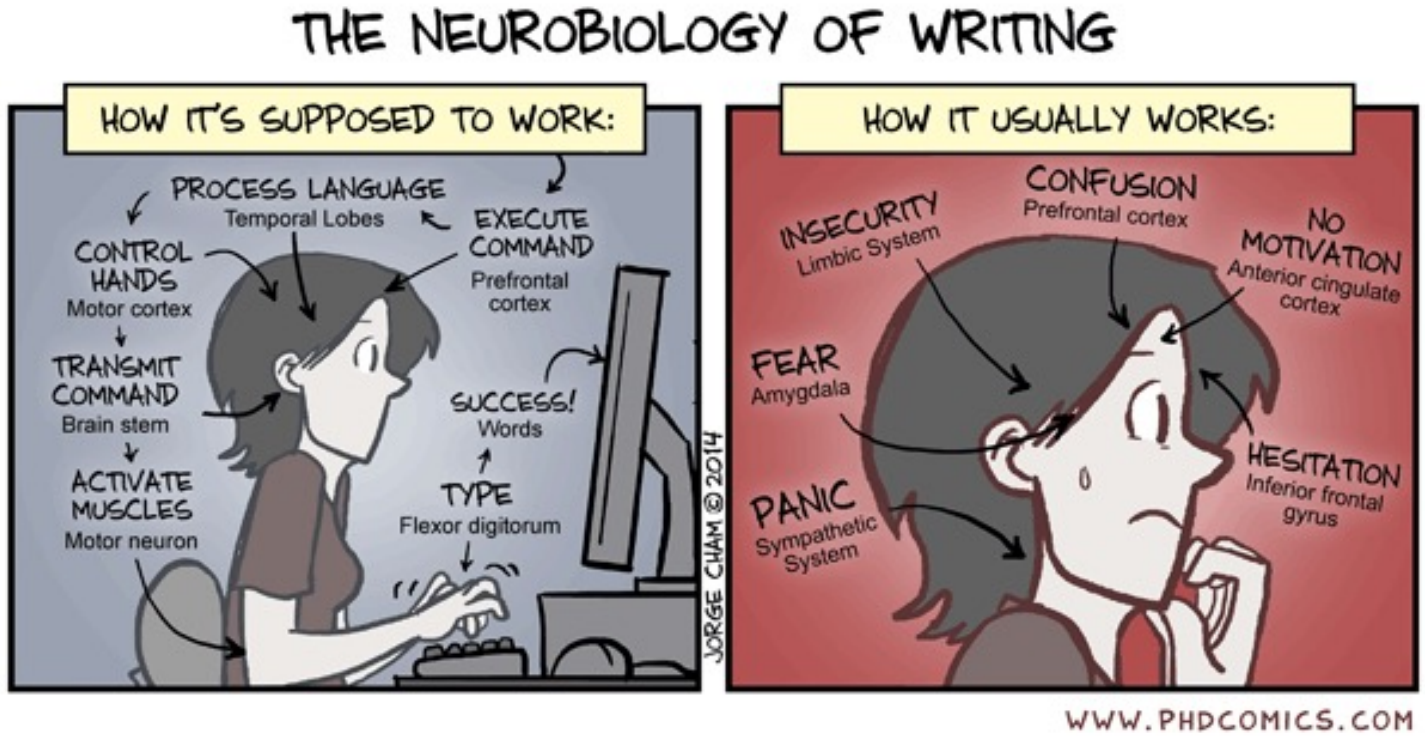
M2D6: Complete data analysis of functional assay results

1. Comm Lab
2. Visit equipment used to run DSF
3. Prelab
4. Analyze DSF data and record T_m on wiki
5. Work on figure outlines for Research Article



