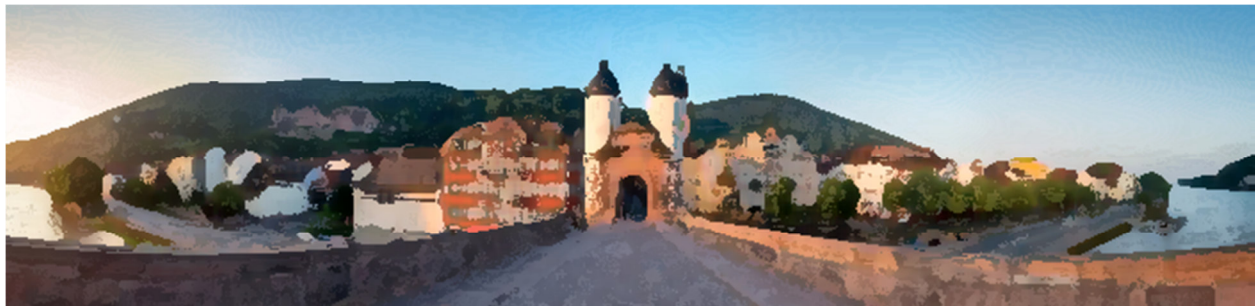


## PROGRAM

e:Med SEEDED summer school, interactive lecture workshop  
July, 13 – 15 2017, Crowne Plaza Heidelberg  
[www.sys-med.de/seeded](http://www.sys-med.de/seeded)



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### Thursday, July 13, 2017

**02:00 - 03:30 pm** Welcome / Introduction to the course

**02:00 - 02:20 pm** **Karsten Rippe**, DKFZ & Bioquant Heidelberg: *Introduction to summer school and lecture workshop*

**02:20 - 02:30 pm** **Speakers:** Brief introduction

**02:30 - 03:30 pm** **Participants:** *Flash talks on background and learning goals for the summer school*

**03:30 - 04:00 pm** Coffee Break

**04:00 - 06:00 pm** **Deep sequencing – how to go from bench to bed side**

Topics:

- Development of sequencing towards clinical applications
- Emerging developments and current challenges
- 'Use cases' on how deep sequencing analysis is translated into (pre)clinical studies and clinical applications
- How to cope with 'big data' generated by deep sequencing
- Applications of epigenetic drugs that perturb epigenetic signaling

**04:00 - 04:50 pm** **Roland Eils**, DKFZ Heidelberg: *Future medicine - from systems biology to systems medicine*

**04:50 - 05:40 pm** **Olaf Witt**, DKFZ Heidelberg:  
*The INFORM study and epigenetic treatment approaches in childhood cancers*

**05:40 - 06:30 pm** **Outbreak session I:** *"Beyond the DNA-sequence – clinical needs that could be addressed by deep sequencing of epigenome and transcriptome", 3 discussion groups on the topics disease manifestation, heterogeneity of disease and therapy response prediction.*

**06:30 - 07:00 pm** **Summary of results**

**07:00 pm** Dinner at Crowne Plaza - Buffet

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### Friday, July 14, 2017

09:00 - 09:50 am	<b>Deep sequencing – how to go from bench to bed side - continued</b>
09:00 - 09:50 am	<b>Peter Lichter</b> (DKFZ Heidelberg): <i>Developing deep-sequencing for clinical applications – lessons from the International Cancer Genome Consortium and the Heidelberg Institute of Personalized Oncology</i>
09:50 - 12:30 pm	<b>Chromatin networks and epigenetic regulation</b> Topics: <ul style="list-style-type: none"><li>- DNA methylation, transcription regulation, chromatin organization, chromatin remodeling</li><li>- Mechanisms of transcriptional (de)regulation by enhancers</li><li>- Deep sequencing based analysis of deregulated chromatin networks in disease (cancer, malaria)</li></ul>
09:50 - 10:40 am	<b>Jörn Walter</b> , Saarland University: <i>DNA methylation - from mapping to functional interpretation</i>
10:40 - 11:10 am	<b>Coffee Break</b>
11:00 - 12:00 pm	<b>Peter Cook</b> , University of Oxford <i>Transcription factories: genome organization and gene regulation</i>
12:00 - 12:30 pm	<b>Plenary discussion:</b> What is the added value of mapping the DNA methylome together with the transcriptome?
12:30 - 02:00 pm	<b>Lunch Break</b>
02:00 - 07:00 pm	<b>Chromatin networks and epigenetic regulation - continued</b>
02:00 - 02:50 pm	<b>Gernot Längst</b> , University of Regensburg: <i>Malaria - May chromatin be the weak spot</i>
02:50 - 03:40 pm	<b>Eileen Furlong</b> , EMBL, Heidelberg: <i>Functional insights into chromatin topology and gene expression during embryonic development</i>
03:40 - 04:10 pm	<b>Coffee Break</b>
04:10 - 05:00 pm	<b>Akis Papantonis</b> , University of Cologne <i>Integration of genomic approaches to understand spatial genome organization: an example from cellular senescence</i>
05:00 - 05:50 pm	<b>Carl Herrmann</b> (University of Heidelberg): <i>Reconstruction of chromatin networks</i>
05:50 - 06:40 pm	<b>Outbreak session II: Discussion in groups</b> “How to exploit information on enhancer mediated (de)regulation for disease applications”, 3 discussion groups
06:40 - 07:00 pm	<b>Summary of results from discussion</b>
<b>Optional (asked to be paid by each participant himself)</b>	
07:15 pm	Walk via the Philospfenweg to Heidelberg downtown area
08:15 pm	Dinner Heidelberg Kulturbrauerei, Leyergasse 6, 69117 Heidelberg

