



Willkommen zum 5. TMF Jahreskongress

Peter Lichter
Deutsches Krebsforschungszentrum, Heidelberg

German Cancer Research Center



- Founded 1964
- Member of the Helmholtz Association
- Embedded into the Campus Neuenheim
- Largest biomedical research center in Germany
- Over 3000 highly motivated employees
- Nobel Prize for Harald zur Hausen in 2008

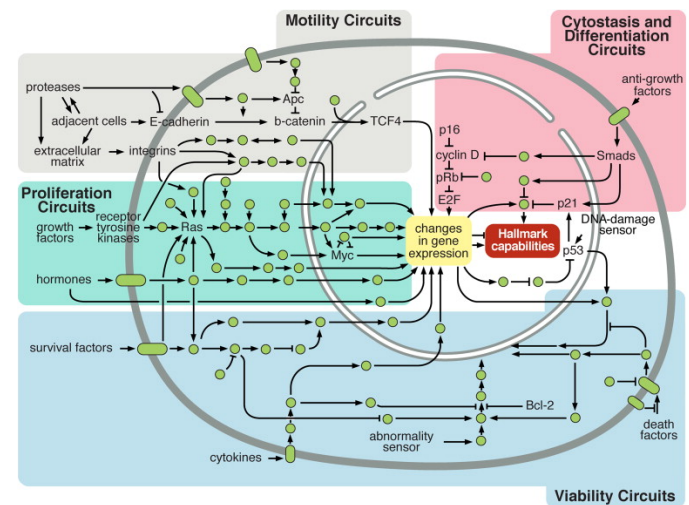


Cancer Research @ dkfz



Novel and Emerging Research Areas

- Systems biology & modelling
- Epigenetics, regulatory RNA
- Oncogenomics
- Individualized Cancer Medicine
- Angiogenesis
- Cancer stem cells
- Tumor-associated viruses
- Metabolic syndrome & cancer
- Cancer immunotherapy
- Neurooncology
- High field MRT, molecular imaging
- Particle therapy, radiobiology
- Epidemiology, early detection & prevention





