of 2,500 Euro was awarded to **Jan Kuntz**, **Dr. Sönke Bartling**, and **Prof. Marc Kachelrieß**. The researchers of the Division of Medical Physics in Radiology received the DGNR-Intervention Prize for their project on realtime-4D-intervention guidance at conventional dose application.



stages of neoplastic development in different organs, particularly liver and kidney. Additionally, the Alumni Association conveys special congratulations to Peter Bannasch: On the occasion of his 80th birthday the organization is happy to express the dearest wishes to its founder and first chairman. Apart from his merits in research, he has been deeply committed to promoting professional and personal relationships of DKFZ Alumni worldwide.



Prof. Stefan W. Hell, Head of the Division Optical Nanoscopy and Director at the Max Planck Institute for Biophysical Chemistry in Göttingen, received the Carus Medal for his developments in light microscopy which allow for the observation of molecular spatial organization and dynamics within living cells and tissue at resolutions below the diffraction wavelength of light.

Dr. Martin Fast, former member of the Division of Medical Physics at the DKFZ and now working at the Royal Cancer Hospital in Sutton, UK, was awarded the career grant of the Behnken-Berger Foundation. Fast received the distinction of 5,000 Euro for his PhD Thesis on the diagnostic application of x-ray radiation. The prize is dedicated to young investigators working in the field of radiation medicine or radiation protection.



This year's German Cancer Aid Award of 10,000 Euro goes to **Prof. Hans-Georg Rammensee**, a scientist from the Tübingen partner site of the German Consor-

tium for Translational Cancer Research (DKTK). The researcher was honored for his findings on antigen presentation and T-cell recognition that has led to fundamental discoveries about the way the immune system recognizes tumors.

people



Prof. Dr. Wolfgang Schlegel, Head of the Division of Medical Physics in Radiation Oncology, was nominated as outstanding contributor to the advancement of medical physics. He belongs to the group of 50 excellent medical physicists identified by the International Organization for Medical Physics (IOMP) to mark the 50th Anniversary. Schlegel is known for his pioneering work in radiotherapy physics. Under his leadership new technologies for radiotherapy were developed, which significantly enhanced the precision and effectiveness of cancer treatment with ionizing radiation.

Dr. Ben Schöttker, Division of Clinical Epidemiology and Aging, was awarded the Stephan Weiland Prize for Young Investigators endowed with 750 Euro. The German Association for Epidemiology (DGEpi) acknowledged his findings on low vitamin D levels and increased mortality due to diseases like cancer.



No less than three distinctions were awarded to **Dr. Dominik Sturm**, member of the Division Pediatric Neurooncology at the DKFZ and physician scientist at the Heidelberg University Medical Center for Children and Adolescents. He

received both the Selma Meyer Dissertation Award for his thesis on the development of childhood brain tumors from the German Association for Children and Adolescents (DGKJ) and the PhD student grant of the German Association for Hematology and Medical Oncology (DGHO). The prizes are endowed with 2,500 Euro each. Sturm discovered a gene active in most of high-risk medulloblastoma. The gene might be helpful for the prediction of disease progress and could possibly be used in personalized therapy.

Sturm also discovered an enzyme that may protect cancer cells from cell death and is overactive in severe cases of pediatric brain cancer. For this finding, Dominik Sturm received the 4,500 Euro Richtzenhain Award. He shares the prize with **Dr. Irène Baccelli**, former member of the Division of Stem Cells and Cancer. Baccelli's work unraveled several molecules at increased levels on the surface of metastasis-forming tumor stem cells which can possibly be used in tests for detecting metastatic stem cells or novel drugs. The scientist who is meanwhile working at the University of Montreal, Canada, also received half of the 7,500 Euro Lewenz Award.

The other half was awarded to **Natalie Jäger** and **Dr. David Jones**. Jäger, PhD student in the Division of Theoretical Bioinformatics, examined the genomes of over 400 tumor samples from various types of cancer, with the goal of identifying changes that occur over the course of tumor development. She discovered that the second, inactive X chromosome in female cells is particularly often affected by such changes. David Jones, member of the Division of Pediatric Neurooncology, has specialized in childhood brain cancer. He discovered that a number of mutations occur in the same genes in different patients. This suggests that the genes may serve as targets for new drugs.

