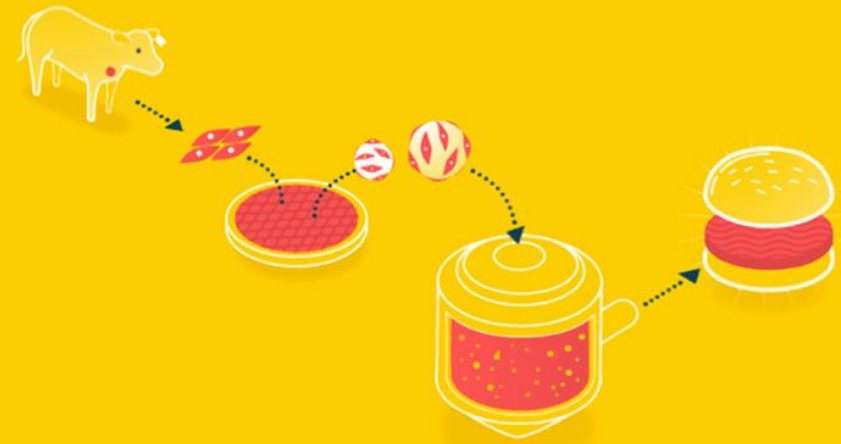


Tufts BME174 – Meat Lab

Week 11: Cell Viability Assay





Week 11

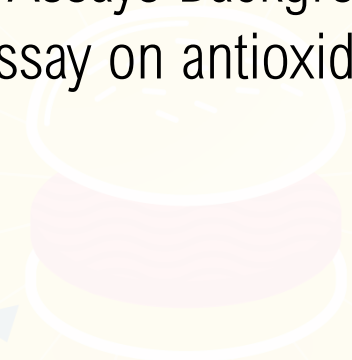
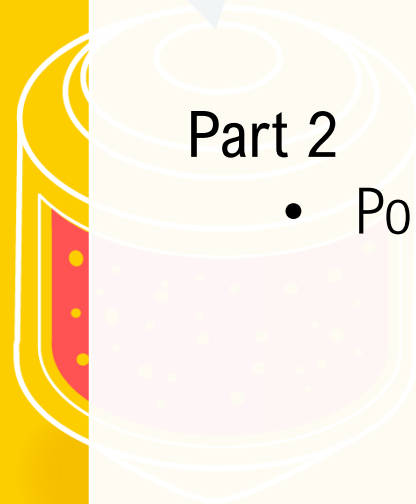


Part 1

- Cell Viability Assays Background
- PrestoBlue assay on antioxidant-treated cells

