

Major Cancer Biology

within the Master Program 'Molecular Biosciences' University of Heidelberg, Faculty of Biosciences



GERMAN
CANCER RESEARCH CENTER

all Major Cancer Biology teaching activities can be found in the Academic Calendar of the University at <http://\lsf.uni-heidelberg.de>

Overview HP-L's offered in SoSe2012 - Modules "Biolab" and "Working in Bioscience"

Definition: A 'Biolab' or 'Working in Bioscience' lab practical – duration: minimum 6 weeks – should consist of a small scientific project.

The protocol should be written in the style of a master thesis, consisting of abstract, title page, introduction, materials and methods, results, discussion and references.

Ifd Nr.	Term	Type	Supervisor(s) Contact	Duration and date Time Location No. of places	Title and Description
1.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input checked="" type="checkbox"/> WiB (also for Major: MCB) • also for Master Molecular Biotechnology • also for Master Translational Medical Research	<ul style="list-style-type: none"> Amir Abdollahi, Sara Chiblak, Sophie Domhan, Christian Schwager, Peter Hofner, Quanxiang Wei a.amir@dkfz.de Tel. 06221 56-39604 	<ul style="list-style-type: none"> to be arranged 9:00-18:00 HIT-INF450 and NCT-INF460 2 	<p>Tumor microenvironment, radiation oncology and translational cancer research</p> <p>The main focus of our lab is to investigate the role of tumor-stroma communication in development of tumor resistance to multimodal therapies and rational design of novel therapy strategies. For a recent overview please read: Abdollahi and Folkman. Evading tumor evasion: Current concepts and perspectives of anti-angiogenic cancer therapy. Drug Resist Updat. 2010 (download @ http://angiogenesis.dkfz.de/papers/abdollahi_drugresist_2010.pdf).</p> <p>We seek for candidates with an excellent scientific record and strong motivation in multidisciplinary projects. Solid background in basic cell and molecular biology techniques are requested. Experiences in the field of tumor angiogenesis and tumor microenvironment, radiation biology, genome/transcriptome and epigenetic analysis (microarrays based mRNA, miRNA, SNP, CGH and promoter methylation studies), analysis of large data sets generated with high-throughput methods (basic statistics, R, SQL), functional genomics (RNAi or pharmacological in-vitro and in-vivo screens), proteomics (expression, purification, phosphorylation and protein-protein interaction analysis) are favourable and the focus of our laboratory. Special skills with animal experimentation, including transgenic mouse models, surgical orthotopic tumor implantation, intravital microscopy or other invasive or non-invasive imaging tools (MRI, CT-scan, PET and ultrasound) are advantageous for the evaluation of the applicant. Our team is integrated in Heidelberg Ion Therapy Center and National Center for Tumor diseases (NCT) which offer state-of-the-art research facilities and a supportive multidisciplinary environment. For more information about our group please visit: www.molecularoncology.de</p>

