

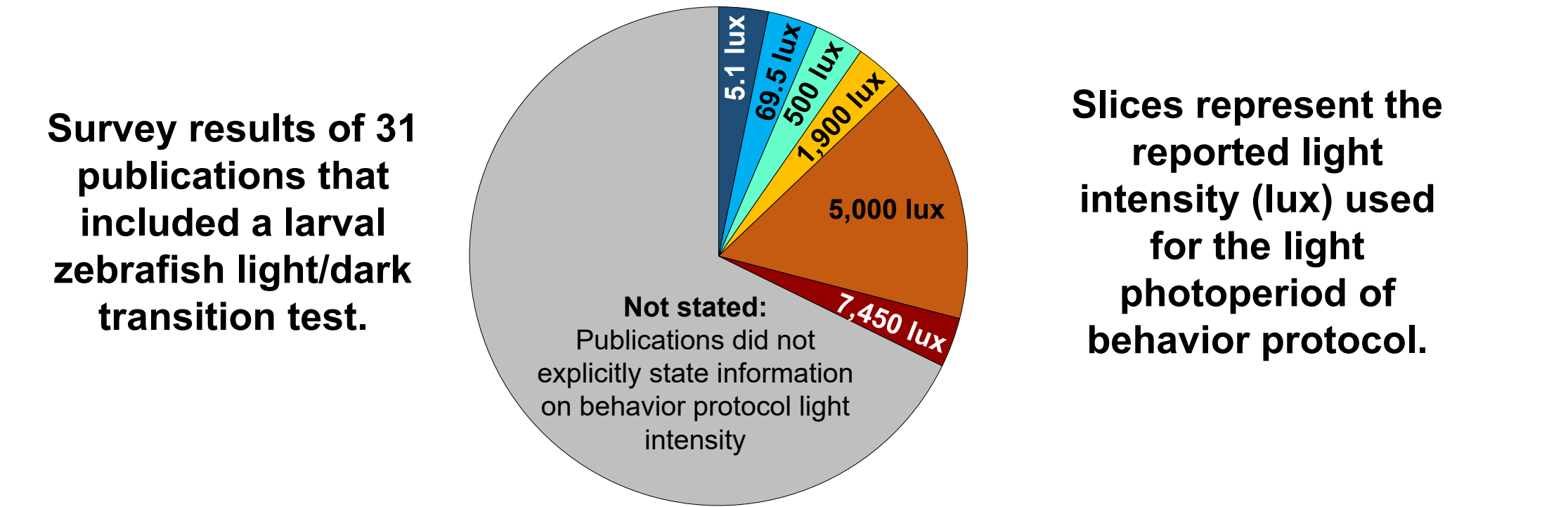
Influence of Behavior Protocol Light Intensities on Determining Chemical Effects