The award winners (from left to right): Dr. Irène Baccelli, Dr. David Jones and Dr. Dominik Sturm at the award ceremony. Not shown: Natalie Jäger.



Prof. Simone Fulda, has been honored with the 2014 Cancer Research Award in the category "Translational Research." The pediatrician who works at the Frankfurt partner site of the German Consortium for Translational Cancer Research (DKTK), studies the molecular mechanisms of apoptosis in malignant tumors in children. She discovered disruptions in the normal cell-death program of cancer cells that can be used as targets for the development of new anticancer drugs. The award of 7,500 Euro has been sponsored by the German Cancer Society and the German Cancer Foundation. It belongs to the most prestigious distinctions in cancer medicine in Germany.

Appointments

Dr. Martina Pötschke-Langer, Head of the Division of Cancer Prevention, was appointed member of the Scientific Council of the German Center for Addiction Issues (DHS).

Prof. Otmar D. Wiestler, Chairman of the DKFZ Management Board, was elected new member of the Executive Board of the BioRN Network e.V. The network's goal is to promote the Metropolregion Rhein-Neckar as one of the strongest sites for health research in Europe.

collaboration

Science and Desert Feelings by Barbara Böck

The 6th German Israeli Cancer Research School on Mouse Models of Human Cancer focused on the most critical bottleneck in the advancement of basic tumor biology and translational research: the availability of suitable preclinical animal tumor models that better mimic the human pathology of cancer. The German-Israeli Cooperation fosters scientific exchange between DKFZ scientists and Israeli cancer researchers. This year's research school was jointly organized by Hellmut Augustin (DKFZ, Heidelberg) and Eli Pikarsky (Hebrew University, Jerusalem).

Eight speakers from Israel, six speakers from Germany, which are all members of the Helmholtz Alliance Preclinical Comprehensive Cancer Center (PCCC) and 26 young scientists (students and junior postdocs) met at Mitzpe Ramon in the middle of the Negev Desert for three intense and stimulating days of scientific exchange and development of new ideas. The participants highly appreciated that Otmar D. Wiestler, Chairman and Scientific Director of the DFKZ Management Board, had joined the meeting for two days to engage in discussions about the latest developments in this rapidly moving field of ongoing cancer research. He emphasized the importance and success of the German-Israeli cooperation, which promotes intense scientific exchange and friendship between cancer researchers of both countries.

In the informal setting of a small workshop the young scientists got the unique opportunity to meet some of the key opinion leaders in the field. Among others, the list of speakers included PCCC member Klaus Rajewsky, whose group has already in 1994 established the feasibility and power of the Cre-lox recombination system for conditional gene



targeting *in vivo*. This technique has revolutionized preclinical mouse models and is nowadays used by hundreds of laboratories around the world.

The scientific program of the Cancer Research School focused on three tumor entities: gastrointestinal tumors, brain tumors and hematological malignancies and covered the cutting-edge research topics in the field. Tumors are now widely recognized not just as a clump of tumor cells, but as a neoplastically growing organ, consisting of tumor cells, host-derived stroma and recruited immune cells. This was reflected by the number of contributions covering the topic tumor microenvironment. Likewise, advanced models for deciphering the role of cancer stem cells and longevity in tumorigenesis were presented. Last, but not least a plethora of preclinical mouse models for various therapy approaches were discussed.

A further highlight was the keynote lecture by Uri Alon, who is not only known as a very successful systems biologist, but also as an outstanding entertainer. Using simple flip chart lectures and his guitar, he spread his ideas about empathy in science to the upper echelons of scientific institutions around the world (for more information see: "Sunday in the Lab" www.youtube.com/watch?v=yhncg6GXYq8).

The organization of this year's school incorporated two novel program points: Student speakers selected by the organizing team presented short research talks. A second novelty was a "grant writing competition". Students could choose between different topics which were proposed by the invited speakers. With support of their mentor, the students presented their proposal in a 10 minute talk which was discussed and evaluated by a panel of reviewers. This was not only a great challenge but also a lot of fun for all participants. The students and postdocs were extremely curious, open to new ideas and the meeting was a great think tank for scientific exchange.

