

WM7 Computational Systems Biology

INFO: <http://icbi.at/wm7>

TIME: June 2026

LECTURER:



Zlatko
Trajanoski



Dietmar
Rieder



Anne
Krogsdam



Michael
Schubert



Giorgia
Lamberti



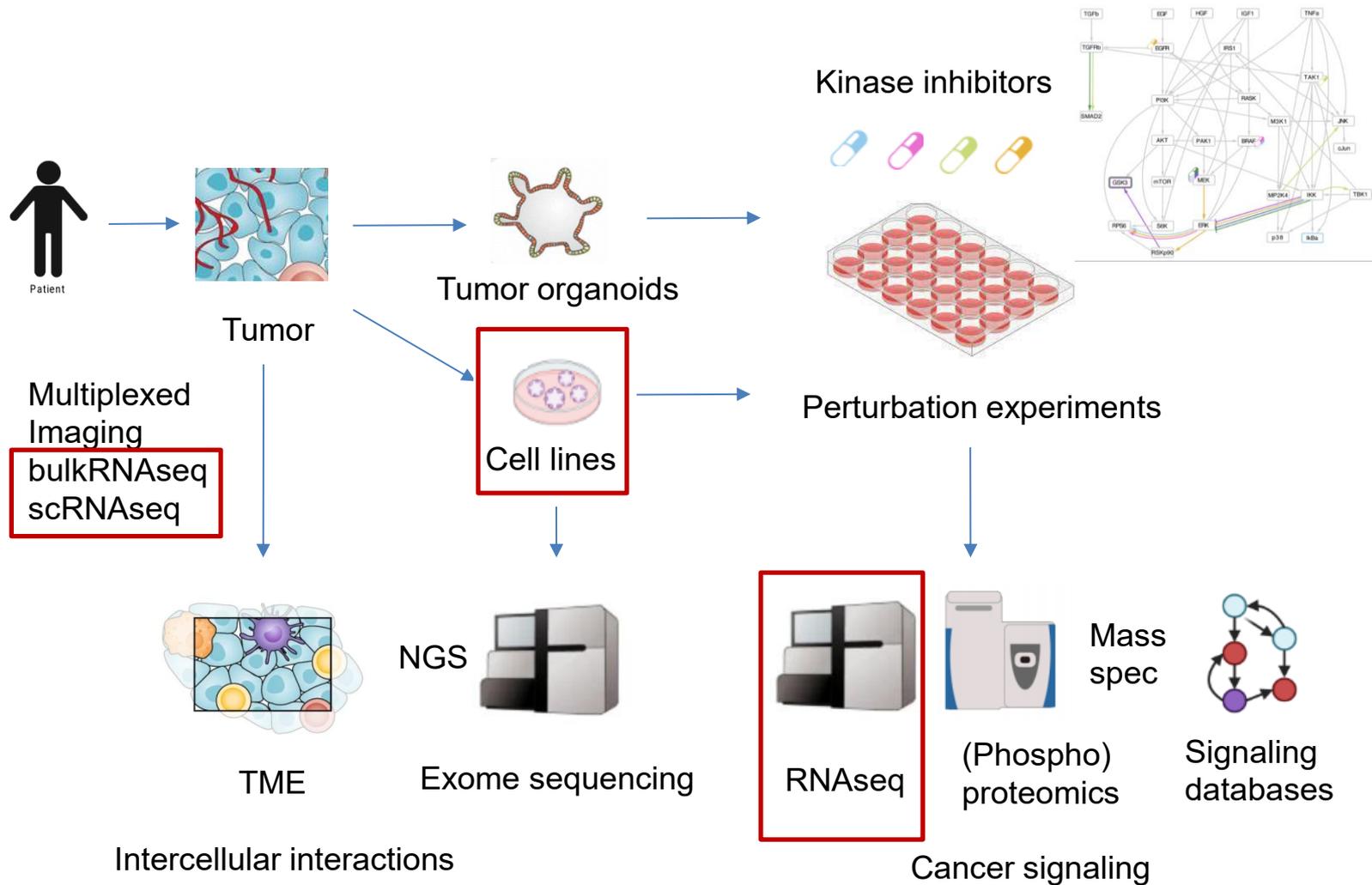
Hubert
Hackl

Institute of Bioinformatics

Topics

- Functional precision oncology
- Integrative multi-omics analyses
- RNA sequencing
- Pathway/network modeling
- Single cell and spatial analysis
- Systems biology and pharmacology