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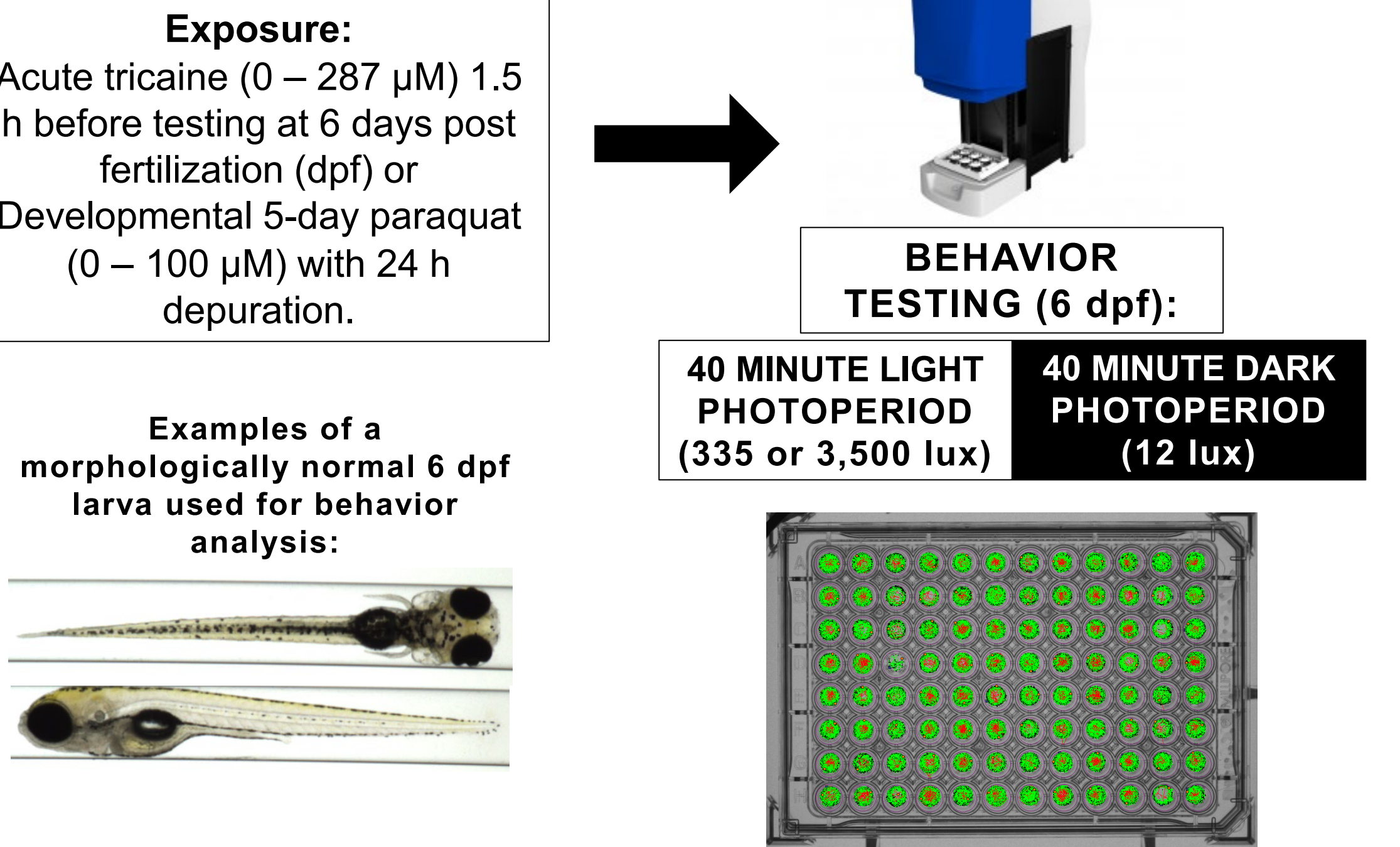
Overview

- Larval zebrafish behavior is utilized as a higher throughput testing strategy to screen chemicals for developmental neurotoxicity potential. One challenge is that many different protocols are utilized.

