

Welcome to the August and September edition of Alumni Monthly!

After a summer break we are now back with DKFZ news. A total of 18 press releases have been issued in the last two months and a great number of highlight publications have been published!

Enjoy reading the news and please also consider our job openings, maybe for yourself, maybe for a talented colleague.

For suggestion concerning this newsletter please write to <u>susanne.schunk@dkfz.de</u>

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News from the Press Office

2018 Erwin Schrödinger Prize: Enhanced detection and treatment of prostate cancer



from the left: Otmar D. Wiestler, President of the Helmholtz Association; Dirk Heinz (Scientific Director, Helmholtz Center for Infection Research – HZI), Matthias Eder (Freiburg University Hospital, German Cancer Consortium and DKFZ), Michael Eisenhut (DKFZ, emeritus), Uwe Haberkorn (Heidelberg University Hospital and DKFZ), Klaus Kopka (DKFZ) and Thomas Rachel, Parliamentary State Secretary to the Federal Minister of Education and Research. © Helmholtz/Boris Kramarić This year's Stifterverband Science Award – Erwin Schrödinger Prize goes to an interdisciplinary team of researchers from Heidelberg. Scientists Matthias Eder, Michael Eisenhut, Uwe Haberkorn and Klaus Kopka have jointly developed a method that facilitates more reliable diagnosis as well as more specific treatment of prostate cancer. read more

Triple ERC success for DKFZ junior researchers



Ana Banito © Fernando Picarra



Fabian Erdel © Jutta Jung/DKFZ



Moritz Mall © Jutta Jung/DKFZ

The European Research Council (ERC) awards Starting Grants to support excellent young scientists when they are starting an independent science career. In this year's round of proposals, three scientists from the German Cancer Research Center (DKFZ) have been chosen at once for the prestigious award: Ana Banito, Fabian Erdel and Moritz Mall. read more

Dieter Morszeck Foundation: Outstanding commitment to the German Cancer Research



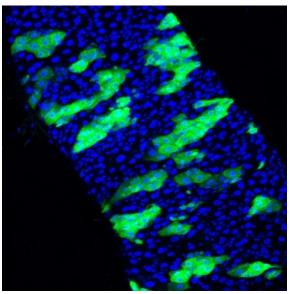
Upon signing the funding agreements: DKFZ Chairman Michael Baumann, donator Dieter Morszeck, and DKFZ Commercial Director Josef Puchta. © Uwe Anspach, DKFZ

Center

Cologne entrepreneur Dieter Morszeck, former CEO and owner of RIMOWA, donated part of his assets to the RIMOWA Dieter Morszeck Foundation in 2017. The foundation has three major focuses of which support for cancer research is one. It will give approximately €30 million to the DKFZ as private funding for research. The money will be used to support five auspicious DKFZ projects. read more

Sugar metabolism controls intestinal regeneration

Scientists from the DKFZ and Heidelberg University have discovered a surprising connection between sugar metabolism and the adaptation of intestinal tissue to the nutritional state. No other tissue in our body has such a high rate of cell renewal as the intestine. Since the intestinal tissue has an enormous energy requirement, it is important for the organism to adapt the volume and structure of the intestinal tissue to changing nutrient supplies. If this regulation is disturbed, intestinal cancer can develop or the intestinal mucosa can shrink resulting in a so-called intestinal atrophy. <u>read more</u>



Section from the intestine of a fruit fly: Stem cells are labelled green (GFP). © M. Boutros/DKFZ

A healthy lifestyle reduces the risk of colon cancer - regardless of the genetic risk profile



© Fotolia

The risk of developing bowel cancer depends, among other things, on lifestyle. Scientists from the DKFZ were able to show that everyone can reduce their personal risk of colon cancer by combining as many of five healthy lifestyles as possible: non-smoking, low alcohol consumption, a healthy diet, sufficient physical activity and normal body weight. This applies regardless of the genetic risk of bowel cancer. Even those who have a

slightly increased risk due to genetic factors can reduce their risk by following a healthy lifestyle. read more

New approach uncovers tumor promoting signaling pathway in common children's brain tumor

A study conducted by researchers of the "Hopp-Children's Cancer Center at the NCT Heidelberg (KiTZ)" together with colleagues from the Institute Curie (Orsay, France) and the University Hospital Düsseldorf discovered a novel signal transducer promoting medulloblastoma growth. Here, the teams combined two state-of-the-art molecular analysis methods in a project supported by the German Cancer Consortium (DKTK). Their combination approach revealed novel therapeutic targets for a difficult-to-treat brain tumor in children. <u>read more</u>