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2.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input checked="" type="checkbox"/> WiB (also for Major: MCB, Systems Biology) 	<ul style="list-style-type: none"> Michael Boutros m.boutros@dkfz.de Tel. 06221 42-1950 	<ul style="list-style-type: none"> to be arranged to be arranged to be arranged 2 	<p>Signaling in cancer Signaling networks control key decisions during development of organisms and deregulation of signal transduction pathways has been linked with carcinogenesis. To understand the complex biological networks, our research centers at dissecting how signals are secreted, received and transmitted. We apply modern genomic technologies as well as cell biology and genetics in model systems like Drosophila and human cells. In particular we use RNA interference (RNAi) technologies in vitro and in vivo to systematically identify pathway-specific genes and dissect their role in development and carcinogenesis. Please refer to our website for further information and references: http://www.dkfz.de/signaling/b110/Teaching.html</p>
3.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input checked="" type="checkbox"/> WiB (also for Major: MCB, Systems Biology) 	<ul style="list-style-type: none"> Michael Boutros m.boutros@dkfz.de Tel. 06221 42-1950 	<ul style="list-style-type: none"> to be arranged to be arranged to be arranged 1 	<p>Computational analysis of high-throughput screening data The RNA interference (RNAi) method allows the systematic silencing of any known gene in the genome, helping to elucidate gene functions. Such high-throughput functional genomics experiments produce large amounts of data that need to be analysed, interpreted and stored in databases. We implement analysis tools and databases to support large-scale screening experiments.</p>
4.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> Adelheid Cerwenka, Alexander Rölle, Sonja Textor a.cerwenka@dkfz.de 	<ul style="list-style-type: none"> to be arranged 09:00-18:00 DKFZ, INF 280, 7. OG 1 	<p>Innate Immunity and Cancer http://www.dkfz.de/en/innateimmun/index.php</p>
5.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input checked="" type="checkbox"/> WiB (also for Major: Infectious Diseases) 	<ul style="list-style-type: none"> Henri-Jacques Delecluse, Regina Feederle h.delecluse@dkfz.de 	<ul style="list-style-type: none"> to be arranged 09:00-19:00 DKFZ, ATV, INF 242, 1. OG Ost 2 	<p>Mechanisms of cancerous transformation induced by the Epstein-Barr virus Infection with the Epstein-Barr virus is responsible for the development of 2% of all cancers worldwide. Our laboratory aims at understanding which viral proteins and non-coding RNAs are responsible for this process. We generate mutant virus recombinants that lack one or several of these genetic elements and study their phenotypic traits. In addition, we generate mutants endowed with clinically-relevant properties that could serve as preventative vaccines. Students enrolled in the course will contribute to the construction of mutants and the study of their transforming properties.</p>
6.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input checked="" type="checkbox"/> WiB (also for Major: MCB) 	<ul style="list-style-type: none"> Tobias P. Dick t.dick@dkfz.de 	<ul style="list-style-type: none"> to be arranged 9.00-18.00 DKFZ, INF 280, H2.02 1 	<p>Redox regulation of signal transduction Please refer to our website for topics and references. http://www.dkfz.de/en/redoxregulation/inhalte/researchinterests/startres.html</p>
7.	SoSe2012	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Biolab <input checked="" type="checkbox"/> WiB (also for Major: MCB) 	<ul style="list-style-type: none"> Sven Diederichs s.diederichs@dkfz.de 	<ul style="list-style-type: none"> 6-8 weeks; date to be arranged full-time DKFZ; INF 280, H1.03.064 1 	<p>microRNA & non-coding RNA Biology Many non-protein-coding RNAs (ncRNAs) can exert important functions in the cell. One class of ncRNAs, microRNAs, are novel important post-transcriptional regulators of gene expression. Many microRNAs play prominent roles in tumorigenesis by targeting oncogenes or tumor suppressor genes. In our young and motivated group, you will study the biogenesis of microRNAs or the function of other non-coding RNAs as well as their dysregulation and role in cancer. The most important methods in our lab that you could learn are cell culture, transfection, microRNA isolation, microRNA Northern blots, RT-PCR & qPCR, luciferase assays, cloning using topoisomerase or Gateway methodology, mutagenesis, microRNA target prediction, splicing analysis, cellular phenotype analysis of e.g. proliferation or apoptosis. Website: www.diederichslab.org</p>