National Center for Tumor Diseases Heidelberg



UniversitätsKlinikum Heidelberg



NCT

NATIONALES CENTRUM
FÜR TUMORERKRANKUNGEN
HEIDELBERG

National Center for Tumor Diseases (NCT) Heidelberg

NCT Divisions

Medical
Oncology

Translational
Oncology

Preventive
Oncology

Radio-
Oncology

Neuro-
Oncology

Tumor
Immunology

DKFZ

Heidelberg
University
Medical
School

NCT Core Facilities

NCT Trial Center

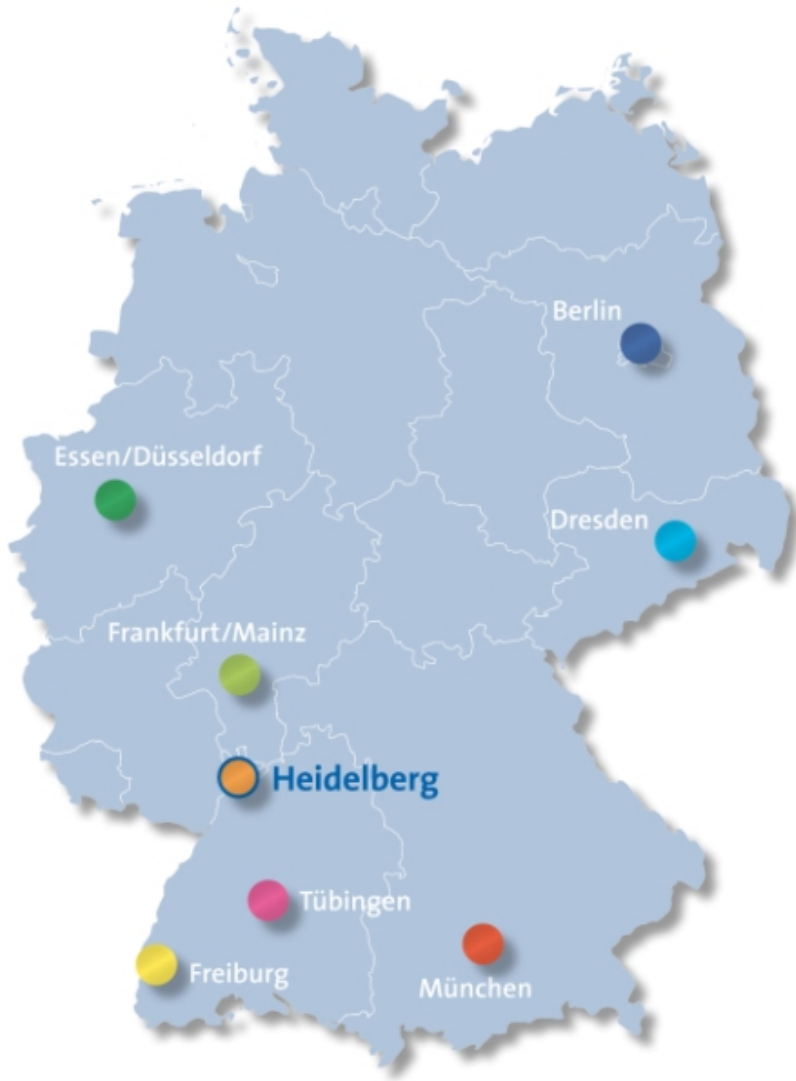
NCT Tissue Bank

NCT Cancer Registry

NCT Information & Counseling & Social Services

Heidelberg School of Oncology

German Consortium for Translational Cancer Research (DKTK)



Berlin

Charité Universitätsmedizin Berlin

Dresden

Universitätsklinikum Carl Gustav Carus der Technischen Universität Dresden, Max-Planck-Institut für Molekulare Zellbiologie und Genetik, Helmholtz-Zentrum Dresden-Rossendorf

Essen/
Düsseldorf

Westdeutsches Tumorzentrum am Universitätsklinikum Essen, Heinrich-Heine-Universität Düsseldorf

Frankfurt/
Mainz

Universitätsklinikum Frankfurt am Main, Johann-Wolfgang-Goethe-Universität Frankfurt, Georg-Speyer-Haus, Krankenhaus Nordwest Frankfurt, Universitätsmedizin der Johannes Gutenberg-Universität Mainz

Freiburg

Tumorzentrum Ludwig Heilmeyer – Comprehensive Cancer Center Freiburg, Albert-Ludwigs-Universität Freiburg, Universitätsklinikum Freiburg und Max-Planck-Institut Freiburg

Heidelberg

Deutsches Krebsforschungszentrum (Kernzentrum), Universitätsklinikum Heidelberg, Ruprecht-Karls-Universität Heidelberg, Nationales Centrum für Tumorerkrankungen Heidelberg

München

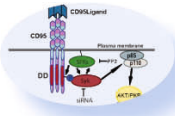
Ludwig-Maximilians-Universität München, Technische Universität München

Tübingen

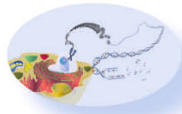
Eberhard Karls Universität Tübingen, Medizinische Fakultät, Universitätsklinikum Tübingen, Mathematisch-Naturwissenschaftliche Fakultät