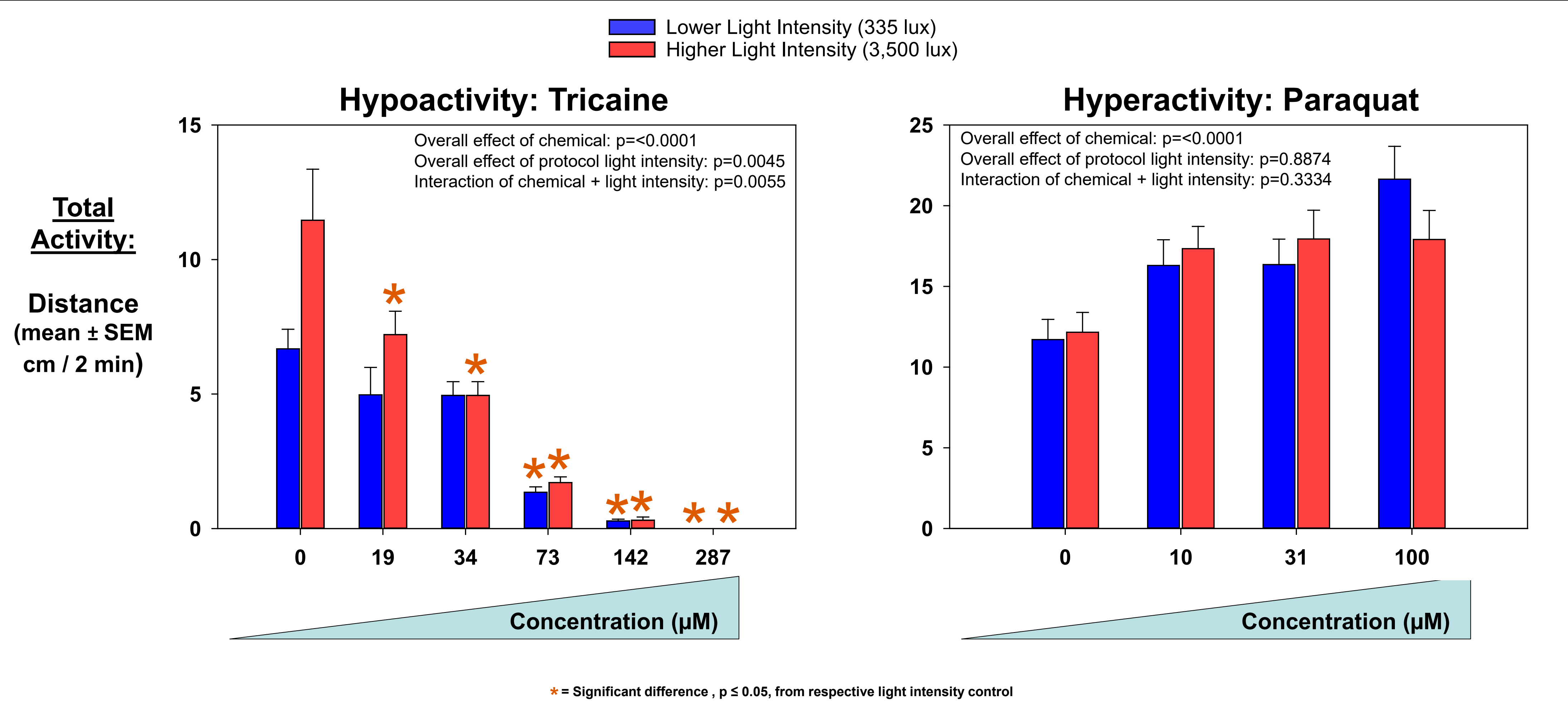


- Here we evaluated the influence of Light Intensity, one behavior protocol method variable, on locomotor activity. Two different light levels (335 or 3,500 lux) were presented to zebrafish exposed to either Tricaine (0 – 287 µM), a chemical known to decrease zebrafish locomotor activity or Paraquat (0 – 100 µM) a chemical known to increase activity.

Methods



Light Intensity Selected for Larval Zebrafish Behavioral Assay May Influence Ability to Detect Chemically Mediated Effects

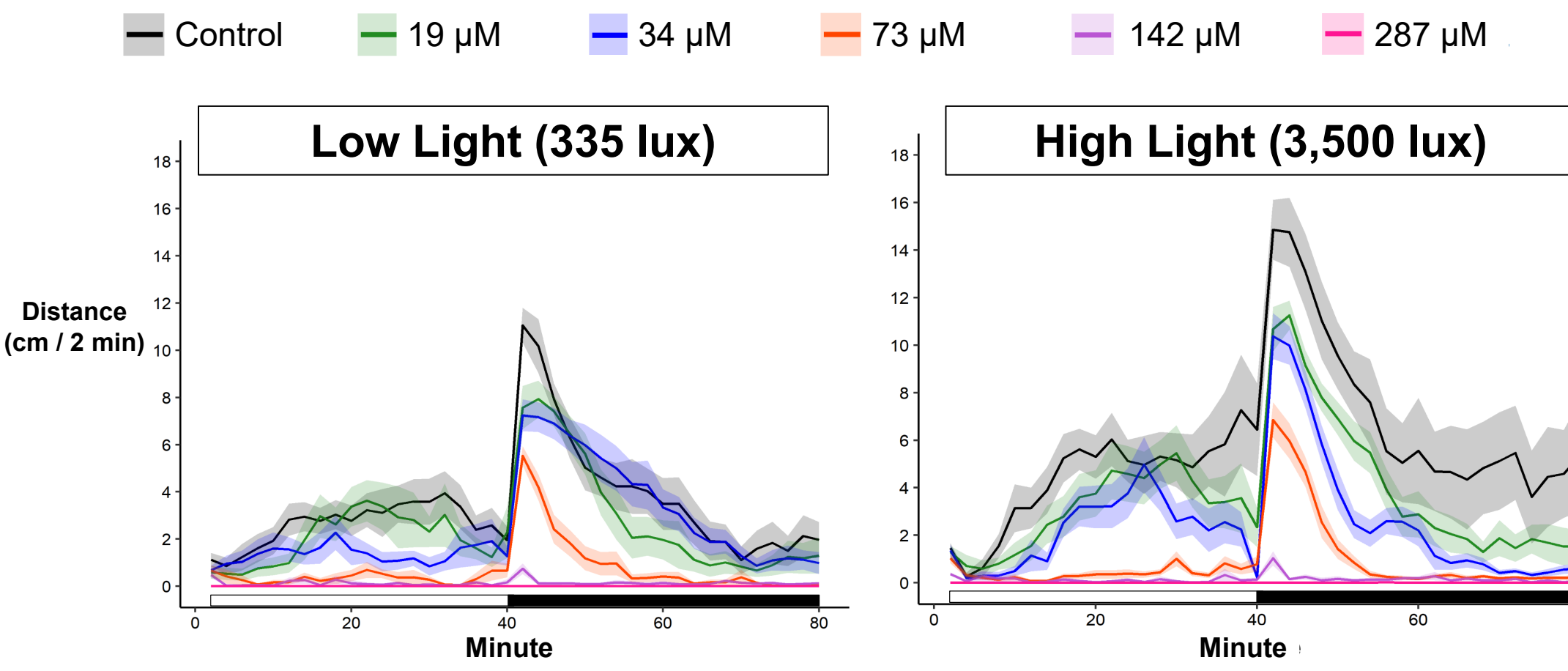


In addition to light intensity, more method variables need to be reported and tested due to the potentially confounding inconsistencies and challenges with data comparisons.

