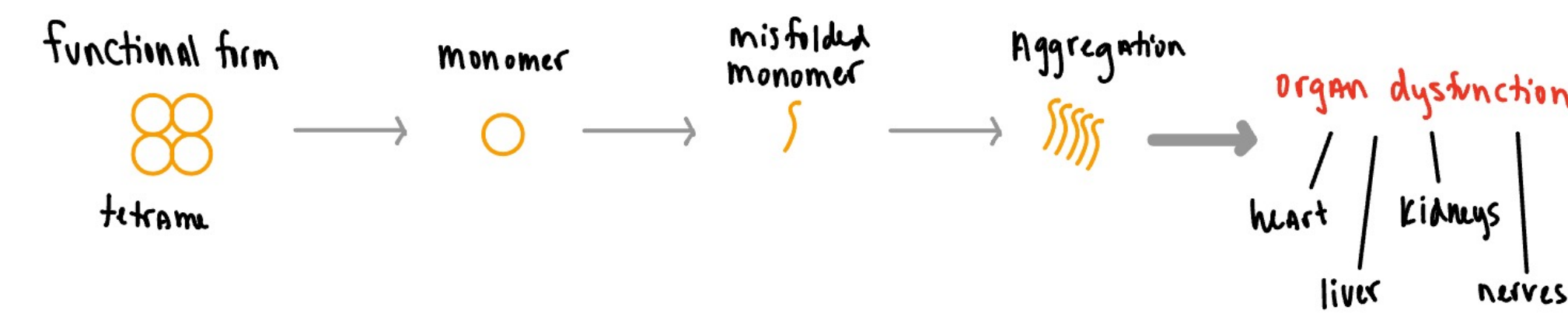


# Monitoring Transthyretin Protein Aggregation using the yTRAP System

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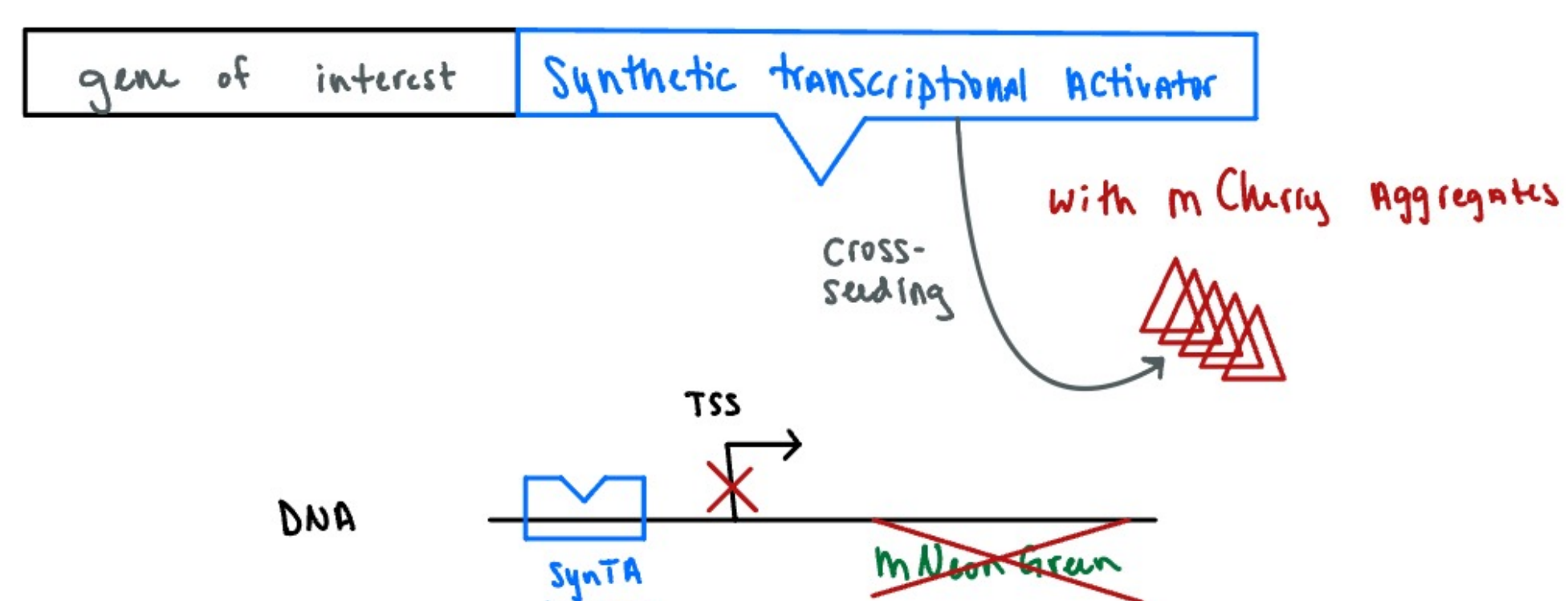
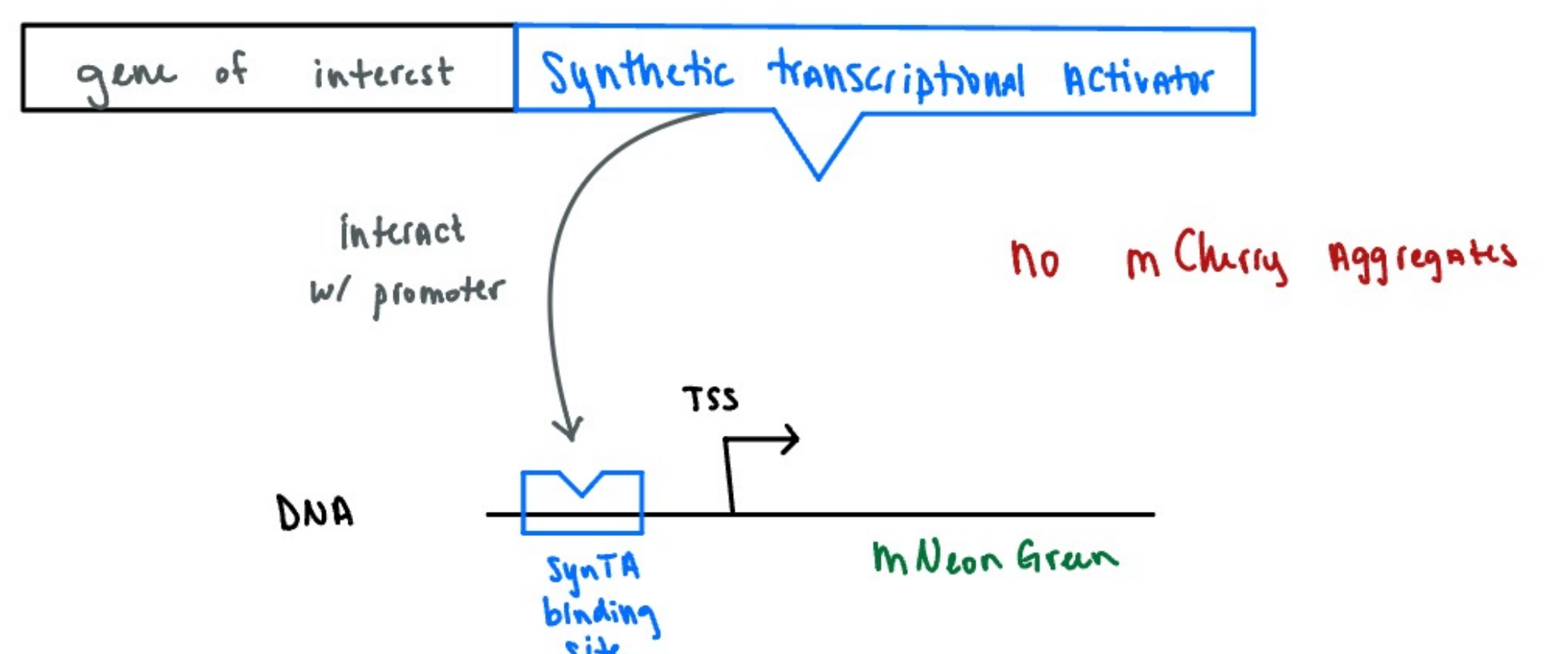
## Biology of Transthyretin (TTR)



### Goal:

Develop a rapid assay to detect TTR aggregation in cell populations

## yTRAP: Visualization of Aggregation



gene of interest-synTA + TTR mCherry aggregate → No mNeonGreen expression

gene of interest-synTA + NO TTR mCherry aggregate → mNeonGreen expression

## Experiment

Use fluorescent microscopy to assess mNeonGreen intensities and mCherry intensities using 2 constructs:

