

# Comprehensive Cancer Center Zürich – Tag der Offenen Tür

## Immuntherapie und Präzisionsmedizin

Reinhard Dummer, Phil Cheng,  
Joanna Mangana, Lukas Sommer, Ralph Braun,  
Mitch Levesque

translational  
**CANCER**  
research

University Research Priority Project



UniversityHospital  
Zurich

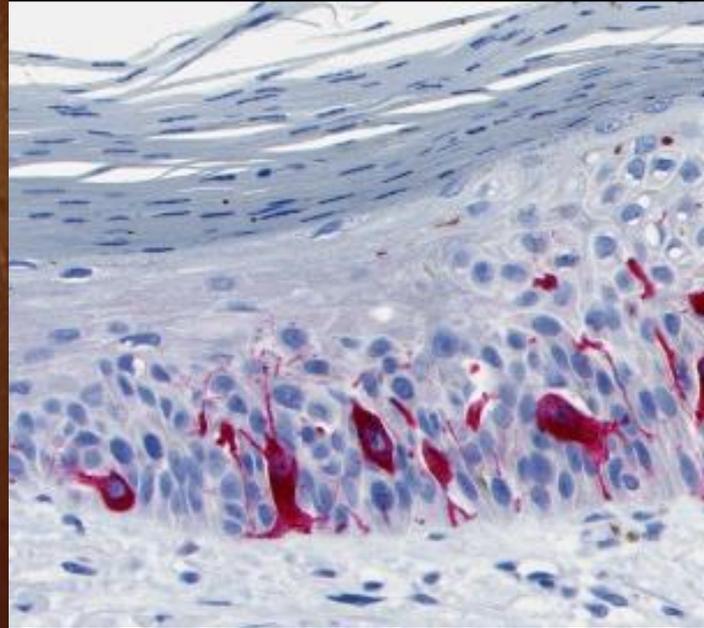


**Schwerpunkt  
Hautkrebs**

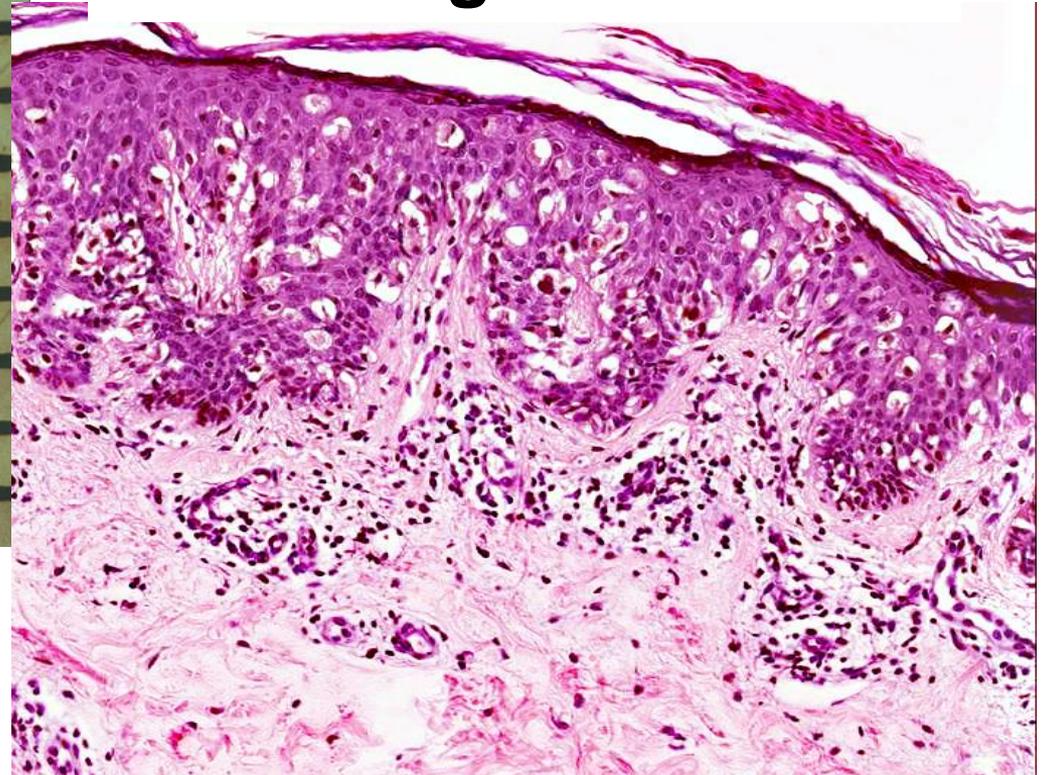
Dermatologische Klinik  
UniversitätsSpital Zürich