Homework

Create an Overview Schematic and
answer questions for the Discussion

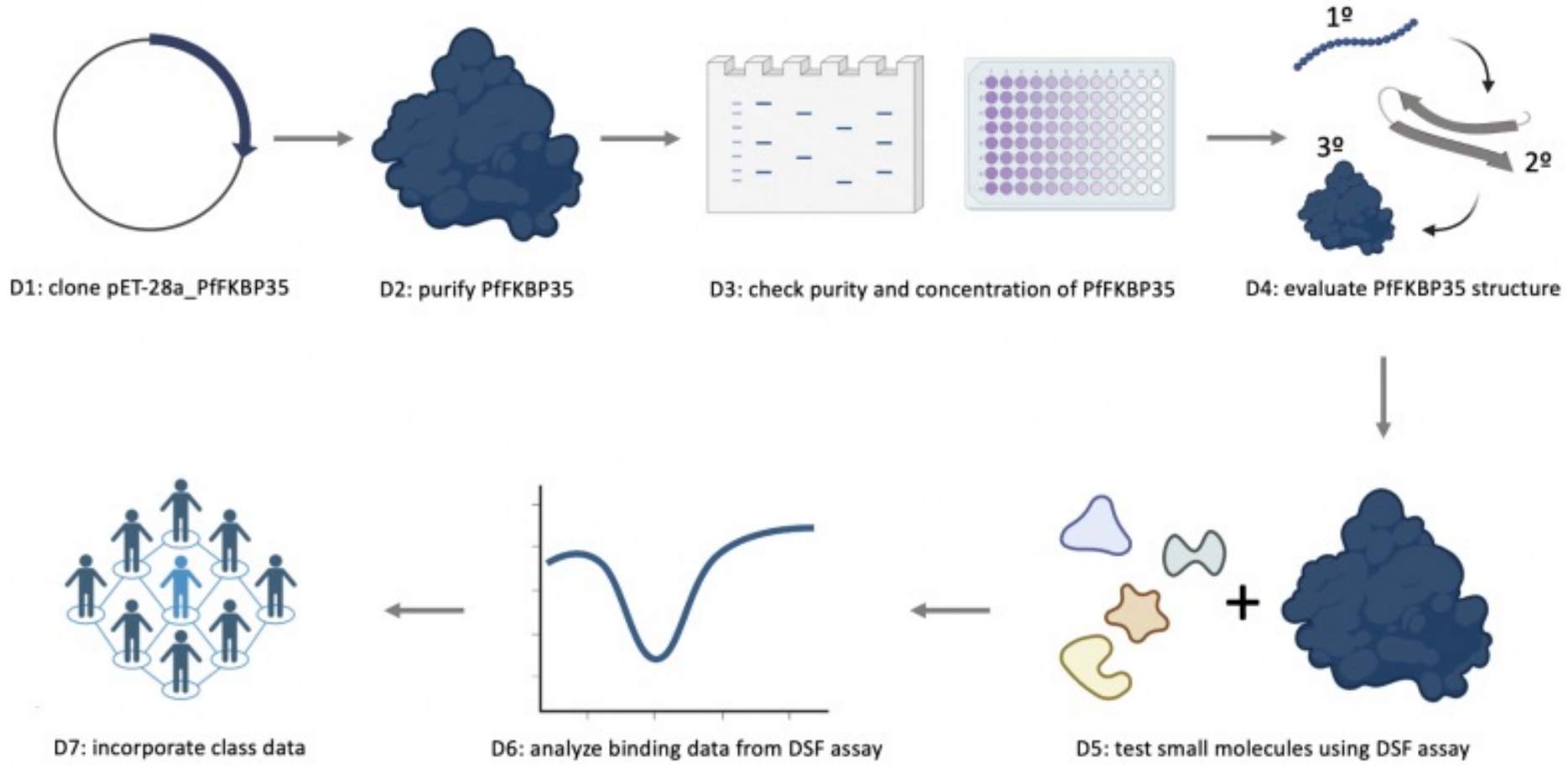
Overview schematics

- Give an overview of the project as a whole
  - Visually represent key concepts/approaches of the project
  - Not much focus on technical details (unlike the experimental schematic)
  - Builds on skills of developing an experimental schematic

- Because it is a figure
  - Include a figure title and caption

Mod2 Overview (AKA a deliberately terrible overview schematic)

Research goal: Test small molecules for binding to the *Plasmodium falciparum* FKBP35 protein using a functional assay.