Part 2

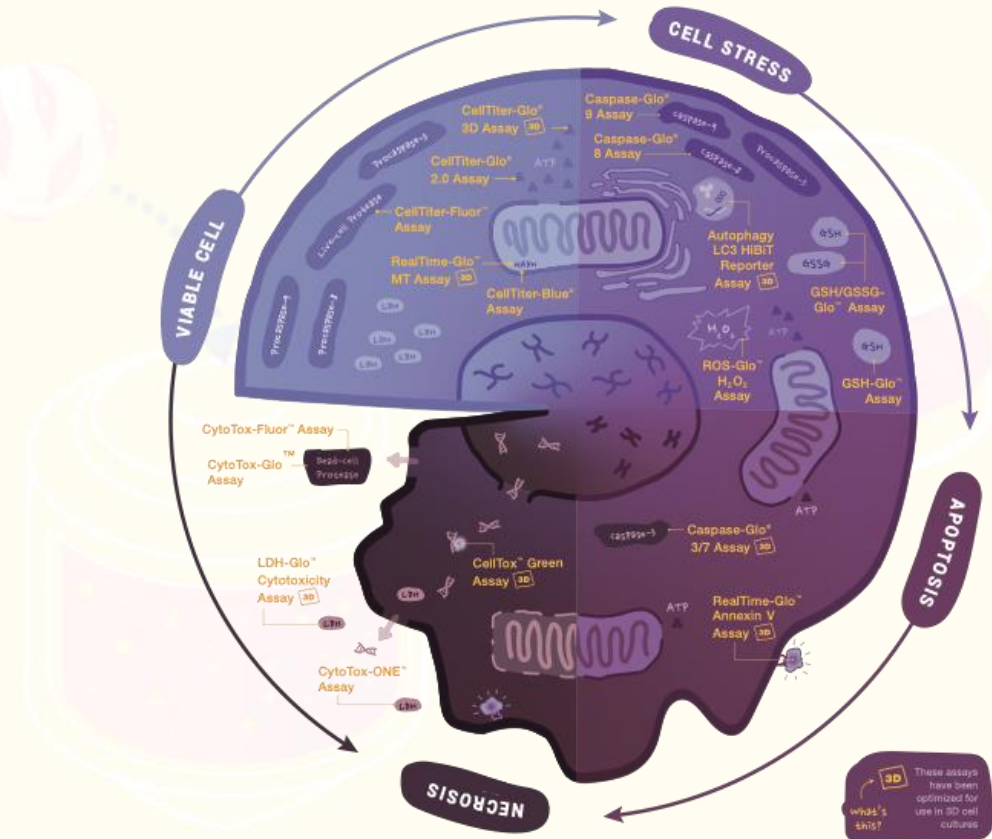
- Pop quiz 😊



Measuring cell health

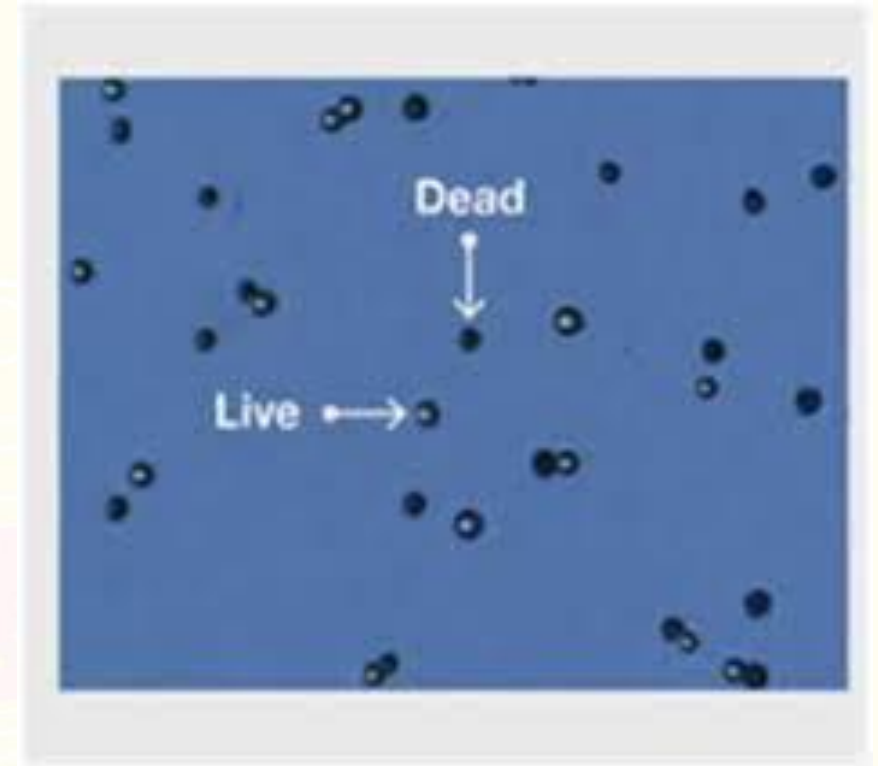


Cell-Based Assays for Measuring Cell Viability, Stress, Apoptosis and Death



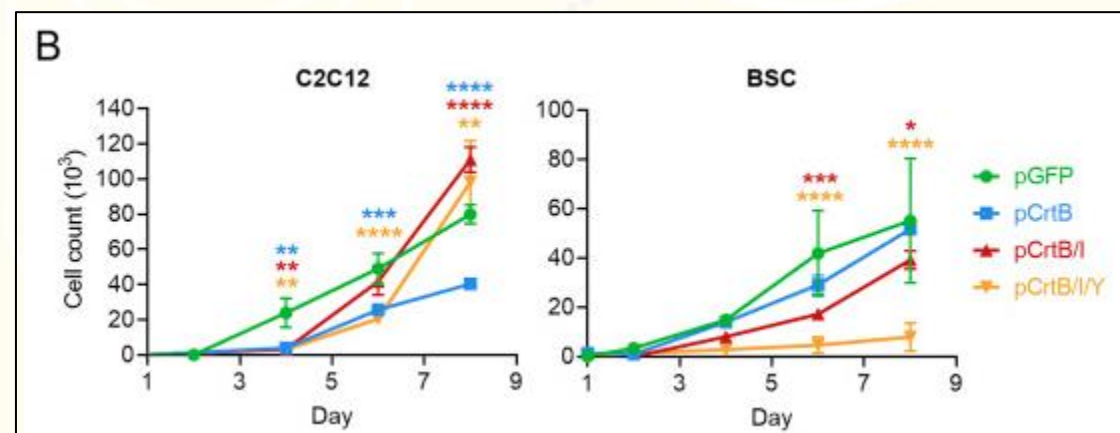
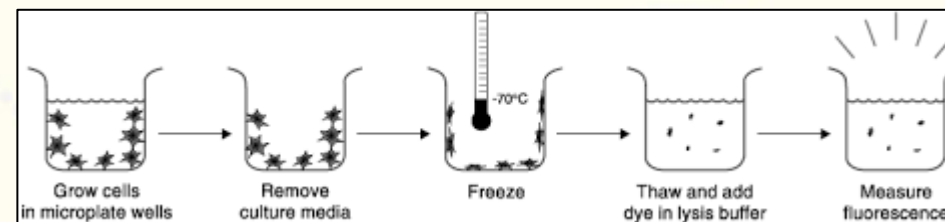
Methods to measure cell viability/growth

- Just count them (trypan blue)
- Growth curve: DNA quantification
- Live/dead
- Cell metabolism: PrestoBlue