- EV-mCherry (control)
- TTR-mCherry (experimental)

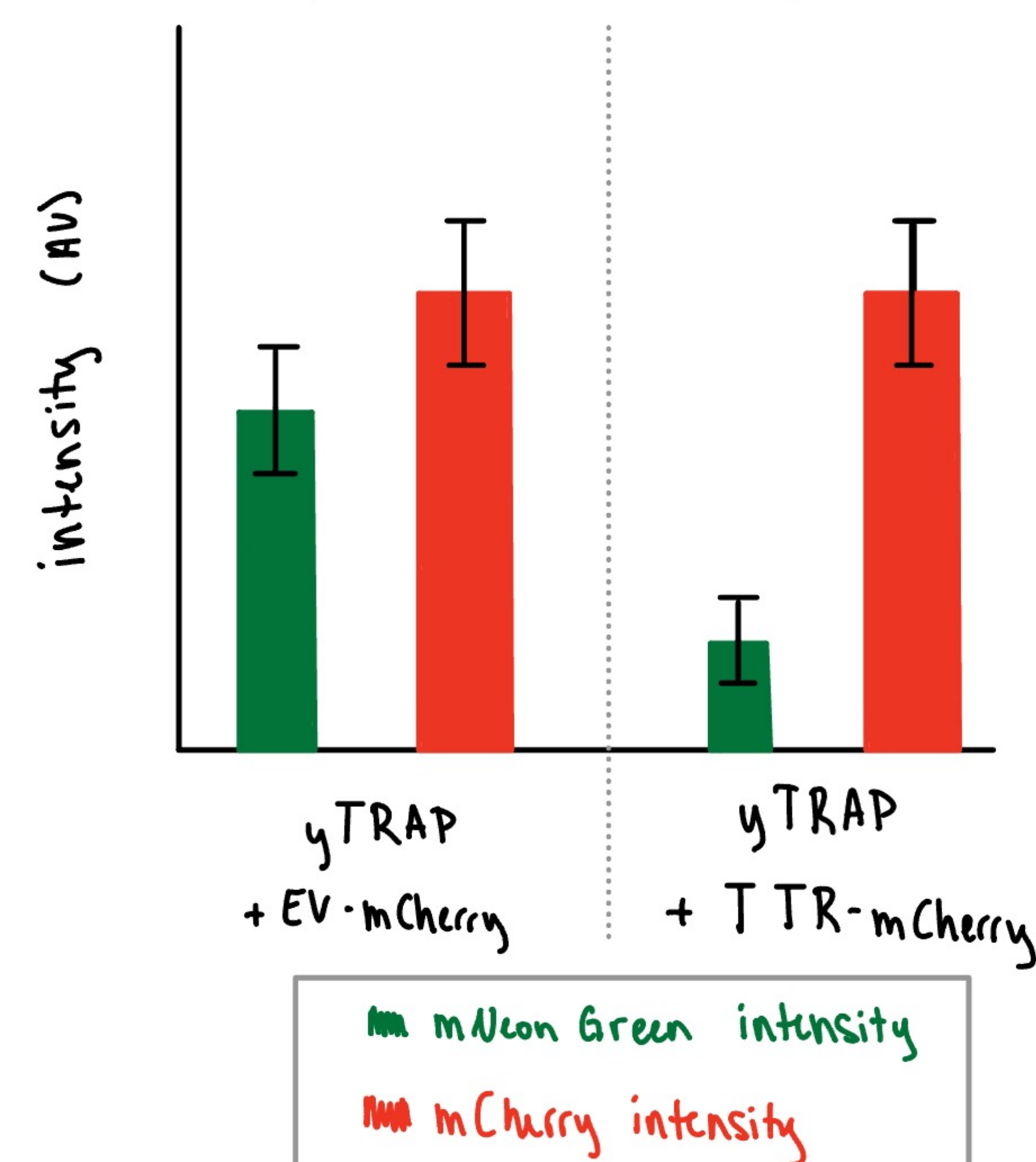
## Predictions

Construct	mNeon Green	mCherry
TTR-mCherry (Aggregated)	↓	↑
EV-mCherry (NOT Aggregated)	↑	↑