DKTK Translational Research Programs

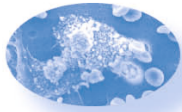
Oncogenic pathways



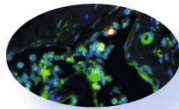
Molecular diagnostics



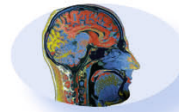
Cancer immunology & immunotherapy



Stem cells in oncology



Radiation oncology & imaging



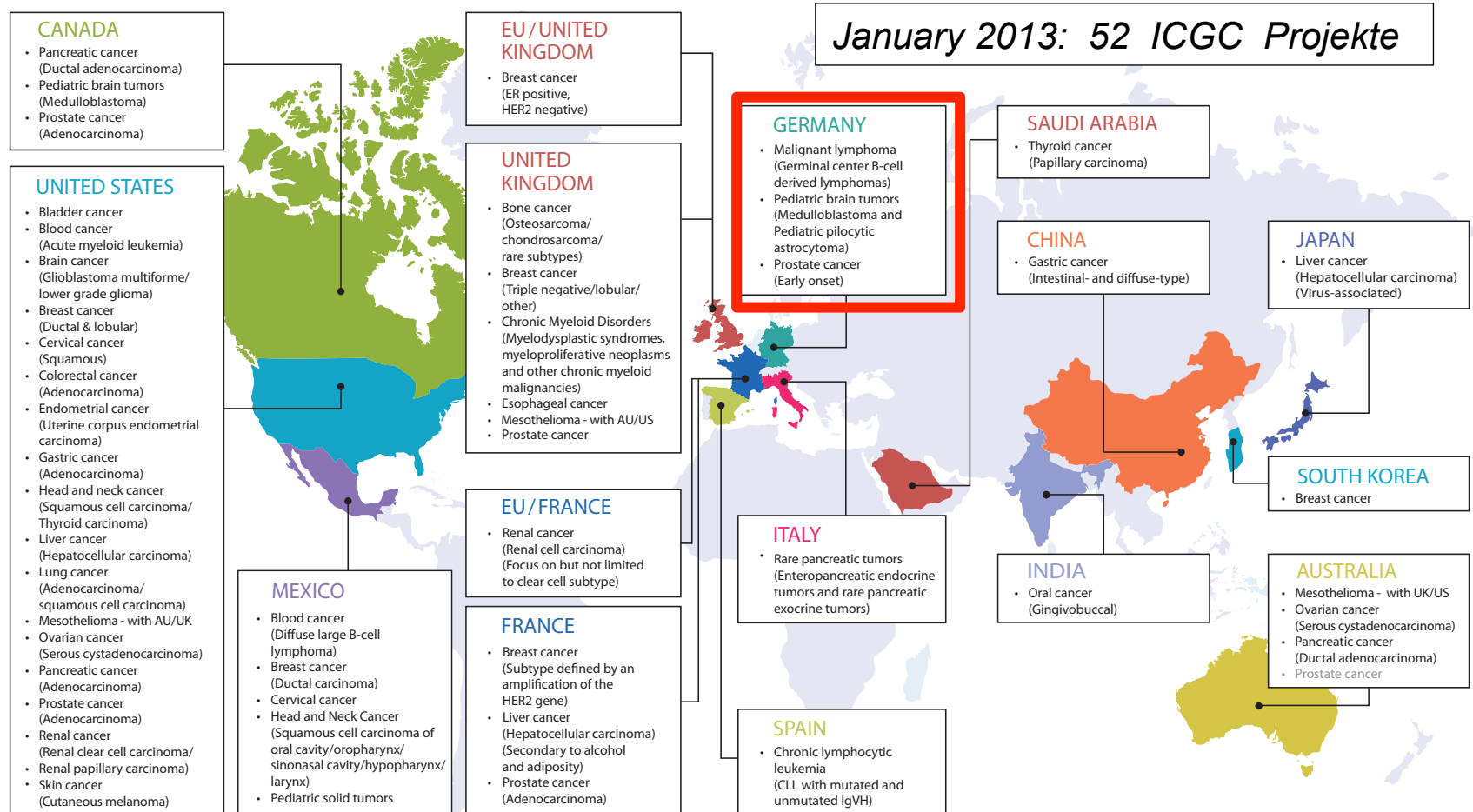
Treatment resistance



Cancer prevention, early detection, and outcomes



International Cancer Genome Consortium (ICGC)