Methods to measure cell viability/growth

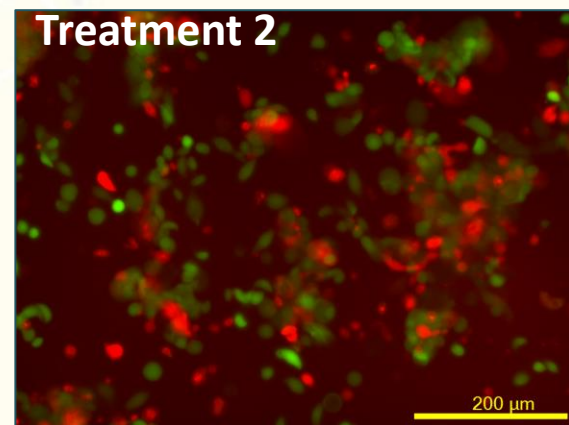
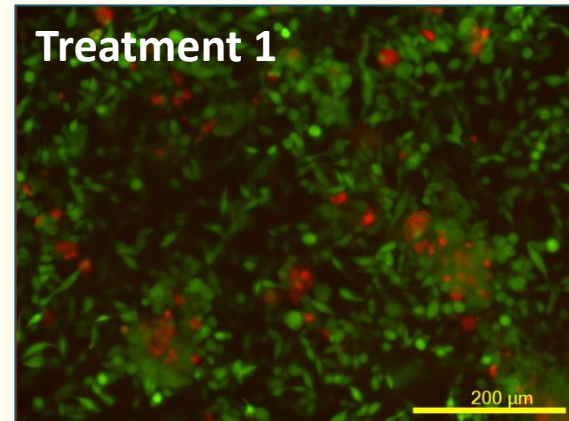
- Just count them
- Growth curve: DNA quantification
- Live/dead
- Cell metabolism: PrestoBlue



Methods to measure cell viability/growth

- Just count them
- Growth curve: DNA quantification
- **Live/dead**
- Cell metabolism: PrestoBlue

LIVE CELLS | DEAD CELLS

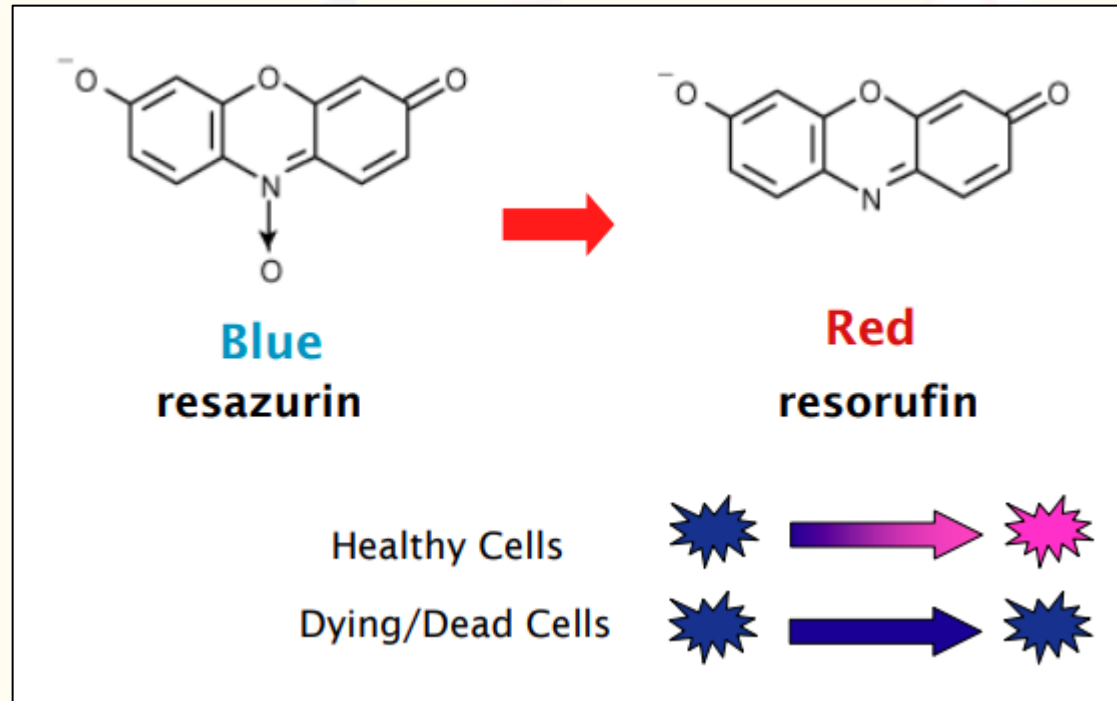


Methods to measure cell viability/growth

- Just count them
- Growth curve: DNA quantification
- Live/dead
- Cell metabolism: Alamar Blue/PrestoBlue



How does PrestoBlue work?



