

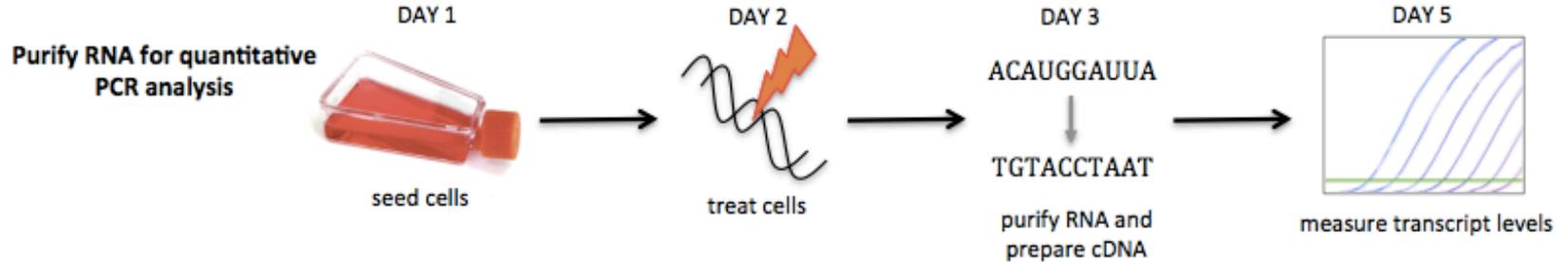
M2D6:

Design cell viability experiment and complete RNA-seq data analysis

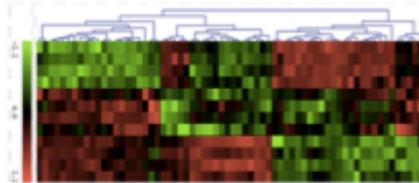
1. Prelab discussion
2. Finalize cell viability experiment
3. Finish RNA-seq data analysis



Overview of Mod 2 experiments

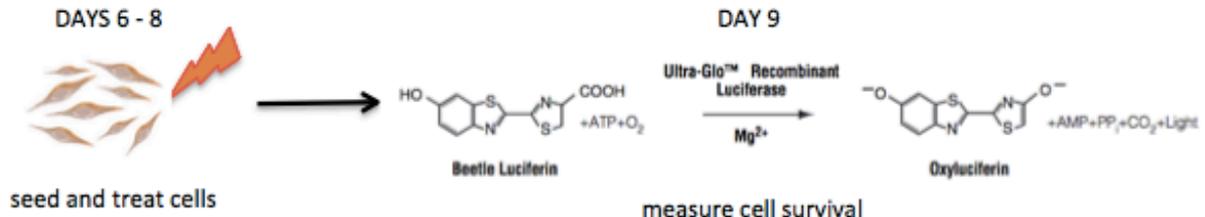


Analyze RNA-seq results



- DAY 4: Evaluate altered gene expression
- DAY 5: Explore public datasets
- DAY 6: Complete RNA-seq data analysis