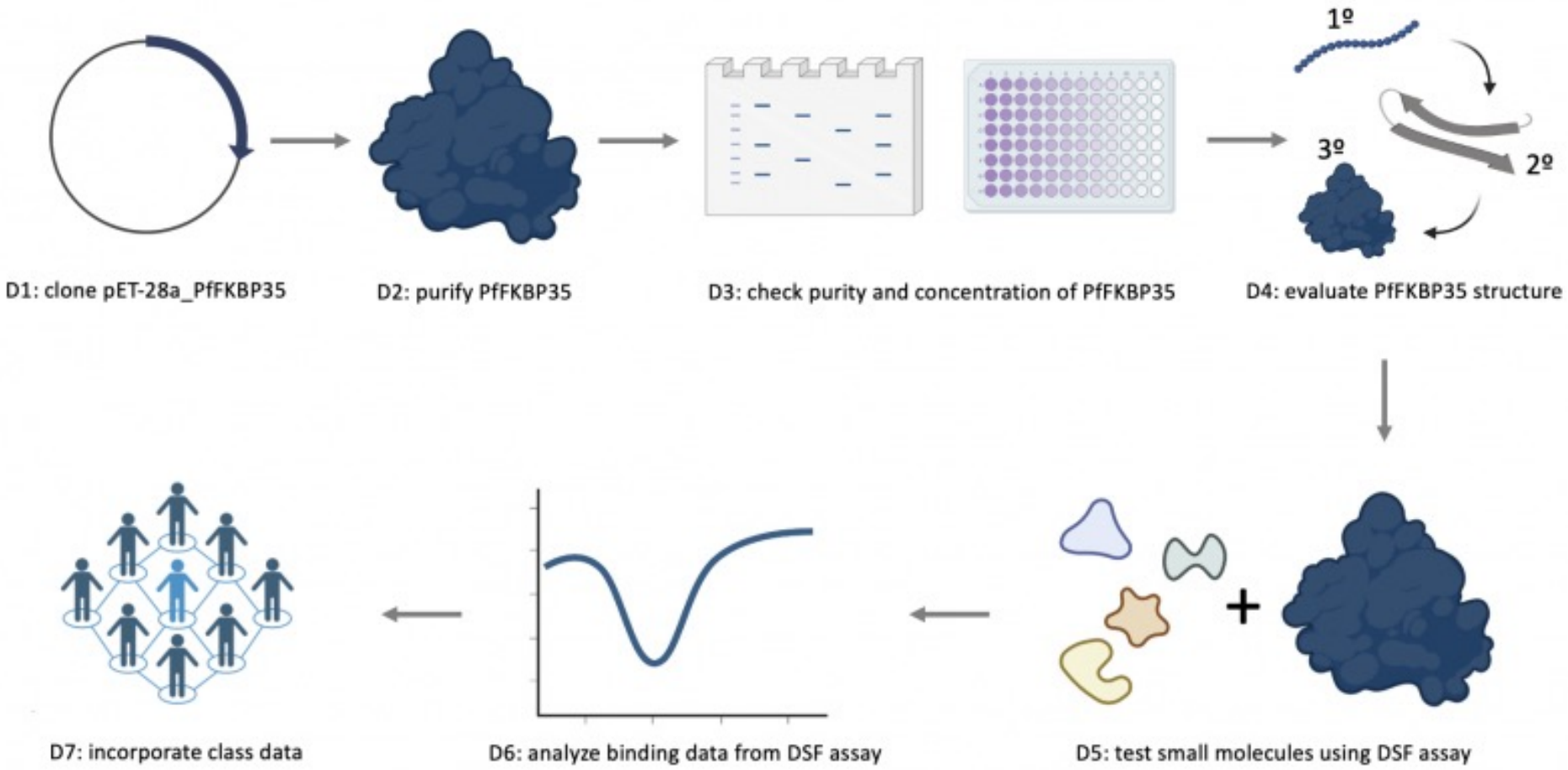


Lab work

Analysis of DSF to identify T_m shift

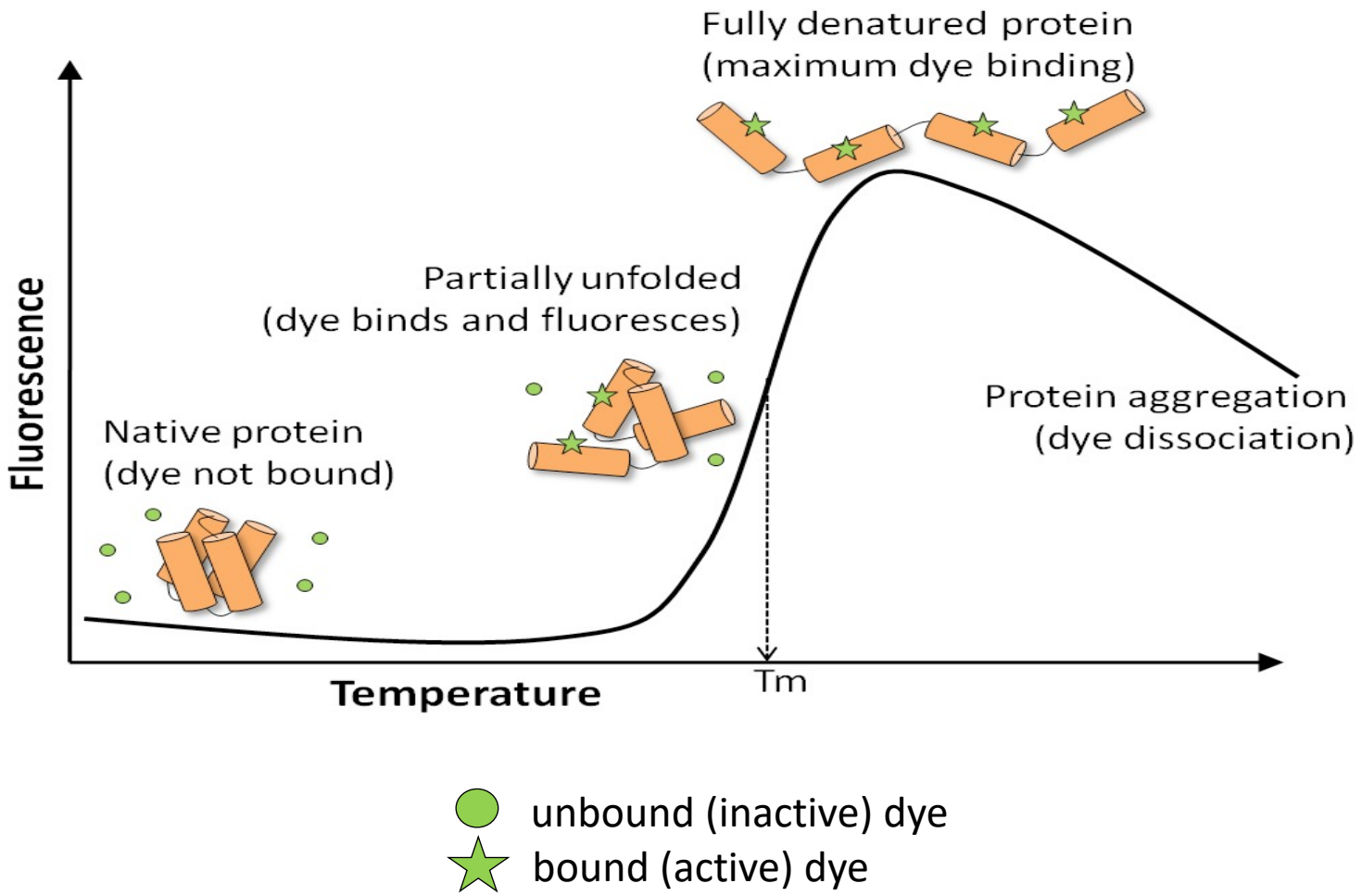
Mod2 Overview

Research goal: Test small molecules for binding to the *Plasmodium falciparum* FKBP35 protein using a functional assay.