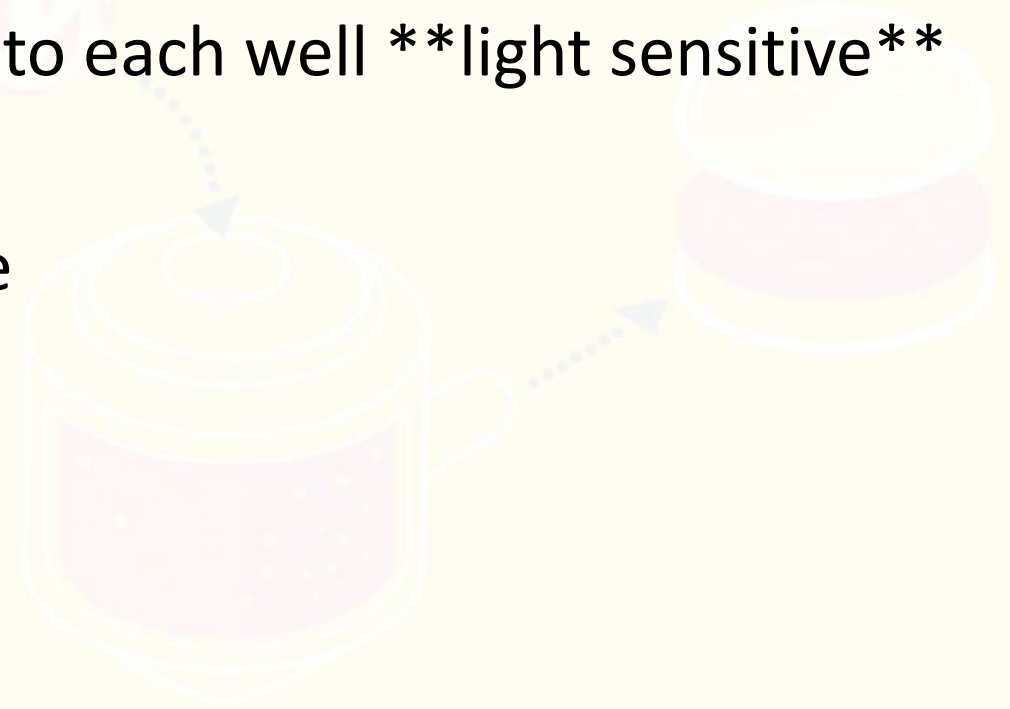
Things to think about when you get your results:

If there is a difference in viability:

1. Was there a dose-dependent effect?
2. What would lead some treatments to increase/decrease cell metabolism?
3. Use these results to determine what treatment to use for next class!

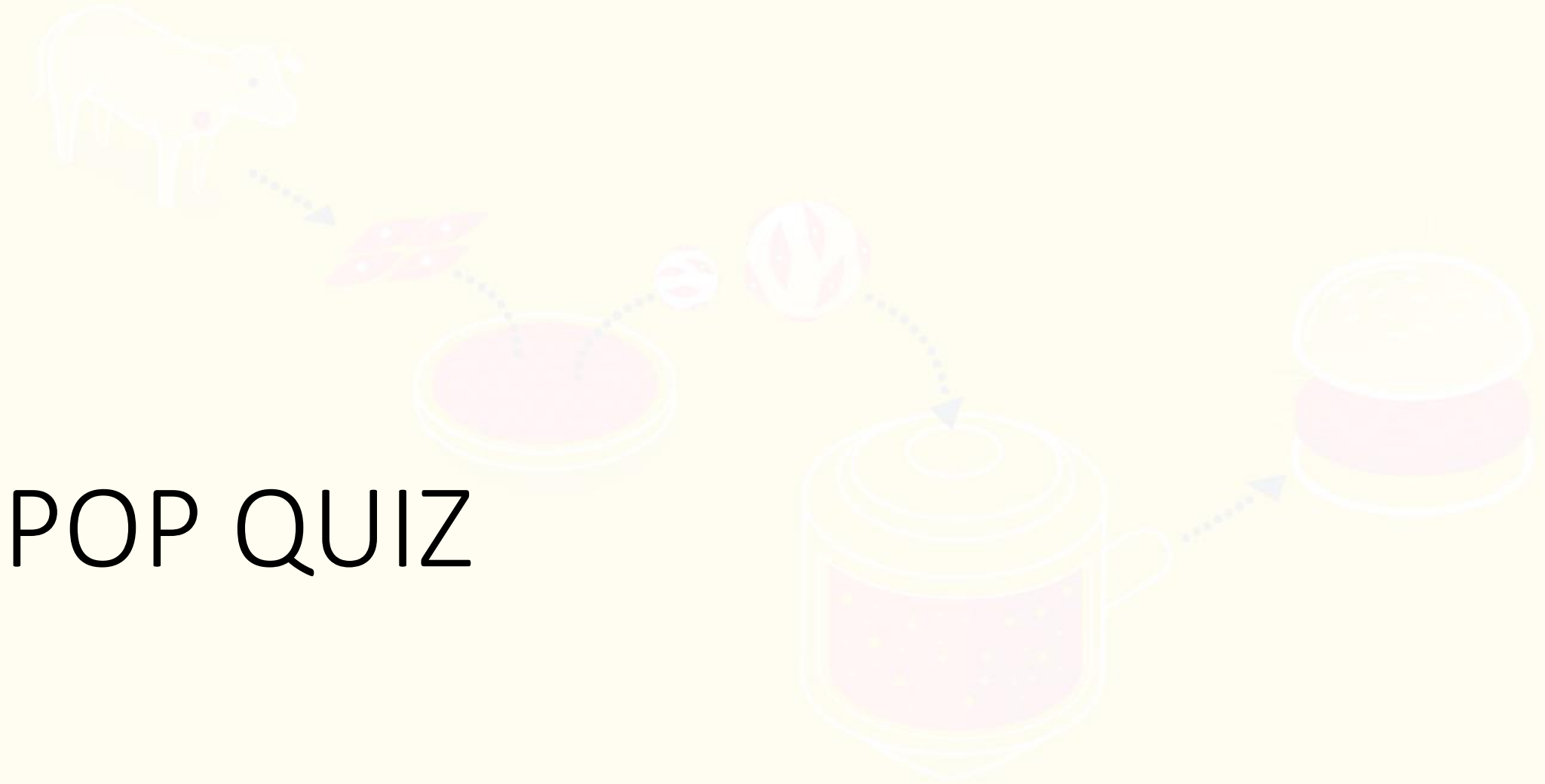
Today's plan

1. Look at cells under microscope, note any observations
2. Add PrestoBlue (1:10 dilution) to each well ****light sensitive****
3. Incubate ~1 hour
4. Transfer media to 96-well plate
5. Read on plate reader
6. Analyze results



Questions?