# Krebs ist «Unordnung»



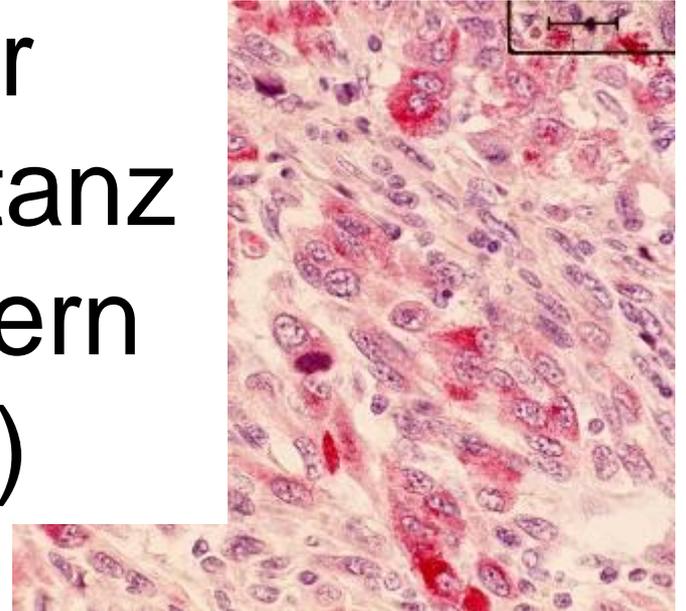
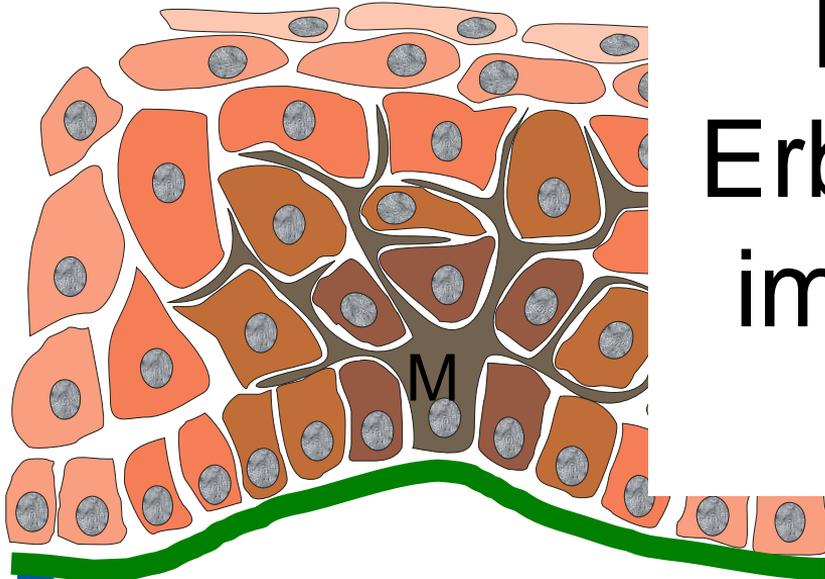
# «Unordnung» Auflichtmikroskopisch Und feingeweblich....



Normale Zelle

Krebszelle

«Unordnung»  
Bei der  
Erbsubstanz  
im Zellkern  
(DNA)