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8.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Markus Feuerer, David Richards • m.feuerer@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • DKFZ, H1.07.029 • 1 	<p>Molecular mechanisms involved in development and function of regulatory immune cells</p> <p>Quite recently, Foxp3 expressing regulatory T cells (Tregs) have emerged as critical control elements within the immune system, being of essential importance for the maintenance of self-tolerance, the limitation of excessive anti-pathogen responses and for the control of immune homeostasis.</p> <p>This project is part of a bigger picture that aims to decipher and compare the molecular control mechanisms involved in the development and function of Tregs that emerge along the respective pathways.</p> <p>http://www.dkfz.de/en/immuntoleranz/index.html</p>
9.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Andreas Fischer • a.fischer@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • full-time • 2-3 	<p>Notch signaling in angiogenesis and vascular tumors</p> <p>Our laboratory is interested in how Delta Notch signaling coordinates blood vessel differentiation in normal tissue and how this pathway affects tumor angiogenesis, vascular malformations and vascular tumors. Other projects address the role of Notch signaling for tissue homeostasis e.g. vascular permeability control and the influence of endothelial cells on metabolism. We apply a large repertoire of cellular methods in cell biology, molecular biology as well as mouse models.</p>
10.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Stephan Herzig, Anja Krones-Herzig • a.krones-herzig@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • HH, 1. OG • 1 at a time 	<p>Gene expression and gene therapy</p> <p>Our group is studying the molecular causes of severe metabolic disorders such as type II diabetes and cachexia, a state of fatigue and loss of vitality as commonly associated with advanced cancer. The main causes of these metabolic disorders are believed to be hormonal malfunctions which lead to a change of activity of genes regulating our metabolism. By analyzing the activity of such hormone-dependent genes we hope to identify disease-causing malfunctions in glucose and fat metabolism. We ultimately aim to identify genes and gene products which increase the susceptibility to metabolic diseases and test their potential to serve as novel targets for drugs. So far we have found three candidate genes, all of which serve as blueprints for proteins that work like molecular switches regulating the activity of target genes. Flawed blueprints for these proteins may lead to diseases like diabetes or cachexia.</p> <p>http://www.dkfz.de/en/metabolic_control/</p>
11.	SoSe2011	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Ilse Hofmann • i.hofmann@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-17.00 • CBTM, Mannheim • 1 	<p>Cell adhesion and signaling in cancer</p> <p>Please refer to our website for topics and references (http://www.angiolab.de)</p>
12.	SoSe2011	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Dorde Komljenovic, Tobias Bäuerle, Wolfhard Semmler • d.komljenovic@dkfz.de • t.baeuerle@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 09:00-18:00 • DKFZ, Radiology • 2 	<p>Multiparametric assessment of tumor pathogenesis using noninvasive imaging methods</p> <p>Noninvasive imaging techniques, including dynamic contrast-enhanced magnetic resonance imaging and contrast-enhanced ultrasound, are valuable tools to investigate the pathogenesis of metastases as well as to assess the response of metastases to applied therapy. Blood vessels that supply nutrients to the tumor are an attractive target of a variety of cancer drugs. Contrast enhanced imaging modalities enable functional characterization of tumor blood vessels with an advantage of identifying vascular parameters prognostic of the therapeutic outcome before an effect becomes morphologically apparent. To this aim, applying small animal tumor models, we use imaging modalities dedicated to small animals and/or adapted clinical devices as well as postprocessing softwares to analyse acquired data.</p>

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13.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:)	<ul style="list-style-type: none"> • Ulrike Korf • u.korf@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • INF 580, TP3 2.306 • 1 	<p>Role of Hedgehog-signaling in breast cancer tumor progression</p> <p>Crosstalk between Hedgehog- and EGF-mediated signaling synergistically regulates numerous factors that modulate tumor-stroma interactions and thereby contribute to tumor progression. Selected coregulated target genes will be validated in a panel of different breast cancer cell lines to delineate the role of Hedgehog-signaling in breast cancer on a molecular level. Transcriptomics, proteomics, as well as functional assays will be used during the practical. Promising targets will be validated in patient samples.</p>
14.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:)	<ul style="list-style-type: none"> • Rajiv Kumar • r.kumar@dkfz.de 	<ul style="list-style-type: none"> • 8 weeks; date to be arranged • 9.00-18.00 • INF 580, Rom 3.206 • 2 	<p>Somatic and germline variants in cancers</p> <p>http://www.dkfz.de/en/major-cancer-biology/Dozenten/Details-Dozenten-FS-C/Kumar-Rajiv.pdf</p>
15.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:)	<ul style="list-style-type: none"> • Stephanie Laufs, Manfred Schmidt, Cynthia Bartholomä • stephanie.laufs@nct-heidelberg.de 	<ul style="list-style-type: none"> • 8 weeks; date to be arranged • 9.00-17.00 • INF 581 (TP4) 4th floor • 1-2 	<p>Subgenomic sequencing of wtHIV in vivo</p> <p>Practical will include basic studies on HIV-1 biology with a special emphasis on genomic integration. Methods will include linker-PCR/PCR/qPCR techniques and high throughput sequencing (454/Roche, Illumina/Solexa systems)</p>
16.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:)	<ul style="list-style-type: none"> • Antonio Marchini • a.marchini@dkfz.de • Tel. 06221 42-4964 	<ul style="list-style-type: none"> • to be arranged • full-time • DKFZ, ATV, A2.208 • 1 	<p>Development of novel Parvovirus-based anti-cancer therapies</p> <p>We genetically modify rodent oncolytic parvoviruses (PVs) with the aim to improve their antineoplastic activities. PVs of a second generation are then tested alone or in combination with other anti-cancer agents. Molecular Biology, Cell Biology and Virology methods are used for the characterization of the novel therapies. The student will work in a small project integrated into the research activities of our Team.</p>