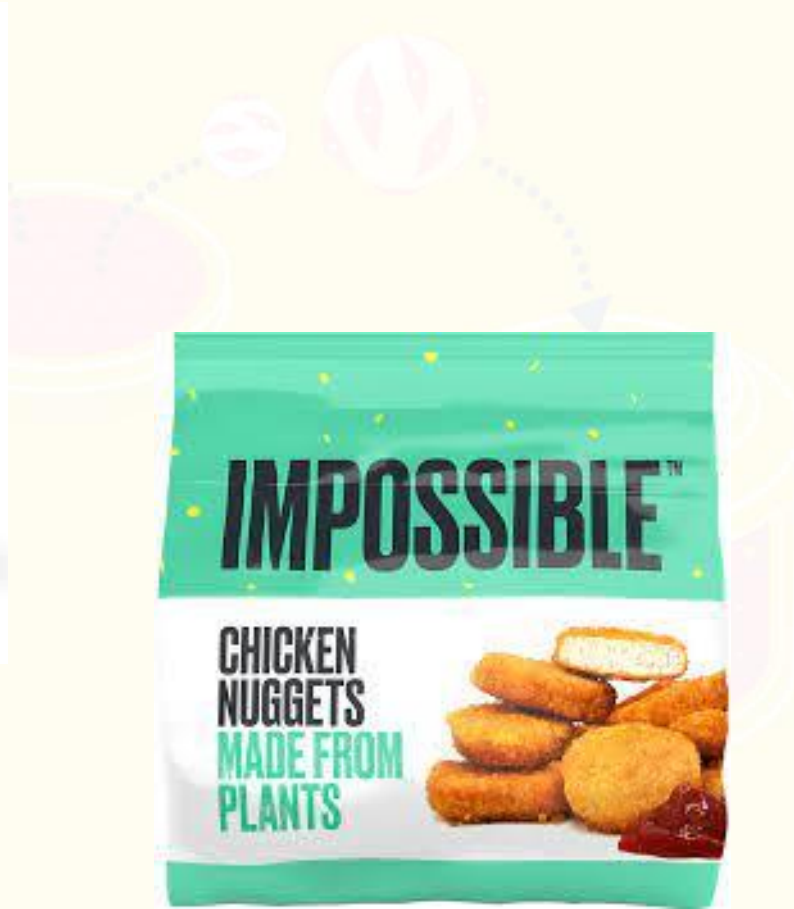


POP QUIZ

JK!!