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### Saturday, July 15, 2017

<b>09:00 - 12:30 pm</b>	<b>Integrative analysis of deep sequencing data</b> Topics: <ul style="list-style-type: none"><li>- Analysis and integration of deep sequencing readouts (healthy vs. disease, treated vs. untreated, etc.) to identify regulatory networks</li><li>- Associations of genome epigenome and transcriptome with phenotypes</li><li>- Mechanisms of epigenetic regulation and memory</li></ul>
<b>09:00 - 09:50 am</b>	<b>Uwe Ohler</b> , MDC, Berlin: <i>Transcription regulation: from the identification of functional elements to predictive computational models</i>
<b>09:50 - 10:40 am</b>	<b>Oliver Stegle</b> , EMBL-EBI Hinxton, UK: <i>Mapping genetic effects in pluripotent cells using population-assays and single-cell RNA-seq</i>
<b>10:40 - 11:10 am</b>	<b>Coffee Break</b>
<b>11:10 - 12:00 pm</b>	<b>Fabian Erdel</b> , DKFZ Heidelberg: <i>How cells use chromatin as an information carrier</i>
<b>12:00 - 12:30 pm</b>	<b>Plenary discussion: Identifying and addressing mechanistic questions from sequencing maps of chromatin features.</b>
<b>12:30 - 02:00 pm</b>	<b>Lunch Break</b>
<b>02:00 - 05:00 pm</b>	<b>Design of sequencing projects and handling of patient samples</b> Topics: <ul style="list-style-type: none"><li>- General design, controls, sample numbers, validations</li><li>- Sample preparation (vially frozen samples, cell pellets, FFPE material) and biobanking</li><li>- Data storage, standardization, patient consent forms</li></ul>
<b>02:00 - 02:30 pm</b>	<b>Katrin Pfütze</b> , Heidelberg Center for Personalized Oncology (DKFZ-HIPO) <i>Sample handling and processing of patient samples for deep sequencing</i>
<b>02:30 - 03:00 pm</b>	<b>Philipp Mallm</b> , DKFZ & BioQuant <i>Integrated sequencing readouts and library strategies from patient samples</i>
<b>03:00 - 03:30 pm</b>	<b>Oliver Stegle</b> , EMBL-EBI Hinxton, UK <i>Project design considerations that facilitate data analysis</i>
<b>03:30 - 04:00 pm</b>	<b>Coffee Break</b>
<b>04:00 - 04:50 pm</b>	<b>Design of research projects:</b> Ask the experts for advice 2 x 25 min in 4 discussions groups
<b>04:50 - 05:00 pm</b>	<b>Round up of lecture workshop</b>
<b>05:00 pm</b>	<b>End of lecture workshop</b>

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### Saturday, July 15, 2017

#### Transfer to GuestHouse

<http://www.guesthouse-hd.de>

Bergheimer Straße 24, 69115) in Heidelberg (July 15 - 20)

### Sunday, July 16:

#### Trip to Neckar valley (optional)

<b>11:00 am</b>	<b>Boat trip to Neckarsteinach</b> Weisse Flotte, Pier Stadthalle Neckarstaden 25, 69117 Heidelberg
<b>12:30 pm</b>	<b>Walk up to Dilsberg Castle (2 km)</b>
<b>01:30 pm</b>	<b>Lunch</b>
<b>03:00 pm</b>	<b>Guided tour of Dilsberg Castle</b>
<b>04:50 – 05:30 pm</b>	<b>Return to Heidelberg by bus and train</b>



To cover the costs of boat/bus and guided tour we ask for your contribution to the trip of **20 €**. Lunch is provided by the SEEDDED program.

### Monday, July 17 to Thursday, July 20:

#### Practical course at EMBL

**8:30 am** Shuttle from GuestHouse to EMBL