Besides the intense scientific program, there was ample time to enjoy the social activities. The walk for the sunrise at the Makhtesh Ramon crater rim was as impressive as the trip through the crater, where the group enjoyed an incredible sunset. The research school in Mitzpe Ramon is a great example that such events are more than worthwhile. The organizers got an overwhelming feedback from the participants. Notably, the selection of talks and the grant writing competition have been highly appreciated. The participants surely returned with a lot of new ideas and plenty of impressions from this exceptional research school.

job options

A Fair Idea for the Promotion of Career Opportunities by Maja Reuß

In the beginning, there was this cautious question: “Should we organize a DKFZ Alumni meeting in Boston?” Then, three months ago, the answer was “Why not? Now, I would say we definitely need to repeat this!

When planning our trip to the European Career Fair in Boston, Lindsay Murrells, the Manager of the Helmholtz International Graduate School on Cancer Research at the DKFZ, and I decided to organize an informal DKFZ Alumni Dinner to re-connect with former DKFZ members in and around the Boston area – and were impressed with the positive feedback we received. After nine hours in the plane, a delicious American Burger and five hours sleep, Lindsay and I left the hotel for



Fairly happy upon the tremendous feedback on the Alumni Meeting in Boston: Lindsay Murrells (left) and Maja Reuß



Vibrant exchanges about DKFZ connections, career plans and many more filled the evening of the Alumni dinner.

an exciting fair day at the Massachusetts Institute of Technology (MIT). Our mission: to advertise the DKFZ as an attractive employer and to pique the junior scientists' interest in career opportunities at our center. And it worked out! We had the chance to talk to numerous young talents from all over the world, who were interested in our Master, PhD and PostDoc programs or in establishing a Junior Research Group. Additionally, some former DKFZ students and PostDocs dropped in to say hello and spontaneously agreed to join us for the planned Alumni dinner one day later. Although we ignorantly chose the Super Bowl evening for our dinner, we had a lively evening with

eleven Alumni living locally. There were vibrant exchanges about their connection to DKFZ, their current career in Boston, future plans and the best strategy to come back to Germany. Cell phone numbers were exchanged, further appointments were arranged and we had the feeling that everyone really enjoyed this initiative and appreciated the chance to meet companions in the same situation. Motivated by these impressions, we are now planning other similar meetings, so look out for information about Alumni get-togethers in your area. Thank you Lindsay, for this wonderful idea!



A big “Hello” from former DKFZ students and PostDocs who dropped in at the European Career Fair in Boston.

alumni affairs

Membership in a Nutshell

Prof. Schroeder, how did you first become involved with the DKFZ?

The Alumni Association provides an environment for individuals with close links to the DKFZ. In my case, these links started during my study of biology at Heidelberg University. At that time (end of the sixties) I attended a stimulating class with lectures on structure and function of DNA held by Professor Gerhard Sauer, a former division head at the DKFZ. Subsequent studies in prokaryotic systems (*E. coli* and its phages) provided deeper knowledge and the basis for diploma and doctoral thesis at the Max-Planck Institute (MPI) for Medical Research.



*Stated his point of view:
Prof. Claus H. Schröder*

What have you been doing over the years since you first came into contact with the DKFZ?

My postdoc time at the Oak Ridge National Laboratory in Oak Ridge, Tennessee, introduced me into the genetics of cultured eukaryotic cells. In 1974, I returned to Heidelberg to join the group of Prof. Hans Christian Kaerner (MPI/DKFZ) thereby starting a long lasting affiliation with the DKFZ. The focus of my interest was initially on Herpes Simplex Virus, but later I turned the attention of my lab work to Hepatitis B Virus (HBV) infection. In parallel, as head of a DKFZ board, I supervised the adherence to safety regulations imposed by law for the handling of genetically modified organisms.

What made you become a member of the Alumni Association?

Following a number of conversations as to its foundation, I joined the newly established Alumni Association together with many still active colleagues. Professor Peter Bannasch became our first chairman, a task he took over with admirable commitment starting from scratch.

What do you like about the Alumni Association already and what are you looking forward to in the future?

Comprehensive information of members on progress of basic research at the DKFZ and its clinical application belongs to the major achievements of the Association. To stimulate discussions on its future, I suggest to intensify the contacts between alumni at the national level.

What additional benefits should the Alumni Association provide to its members?