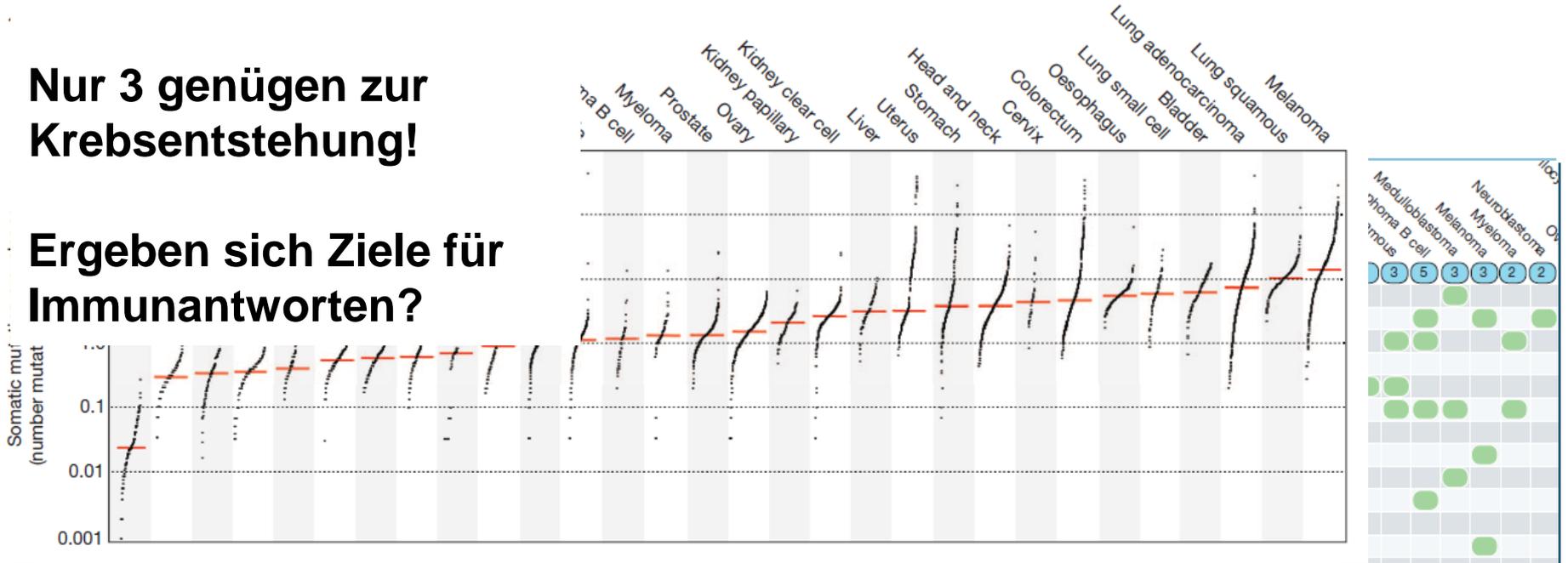


**Eine Krebszelle  
beinhaltet zehntausende  
von  
DNA Schäden.**

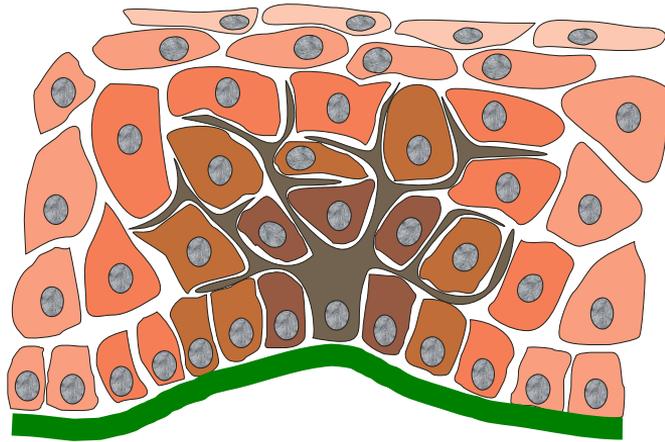
**tational processes in**

**Nur 3 genügen zur  
Krebsentstehung!**

**Ergeben sich Ziele für  
Immunantworten?**

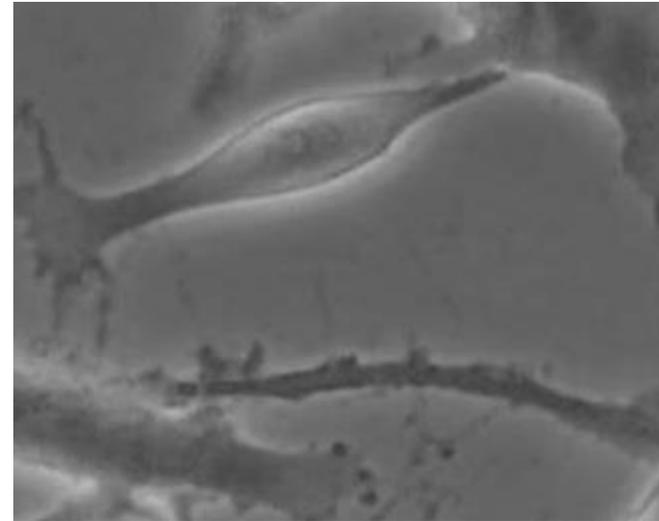


## Normale Zelle

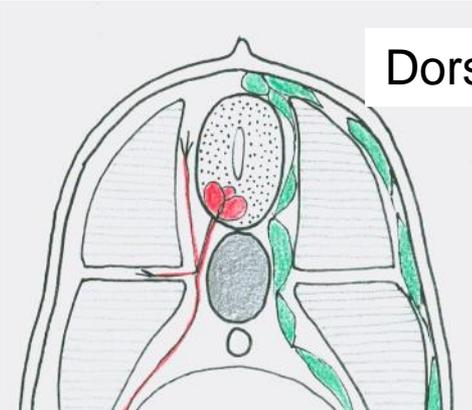


## Krebszelle

**«Unordnung»  
Beim Zugriff auf embryonalen  
Programme**

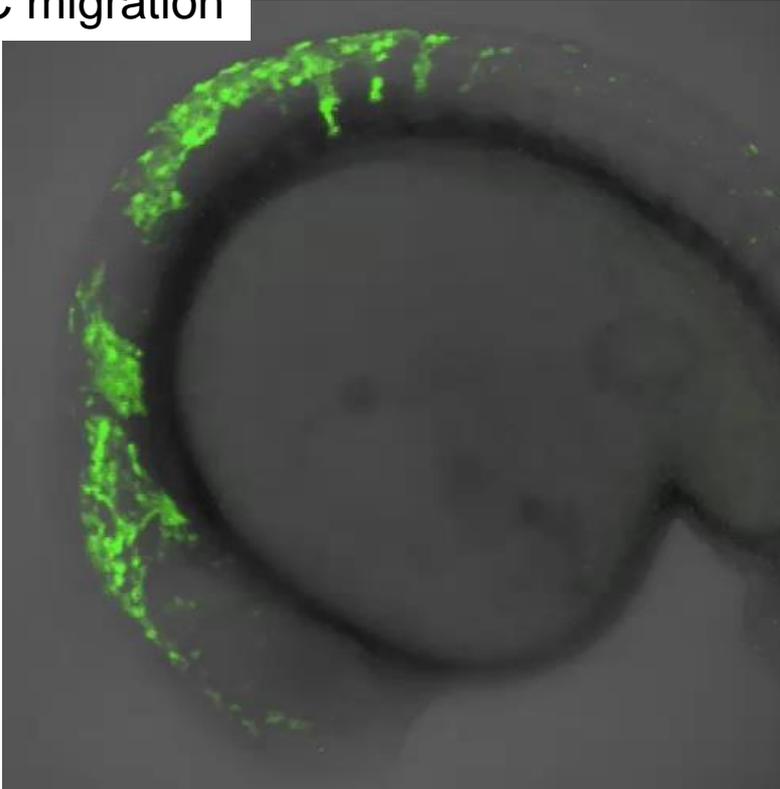
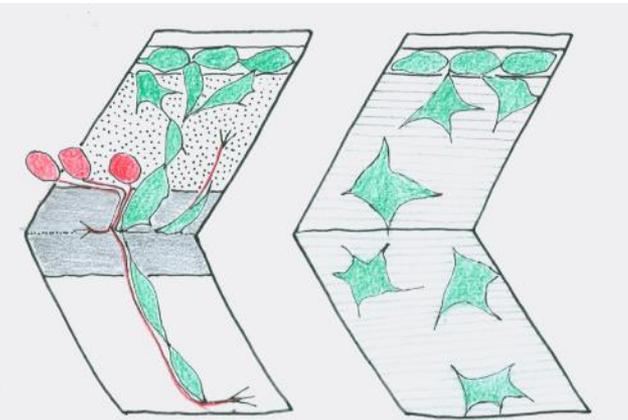