In addition to magnetic resonance imaging (MRI, see photo), molecular genetic analyses play an increasingly important role in the characterization of childhood brain tumors. © Fotolia/Sudok1

Figures for Germany determined for the first time: Avoidable risk factors cause 37 percent of all cancer cases



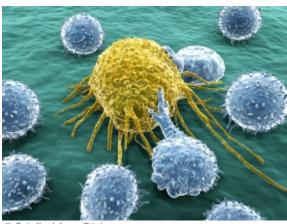
How many cancer cases in Germany are attributable to risk factors that we can influence ourselves? How many cancer cases are linked to cigarette smoking, being overweight or physical inactivity and, thus, are potentially preventable?

Scientists from the DKFZ have now calculated these figures for Germany for the first time. They will provide information for policy

makers and medical professionals on how the potential of cancer prevention can be exploited more efficiently. <u>read more</u>

Joining forces for immune research

The initiative "Immunology & Inflammation" unifies efforts in immunological research within the Helmholtz Association. 23 working groups from five Helmholtz Centers are joining forces to address some of the most complex problems in today's immunology in ways that can only be explored in collaboration. "What we have learned about the immune system and its role in many widespread diseases over the last ten years opens up countless perspectives for research," says Professor Martin Lohse, Scientific Director of the Max Delbrück Center



© Fotolia / Juan Gärtner

for Molecular Medicine (MDC), the center that coordinates the initiative. read more

Combined imaging provides more information about the tumor



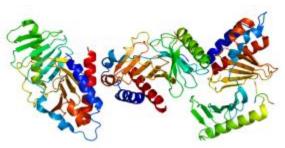
© S. Kegel/DKFZ

The DKFZ has installed the world's first combined device combining a 9.4 Tesla highfield MRI with a PET scanner. In combination, the two imaging methods provide significantly more information about tumors. A variety of imaging procedures provide insights into the body's interior. Each has its special advantages, but also its limits. MRI enables doctors to differentiate between different tissues or to visualize the blood

circulation. The strength of positron emission tomography (PET), on the other hand, lies in the imaging of specific cell or tissue functions: Weakly radioactively labelled biomolecules, the "tracers", are introduced into the metabolism and detected with high sensitivity in cells and tissues. <u>read more</u>

Cancer drug - in a different way than expected

The kinase PLK1 is overexpressed in a broad spectrum of human tumors. The enzyme is therefore considered an oncogene and a promising target structure for new cancer therapeutics. However, scientists at the DKFZ have now discovered that high PLK1 levels in mice reduce the development of cancer and disrupt cell division. The results suggest that PLK1 is more of a tumor suppressor than a



Model of PLK1 © Emw, Wikimedia Commons

cancer-promoting oncogene, as previously suspected. However, PLK1 inhibitors can still work against tumors - only in a different way than expected. <u>read more</u>

Vascularization: Two sources of new cell material

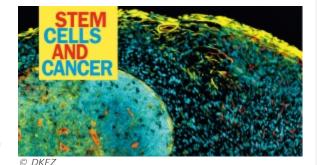


As new blood vessels form, so-called endothelial cells multiply to line the veins from the inside. Unless the endothelial cells have been previously damaged. Then the body retrieves stem cells from the bone marrow to form new endothelium. With this discovery, DKFZ researchers can now resolve a long-standing and very contradictory scientific debate. <u>read more in German</u>

Branched blood vessels of the mouse liver © H. Augustin/DKFZ

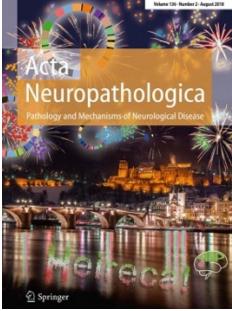
Cancer Stem Cells: From Basic Research to Innovative Treatment Strategies

At the 10th International Heinrich F.C. Behr Symposium at the DKFZ from 16 to 19 September, around 300 experts exchanged views on the role of stem cells in cancer. Important current topics were the newly discovered connections between metastasis and nutritional factors as well as the recognition that mutated blood stem cells are the common root of leukemia and



cardiovascular disease. Five experts report on the top topics of the conference in a video. watch the video here

HEIRECA - The Heidelberg revolution in the classification of brain tumors



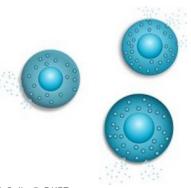
The journal "Acta Neuropathologica" dedicates its latest edition to the methylation-based brain tumor classification developed in Heidelberg.

