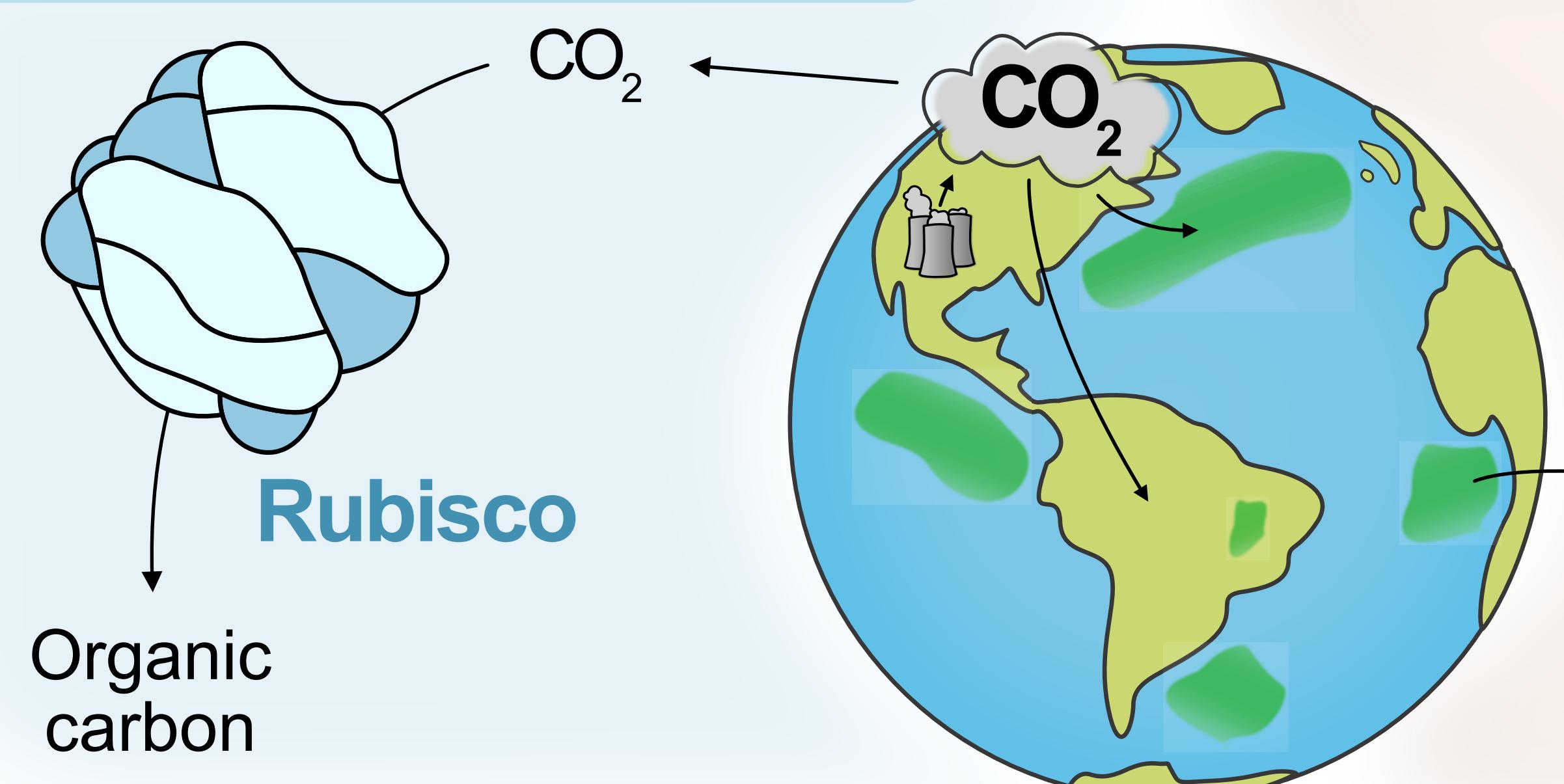


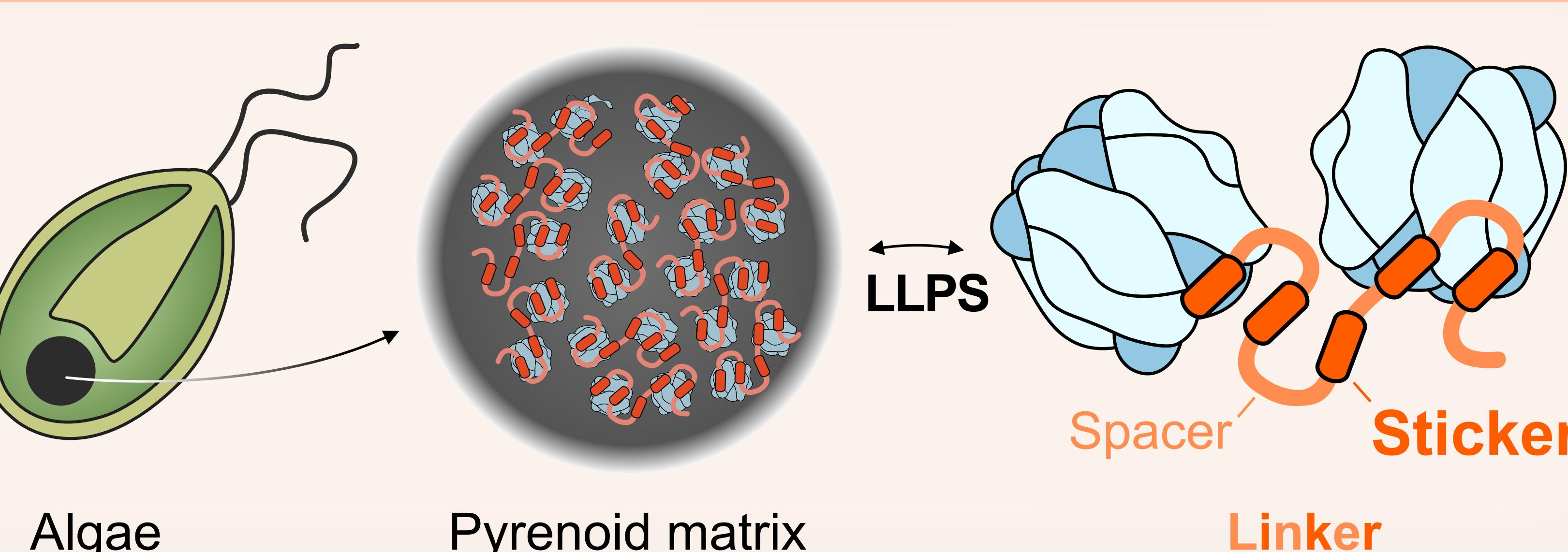
# Inside the Pyrenoid: How Multivalency Shapes Rubisco Organization and