Analyze files from DSF runs to generate data for Research Article

1. Each group has 2 .xml format files.
    1. Melt Curve
    2. T_m Calling
2. Open them with excel.
3. Plot the data from the files according to wiki instructions



Plot melt curves and T_m from DSF data

Well

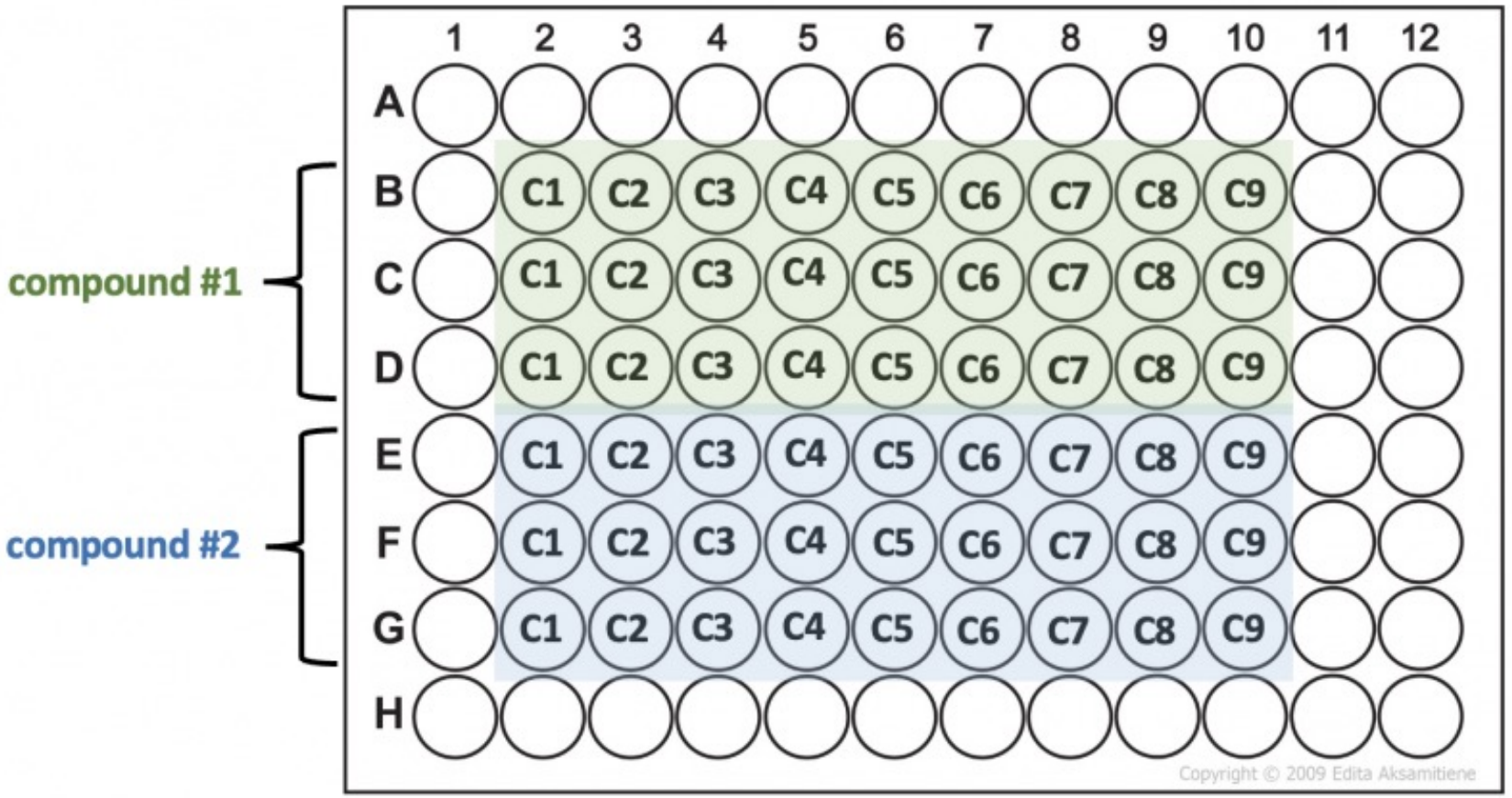
Temperature

Fluorescence unit

X	B2: Sample 14	X	B3: Sample 15
20	27.35626734	20	16.39841463
20.23	27.24606905	20.23	16.35923957
20.31	27.16064967	20.31	16.29594647
20.4	27.04181887	20.4	16.24978707
20.47	26.98091324	20.47	16.20119984
20.55	26.8571273	20.55	16.18912292
20.62	26.85207548	20.62	16.18430013
20.7	26.78610152	20.7	16.13088011
20.78	26.66248474	20.78	16.07510944
20.93	26.67263424	20.93	16.04112625