	Brightfield	GFP	TX
EV-mCherry (NOT Aggregated)	○ ○ ○ ○	● ● ● ●	● ● ● ●
TTR-mCherry (Aggregated)	○ ○ ○ ○	○ ○ ○ ○	● ● ● ●

- : high intensity mNeonGreen cell
- : high intensity mCherry cell
- : low/medium intensity cell

### Predicted results



## Results

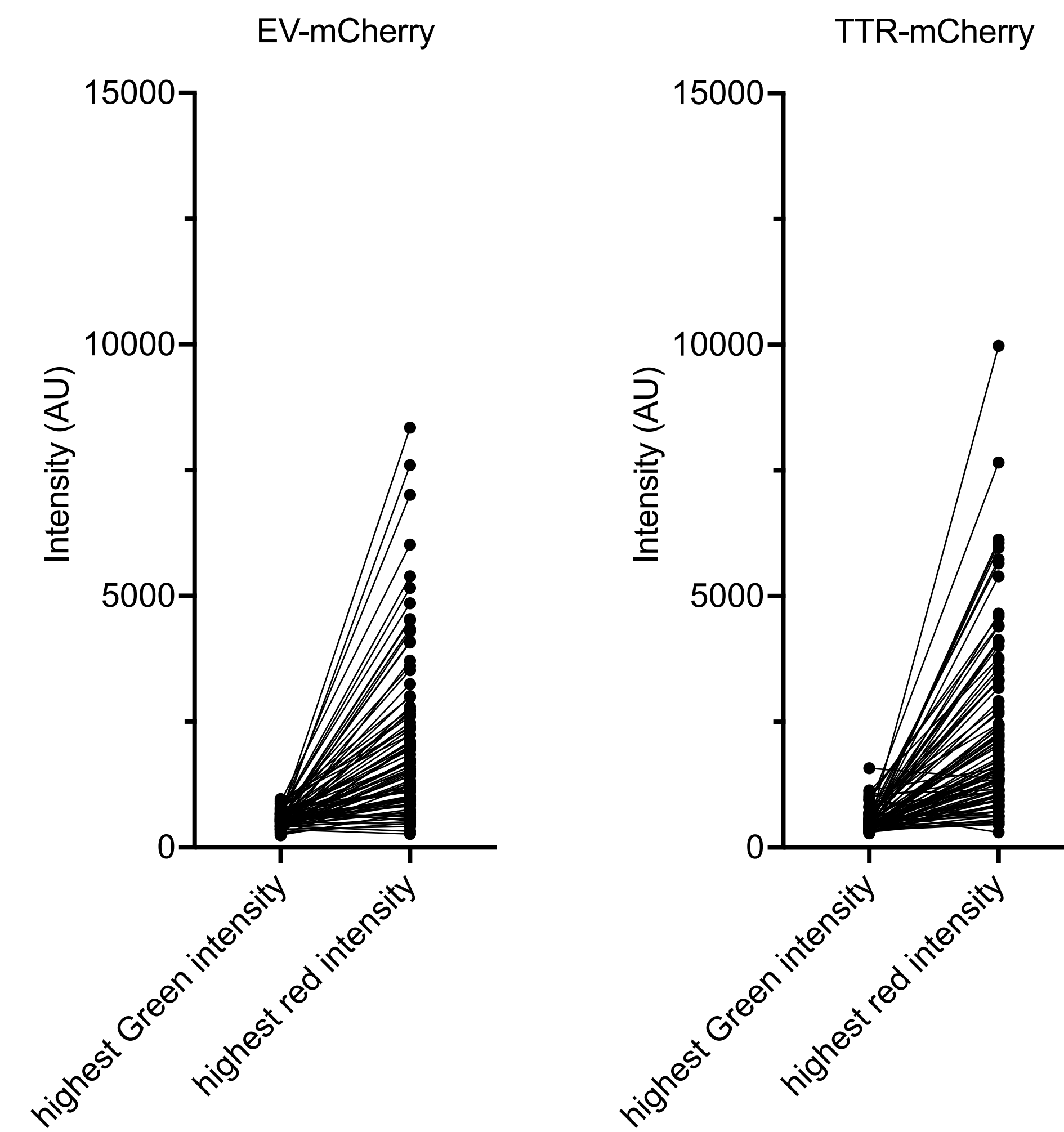


Figure 1: Shows correlation between red and green intensity for each construct.