CO<sub>2</sub> Fixation

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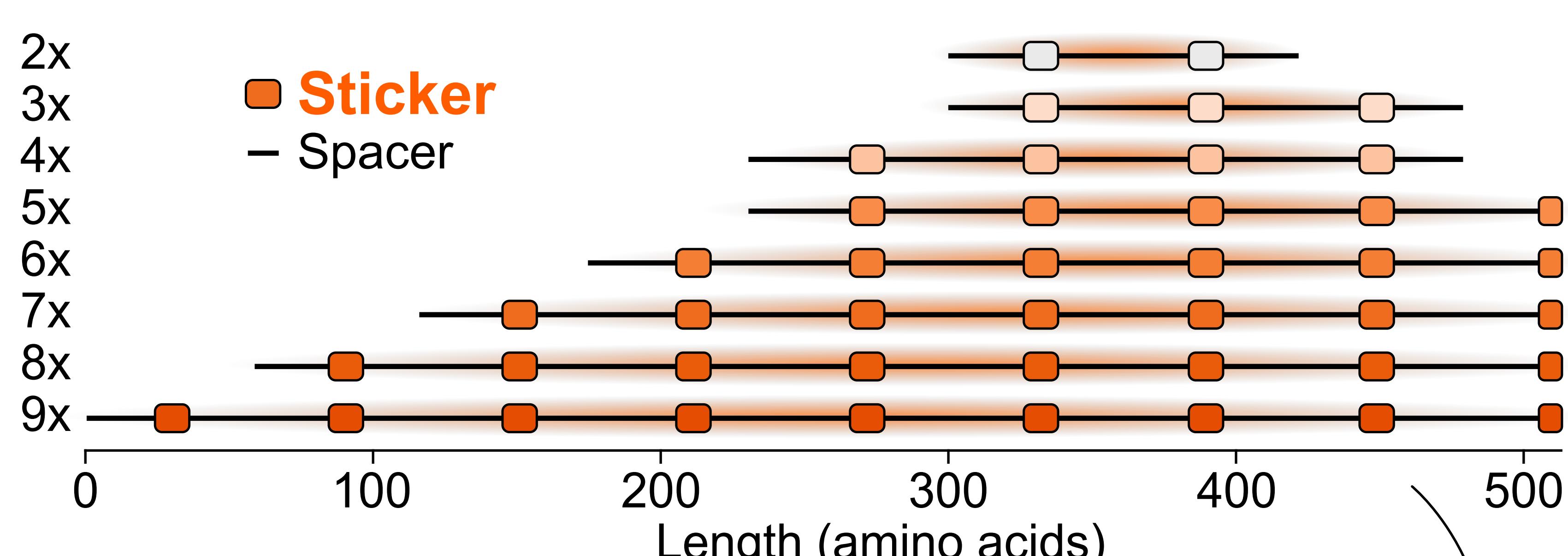
## Rubisco fixes all of Earth's CO<sub>2</sub>