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17.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major: Neuroscience, MCB)	<ul style="list-style-type: none"> • Ana Martin-Villalba, Susanne Kleber, Desiree Seib, Robert Hermann, Enric Llorens • a.martin-villalba@dkfz.de Tel. 06221 42-3766 	<ul style="list-style-type: none"> • to be arranged • 10.00-18.00 • TP4, INF 581, 3. OG BT I • 2-3 	<p>Analysing the role of the CD95/CD95L-system in different scenarios of the central nervous system</p> <p>Stem cells Our lab is interested in the function and regulation of neural stem cells in the developing and adult brain. In the adult brain there are two regions harbouring neural stem/progenitor cells (NPCs) that continuously generate new neurons, the dentate gyrus of the hippocampus (DG) and the subventricular zone of the lateral ventricles (SVZ). Newborn neurons of the hippocampus are involved in learning and memory. Stem cells in the SVZ generate interneurons involved in fine tuning of olfaction. In the diseased brain, NPCs can be activated to repair the brain. Over-activation of these cells can result in tumour formation. To envisage ways to repair the CNS or block tumor formation the lab studies cell proliferation, and differentiation in the developing and healthy, tumorigenic, and regenerating adult CNS. Our laboratory has identified CD95 as a receptor signaling survival and neuronal differentiation in the naive and ischemic brain (Corsini et al., Cell Stem Cell 2009).</p> <p>Axonal regeneration Santiago Ramón y Cajal made several fundamental observations that have defined the perception of axonal regeneration in the central nervous system (CNS) of the past decades. While during development and in the peripheral nervous system, regeneration of nerve fibers does occur, in the adult CNS they do not regenerate. Right after injury, transected axons in the brain and spinal cord extend short distances, but shortly afterwards regeneration is halted and growth cones turn into retraction bulbs (Cajal, 1928). Our laboratory tries to envisage new ways to coax axons towards regeneration using models of crush- and transection-injury of the spinal cord.</p> <p>Signaling CD95 was first described as the inducer of apoptosis and it is still mostly known as the "death receptor". However, research in our group questions this dogma. We showed in several cancer cell lines and primary cell types that CD95 does not act as an apoptosis inducer but rather triggers migration, invasion and differentiation. We have deciphered molecular events originating from CD95 in glioma, neural stem cells and immune cells. Currently, we are investigating corresponding pathways in differentiating neurons and pancreatic cancer. Those findings imply CD95 as a therapeutic target for treating spreading of glioblastoma, neurodegenerative disorders as well as inflammation after spinal cord injury (Kleber et al., Cancer Cell, 2008; Corsini et al., Cell Stem Cell 2009; Sancho Martinez and Martin-Villalba, Cell Cycle, 2009; Letellier et al., Immunity, 2010). Furthermore, by identification of cell-type specific adapters of CD95 signaling we enlarged a potential spectrum of pharmacological intervention.</p> <p>http://www.dkfz.de/en/neurobiologie-von-gehirntumoren/index.html</p>
18.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:)	<ul style="list-style-type: none"> • Norbert Mücke, Jörg Langowski, Harald Herrmann • norbert.muecke@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • • TP3 • 	<p>Characterization of the in vitro assembly process of intermediate filament proteins by atomic force microscopy</p>