Sensory evaluation panel



Please tell us if you have any food allergies

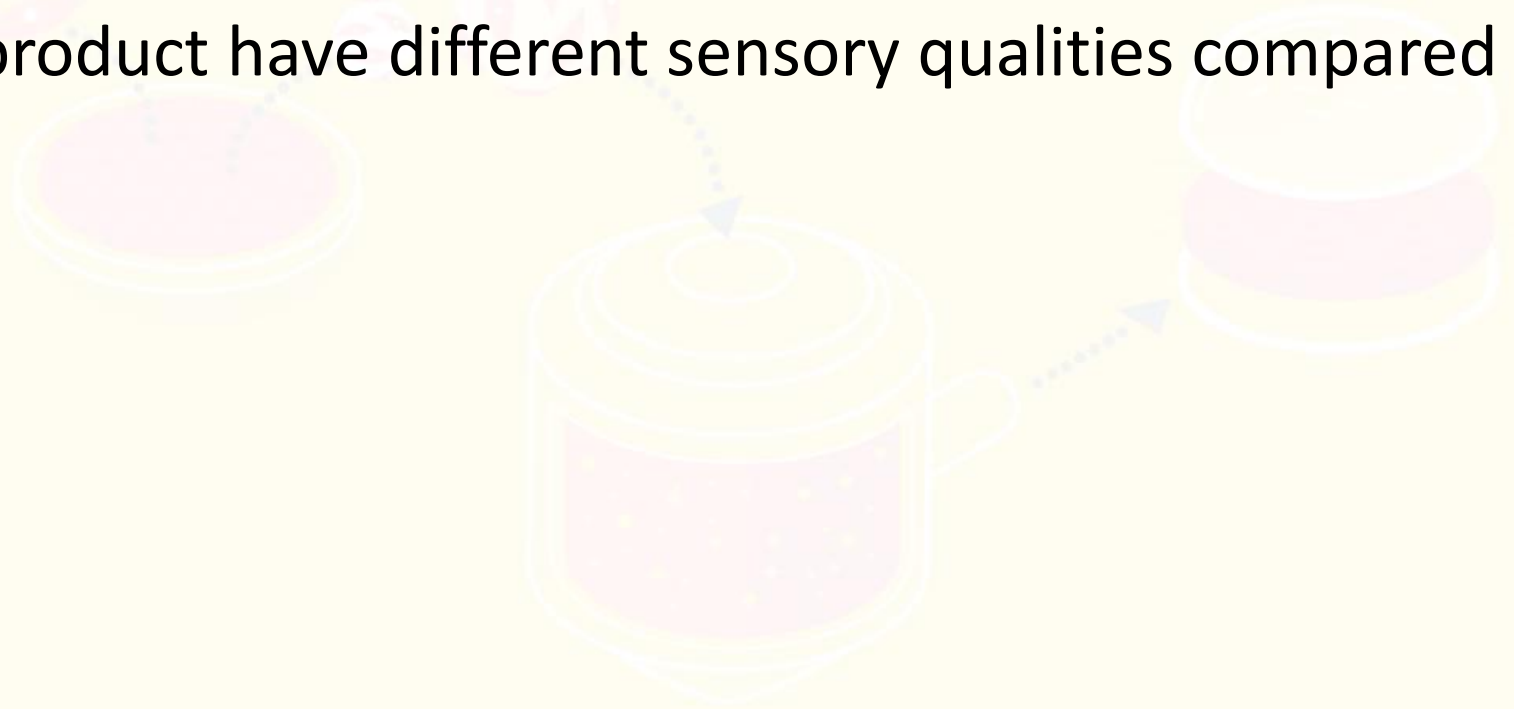
Types of sensory evaluation

1. Discriminatory
2. Descriptive
3. Affective



Methods of sensory analysis: discriminatory

- Qualitative: can panelists tell the difference between samples?
- E.g., does new product have different sensory qualities compared with old product?



Methods of sensory analysis: discriminatory

- Qualitative: can panelists tell the difference between samples?
- E.g., does new product have different sensory qualities compared with old product?

QUESTIONNAIRE FOR TRIANGLE TEST (DISCRIMINATIVE)

PRODUCT: _____
NAME _____ DATE _____

Two of these three samples are identical, the third is different. Taste the samples in the order indicated and identify the sample that is different.

Identify the sample that is different:

Code	Check the sample that is different
263	_____
716	_____
948	_____

Comments: _____

Triangle test
2 same, 1 different

Methods of sensory analysis: discriminatory

- Qualitative: can panelists tell the difference between samples?
- E.g., does new product have different sensory qualities compared with old product?

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263	_____
716	_____
948	_____

Comments: _____

Triangle test
2 same, 1 different

QUESTIONNAIRE FOR DUO-TRIO TEST (DISCRIMINATIVE)

PRODUCT:
NAME _____ DATE _____

On your tray you have a control sample marked with (R) and two coded samples. One sample is identical with R and the other is different.

Which of the coded samples differs from R?

Code	Check the sample that is different
432	_____
701	_____

Comments: _____

Duo-trio
1 reference, two different samples

Methods of sensory analysis: discriminatory

- Qualitative: can panelists tell the difference between samples?
- E.g., does new product have different sensory qualities compared with old product?

QUESTIONNAIRE FOR TRIANGLE TEST (DISCRIMINATIVE)

PRODUCT: _____
NAME _____ DATE _____

Two of these three samples are identical, the third is different. Taste the samples in the order indicated and identify the sample that is different.

Identify the sample that is different:

<i>Code</i>	<i>Check the sample that is different</i>
263	_____
716	_____
948	_____

Comments: _____

Triangle test
2 same, 1 different

QUESTIONNAIRE FOR DUO-TRIO TEST (DISCRIMINATIVE)

PRODUCT: _____
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On your tray you have a control sample marked with (R) and two coded samples. One sample is identical with R and the other is different.

Which of the coded samples differs from R?

<i>Code</i>	<i>Check the sample that is different</i>
432	_____
701	_____

Comments: _____

Duo-trio
1 reference, two different samples

QUESTIONNAIRE FOR PAIRED COMPARISON TEST (DISCRIMINATIVE)

PRODUCT: _____
NAME _____ DATE _____

Evaluate the fruit aroma of these two samples of strawberry jam. Taste the sample on the left first

Indicate which sample has a stronger fruit aroma by circling the number:

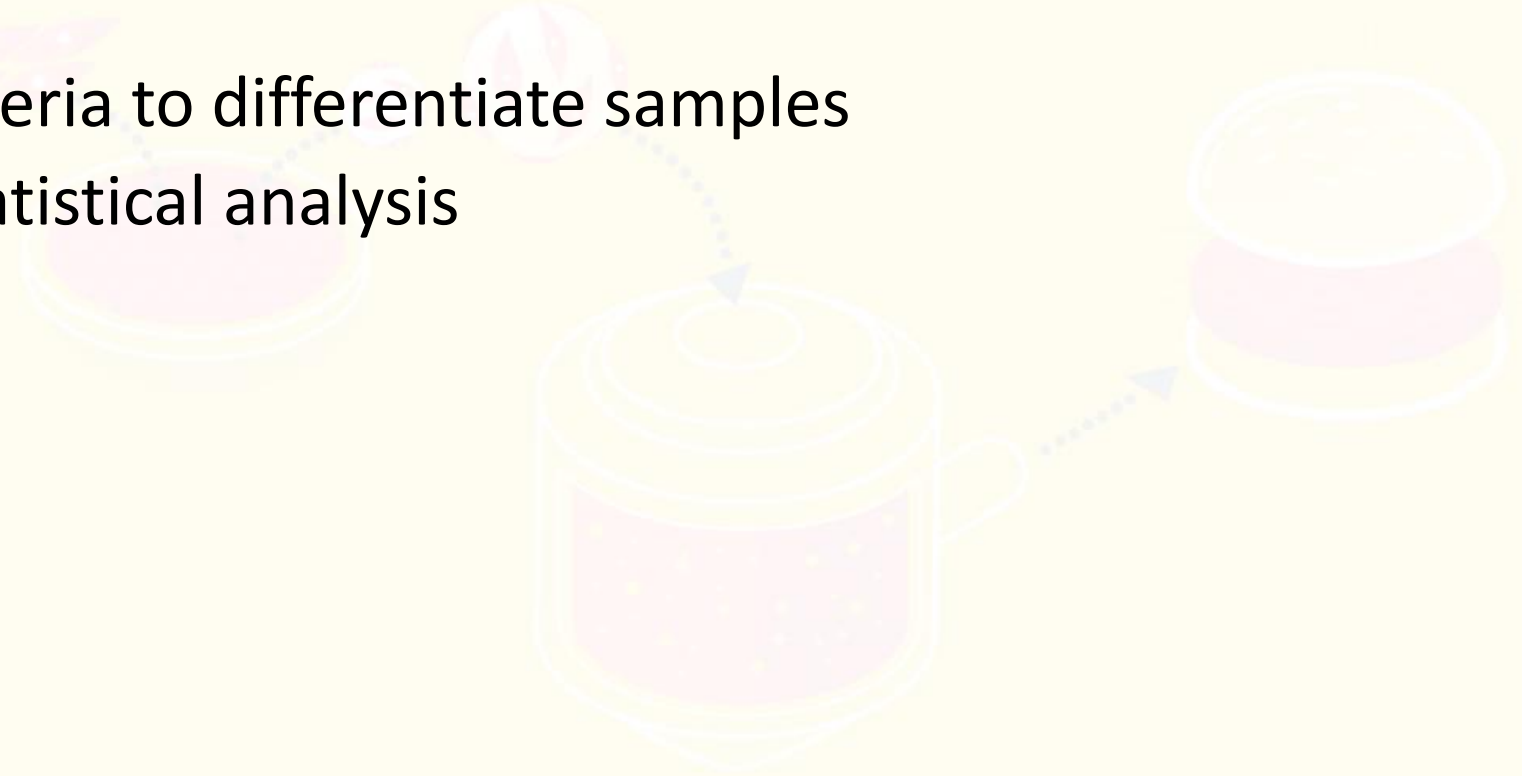
610	579
-----	-----

Comments: _____

Paired comparison
Two different samples

Methods of sensory analysis: descriptive

- Quantitative
- Use specific criteria to differentiate samples
- Can perform statistical analysis



Methods of sensory analysis: descriptive

- Quantitative
- Use specific criteria to differentiate samples
- Can perform statistical analysis

QUESTIONNAIRE FOR LINE SCALE (DESCRIPTIVE)

PRODUCT: _____
NAME _____ DATE _____

Please evaluate the following attribute(s) these samples of Jam. Make a vertical line on the horizontal line to indicate your rating of the harness and chewiness of each sample. Label each vertical line with the code number of the sample it represents. Please cleanse your palate by eating a cracker and drinking water between each sample.

Taste the samples in this order: 375, 496, 281

Mouthfeel

Example:

0 None 5 10 Intense

QDA/ Line scaling
markings → numbers to evaluate

QUESTIONNAIRE FOR CATEGORY SCALE (DESCRIPTIVE)

PRODUCT: _____
NAME _____ DATE _____

Please evaluate these Jam samples for sweetness.

Indicate the amount of sweetness in each sample on the scales below.

672	931	803
___ not sweet	___ not sweet	___ not sweet
___ slightly sweet	___ slightly sweet	___ slightly sweet
___ moderately sweet	___ moderately sweet	___ moderately sweet
___ very sweet	___ very sweet	___ very sweet
___ extremely sweet	___ extremely sweet	___ extremely sweet

Category scaling
specific number given for each sample

QUESTIONNAIRE FOR RATIO MEASUREMENTS (DESCRIPTIVE)

PRODUCT: _____
NAME _____ DATE _____

Please evaluate the sweetness of the given Jam samples. Rate the first sample listed on the questionnaire first, and then score other samples in relation to the first sample.