21.01	26.62517255	21.01	16.07280797
21.08	26.56102698	21.08	16.02662383
21.23	26.46291244	21.23	16.00005796
21.31	26.45277844	21.31	15.99036847
21.39	26.36658467	21.39	15.94670336
21.53	26.35138586	21.53	15.89816065
21.61	26.31588619	21.61	15.90790488
21.76	26.20432895	21.76	15.88368225
21.83	26.19259085	21.83	15.85717153
21.84	26.15204673	21.84	15.83776293
21.98	26.04055041	21.98	15.813561
22.13	26.02535184	22.13	15.78445302
22.21	25.9696201	22.21	15.7408206
22.28	25.91384896	22.28	15.7553921
22.41	25.90375014	22.41	15.70689193

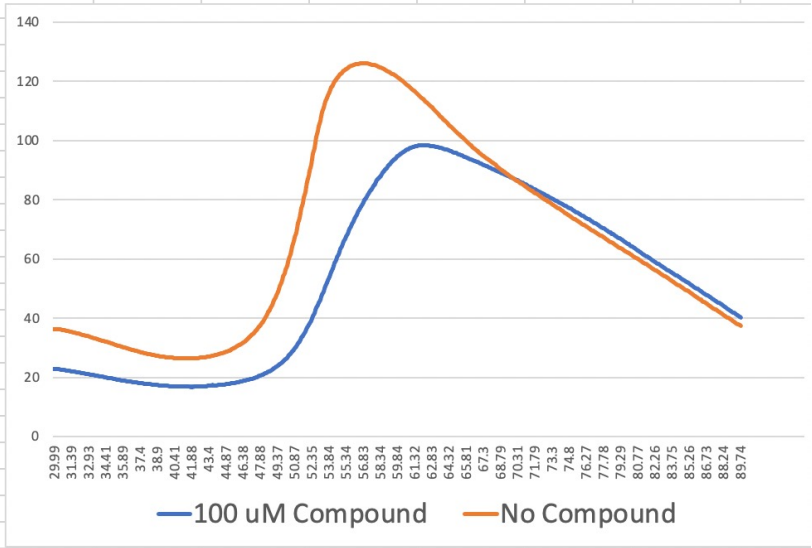
General plate outlines

Team	Compound #1	Compound #2
TR Yellow	FK141	FK502
TR Green	FK296	FK502
TR Blue	FK141	FK189
TR Purple	FK189	FK502
WF Green	FK189	FK296
WF Blue	FK141	FK296