I would appreciate it if alumni were granted library services at reduced rates. Additionally – especially with regard to 2014 being the year of the 50th anniversary of the DKFZ and at the same time the 10 years jubilee of the Alumni Association – articles should be phrased addressing Alumni members based on their gratitude to the DKFZ for excellent research conditions and on the will to contribute to maintenance of these conditions.

What can Alumni members do who want to get more involved into the Association's activities?

I would like to encourage Alumni members to take part in fundraising activities.

New Members

Dr. Rashda Abbasi, Islamabad // **Dr. Lukas Amler**, San Francisco // **Dr. Josephine Bageritz**, DKFZ Heidelberg // **Dr. Julia Banzhaf-Strathmann**, Munich // **Qiuying Bao**, DKFZ Heidelberg // **Prof. Tobias Bäuerle**, Erlangen // **Irem Bayindir**, DKFZ Heidelberg // **Dr. Emma Bell**, DKFZ Heidelberg // **Martina Benesova**, DKFZ Heidelberg // **Dr. Carlo Beretta**, Heidelberg // **Dr. Jonas Blaes**, DKFZ Heidelberg // **Dr. Michael Bocker**, Cambridge/MA // **Serena Bonifati**, Castrovillari // **Dr. Alberto Calabro**, Karlsruhe // **Dr. Liji Cao**, Schiltigheim // **Dr. Bowang Chen**, DKFZ Heidelberg // **Dr. Xinzhu Chen**, Chengdu // **Silu Chen-Lindner**, Beijing // **Dr. Andreas Chiocchetti**, Frankfurt // **Dr. Katarina Cuk**, Heidelberg // **Dr. Andre De Oliveira**, Erlangen // **Dr. Satish Kumar Devarapu**, München // **Dr. Nicolas Dross**, Heidelberg // **Dmytro Dvornikov**, DKFZ Heidelberg // **Dr. Armin Ehninger**, Dresden // **Dr. Tolga Eichhorn**, Dundee // **Dr. Johanna Engelhard**, Frankfurt // **Dr. Ignacio Espinoza**, Santiago // **Dr. Anne Faßl**, Boston // **Sabrina Fehrenbach**, DKFZ Heidelberg // **Dr. Nathalie Fiegler**, Eppenheim // **Dr. Fernando Flores-Guzman**, Chalco-Solidaridad // **Andres Florez**, DKFZ Heidelberg // **Dr. Bettina Fußbroich**, Munich // **Dr. Martina Gärtner**, Nackenheim // **Ersay Gökhan**, Ankara // **Bastian Graser**, DKFZ Heidelberg // **Marion Gürth**, DKFZ Heidelberg // **Dr. Anja Heinemann**, St. Leonards // **Shayda Hemmati**, DKFZ Heidelberg // **Dr. Jan Hettinger**, DKFZ Heidelberg // **Dr. Liu Hong**, Hefei // **Xiaoyun Huang**, DKFZ Heidelberg // **Zhiqin Huang**, DKFZ Heidelberg // **Dr. Phillip Hundeshagen**, Frankfurt // **Dr. Hanna Jacobsson**, Göteborg // **Dr. Natalie Jäger**, Stanford // **Dr. Lukasz Kacprzyk**, Berlin // **Dr. Sowjanya Kallakuri**, New Haven // **Dr. Ioanna Keklikoglou**, Lausanne // **Dr. Patrick Ketzer**, DKFZ Heidelberg // **Dr. Mohammad Khan**, San Diego // **Dr. Helena Kiefel**, Palo Alto // **Dr. Silvia Kimpfler**, Freiburg // **Dr. Emily Koeneke**, DKFZ Heidelberg // **Dr. Jasmin Kollar**, Frankfurt // **Prof. Rainer König**, Jena // **Dr. Valentina Kovaleva**, San Jose // **Marius Küpper**, DKFZ Heidelberg // **Heike Langlotz**, DKFZ Heidelberg // **Dr. Gu Lei**, Boston // **Kathrin Leppek**, DKFZ Heidelberg // **Prof. Hao Liu**, Guangzhou // **Ramon Lopez**, DKFZ Heidelberg // **Dr. Christopher Löbner**, Frankfurt // **Pak Kin Lou**, DKFZ Heidelberg // **Dharanija Madhavan**, DKFZ Heidelberg // **Dr. Sarah Mang**, Walldorf // **Prof. Hans-Peter Meinzer**, DKFZ Heidelberg // **Dr. Martin Mollenhauer**, Cologne // **Alexandra Moraru**, DKFZ Heidelberg // **Karin Mössenböck**, DKFZ Heidelberg // **Prof. Rienk Offringa**, DKFZ Heidelberg // **Dr. Dörte Oltmanns**, Hemsbach // **Steffen Paar**, DKFZ Heidelberg // **Cike Peng**, DKFZ Heidelberg // **Dr. Christina Pfirschke**, Boston // **Dr. Vanessa Rausch**, Heidelberg // **Frank Reetz**, Berlin // **Dr. Maja Reuß**, DKFZ Heidelberg // **Dr. Verena Rhiemeier**, Aspach // **Dr. Steffen Rickelt**, Cambridge/MA // **Melanie Rinas**, DKFZ Heidelberg // **Dr. Dieter Schlaps**, Wessobrunn // **Maximilian Schliesser**, DKFZ Heidelberg // **Dr. Ronny Schmidt**, DKFZ Heidelberg // **Ansam Sinjab**, DKFZ Heidelberg // **Mirko Sobotta**, DKFZ Heidelberg // **Miriam Sonnet**, Heidelberg // **Corinna Sprengart**, DKFZ Heidelberg // **Dr. Sven Stanzel**, Basel // **Yamunadevi Subburaj**, Heidelberg // **Marius Tham**, DKFZ Heidelberg // **Dr. Amanda Torres**, La Paz // **Min-Han Tsai**, DKFZ Heidelberg // **Magdalena Uhler**, DKFZ Heidelberg // **Dr. Steve Wagner**, DKFZ Heidelberg // **Dr. Shibo Ying**, DKFZ Heidelberg // **Jitao Zhang**, Basel // **Dr. Ke Zhang**, Jülich