Samples	Sweetness
761	___
937	___ 2 ___
846	___

Ratio Scaling
compare samples to reference
e.g., twice as sweet

Methods of sensory analysis: affective

- Aka “hedonic” tests
- Measure how much consumers enjoy a product

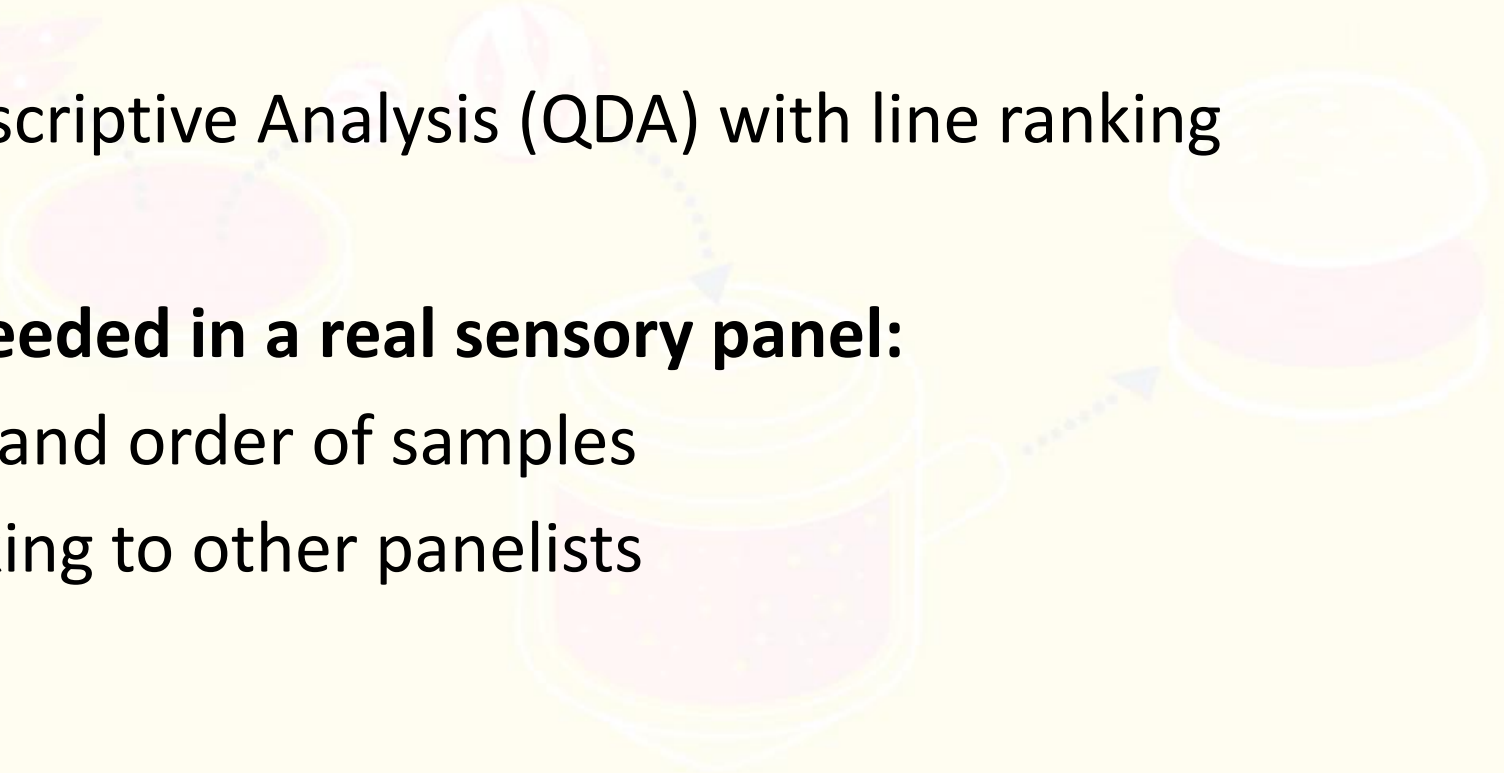


Today's Sensory Evaluation

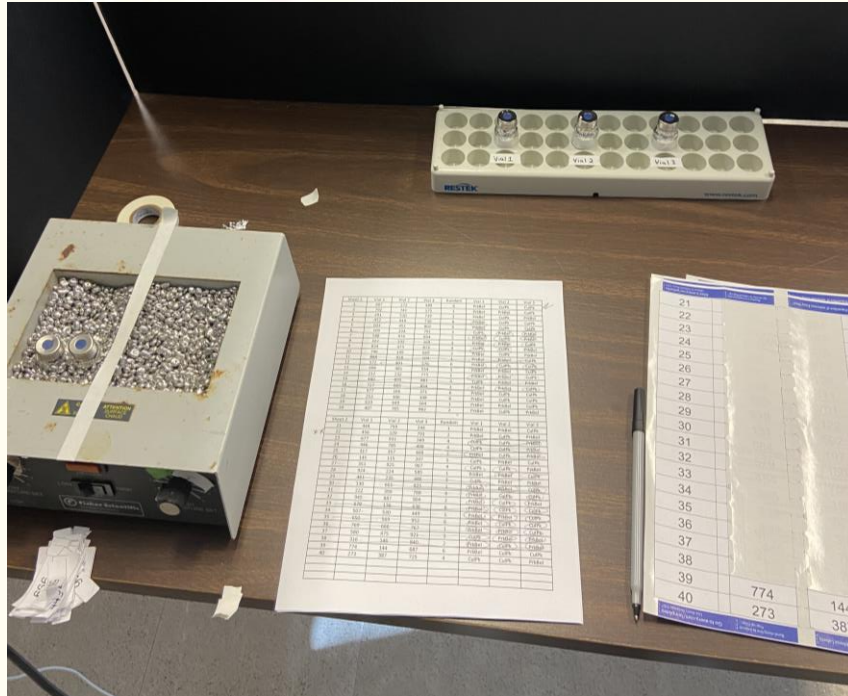
- Triangle Test
- Quantitative Descriptive Analysis (QDA) with line ranking

Things that are needed in a real sensory panel:

- Random coding and order of samples
- Isolation/no talking to other panelists
- Palate cleanser



Emily's sensory evaluation!



Results coming soon! :D

Sensory evaluation of plant-based chicken nuggets:



Descriptive + affective evaluation:

1. Triangle test (*can you tell the difference?*)
2. Descriptive analysis (*what qualities are different?*)



CHICKEN NUGGET SONG



LYRIC VIDEO