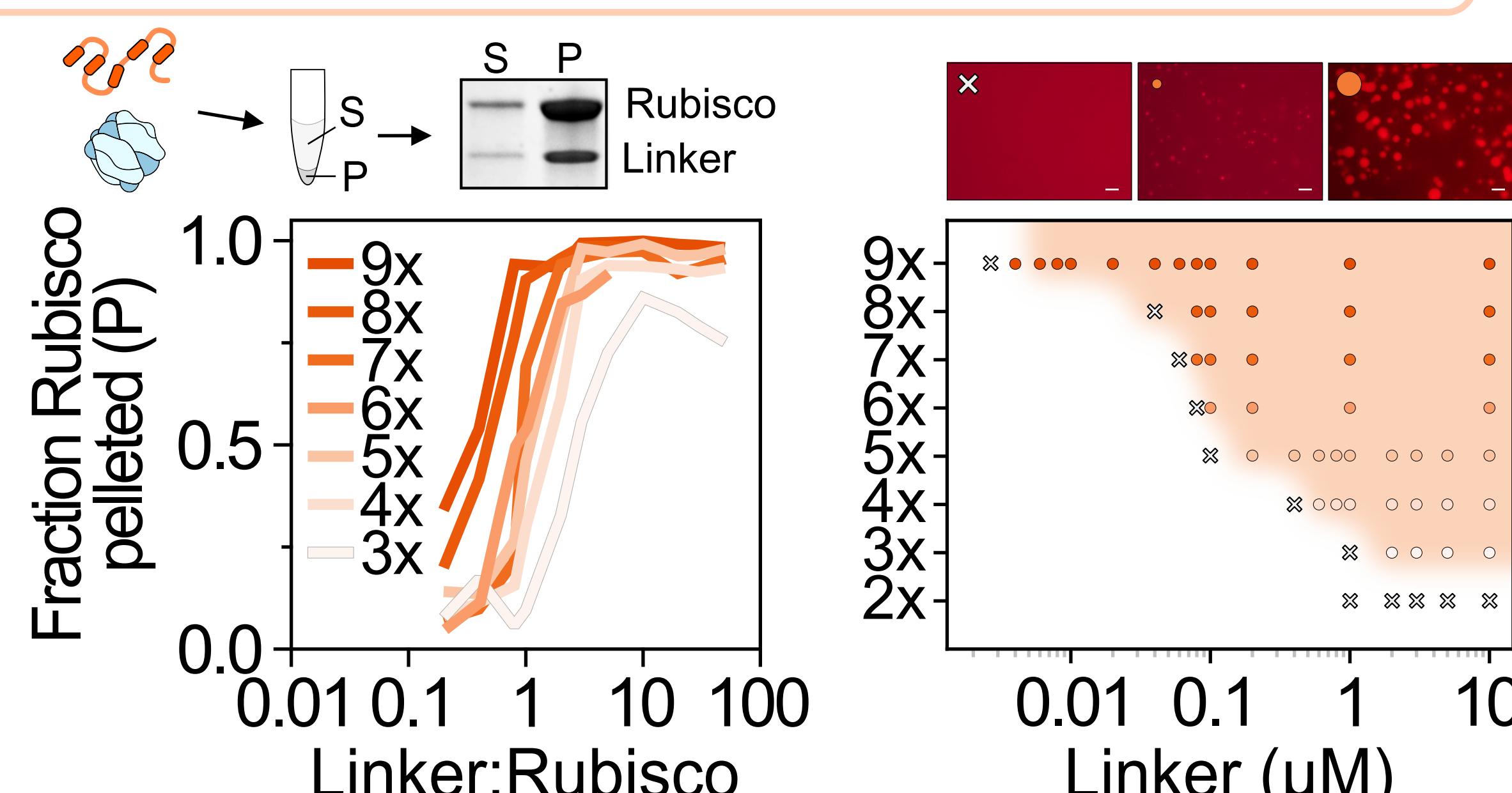
## Pyrenoids are Rubisco condensates formed by phase separation in algae



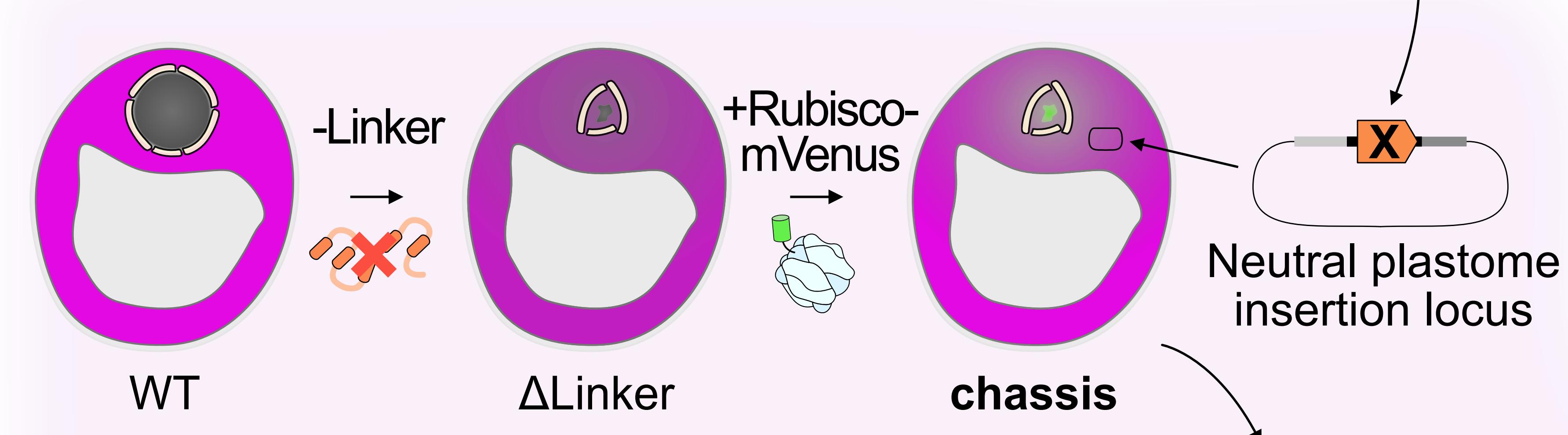