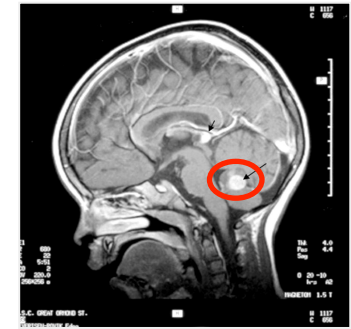


Deutsche Beiträge

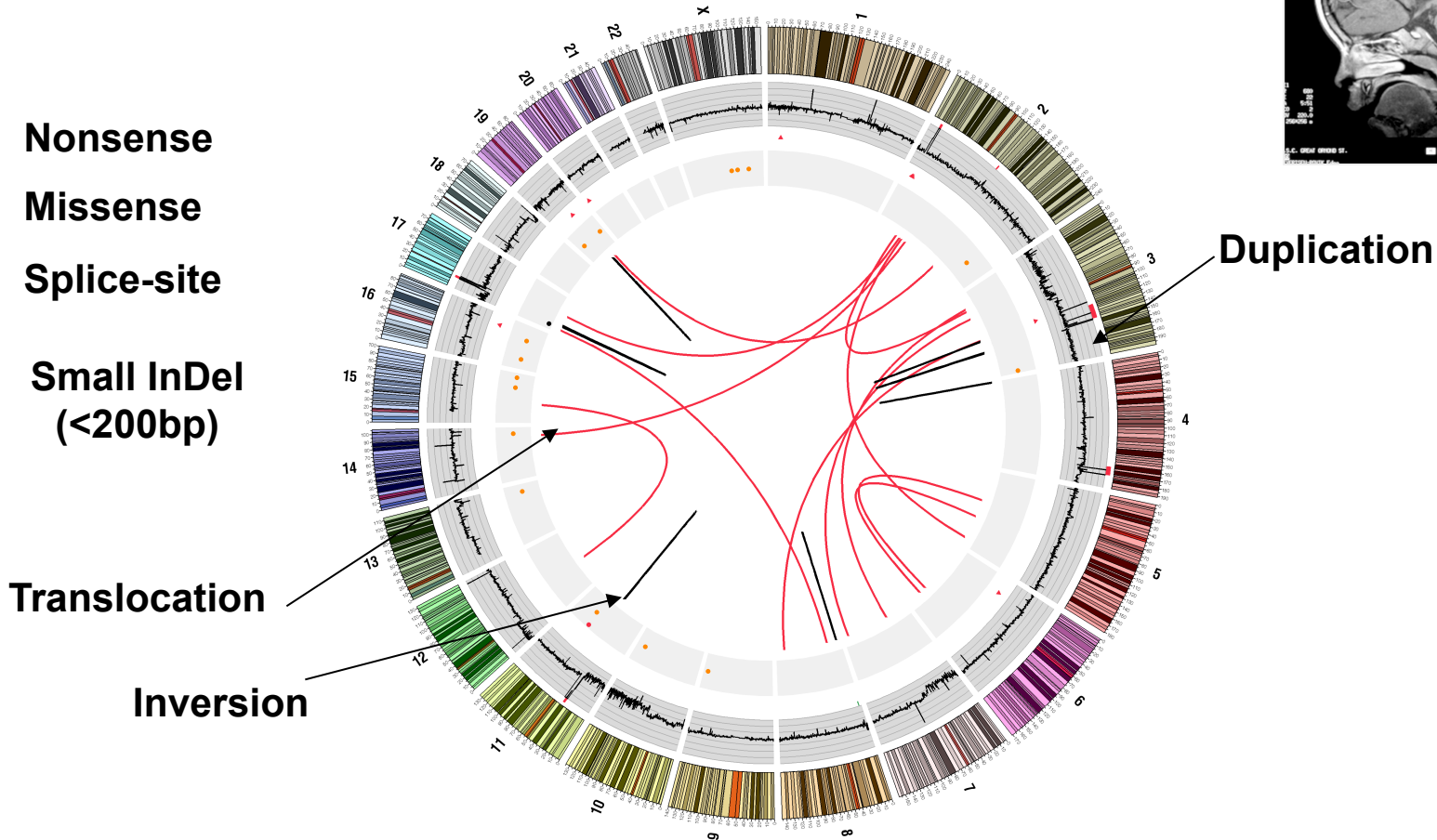
- PedBrain Tumor (Pädiatrische Hirntumoren)
- Prostate Cancer (“Early Onset”)
- MMLL Seq (Molekulare Mechanismen in Malignen Lymphomen)



Medulloblastom



- Nonsense
- Missense
- Splice-site
- ▲ Small InDel (<200bp)



125 Fälle: 765 Mutationen in 588 Genen
Durchschnittlich ca. 10 mutierte Gene pro Medulloblastom

Jones, Jäger et. al, Nature 2012



„Next Generation“ DNA Sequenzierung: Ein Gerät ein Genom in wenigen Tagen

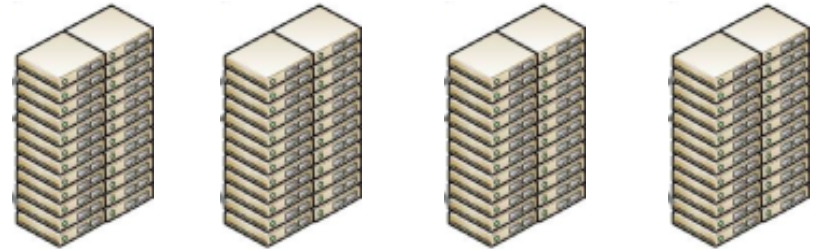


Aber: **Daten-Speicherung**



Speicher für 10 Petabyte

Daten-Analyse



Computer Cluster

Large-scale data facilities @ Heidelberg Campus



NCT
Tumor Center



dkfz.