# Wie wandern Stammzellen in der Zebrafischlarve?



Dorsolateral NC migration

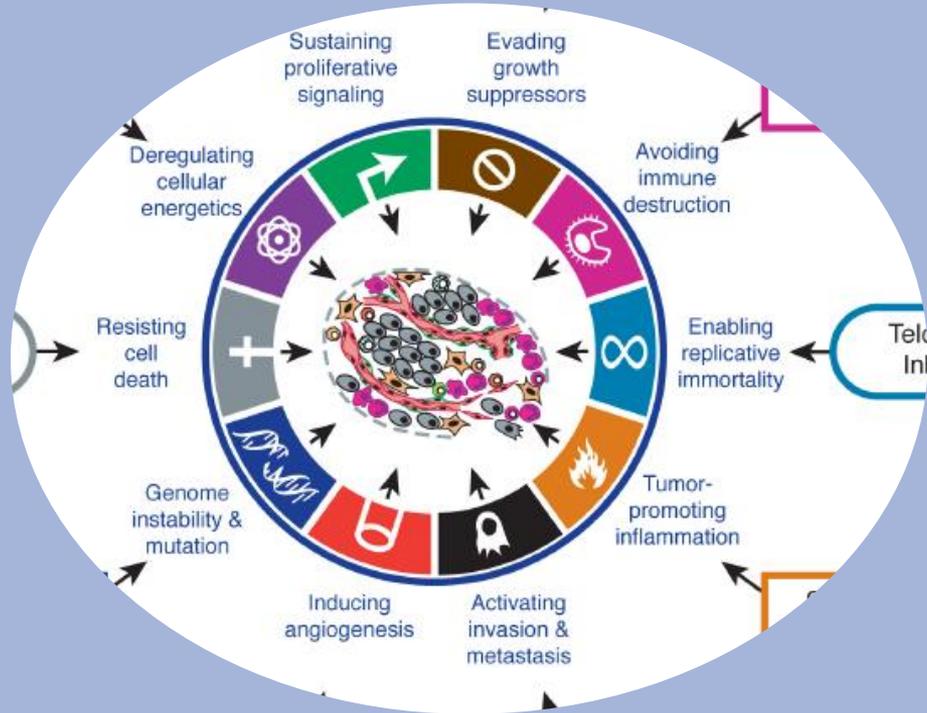
Ventro-medial NC migration



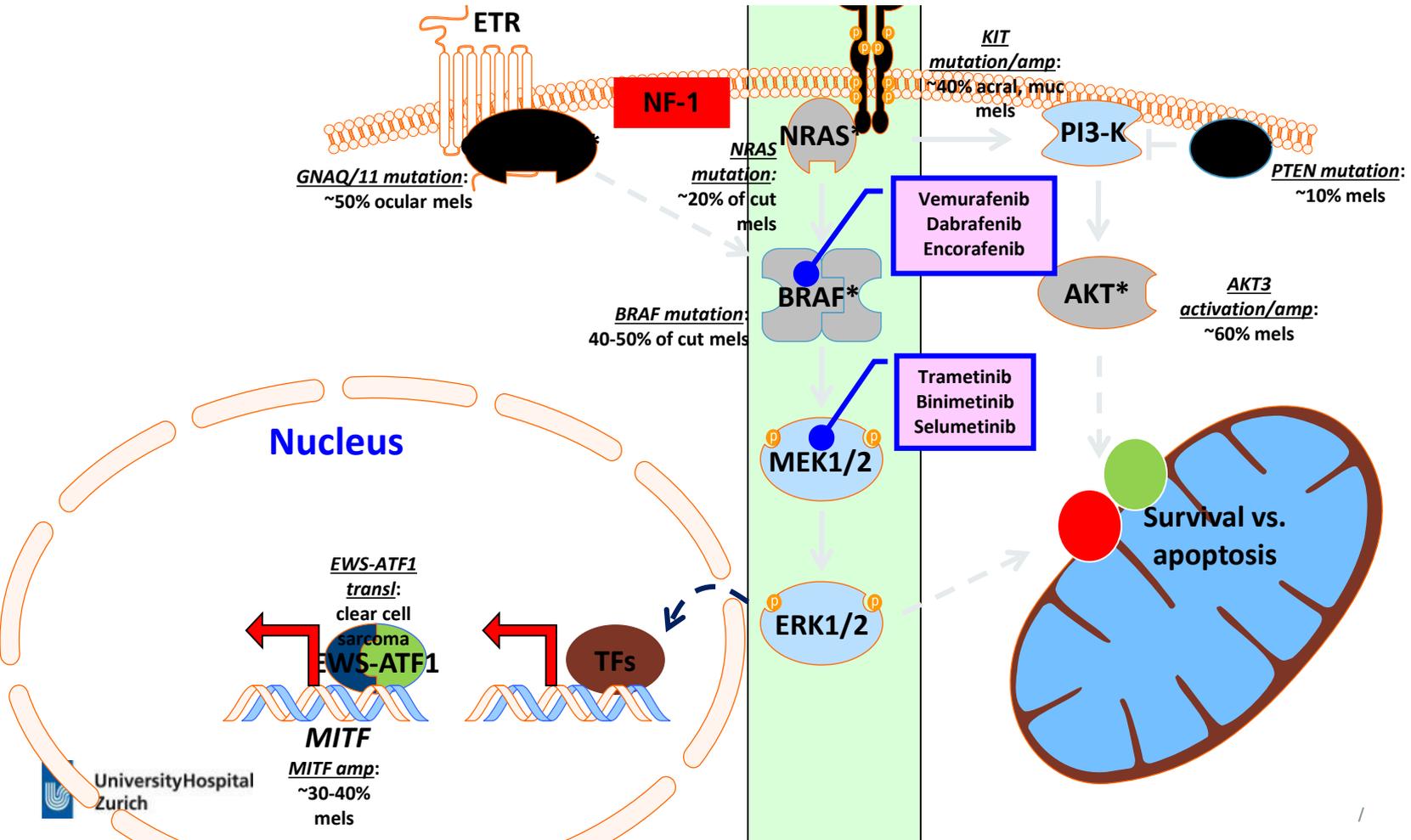
Krebs ist

«Unordnung»