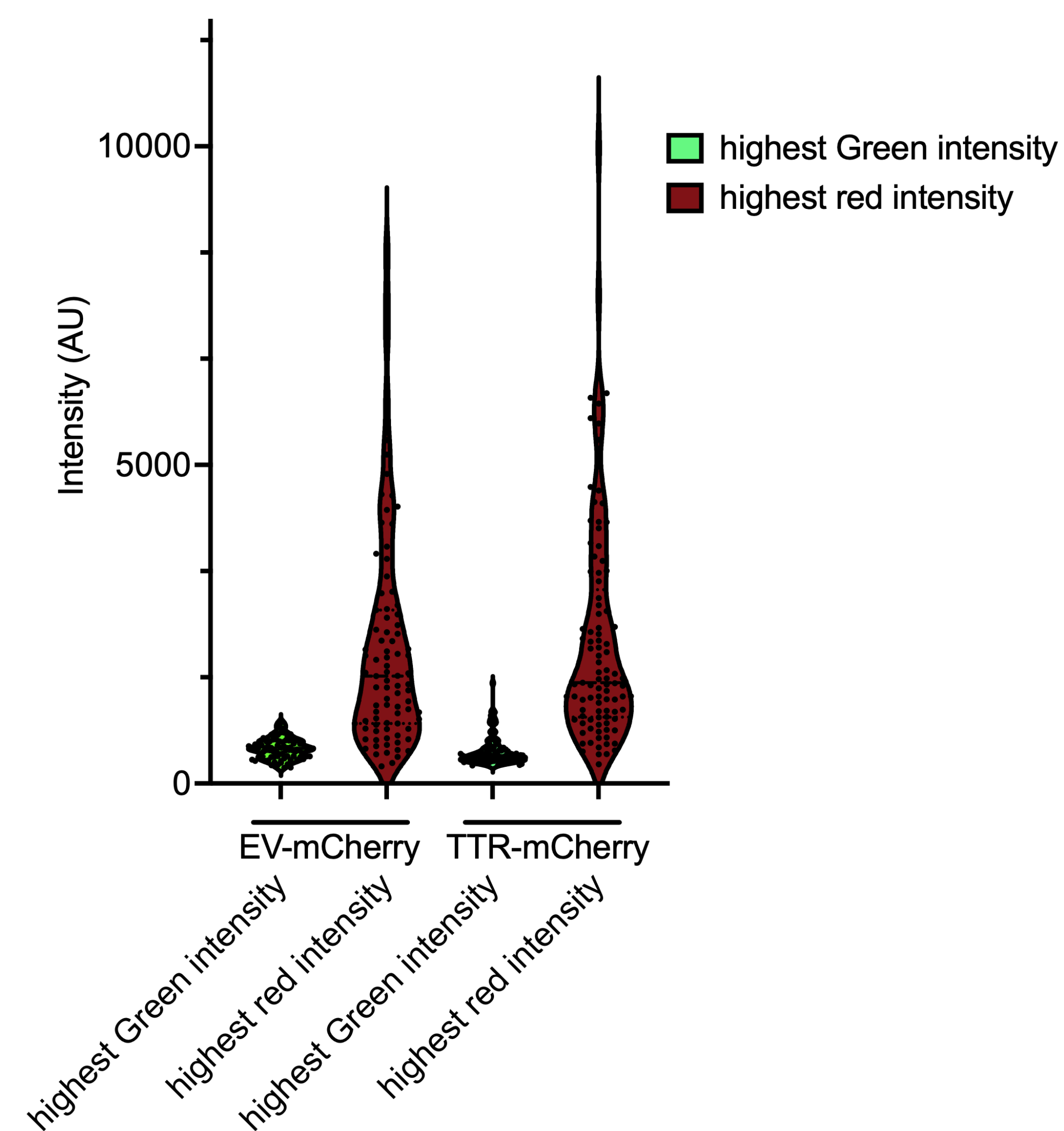


Figure 2: Displays raw data of mNeonGreen (green intensity) and mCherry (red intensity) for indicated constructs.

## Conclusion

EV-mCherry and TTR-mCherry behave the same.