LSDF#2
(DKFZ
Genomics)

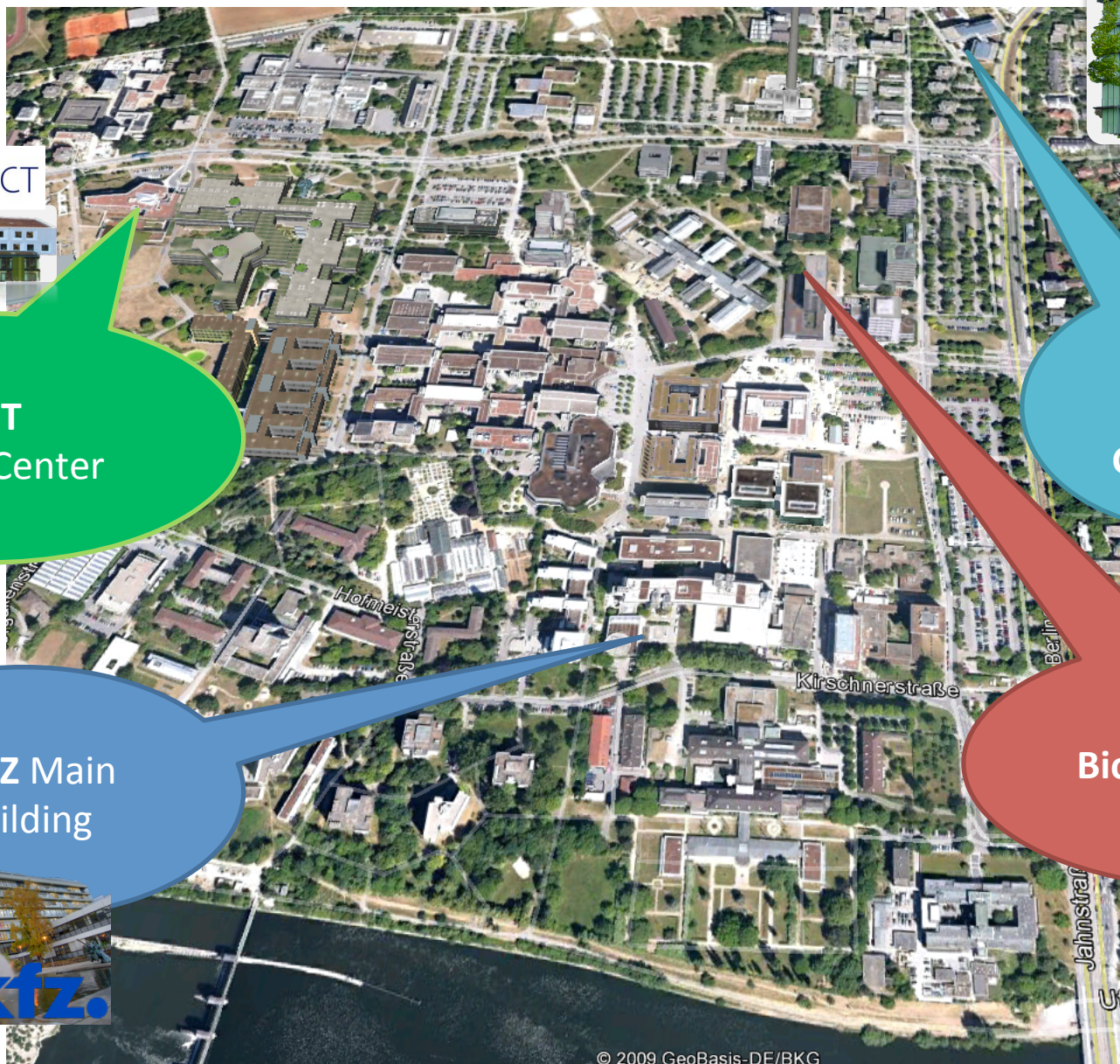
DKFZ Main
Building



dkfz.

LSDF#1
BioQuant Center
(University)

UNIVERSITÄT
HEIDELBERG



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dkfz.

Heidelberg Data Analysis Centers - Capacities

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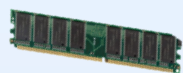

Cores	>1300
Memory	4,1 TB
Storage: 2.000 disks, 6.000 TB	

dkfz.