## Linker variants to study effects of valency on Rubisco condensation



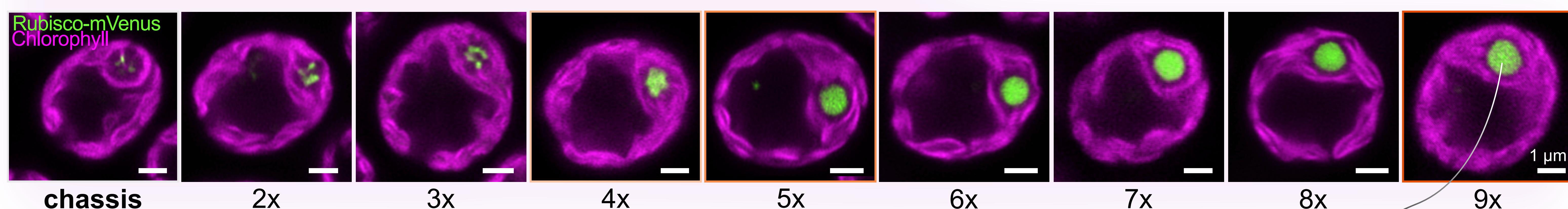
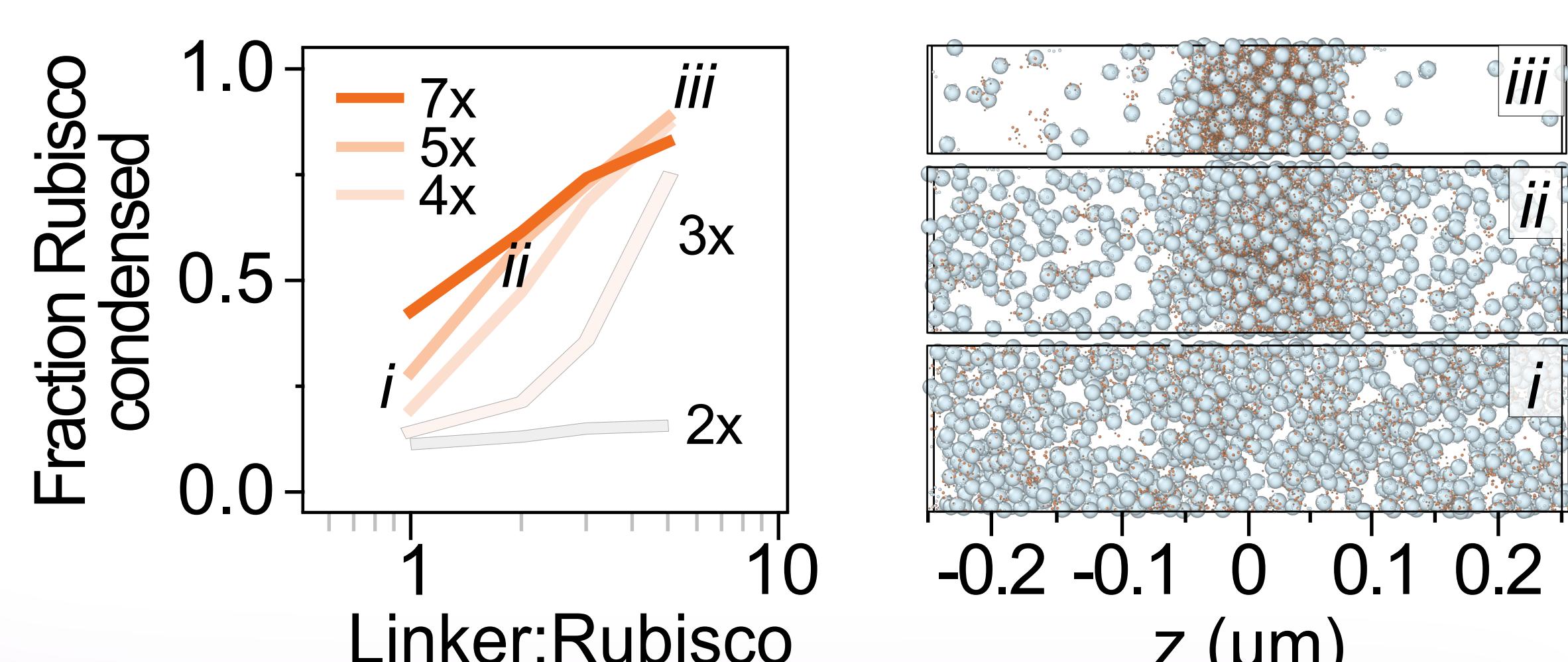