Wachstum  
Entzündung  
Wanderung  
Energiegewinnung



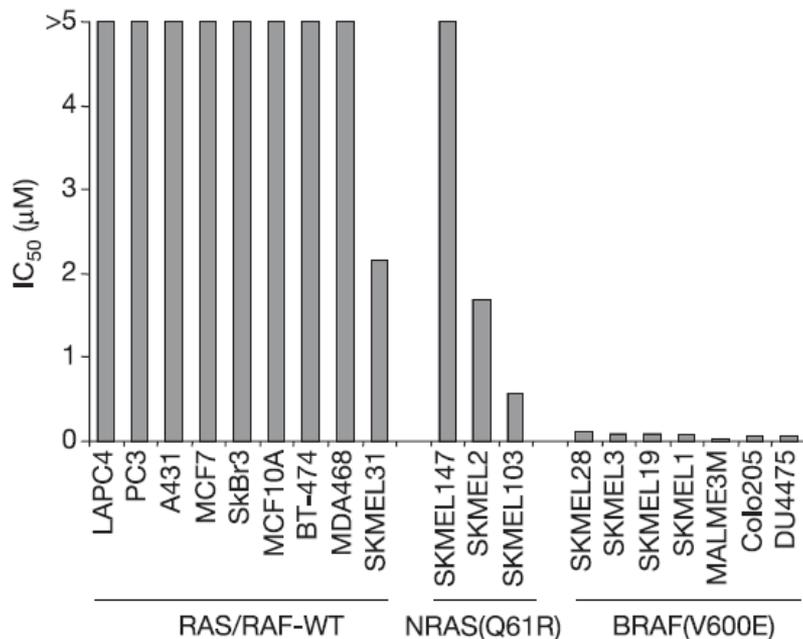
# Gesteigerte intrazelluläre Signalübertragung und ihre Blockierung



# BRAF mutation predicts sensitivity to MEK inhibition

David B. Solit<sup>1,3</sup>, Levi A. Garraway<sup>4,6</sup>, Christine A. Pratilas<sup>2,3</sup>, Ayana Sawai<sup>3</sup>, Gad G. Qing Ye<sup>3</sup>, Jose M. Lobo<sup>3</sup>, Yuhong She<sup>3</sup>, Iman Osman<sup>7</sup>, Todd R. Golub<sup>5,6</sup>, Judith Seftin<sup>3</sup>, William R. Sellers<sup>4,6</sup> & Neal Rosen<sup>1,3</sup>

a



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

## Improved Survival with MEK Inhibition in BRAF-Mutated Melanoma

Keith T. Flaherty, M.D., Caroline Robert, M.D., Ph.D., Peter Hersey, M.D., Ph.D., Paul Nathan, M.D., Ph.D., Claus Garbe, M.D., Mohammed Milhem, M.B., Lev V. Demidov, M.D., Jessica C. Hassel, M.D., Piotr Rutkowski, M.D., Ph.D., Peter Mohr, M.D., Reinhard Dummer, M.D., Uwe Trefzer, M.D., James M.G. Larkin, M.D., Jochen Utikal, M.D., Brigitte Dreno, M.D., Marta Nyakas, M.D., Mark R. Middleton, Ph.D., Jürgen C. Becker, M.D., Ph.D., Michelle Casey, Ph.D., Laurie J. Sherman, R.N., Frank S. Wu, M.D., Ph.D., Daniele Ouellet, Ph.D., Anne-Marie Martin, Ph.D., Kiran Patel, M.D., and Dirk Schadendorf, M.D., for the METRIC Study Group\*

This article (10.1056/NEJMoa1203421) was published on June 4, 2012, at NEJM.org.

N Engl J Med 2012.

# Combined Vemurafenib and Cobimetinib in BRAF-Mutated Melanoma

James Larkin, M.D., Ph.D., Paolo A. Ascierto, M.D., Brigitte Dréno, M.D., Ph.D.,  
Victoria Atkinson, M.D., Gabriella Liskay, M.D., Michele Maio, M.D.,  
Mario Mandalà, M.D., Lev Demidov, M.D., Daniil Stroyakovskiy, M.D.,  
Luc Thomas, M.D., Ph.D., Luis de la Cruz Merino, M.D., Caroline Dutriaux, M.D.,  
Claus Garbe, M.D., Mika A. S. ~~Smith, M.D., Ph.D., Thomas Chon, Ph.D.~~  
Nicholas Choong, M.D.  
Grant A. McArthur, M.B., B.S.

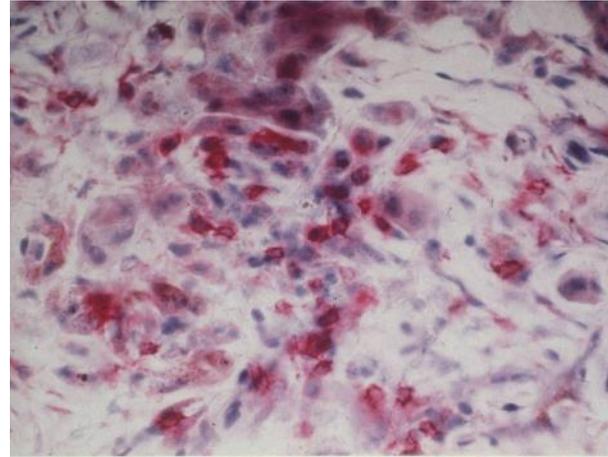
## Improved Overall Survival in Melanoma with Combined Dabrafenib and Trametinib

Caroline Robert, M.D., Ph.D., Boguslawa Karaszewska, M.D., Jacob Schachter, M.D.,  
Piotr Rutkowski, M.D., Ph.D., Andrzej Mackiewicz, M.D., Ph.D.,  
Daniil Stroiakovski, M.D., Michael Lichinitser, M.D., Reinhard Dummer, M.D.,  
Florent Grange, M.D., Ph.D., Laurent Mortier, M.D., Vanna Chiarion-Sileni, M.D.,  
Kamil Drucis, M.D., Ph.D., Ivana Krajsova, M.D., Axel Hauschild, M.D., Ph.D.,  
Paul Lorigan, M.D., Pascal Wolter, M.D., Georgina V. Long, M.D., Ph.D.,  
Keith Flaherty, M.D., Paul Nathan, M.D., Ph.D., Antoni Ribas, M.D., Ph.D.,  
Anne-Marie Martin, Ph.D., Peng Sun, Ph.D., Wendy Crist, B.A., Jeff Legos, Ph.D.,  
Stephen D. Rubin, M.D., Shonda M. Little, M.P.H., and Dirk Schadendorf, M.D.