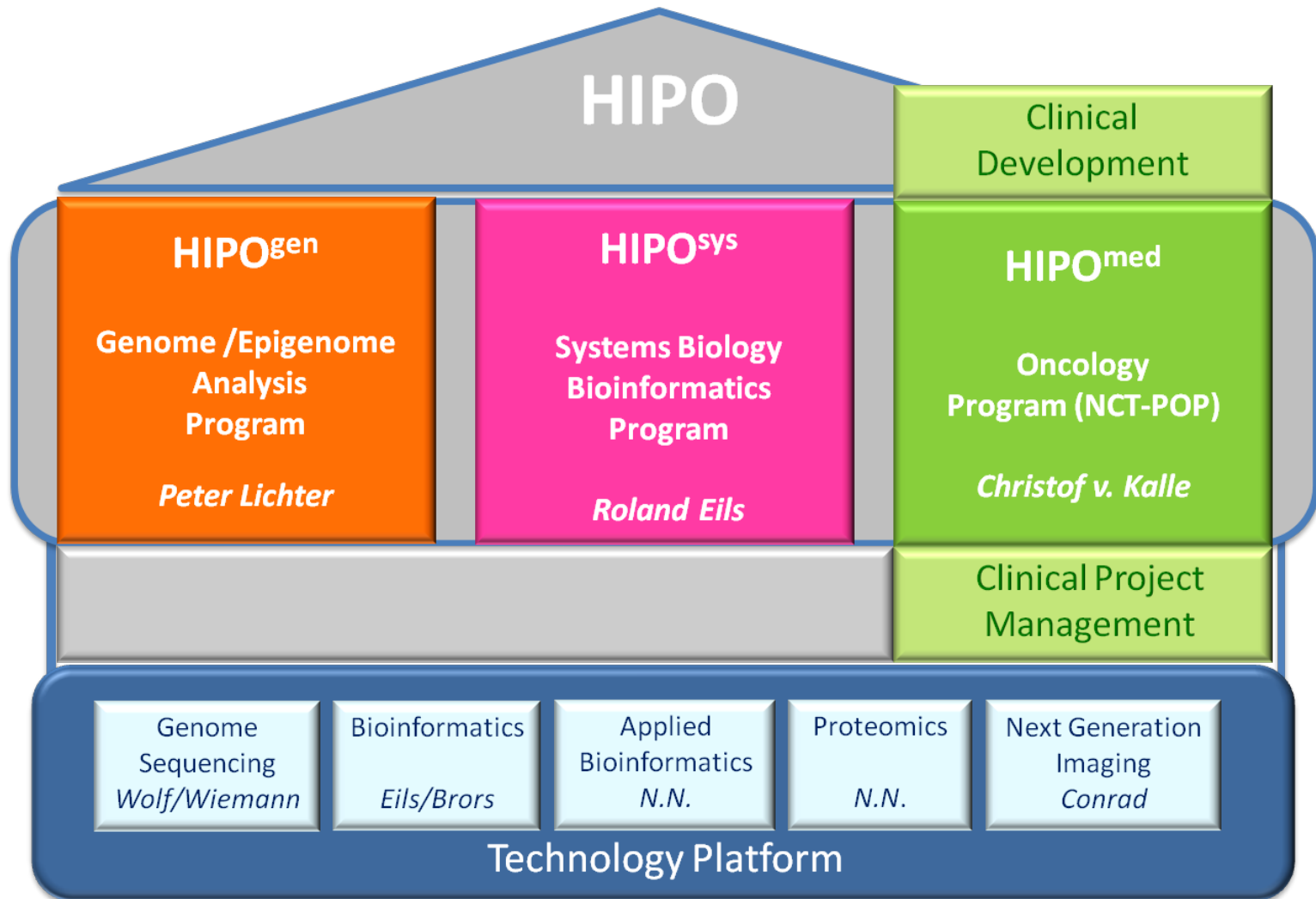


Cores (in 2 clusters)	>2000
Memory (2 clusters)	12,7 TB
Storage: 1.000 disks, 3.000 TB	

Total Capacities

Computing-Cores	>3300
Memory 	16.8 TB
Storage: 3.000 disks, 9.000 TB 	

Heidelberg Center for Personalized Oncology



Welcome to the German Cancer Research Center