Acta Neuropathologica (2018) August 2018, Volume 136, Issue 2. HEIRECA! The HEIdelberg REvolution of CAncer classification and what it means for neurooncology and neuropathology. <u>link to journal</u>

© Springer-Verlag GmbH Germany, part of Springer Nature 2018

Peptide detection produces better cancer killers

Natural killer cells are immune cells of the innate immune system. Scientists at the DKFZ have now found that some of these cells are able to differentiate specific structures on the surface of cancer cells. This ability was previously attributed only to cells of the acquired immune system. This may allow natural killer cells to be optimized for targeted use against cancer cells. <u>read more in German</u>



NK-Cells © DKFZ

Healthy in the mouth - especially important for cancer patients!



© Krebsinformationsdienst/DKFZ

Confronted with the diagnosis of cancer, patients usually have very different worries. The flyer "As a cancer patient to the dentist. How to Protect Your Teeth and Gums During Cancer Treatment" explains why it is still important to think about the health of your mouth and teeth. Editors include the Cancer Information Service of the DKFZ, the Federal Dental Association (BZÄK) and the Federal Dentists Association (KZBV). <u>read more in</u> <u>German</u>

Prevention: What can I do? Against cancer!

The brochure "What can I do? Against Cancer!" Provides up-to-date and scientifically proven recommendations for a healthy lifestyle and shows prevention options based on the European Code Against Cancer and the recommendations of medical societies. read more in German



© Krebsinformationsdienst/DKFZ

Diagnosis cancer: Who helps with high mental stress?



"You have cancer" - hardly a person affected will ever forget this sentence. From now on, life might get out of hand: questions, fears, sadness, anger - everything is confusing. Psycho-therapeutic help may be useful if the psychological burden becomes overwhelming or long lasting. The Cancer Information Service of the DKFZ offers a nationwide online search. www.krebsinformationsdienst.de/wegweiser of fers a directory with around 600 addresses of psycho-oncologically trained professionals who work with outpatients psychotherapeutically. read more in German

Brain and Cancer - the new edition of einblick is out now

The brain is the most complex organ of man and probably the most fascinating. But what if this important organ becomes ill - for example, if a tumor grows in the head?

The fight against cancer is often particularly difficult in the brain. Scientists at the DKFZ are therefore working to target brain tumors with new therapies. read more in German



© DKFZ

Highlight publications

Suppression of antitumor T cell immunity by the oncometabolite (R)-2hydroxyglutarate.

Nat Med. 2018 Aug; 24(8): 1192-1203. doi: 10.1038/s41591-018-0095-6. Epub 2018 Jul 9. Bunse L, Pusch S, Bunse T, Sahm F, Sanghvi K, Friedrich M, Alansary D, Sonner JK, Green E, Deumelandt K, Kilian M, Neftel C, Uhlig S, Kessler T, von Landenberg A, Berghoff AS, Marsh K, Steadman M, Zhu D, Nicolay B, Wiestler B, Breckwoldt MO, Al-Ali R, Karcher-Bausch S, Bozza M, Oezen I, Kramer M, Meyer J, Habel A, Eisel J, Poschet G, Weller M, Preusser M, Nadji-Ohl M, Thon N, Burger MC, Harter PN, Ratliff M, Harbottle R, Benner A, Schrimpf D, Okun J, Herold-Mende C, Turcan S, Kaulfuss S, Hess-Stumpp H, Bieback K, Cahill DP, Plate KH, Hänggi D, Dorsch M, Suvà ML, Niemeyer BA, von Deimling A, Wick W, Platten M. link to article

Can a single dose of human papillomavirus (HPV) vaccine prevent cervical cancer? Early findings from an Indian study.

Vaccine. 2018 Aug 6;36(32 Pt A):4783-4791. doi: 10.1016/j.vaccine.2018.02.087. Epub 2018 Mar 15.

Sankaranarayanan R, Joshi S, Muwonge R, Esmy PO, Basu P, Prabhu P, Bhatla N, Nene BM, Shaw J, Poli URR, Verma Y, Zomawia E, Pimple S, Tommasino M, Pawlita M, Gheit T, Waterboer T, Sehr P, Pillai MR; Indian HPV vaccine study group.

link to article

Validation of a blood biomarker for identification of individuals at high risk for gastric cancer.