farewell symposium

A Pioneer of MRI Technologies Has Set Sail for New Horizons

by Mark Ladd

At the end of July 2013, Wolfhard Semmler, a well recognized DKFZ researcher and long time companion in science, entered retirement. In honor of his achievements, a symposium reviewing many of the most significant developments within medical imaging of the past decades was organized to say thank you and farewell.

Prof. Wolfhard Semmler worked from 1985 to 1991 at the DKFZ as head of the MR Imaging Group, since 1999 he headed the Division of Medical Physics in Radiology. Among his many achievements, Prof. Semmler was an initiator of the Strategic Alliance between DKFZ and Siemens and was instrumental in bringing the 7 Tesla MRI to DKFZ in 2008. He was also a long-time member of the DKFZ Alumni Board and put great effort into the research collaboration between the DKFZ and the Israel Ministry of Science, Technology and Space (MOST). He is also recognized for his service as chairman of the DKFZ's Scientific Council.

The symposium in Mid-January was attended by many current and former students and colleagues and included several speakers who worked with Prof. Semmler during his years at DKFZ or elsewhere. Prof. Gerhard van Kaick, retired Head of the Division of Oncological Diagnostics and Therapy, reviewed many of the earliest developments in imaging at the DKFZ, including the installation of the first whole body CT scanner in Germany (for contribution, please see www.dkfz.de/de/alumni/download/Semmler_kaick.pdf). Other speakers included Prof. Günter Stock (Berlin), Franz Schmitt (Erlangen), and Prof. Claus Claussen (Tübingen).

Prof. Wolfgang Schlegel and Mark Ladd (both DKFZ) highlighted the importance of imaging technologies in both diagnostics and therapy control.

Prof. Semmler studied and earned a doctorate in both physics and medicine

MR imaging and spectroscopy. Other scientific posts during his career beyond DKFZ included the Hahn-Meitner Institute in Berlin and Bell Laboratories in New Jersey. From 1992 until 1999 he was Director of the Institute for Diagnostic Research, a joint research effort between the Free University Berlin and Schering GmbH.

Even after his retirement Prof. Wolfhard Semmler will stay closely connected to the DKFZ: He will continue to serve the interests of the DKFZ as scientific ambassador in Berlin, as Prof.