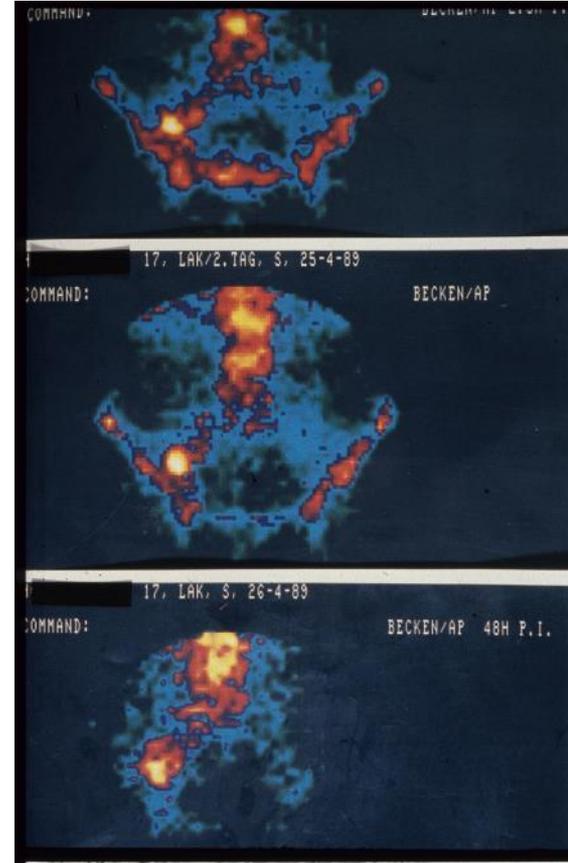


CD8+ Killerzellen (Lymphozyten)  
verursachen

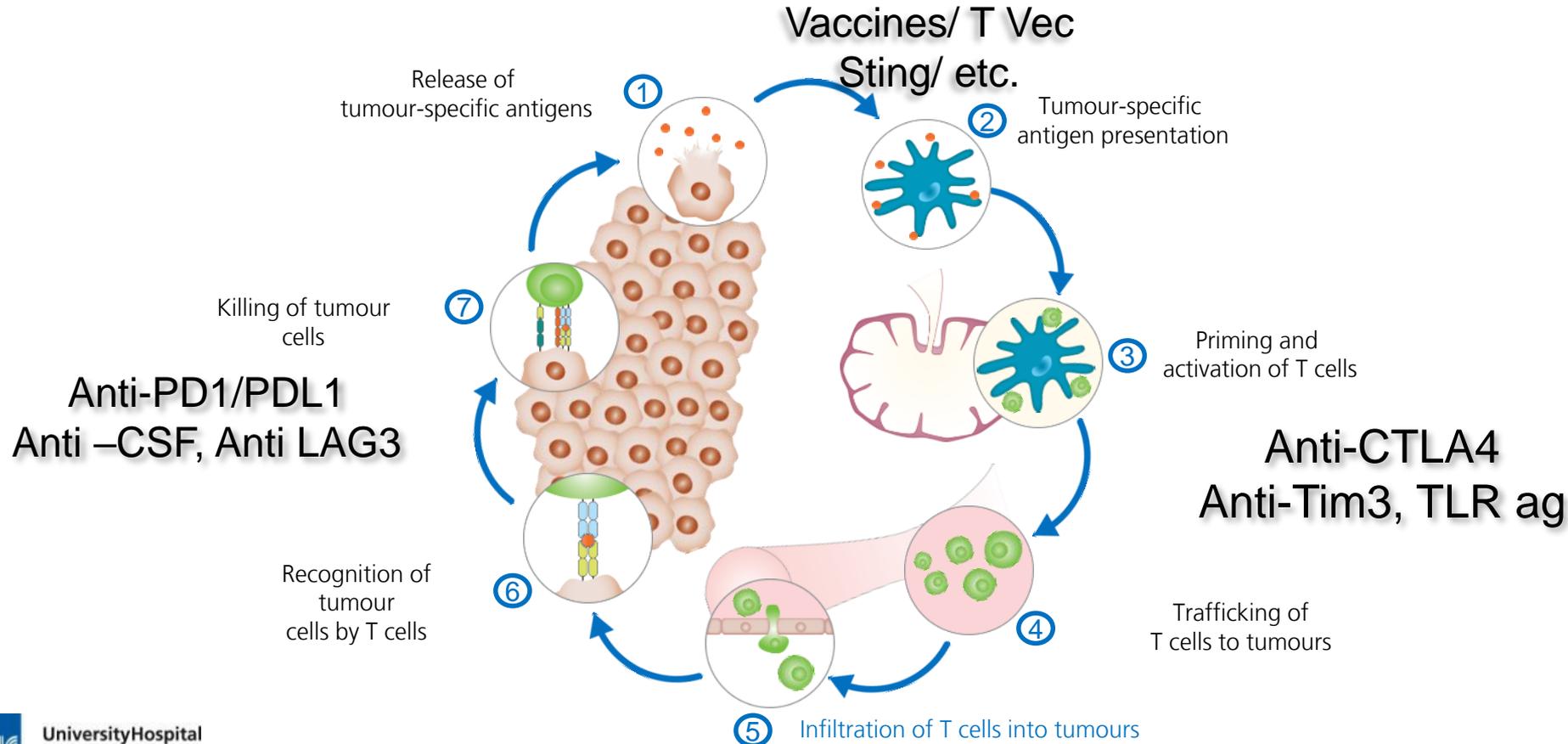
eine teilweises Abheilen des  
Tumors



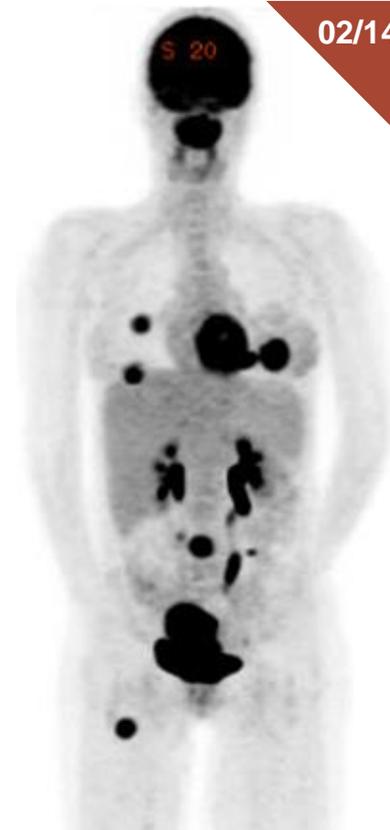