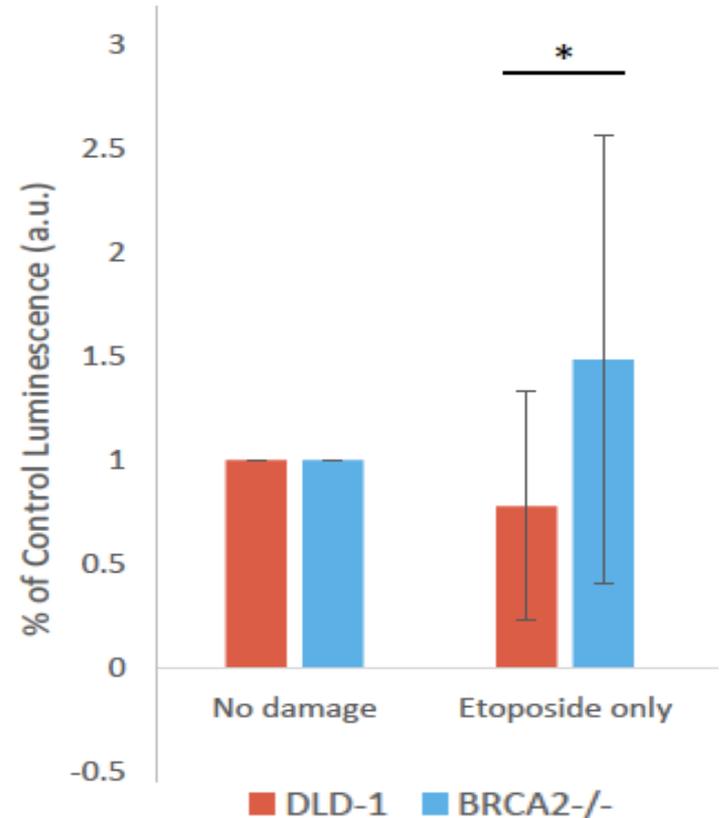
Design and perform cell viability experiment



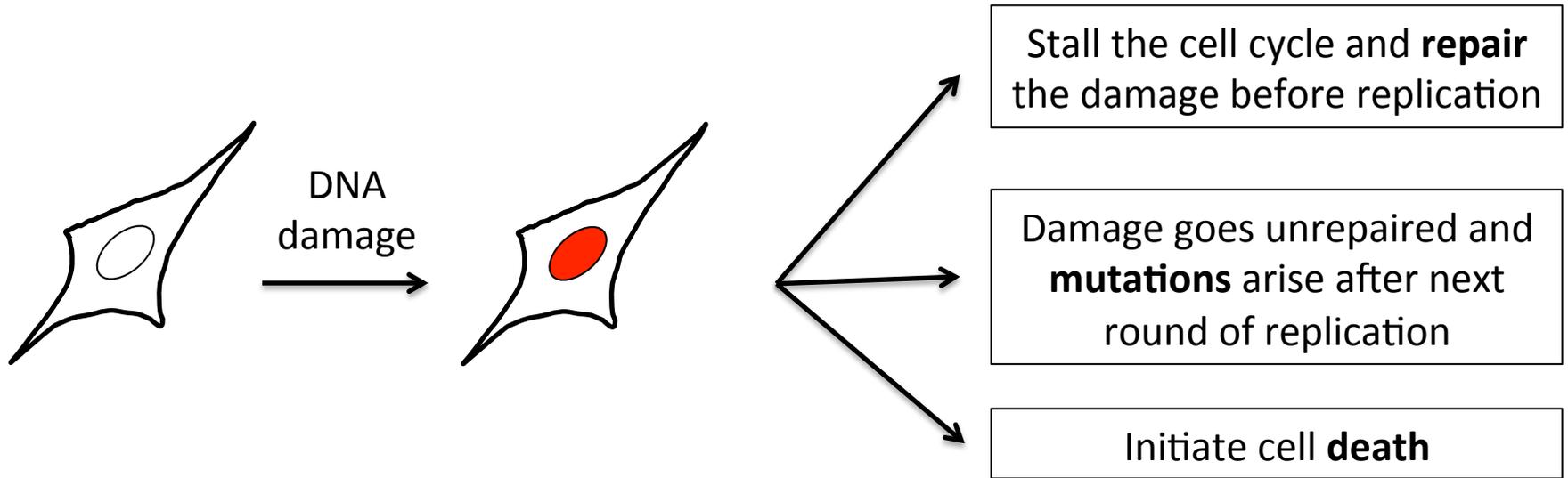
Designing your cell viability experiment

What experimental parameters may explain the results?

What biological responses may explain the results?