Cancer Epidemiol Biomarkers Prev. 2018 Aug 29. pii: cebp.0582.2018. doi: 10.1158/1055-9965.EPI-18-0582. [Epub ahead of print]

Epplein M, Butt J, Zhang Y, Hendrix LH, Abnet CC, Murphy G, Zheng W, Shu XO, Tsugane S, Qiao YL, Taylor PR, Shimazu T, Yoo KY, Park SK, Kim J, Jee SH, Waterboer T, Pawlita M, You WC, Pan KF.

link to article

Genome-wide association study implicates immune dysfunction in the development of Hodgkin lymphoma.

Blood. 2018 Sep 7. pii: blood-2018-06-855296. doi: 10.1182/blood-2018-06-855296. [Epub ahead of print]

Sud A, Thomsen H, Orlando G, Försti A, Law PJ, Broderick P, Cooke R, Hariri F, Pastinen T, Easton DF, Pharoah PDP, Dunning AM, Peto J, Canzian F, Eeles R, Kote-Jarai Z, Muir K, Pashayan N, Campa D, Hoffmann P, Nöthen MM, Jöckel KH, von Strandmann EP, Swerdlow AJ, Engert A, Orr N, Hemminki K, Houlston RS. <u>link to article</u>

Radiomic Machine Learning for Characterization of Prostate Lesions with MRI: Comparison to ADC Values.

Radiology. 2018 Oct; 289(1): 128-137. doi: 10.1148/radiol.2018173064. Epub 2018 Jul 31. Bonekamp D, Kohl S, Wiesenfarth M, Schelb P, Radtke JP, Götz M, Kickingereder P, Yaqubi K, Hitthaler B, Gählert N, Kuder TA, Deister F, Freitag M, Hohenfellner M, Hadaschik BA, Schlemmer HP, Maier-Hein KH.

link to article

Dual-frequency irradiation CEST-MRI of endogenous bulk mobile proteins.

NMR Biomed. 2018 Jun; 31(6):e3920. doi: 10.1002/nbm.3920. Epub 2018 Apr 19. Goerke S, Breitling J, Zaiss M, Windschuh J, Kunz P, Schuenke P, Paech D, Longo DL, Klika KD, Ladd ME, Bachert P. link to article

Integrated analysis of dynamic FET PET/CT parameters, histology, and methylation profiling of 44 gliomas.

Eur J Nucl Med Mol Imaging. 2018 Jul;45(9):1573-1584. doi: 10.1007/s00259-018-4009-0.
Epub 2018 May 7.
M. Röhrich, K. Huang, D. Schimpf, N.L. Albert, T. Hielscher, A. von Deimling, U. Schüller, A. Dimitrakopoulou-Strauss, U. Haberkorn.
<u>link to article</u>

Stem Cell Intrinsic Hexosamine Metabolism Regulates Intestinal Adaptation to Nutrient Content.

Dev Cell. 2018 Sep 7. pii: S1534-5807(18)30681-6. doi: 10.1016/j.devcel.2018.08.011. [Epub ahead of print] Mattila J, Kokki K, Hietakangas V, Boutros M. link to article

Stress signaling in breast cancer cells induces matrix components that promote chemoresistant metastasis.

EMBO Mol Med. 2018 Sep 6. pii: e9003. doi: 10.15252/emmm.201809003. [Epub ahead of print]

Insua-Rodríguez J, Pein M, Hongu T, Meier J, Descot A, Lowy CM, De Braekeleer E, Sinn HP, Spaich S, Sütterlin M, Schneeweiss A, Oskarsson T <u>link to article</u>

Upcoming events

Frontiers in Cancer Research (FCR) Conference



October 9-11, 2018

DKFZ Communication Center

The meeting will feature sessions on stem cells and cancer, molecular mechanisms, systems biology, tumor biology, translational cancer research, and cancer

prevention.