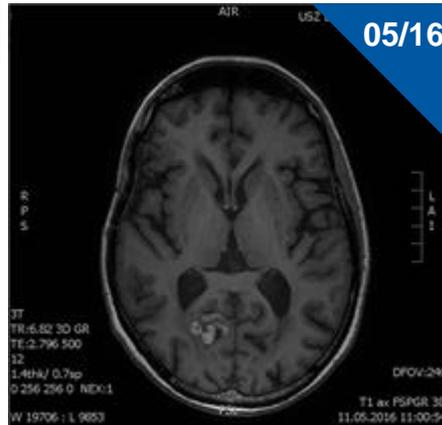
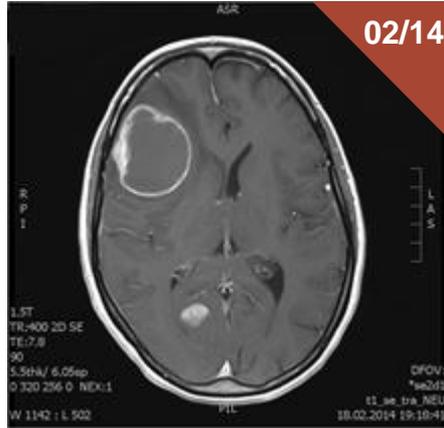
# Aktivierete KILLERzellen finden die Krebszellen



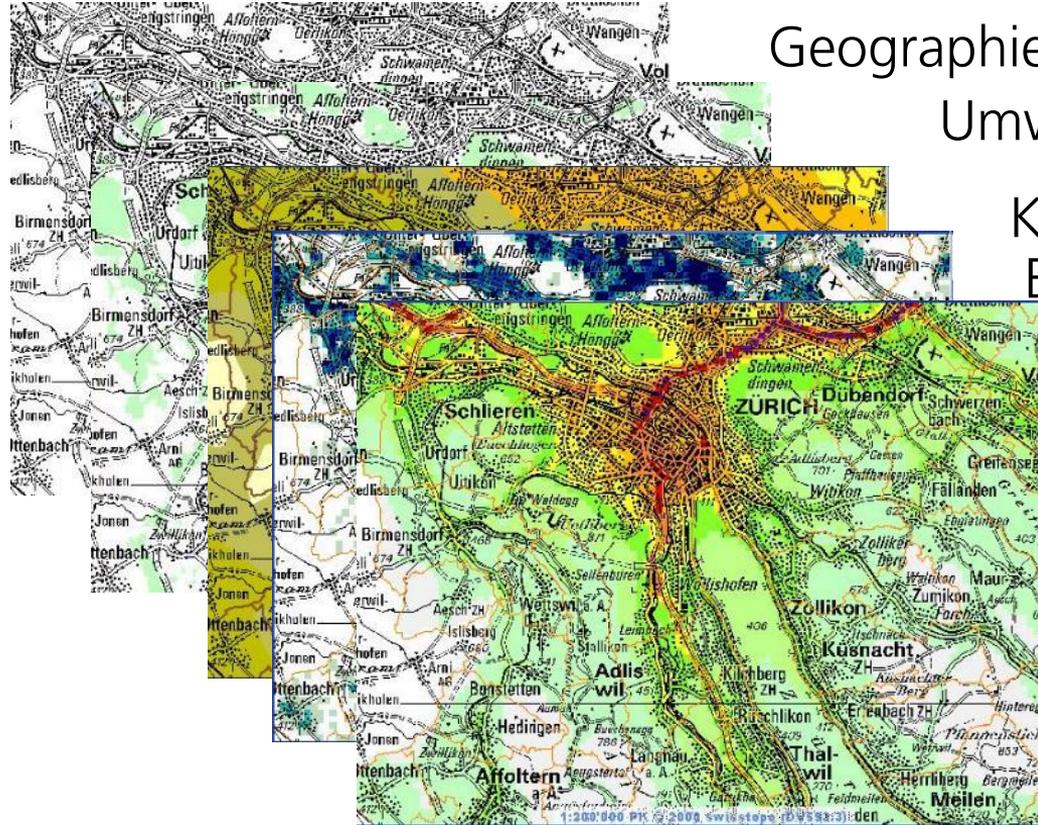
# Krebs und Immunsystem sind im ständigen Informationsaustausch