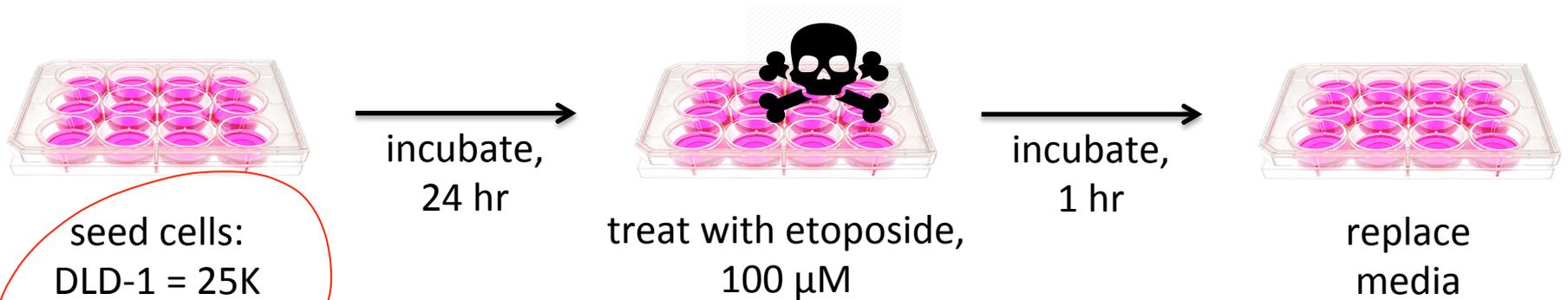


Cellular response to DNA damage

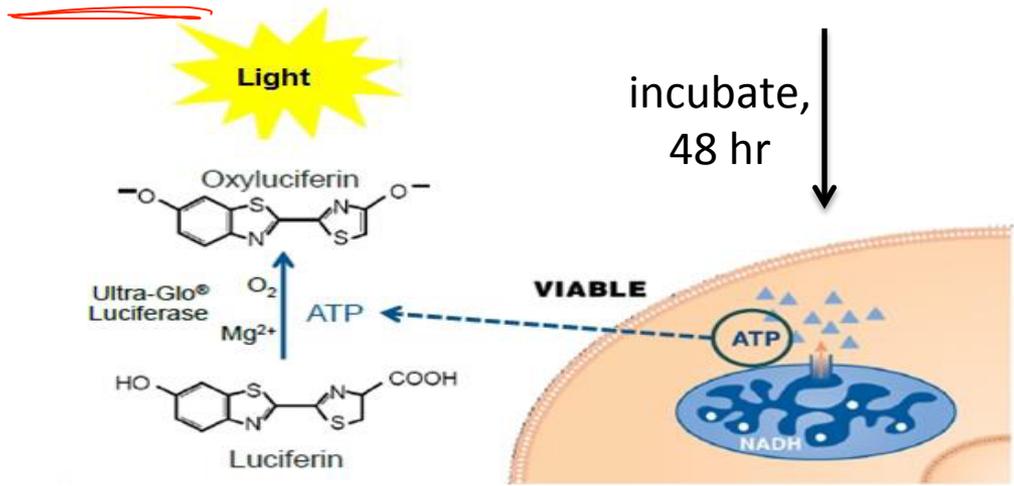
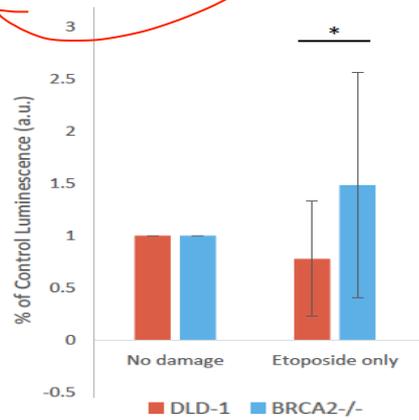


How do these responses to DNA damage relate to cell viability results?

Workflow for Sp18 cell viability experiment



seed cells:
DLD-1 = 25K
BRCA2^{-/-} = 50K



Considerations for your experiment

- Treatments: what are you doing to the cells?

ETOPOSIDE

- Controls: how will you know if the treatment has an effect?

- CONTROL = NO ETOP

+ CONTROL = SAME AS SPI8

- Variables: what are you testing?