Over three days, internationally renowned experts will discuss their latest data. A poster session, contributed short oral presentations, a panel discussion, and a conference dinner will further foster scientific exchange.

more information here

3rd Heidelberg Symposium on Novel Techniques in Ion Beam Radiotherapy

October 15-17, 2018

Internationales Wissenschaftsforum Heidelberg (IWH)

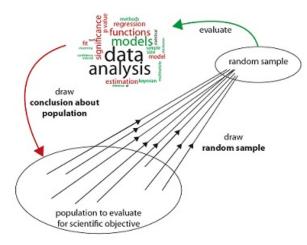
"Visions for Ion Beam Radiotherapy Beyond 2030"

Confirmed speakers:

- R. Amos (London, UK)
- P. Evans (Surrey, UK)
- V. Patera (Rome, Italy)
- J. Seco (Heidelberg, Germany)
- M. Schwarz (Trento, Italy)
- more information here

- S. Combs (Munich, Germany)
- J. Debus (Heidelberg, Germany) W. Enghardt (Dresden, Germany)
 - P. Fossati (MedAustron, Austria)
- C. Karger (Heidelberg, Germany) A. Knopf (Groningen, Netherlands)
 - J. Poleszczuk (Warsaw, Poland)
 - M. Scholz (Darmstadt, Germany)
 - B. Sorensen (Aarhus, Denmark)
- T. Skripcak (Dresden, Germany) G. Valdes (San Francisco, USA)





Starting: 10th October 2018 until February 2019

10 Oct: Analysis of Variance 17 Oct: Multiple linear regression 24 Oct: Logistic regression 31 Oct: Dose-response modeling more information here



The 2nd international conference on

"Networks Of Cellular Surveillance Mechanisms"

October 22 - 24, 2018

DKFZ Communication Center

The sessions will cover the following topics:

- Cellular buffering capacities to maintain homeostasis
- Epigenetic and environmental regulation of stress responses

• Mechanisms of regulated and aberrant protein aggregation

more information here



RADIATION RESEARCH IN ONCOLOGY



RADIATION RESEARCH IN ONCOLOGY

HIRO and OncoRay Lecture Series 2018/2019, part 2

25/10 Prof. Dr. Oliver Jäkel Particle Radiotherapy 15/11 Prof. Dr. Nasreddin Abolmaali Fundamentals of Radiologic Imaging 13/12 Prof. Dr. Marc Kachelrieß Imaging Technology I 24/01 Prof. Dr. Mark Ladd Imaging Technology II 28/02 Prof. Dr. Jörg Kotzerke Fundamentals of Nuclear Medicine 14/03 Prof. Dr. Oliver Jäkel **Cyclotrons and Synchrotrons** 04/04 Prof. Dr. Christian Karger **Radiation Response of Normal Tissue** 23/05 Prof. Dr. Mechthild Krause Tumor Radiobiology 27/06 Prof. Dr. Anna Dubrovska Cancer stem cells and radiotherapy more information here

HIRO and OncoRay Lecture Series 2018/2019

"An Introduction to Category Theory"

Bioquant Seminar Series

Starting: 25th October 2018

Speaker: Jeremy Mann

(University of Notre Dame, USA; NCT Heidelberg, Germany)

A series of seminars on the essential lexicon and techniques of category theory.

more information here



Symposium in honor of the scientific achievements of



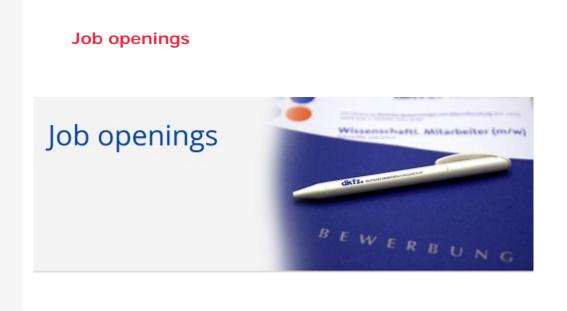
Prof. Bruno Kyewski

November 05, 2018 at 1:30 pm in the Marsilius Kolleg

SPEAKERS

Hartmut Wekerle Emeritus Group Neuroimmunology, MPI of Neurobiology, Munich Mark Anderson UCSF School of Medicine, San Francisco, USA Pärt Peterson Department of Biomedicine, University of Tartu, Estland Gitta Stockinger AhRimmunity Laboratory, Francis Crick Institute, London, UK Ludger Klein Institute for Immunology, LMU Munich

© DKFZ



Please check our website here

Open Call

EUREKA - 11th Germany Israel Call for Projects



Deadline: November 29th, 2018

Germany and Israel are announcing a Call for Proposals for joint R&D projects, focusing on developing innovative products and applications in all

technological and application areas. Applicants are expected to develop ready-to-market solutions for products, technology-based services or methods which have strong market potential for Germany, Israel and Europe. Partners apply for their R&D project for a EUREKA label, a pan European network for market-oriented R&D.

more information here

Alumni matters

Jeff Dean, the "Chuck Norris of computer science" at the DKFZ



On Tuesday, September 25th, **Jeff Dean**, **Head of Google AI and Google Brain**, gave a talk at the DKFZ on

Deep Learning to Solve Challenging Problems

watch the viedo here

DKFZ Career Day "Project Management"

The Career Day was held on Septebmer 28th, 2018.

