

Cellular Programs – topics for student presentations

- **Circadian clocks**

Paper 1

BMAL1-Driven Tissue Clocks Respond Independently to Light to Maintain Homeostasis

<https://www.sciencedirect.com/science/article/pii/S0092867419305070>

expression / electron microscopy

Paper 2 / Assignment 1

Circadian Regulation of Light-Evoked Attraction and Avoidance Behaviors in Daytime- versus Nighttime-Biting Mosquitoes

<https://www.sciencedirect.com/science/article/pii/S0960982220308265>

neuronal expression / light microscopy /

Paper 3 / Assignment 2

Circadian rhythms in the absence of the clock gene Bmal1

<https://science.sciencemag.org/content/367/6479/800>

transcriptome / TFBS / proteome / phospho-proteome

- **Cell Cycle**

Paper 4

Transcriptional landscape of the human cell cycle

<https://www.pnas.org/content/114/13/3473>

GRO-seq / RNA-seq / ChIP-seq

Paper 5 / Assignment 3

Multisite phosphorylation code of CDK

<https://www.nature.com/articles/s41594-019-0256-4>

fluorescence / phosphorylation code + synthetic biology

Paper 6

Evidence that the human cell cycle is a series of uncoupled, memoryless phases

<https://www.embopress.org/doi/full/10.15252/msb.20188604>

microscopy

- **Differentiation**

Paper 7 / Assignment 4

Single-cell RNA-sequencing of differentiating iPS cells reveals dynamic genetic effects on gene expression

<https://www.nature.com/articles/s41467-020-14457-z>

single cell sequencing

Paper 8

MorphoSeq: Full Single-Cell Transcriptome Dynamics Up to Gastrulation in a Chordate

<https://www.sciencedirect.com/science/article/pii/S0092867420303482>

single cell sequencing / microscopy

- **Cancerogenesis**

Paper 9 / Assignment 5

Structural basis for cancer immunotherapy by the first-in-class checkpoint inhibitor ipilimumab

<https://www.pnas.org/content/114/21/E4223>

X-ray structure

Paper 10

The genomic landscape of metastatic breast cancer highlights changes in mutation and signature frequencies

<https://www.nature.com/articles/s41588-019-0507-7>

mutation analysis / CNVs

Paper 11 / Assignment 6

Five-Year Survival with Combined Nivolumab and Ipilimumab in Advanced Melanoma

<https://www.nejm.org/doi/pdf/10.1056/NEJMoa1910836>

clinical trial / Kaplan-Meier plot