# PET/CT und MRI Gehirn nach kombinierten Behandlungen



# Wie entsteht ein präzises Bild?



Geographie

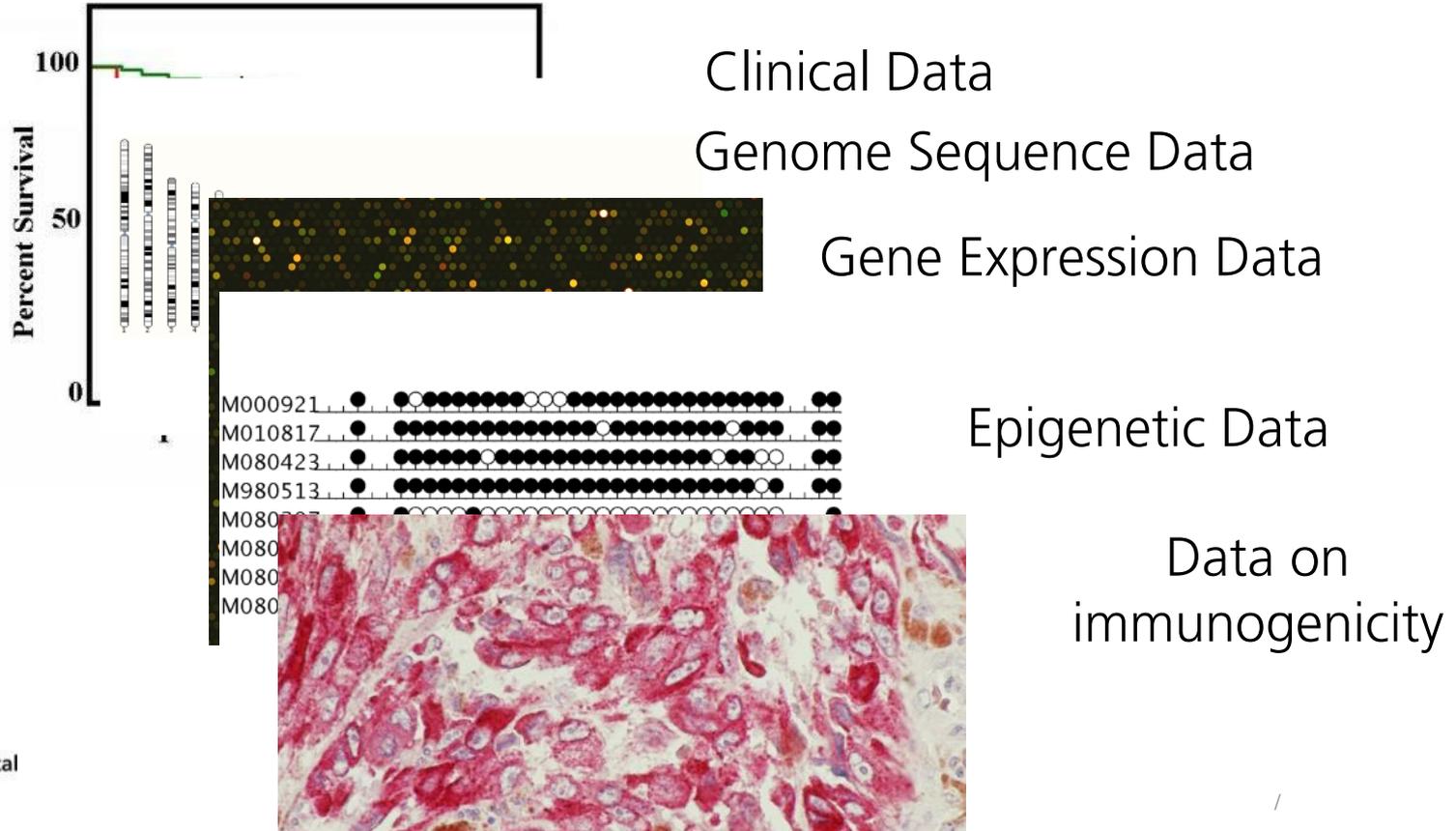
Umwelt

Klima

Besiedelung

Verschmutzung

# Analysen auf verschiedenen Ebenen



# Der Tumor profiler

~50 Wissenschaftler in Zürich und Basel wollen Ihr Wissen dem Patienten zugänglich machen!



**Prof. Reinhard Dummer, MD**  
Associate clin. director  
Clinic of Dermatology  
USZ/USZ



**Prof. Mitch Levesque, PhD**  
Principal investigator  
Clinic of Dermatology  
USZ/USZ



**Anja Imisch, PhD**  
Translational scientist  
Clinic of Dermatology  
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Biobank technical team  
Clinic of Dermatology, USZ



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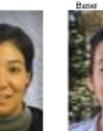
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**Ximena Bonilla, MSc/PhD**  
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**Natalie Davidson**  
Hypoxia Scores,  
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**Christian Kunze**  
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**Daniel Stekoven**  
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**Nora Toussaint**  
WS head  
ETH Zürich



**Diana Conan-Schmid**  
ETH Zürich



**Linda Grob**  
ETH Zürich



**Vipin Sreedharan**  
ETH Zürich



**Shuang Yu**  
ETH Zürich



**Marc Zimmermann**  
ETH Zürich



**N. Wey, IT support, Dr. B. Sobottka, MD, PhD, S. Dettwiler Lab Head and Prof. Holger Moch, MD, Node head, Head of Pathology USZ, Zürich**

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*Reinhard Dummer, Simone M. Goldinger, Verena Paulitschke, and Mitchell P. Levesque*

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Erstklassige Aus-, Fort- und Weiterbildung

Behandlung in klinischen Studien in universitären Kompetenzzentren

Biobanken – Gewebe, Blut, Stuhl, Zellkulturen

Medizinische Bioinformatik

Enge Zusammenarbeit mit Patienten und Selbsthilfegruppen



Unterstützen Sie den Kampf  
gegen Hautkrebs



UniversityHospital  
Zurich

Verein für Hautkrebsforschung