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19.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major: Infectious Diseases) 	<ul style="list-style-type: none"> • Martin Müller • martin.mueller@dkfz.de Tel. 06221 42-4628 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • ATV 2.114 • 2 	<p>Viruses and cancer Topics include: Adeno-associated viruses, papilloma viruses, vaccination</p>
20.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major: Infectious Diseases) 	<ul style="list-style-type: none"> • Dirk M. Nettelbeck • d.nettelbeck@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • • ATV 1.212 • 1 	<p>Oncolytic adenoviruses Engineering of oncolytic adenoviruses for selective killing of cancer cells and their characterization. Involves molecular biology, cell biology and virology techniques.</p>
21.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Jürg P.F. Nüesch • jpf.nuesch@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • ATV 2.221 • 1 	<p>Cloning and evaluation of H1-Parvovirus variants Through serial passaging we have obtained H1-PV variants surpassing the parental pSR-19 isolate in their ability to propagate and spread through human glioblastoma cultures. Some of these variants have been cloned into pCR2.1 vectors and sequenced presenting a variety of mutations as compared to the parental strain. The aim of the project is to determine, which mutants are responsible for the enhanced fitness in GBM cell lines. Therefore, individual variations/mutants will be cloned into infectious H1-PV DNA clones and virus stocks are prepared. Matched stocks will be tested for replication, propagation and spreading capacity by southern/western blot, crystal violet and immunofluorescence assays in a subset of human derived GBM cultures.</p>
22.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Christoph Plass Dieter Weichenhan • c.plass@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • INF 280, HH, 2. OG • 1 	<p>Epigenetic profiling in cancer Epigenetic alterations contribute to tumorigenesis by silencing cancer related genes. Our work focuses on several questions. What are the underlying mechanisms of epigenetic gene silencing in cancer? What are the target genes for epigenetic silencing and what are the patterns of epigenetic silencing? What is the functions of genes that are epigenetically silenced in normal tissues? Work in our group focuses primarily on acute myeloid leukemia and chronic lymphocytic leukemia.</p>
23.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Odilia Popanda • o.popanda@dkfz.de Tel. 06221 42-3315 	<ul style="list-style-type: none"> • to be arranged • to be arranged • H02.03.071 • 2 	<p>DNA repair and epigenomics Optimal function of the cellular DNA repair machinery plays a critical role in preserving genomic integrity. Defective or impaired DNA repair increases genomic instability and contributes to malignant transformation. Genetic and epigenetic repair gene modifications are both contributing to tumor development. Promoter methylation of specific DNA repair genes is an important example how epigenetically silenced targets affect tumor development as well as tumor therapy. Our work aims to elucidate interactions of DNA damage and repair mechanisms with epigenetic gene regulation, especially DNA methylation. Methods applied in our group include characterization of repair capacity (e.g. single-cell gel electrophoresis), expression analysis of repair genes, and determination of genetic and epigenetic markers (BIO-COBRA, EpiTYPER Sequenom).</p>
24.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Anne Régnier-Vigouroux • regnier@dkfz.de 	<ul style="list-style-type: none"> • 6-8 weeks; date to be arranged • 9.00-18.00 • INF 242, ATV, Raum 2.212 • 1 	<p>Anti-tumour immunity in the brain microglia-tumour cells interactions/glioma cell death/microglia anti-tumour activities/mouse and human models/in vitro, in vivo studies/fluorescence based-bioassays</p>

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25.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major: Infectious Diseases) 	<ul style="list-style-type: none"> • Angelika Riemer • a.riemer@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • INF 242, ATV • 1 	<p>HPV T cell epitope identification for description of current research see http://www.dkfz.de/en/immuntherapie-immunpraevention/index.php</p>
26.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Angela Risch, Wolfgang Hagmann • a.risch@dkfz.de 	<ul style="list-style-type: none"> • to be arranged • 9.00-18.00 • INF 280, H2.03.045 • 1 	<p>Methylation analyses in lung cancer Epigenetic and genetic analyses relating to lung cancer risk and treatment outcome in lung cancer patients http://www.dkfz.de/en/tox/Lung_Cancer_Genomics_Epigenomics.html</p>
27.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major: MCB) 	<ul style="list-style-type: none"> • Christoph Rösli, Andreas Trumpp • katharina.frey@dkfz.de • c.roesli@dkfz.de • Tel. 06221 42-3923 	<ul style="list-style-type: none"> • to be arranged • • INF 280. H1.04.064 • 1 	<p>Expression, purification and characterization of putative biomarkers in prokaryotic and/or eukaryotic cells Our research group is focusing on the identification of novel biomarkers for the development of targeted therapeutics and/or novel diagnostics. In order to select specific monoclonal antibodies by phage display technology, the biomarkers have to be expressed. During the Lab Practical, the student will express, purify and characterize a putative biomarker in prokaryotic cells (E.coli) and/or eukaryotic cells (CHO or HEK cells). The expression will be performed either stably or transiently. Finally, the expressed protein will be purified by affinity chromatography and characterized using different molecular biology technologies (e.g. SDS-PAGE, ELISA, FPLC and mass spectrometry). For further information, please visit our webpage: http://www.hi-stem.de/inhalt.php?id=5236&menu_level=2&id_mnu=5820&id_kunden=555</p>
28.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Manfred Schmidt, Ali Nowrouzi, Cynthia Bartholomä, Anna Paruzynski, Richard Gabriel • manfred.schmidt@nct-heidelberg.de 	<ul style="list-style-type: none"> • to be arranged • 9-18 • INF 581 (TP4) Room 4.303 • 1 	<p>Vector biosafety analyses in preclinical and clinical gene therapy studies The main focus of the Schmidt group is set on the efficiency and safety of gene transfer vector systems and their application in clinical gene therapy. The linear amplification mediated (LAM)-PCR technology, developed in our lab, detects viral integration sites in the human genome in minimal amounts of clinical samples, allowing the dissection of vector integrations that may lead to genotoxicity, as a side effect of gene therapy. For nearly all world-wide successful gene therapy studies, with the aim to cure immunodeficiencies, the group surveyed the clonal composition of the hematopoietic system after transplantation. These studies also provided precious insights into the biology of stem cells, physiology of hematopoietic (and other tissue) regeneration and development of malignancies. Moreover, the integration site analysis, combined with next generation sequencing and bioinformatical data management, serves as a highly valuable platform for more than 40 national and international collaborative projects, which investigate molecular mechanisms underlying gene and molecular therapeutical studies. http://www.nctheidelberg.de/de/forschung/Molekulare_Diag/molekulare_gentherapie/molekulare_gentherapie.php</p>