CONCENTRATION

CELL #

TIME

DOSAGE

- Replicates: how will you know the results are real?

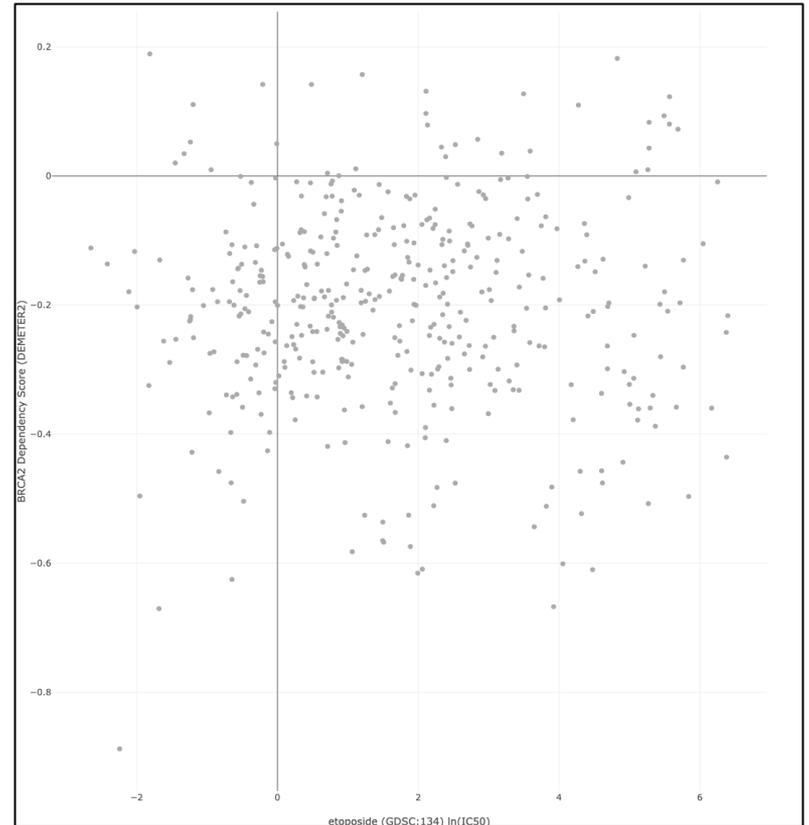
TRIPPLICATES, BIOLOGICAL

Specifics for your experiment

- Today you will meet with me to schedule:
 - Seeding DLD-1 & BRCA2-/- cells
 - Treatment with etoposide
 - Harvest for cell viability assay (on M2D9)
- Not all team members need be present
- Be sure to allot enough time!!!

Using the Cancer Cell Line Encyclopedia

- Examine *specific* genes in response to *specific* treatment across *several* cell lines
- Use this analysis to propose future experiments in your Research article



Editing your data figures / images

- For RNA-seq analyses, use the ?*function* tool:
 - Can edit font sizes, column widths, colors

@ GOOGEE!!

- For CCLE analyses, use Plotly tool:
 - Hover over graph, click floppy disk symbol to open new tab
 - Dot colors are under Style > Traces

For today...

- Submit experimental protocol (Part #1) to Noreen!!!
 - Email to nllyell@mit.edu by 10 pm

For M2D7 & M2D8...

- Journal Club presentations
 - Slides due to Stellar by 1p on the day of your presentation
- Draft Results & Discussion for RNA-seq figure, due M2D9
 - Can use any figure you intend to include in Research article

Journal Club presentations will be in 16-336



“Welcome to Journal Club. The first rule of Journal Club is: you practice. The second rule of Journal Club is: you practice even more.”

- Former 109er

Notes for Journal Club presentations...

- Speakers

- Practice, practice, practice!!
- Please arrive early, if possible, to check the formatting of your slides
- Laser pointer, slide changer, and timer provided

- Audience members

- Please arrive on time
- Enjoy snacks quietly and no refills during presentations
- Turn off phones and avoid leaving room during presentations