Functional precision oncology



RNA sequencing experiment

Wet lab

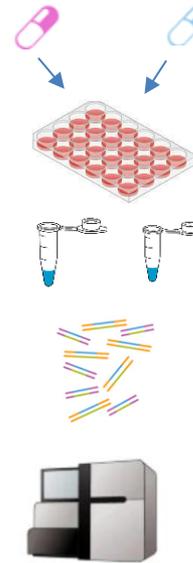
Drug (kinase inhibitor)

Cancer cell lines

RNA isolation

Library generation

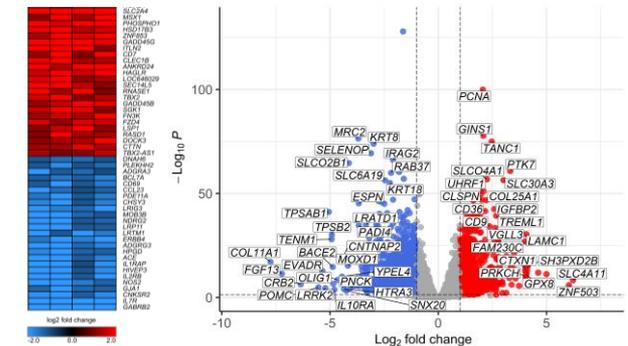
RNA sequencing



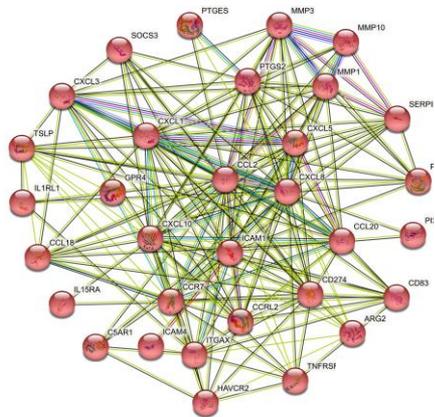
Computer lab

Preprocessing

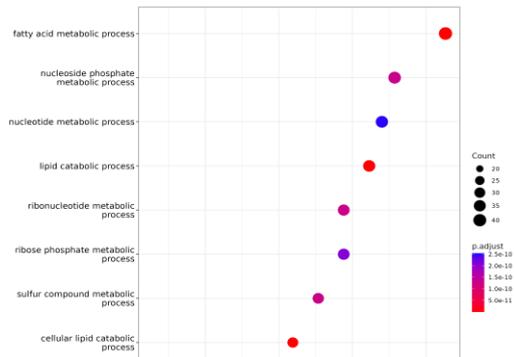
Differentially expressed genes



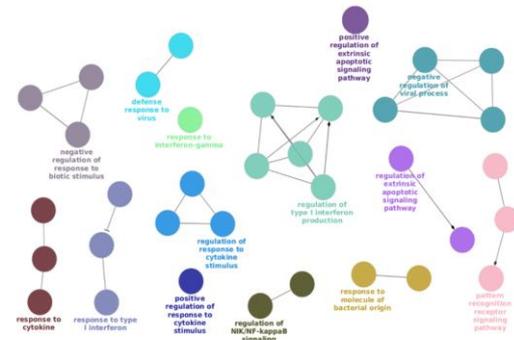
Pathway and network analyses



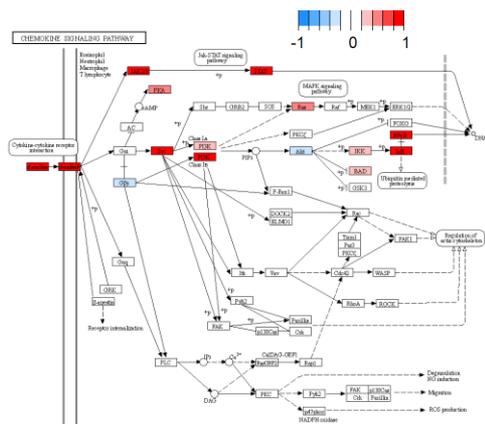
STRING