Ifd Nr	Term	Type	• Supervisor(s) • Contact	• Duration and date • Time • Location • No. of places	Title and Description
29.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Reinhard Schwartz-Albiez • r.s-albiez@dkfz.de Tel. 06221 42-3713 	<ul style="list-style-type: none"> • to be arranged • • • 	<p>Interactions of vascular endothelium and tumor cells during homing and angiogenesis Tumor cells modify their microenvironment in order to provide efficient growth undisturbed by immune cells. In this respect tumor cells also induce vascularization of their tissue. The main protagonists of vessel formation are endothelial cells which additionally have a second vital function for malignant cell growth in that they promote first contacts between tumor cells in the circulation and the respective host tissue ("homing"). Modulations of the glycosylation of cell surface expressed proteins and secreted macromolecules play a role in both processes, angiogenesis and homing. We therefore investigate glycosylation process both on the endothelial and the tumor cell side. The results are useful for the development of diagnostic tools as well as for designing new therapeutic strategies to inhibit metastasis formation and tumor induced angiogenesis. http://www.dkfz.de/en/translacionale-immunologie/schwartz-albiez/textEN_AG_Schwartz-Albiez.html</p>
30.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input type="checkbox"/> WiB (also for Major:) 	<ul style="list-style-type: none"> • Aurelio Teleman • a.teleman@dkfz.de 	<ul style="list-style-type: none"> • • B1.314 • 1 	<p>Regulation of growth and metabolism using Drosophila Our lab is interested in understanding the signalling pathways that control two important cellular processes - cell growth and metabolism. These two processes are tightly linked because cellular growth is energetically very expensive and therefore metabolically significant. They are also linked molecularly, for instance via the insulin/IGF signalling pathway which control both processes. From the medical point of view, these signalling pathways are highly relevant - aberrant insulin signalling results in cancer and metabolic diseases such as obesity and diabetes. We use Drosophila to discover and investigate new genes in such signalling pathways. During the practical, the student will use a wide range of techniques including molecular biology techniques, Q-PCR, cell culture, western blotting and various physiological assays to study the function of a gene in these pathways.</p>
31.	SoSe2012	<ul style="list-style-type: none"> • <input checked="" type="checkbox"/> Biolab • <input checked="" type="checkbox"/> WiB (also for Major:) • also for Master Molecular Biotechnology 	<ul style="list-style-type: none"> • Guy Ungerechts, Sascha Bossow • sascha.bossow@nct-heidelberg.de 	<ul style="list-style-type: none"> • to be arranged • • NCT, 2. OG, 02.127 • 1 	<p>Oncolytic Measles viruses for cancer therapy The group "Virotherapy" (Dr. Dr. Guy Ungerechts, Dept. of Translational Oncology, NCT) is engineering and characterizing oncolytic Measles virus vectors for novel cancer therapies with the goal of translation toward clinical Phase I studies. Link "http://www.nct-heidelberg.de/de/forschung/Neue_Therapeutika/virotherapie/virotherapie.php"</p>