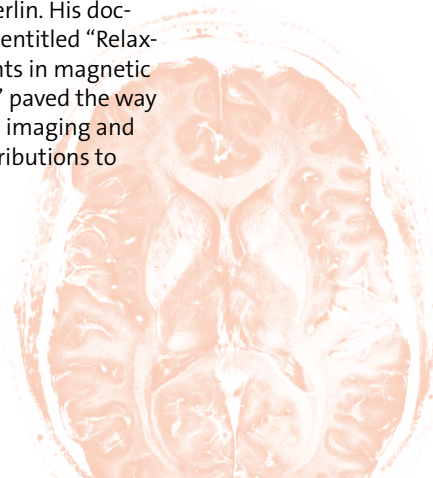
Otmar D. Wiestler, Chairman of the DKFZ Management Board, announced at the symposium. The DKFZ Alumni are very grateful to Wolfhard Semmler for his service to the Alumni Association and to the DKFZ over the past years. Now, together with his wife Silke, he has started into a new phase of life.

All the best!



Prof. Semmler inspects the 7 Tesla magnet from the inside during installation in 2008.

at the Free University Berlin. His doctoral thesis in medicine entitled "Relaxation time measurements in magnetic resonance tomography" paved the way for his career in medical imaging and his many scientific contributions to



excursion

Breaking News in Diagnostics and a History Lesson in Technology

by Marion Gürth

A visit to the well renowned pharmaceutical company Roche Diagnostics GmbH was one of the highlights of an Alumni excursion scheduled for November 12, 2013. A group of 56 alumni and guest scientists from 11 different home countries joined a trip to Mannheim and afterwards to the Technoseum.

The Basel representative Dr. Astrid Kiermaier, who is Associate Director at the department of Oncology Biomarker Development, gave a talk on personalized health care (PHC) and the importance of translational medicine: research from bench-to bedside and vice versa. By the example of HER2-positive breast cancer and the drug Pertuzumab she explained the process from identifying potential biomarkers to the development of effective drugs. The big challenge is to identify further and especially more specific biomarkers in different subgroups of cancer to ensure that different patients get a therapy that is tailored to the individual course of the disease.

The parameters in manufacturing sterile drugs and biologicals were explained by Dr. Tobias Posset, Head of Production Support in the Galenical Production of Bioengineered Drugs in Mannheim. A variety of products in different dosage forms are processed in Mannheim – the bulk products have to be sterilized and packed as syringes, lyophilized or liquid vials or packages. Every new product is a challenge for the facilities used during sterilization and packaging, because there are a lot of conditions which have to be



During the visit at the Roche site in Mannheim the Alumni group was introduced to the manufacturing processes of sterile drugs and biologicals.

adapted due to different properties of the product.

The Penzberg site was represented by Dr. Gabriele Pestlin. She gave an overview on the diagnostic perspective of PHC. As Diagnostics Liaison Manager she focusses on connecting drug design and the development of different companion diagnostic assays. She introduced Roche as the world's leading company in providing *in vitro* diagnostics using a broad range of technologies and explained the general development of an *in vitro* diagnostic assay and the subsequent validation and registration process.

Roche kindly invited our group for lunch at their Casino where the participants further discussed the previously presented topics. We took a group photo in front of the Roche logo, which we learned is representing a benzene ring referring to the class of tranquilizers known as Benzodiazepine, introduced by Roche in 1957.

After late-breaking science in the morning, the group was taken back in time during the stay at the Technoseum in Mannheim. There, one can see and learn about 200 years of technology and social history, from the beginning of industrialization until today. One of the highlights was the production of paper, especially as some of our participants were allowed to participate actively. There were many more impressive objects like old looms, an active steam train and a recreated room from the turn of the century. An entertaining conclusion was the visit of a traditional workers' pub where the vivid conversation about science and politics was continued before we finally went back to the DKFZ.



At the Technoseum Mannheim the history of industrialization is brought to life. The exhibition spreads on approximately 9,000 square meters.

excursion

A Scotsman's Love for Magnificent Palace Gardens

by Richard Harbottle

In May last year I left London to establish a new laboratory at the DKFZ. When I arrived, Heidelberg was awash and the rain continued unabated throughout the month and it wasn't until the Neckar retreated to its more usual level that our old town along with the sun began to shine. Despite the weather it was difficult not to appreciate the magnificence of Heidelberg, and its place amongst the historic academic centers of Europe was easy to recognize. I love old university towns – I undertook my first degree in another ancient place at St. Andrews University in Scotland. Being here reminds me of those undergraduate days and I really enjoy the vibrancy that old towns filled with people dedicated to learning like these can provide.