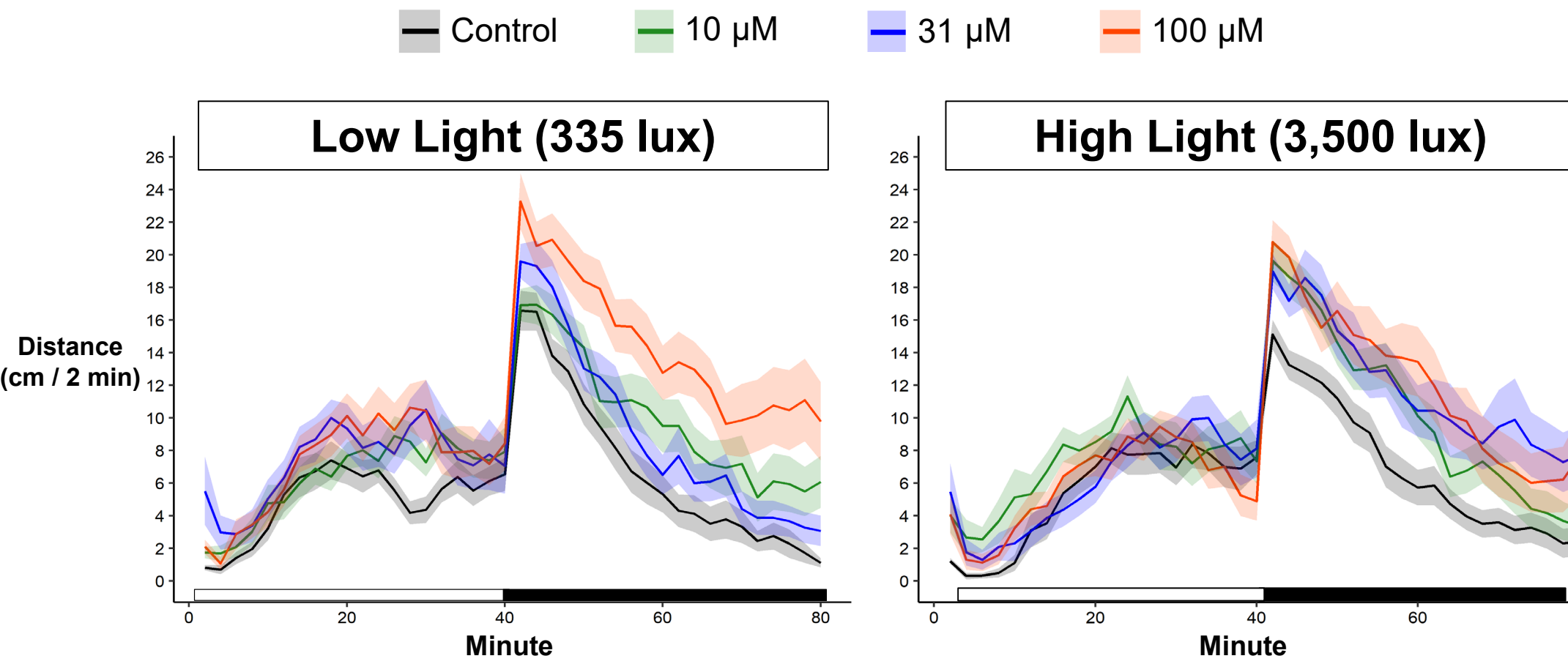
Results and Discussion

- Light intensity selected for the behavior testing protocol can affect chemically induced results differently.
- Tricaine induced behavior changes compared to control, and the patterns of activity were significantly different depending on the applied light intensity, with more concentrations different from control using the higher light level.
 - This may suggest that increasing the baseline locomotor activity (observed under higher light intensity) has the potential to widen the range of sensitivity allowing for greater detection of chemical effects.
 - While paraquat significantly changed behavior compared to controls, there was no overall effect of protocol light intensity and no differences between paraquat induced activity patterns tested with either 335 or 3,500 lux light intensity.

Tricaine:



Paraquat:



Acknowledgements

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