Watch an interview with Prof. Josef Puchta addressing the value of excellent project management skills and the field of project management as a possible career path for scientists.

video here



German Cancer Research Center

European Researchers' Night am DKFZ



Wissenschaftsreporter © DKFZ

Begehbares Darmkrebsmodell © DKFZ

Was erforschen die Wissenschaftlerinnen und Wissenschaftler des DKFZ bei Ihrer täglichen Arbeit? Von welchen neuen Erkenntnissen aus der Krebsforschung können die Menschen direkt profitieren? Diesen und vielen weiteren Fragen konnten die Besucher des DKFZ bei der "Nacht der Forschung 2018" am 28. September 2018 auf den Grund gehen.

Ein 20 Meter langes begehbares Darmkrebsmodell mit integrierter Ausstellung trug zur Aufklärung bei, der Krebsinformationsdienst beantwortete umfassend Fragen rund um Krebsprävention und therapie, mit der Sunface App konnten sich Groß und Klein sehr anschaulich die Wirkung der Sonne auf die Haut vor Augen führen.

In Vorträgen informierten DKFZ Wissenschaftler auf allgemein verständliche Weise über Ihre Arbeit. Geführte Besichtigungstouren in ein S2-Forschungslabor und zum 7-Tesla

Magnetresonanztomographen waren bei den Besuchern ebenso beliebt, wie die Möglichkeit, sich als Wissenschaftsreporter zu betätigen und Postdoktoranden des DKFZ ihre brennendsten Fragen zu stellen. Die Mitmachexperimente faszinierten vor allem die vielen Kinder, die mit viel Spaß und Elan DNA-Halsketten herstellten, sich Schülerprojekte aus den Bereichen Robotik oder Chemie vorstellen ließen oder auch Krebszellen unter dem Mikroskop beobachten konnten.

Die Veranstaltung war für das DKFZ ein voller Erfolg, was sich nicht zuletzt an den mehr als 1850 Besuchern messen ließ. Auch im nächsten Jahr wird die Nacht der Forschung wieder stattfinden und das DKFZ zu nächtlicher Stunde seine Pforten öffnen.

watch the video here

October -December 2018



His Holiness the 14th **Dalai Lama** accepted an invitation by the German-American Institute (DAI) Heidelberg to take part in a discussion about "Happiness and Responsibility" with **Heidelberg scientists**.

Watch the discussion of the Tibetans' spiritual leader with **DKFZ brain researcher Prof. Dr. Hannah Monyer**, gerontologist Prof. Dr. Andreas Kruse and astrophysicist Prof. Dr. Matthias Bartelmann <u>on YouTube here</u>

link to the festival program

Stay connected



Join the Alumni Association Alumni members benefit from an attractive range of activities:

- · Alumni Monthly electronic newsletter reporting on recent developments at the DKFZ
- Publication of Alumni Magazine reporting on Alumni activities
- Eligibility for a DKFZ Alumni email address your.name@alumni.dkfz.de
- Biennial General Alumni Meeting and Scientific Symposium, including travel grants
- · Invitations to social events and excursions
- one-year LinkedIn Premium for free

All current and former DKFZ colleagues are welcome to join. Please register at <u>www.dkfz.de/en/alumni</u>



Join DKFZ Connect

Join more than 2500 colleagues on DKFZ Connect, the online platform for networking and mentoring between former and current employees, including events and job postings. You can register per email or easily sync your profile with social media on <u>www.dkfz-connect.de</u>



Research for a Life without Cancer

Imprint

Responsible for the Content: Deutsches Krebsforschungszentrum Alumni Association Interim-Chairman: Dr. Axel Wiest Editor: Susanne Schunk Im Neuenheimer Feld 280 D-69120 Heidelberg, Germany Phone: +49 (0) 6221 42-4499 E-Mail: Susanne.schunk@dkfz.de Internet: http://www.dkfz.de/alumni/en