It's easy to understand why newer research institutes established themselves alongside the university, and the DKFZ already feels like it's a fundamental part of Heidelberg as it proudly takes its place alongside its more ancient academic neighbor. The DKFZ has an active Alumni Association and I was fortunate to receive a welcoming invitation from them within a couple of months of my arrival to visit Schwetzingen.

Despite a rather rainy morning we arrived to see the beautiful palace and gardens bathed in sunshine for our visit. The Schloss was the Palatine Elector's summer retreat and one wonders why he didn't stay throughout the year. The gardens are exquisite with surprises around every corner; the Minerva and Apollo temples and a Mosque about a beautifully manicured and landscaped English garden which in turn is flanked and interspersed with a multitude of disparate statues all forming just a small part of this magnificent space. It is easy to appreciate why it is considered one of the finest examples of an 18th century garden anywhere in Europe.

We enjoyed a very memorable and informative tour of the palace and grounds lead by a flamboyant Englishman culminating (for me at least) with a rather fine beer from the local Schwetzingen Brauhaus.



Richard Harbottle is a geneticist and biochemist who finished his PhD at Imperial College London in 2000. Since May 2013, he heads the DNA Vector Research Group at the DKFZ. His research aims at utilizing novel, next-generation DNA vectors to persistently modify cells without the risk of insertional mutagenesis or transcriptional silencing. The Harbottle group has developed a vector system, which is uniquely suited for the genetic modification of cells – it provides persistent expression and episomal maintenance without the use of potentially toxic viral components or the risk of insertional mutagenesis.

Dr. Harbottle was able to demonstrate the utility of these vectors in vitro, ex vivo and in vivo. The design of clinically relevant, episomally sustained replicating DNA vectors allows to confer persistent expression of biologically relevant or corrective genes. The vectors have been improved in terms of efficiency and reduced toxicity. A subgroup of vectors has been designed for the generation of xenograft models, gene expression studies and tumor tracking. They will be utilized in the evaluation of antitumor genetic therapies. Furthermore, a novel approach with minimally sized DNA vectors will provide improved tools not only for gene therapy, but for personalized medicine, stem-cell research and transgenesis.



Imprint

Alumni

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At the Division of Stem Cells and Cancer, Andreas Trumpp (front right) explained to Angela Merkel how his team makes use of an analyzer to isolate cancer cells with stem cell properties from a mixture of cancer cells. Many cancers and their metastases are thought to originate from such tumor stem cells.

Congratulations from Federal Chancellor Angela Merkel

On the occasion of the DKFZ's 50th Anniversary, Chancellor Angela Merkel visited the institute. After signing the guestbook, she toured two laboratories at the DKFZ, starting with the Division of Molecular Metabolic Control where she heard an explanation of the way lifestyle factors and malnutrition can lead to disruptions in metabolism and eventually to cancer. After an introduction into research issues of the Division of Stem Cells and Cancer, the Chancellor talked to a group of junior researchers from various countries including the USA, Canada and Japan. They explained why the DKFZ is an attractive em-

ployer for talented young scientists from around the world: With its outstanding researchers and excellent infrastructure, the Center holds a leading position in international cancer research. "The international spirit is alive at this institute and guarantees its scientific excellence," Merkel said and promised: "I will stay committed to ensuring that the DKFZ can provide the right framework conditions for this." Other topics of the conversation with the young researchers included equal opportunities and issues of family life versus career matters. Impressed by the talk, Merkel said: "One can feel that you

take the promotion of young scientists seriously, and that women have a chance here. My visit has convinced me that I don't have to worry about the up-and-coming generation at this institute." Highlight at the end of the Chancellor's visit was her speech to a huge audience of staff members and honorary guests. Merkel stressed the DKFZ's importance as a "jewel" in the German science landscape. The politicians' part, she said, has to be to sustain the freedom of research by reducing regulations on the one hand and stirring sufficient interest to research matters on the other.