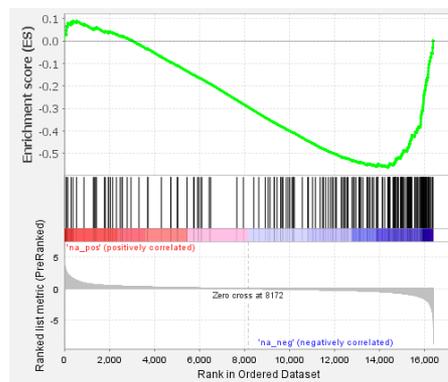
ORA



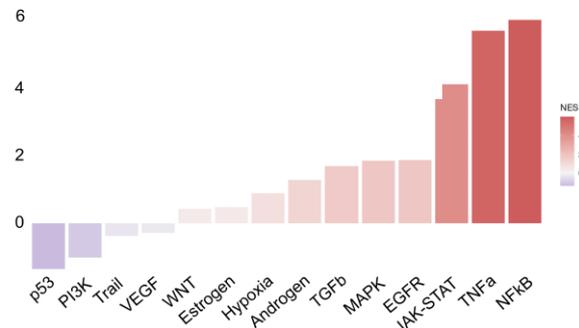
ClueGO



PathView



GSEA

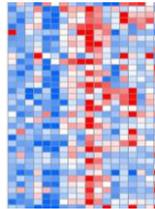


PROGENy

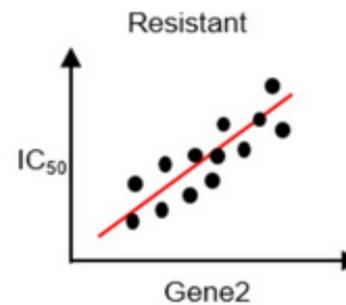
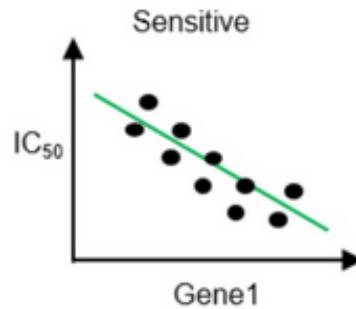
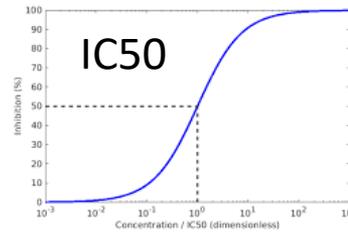
Drug sensitivity

Cancer Cell Line Encyclopedia Genomics of Drug Sensitivity in Cancer

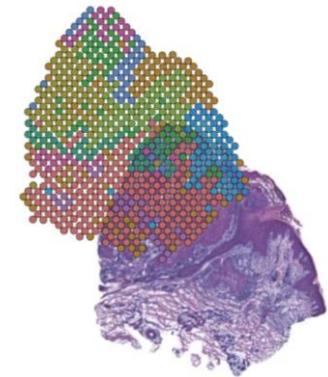
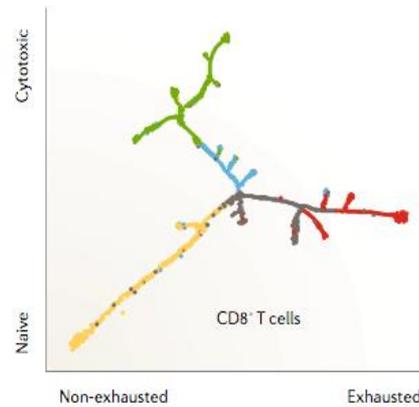
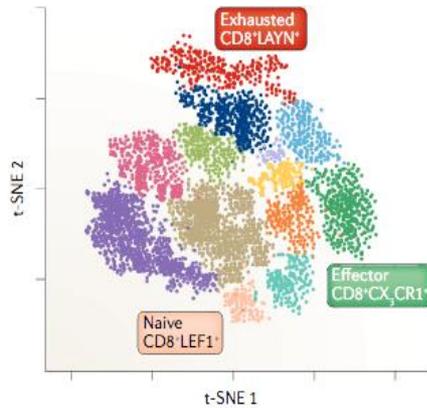
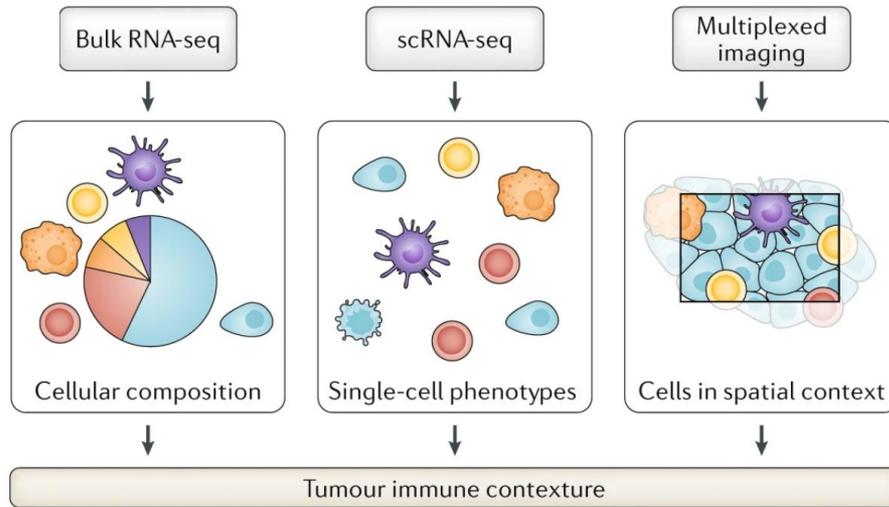
CCLE