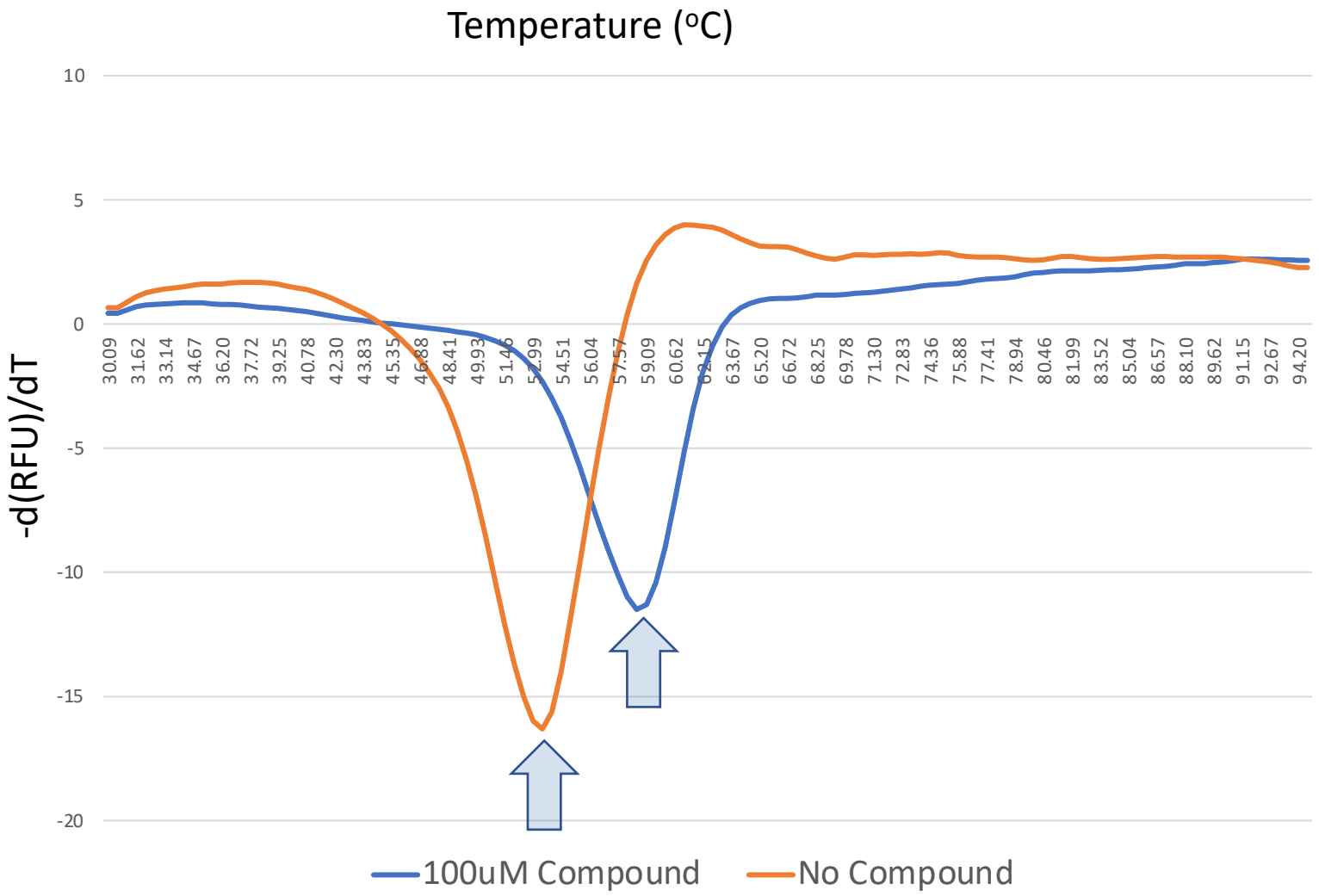


Melt curve plot example

Temperature	100 uM Compound	No Compound
29.99	22.87044016	36.35577117
30.05	22.83724515	36.34711893
30.16	22.7914773	36.30752412
30.27	22.7914319	36.27264161
30.33	22.7624229	36.25970615
30.39	22.74172188	36.16924032
30.55	22.64675946	36.16647587
30.66	22.59646411	36.10613995
30.72	22.53774686	36.01025708
30.89	22.49573701	35.94972782
31	22.44952261	35.89326055
31.06	22.39075992	35.8059824
31.16	22.31929394	35.71017009
31.27	22.26036547	35.66666697
31.38	22.21388888	35.54022742
31.39	22.13016762	35.47014615
31.49	22.08378945	35.36100882
31.65	22.01211513	35.26052931
31.71	21.95749471	35.15128121
31.82	21.86445912	35.05498419
31.92	21.82211103	34.96302734
31.98	21.74181703	34.87099475
32.14	21.66990007	34.73513191
32.19	21.60638406	34.66047014
32.29	21.53858367	34.54194747
32.41	21.47072907	34.44521988
32.51	21.39484915	34.31371508
32.62	21.32692474	34.19060143
32.72	21.26738218	34.09807093
32.88	21.20722269	33.98745326
32.93	21.1100685	33.89088282
33.03	21.06185613	33.7794664
33.14	20.97307233	33.63444281



Plot negative first derivative of fluorescence/time to call T_m for each compound



- Mark down the temperature at the inverse peak.
  - These are your T_m values.
- ΔT_m = T_m of [uM] Compound – T_m of No Compound
- Record the T_m values for your group on the Class Data page for the Wiki

RFU= relative fluorescence units

For the rest of today

- Complete data analysis
- Work on figure outline
- Work on Research Article