

# Title: „Precision Oncology based on Gene-Drug Screening“

**Speaker:** Prof Do-Hyun Nam  
 Dept. of Neurosurgery,  
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 Samsung Medical Center

**When:** 09<sup>th</sup> of October 2019

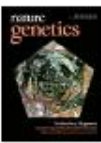
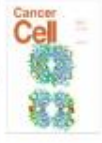

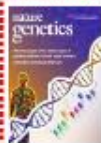

**Where:** Hörsaalzentrum, HS E2, Auenbruggerplatz 15/2. UG, 8036 Graz

**Time:** 13:15-14:45





Existing efforts in personalized medicine to evaluate the potential efficacy of a treatment are largely focused on identifying genomic predictors of response. However, such approaches have limitations since most of refractory solid cancers have a multitude of genetic aberrations with profound molecular heterogeneity, and prediction of therapeutic response is based on indirect evidence from unrelated cancer cell lines. Sustainable clinical success in precision oncology is more likely to be achieved by an integrated approach consisting of genomics and the **patient cell-based drug screening**.

For implementation of this innovative platform of precision medicine, we have established pharmacological landscapes of 462 patient-derived tumor cells (PDCs) across 14 cancer types, together with genomic and transcriptomic profiling in 385 of these tumors (Nat Gen 2018). Here, we have established a drug screening system with the in vitro sensitivities of 60 targeted cancer drugs under clinical and preclinical investigation.

2018

	<p><b>Tumor Evolution &amp; chromosomal elements</b></p>		<p><b>Tumor Progression mechanism</b></p>		<p><b>Tumor Mesenchymal Transition</b></p>		<p><b>Pharmacogenomic landscape</b></p>		<p><b>Mutational landscape in brain tumor</b></p>
<p><small>NATURE GENETICS, Volume 10, April 2018          Discordant inheritance of autosomal and asexual chromosomal DNA elements contributes to dynamic disease evolution in glioblastoma</small></p>		<p><small>Cancer Cell, Volume 34, 1-17, July 8, 2018          Apoptotic Cell Death Erodes the Survival Advantage of Glioblastoma          Via Intracellular Excision of Soluble Factors</small></p>		<p><small>Nature Cell Biology, September 10, 2018          A tension-mediated glycozylo-integrin feedback loop promotes mesenchymal-like glioblastoma</small></p>		<p><small>NATURE GENETICS, Volume 10, September 2018          Pharmacogenomic landscape of patient-derived tumor cell lines predicts oncology therapy</small></p>		<p><small>Cancer Cell, Volume 32, 1-14, 2018          Mutational Landscape of Secondary Glioblastoma: Genetic MSI-Targeted Treatment Strategy</small></p>	

2015 ~ 2017

	<p><b>Tumor Evolution</b></p>		<p><b>Tumor Evolutionary Model</b></p>		<p><b>Tumor Heterogeneity &amp; Drug selection</b></p>		<p><b>Tumor Evolution &amp; Immune Signatures</b></p>
<p><small>Cancer Cell, Volume 20, 218-228, September 14, 2015          Spatiotemporal Evolution of the Primary Glioblastoma Genome</small></p>		<p><small>NATURE GENETICS, Volume 10, NUMBER 7, JULY 2018          Clonal evolution of glioblastoma under therapy</small></p>		<p><small>NATURE GENETICS, Volume 10, NUMBER 4, JULY 2018          Synthetic lethality predicts and defines immunogenic cells underlying glioblastoma</small></p>		<p><small>Cancer Cell, Volume 32, 43-55, July 10, 2017          Tumor evolution of glioma intrinsic gene expression subtype associates with immunological changes in the microenvironment</small></p>	