GDSC



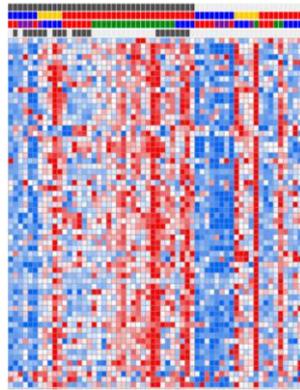
Analyses of tumor microenvironment



Tumor sample analysis

The Cancer Genome Atlas
TCGA

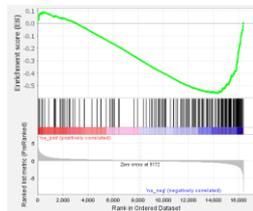
Bulk RNAseq



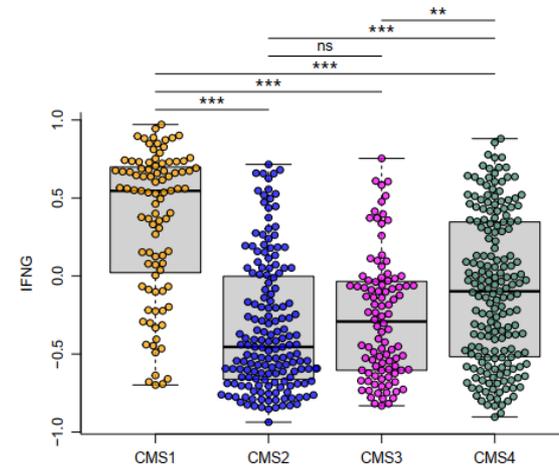
Deconvolution of
cell types



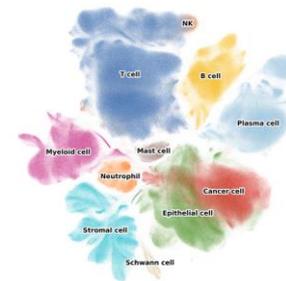
ssGSEA



Molecular subtypes



Single cell analysis



WM7 Computational Systems Biology

Date	Room	Topic	Lecturer
08.06 (9-14)	M.01.392	VO Functional precision oncology VO Integrative multiomics analyses	Zlatko Trajanoski
09.06 (9-14)	M.01.392	VO Single cell and spatial analyses VO Systems biology and pharmacology	Zlatko Trajanoski
10.06 (9-12) 10.06 (12-16)	M.01.392 wet lab	VO Cancer models PR Cancer cell line cultures	Giorgia Lamberti, Anne Krogsdam
11.06 (9-12) 11.06 (12-16)	M.01.392 wet lab	VO Precision therapy PR Kinase inhibitor treatment	Giorgia Lamberti, Anne Krogsdam
15.06 (9-12) 15.06 (12-16)	M.01.392 wet lab	VO NGS PR RNA isolation	Anne Krogsdam, Giorgia Lamberti
15.06 (9-12) 16.06 (12-16)	M.01.392 wet lab	VO RNA sequencing PR Library generation, sequencing	Anne Krogsdam, Giorgia Lamberti
17.06 (9-16)	FP3 C3	VO PR RNA sequencing data processing	Dietmar Rieder
18.06 (9-16)	FP3 C3	VO PR Differential expression analyses	Dietmar Rieder
19.06 (9-16)	FP3 C3	VO PR Functional analyses	Michael Schubert
22.06 (9-16)	FP3 C3	VO PR Pathway and network modeling	Michael Schubert
24.06 (9-16)	FP3 C1	VO PR Drug sensitivity	Hubert Hackl
25.06 (9-16)	FP3 C1	VO PR Tumor sample analyses	Hubert Hackl
29.06 (9-16)	M.01.392	JC Journal club of relevant publications	ZT, AK, GL, DR, MS, HH
30.06 (9-16)	M.01.392	SE Seminar, presentation of results	ZT, AK, GL, DR, MS, HH

Results should be provided also in paper format