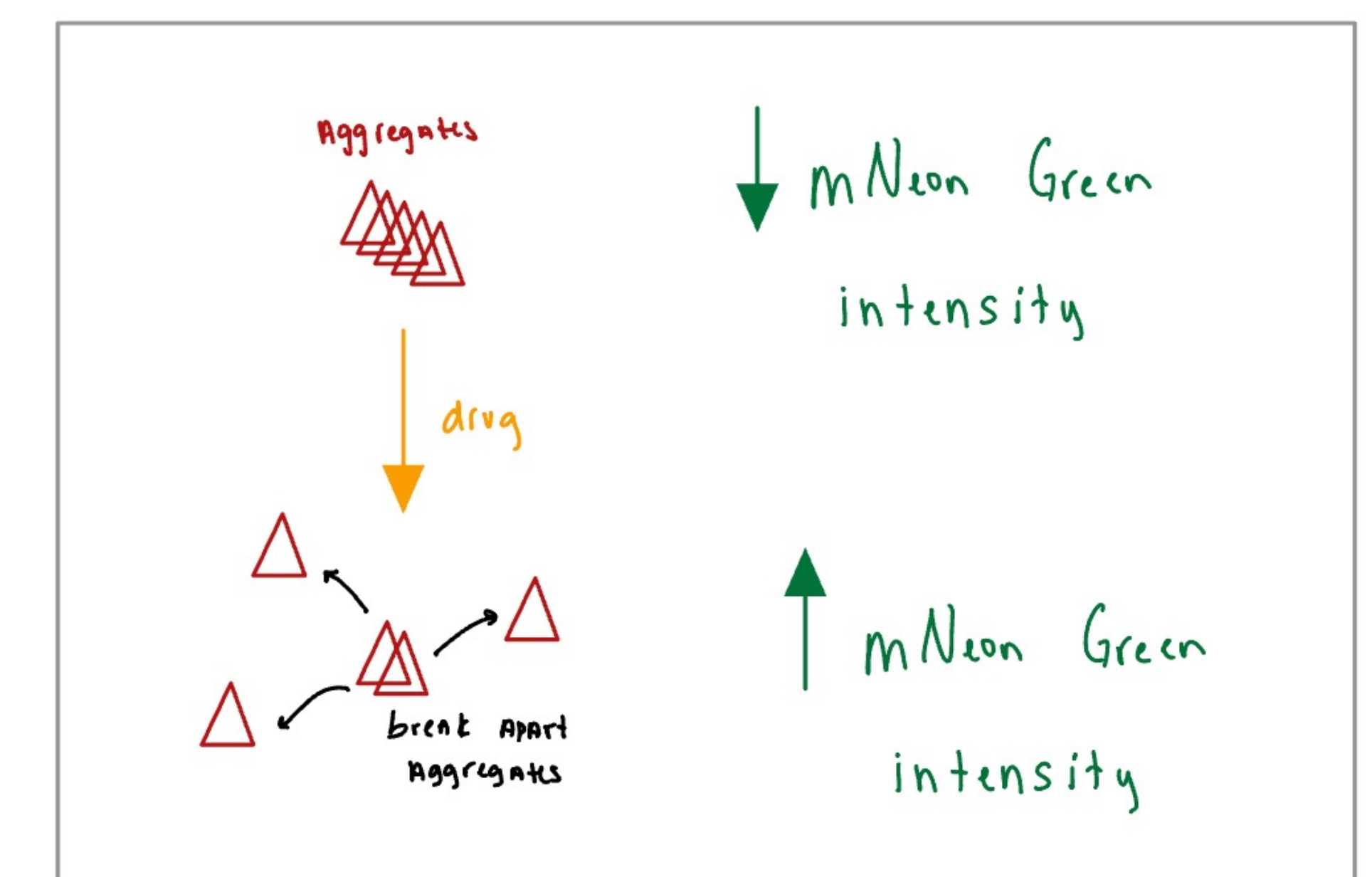
- No significant difference in mNeonGreen intensity between EV-mCherry and TTR-mCherry
- Possible explanation: issue with the biochemistry of the constructs (mCherry)

## Direction

Repeat experiment using a construct where TTR is not fused to a fluorescent protein

## Use of yTRAP System for Novel Drug Testing

yTRAP system allows the rapid testing of many drugs to test the break down of aggregate formations



## Acknowledgements

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