## Valency enhances Rubisco condensation *in vitro*



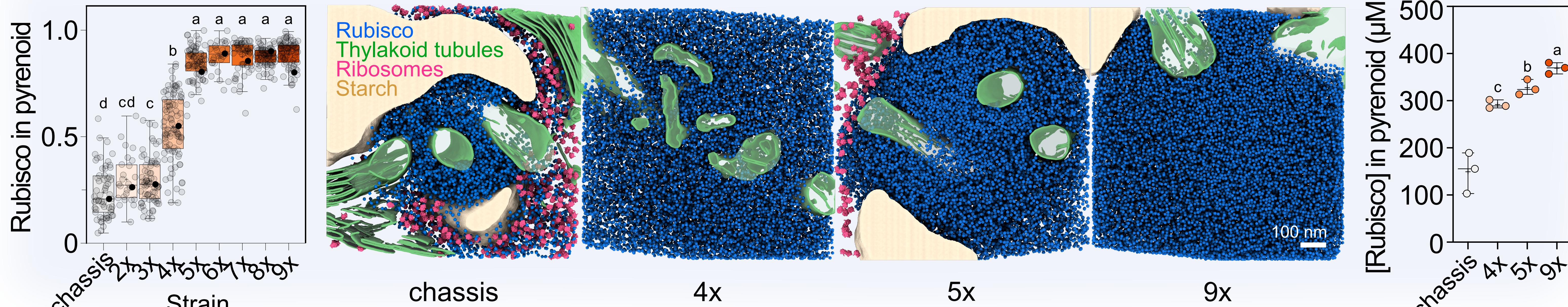
## Creation of a chassis strain to test valency effects *in vivo*



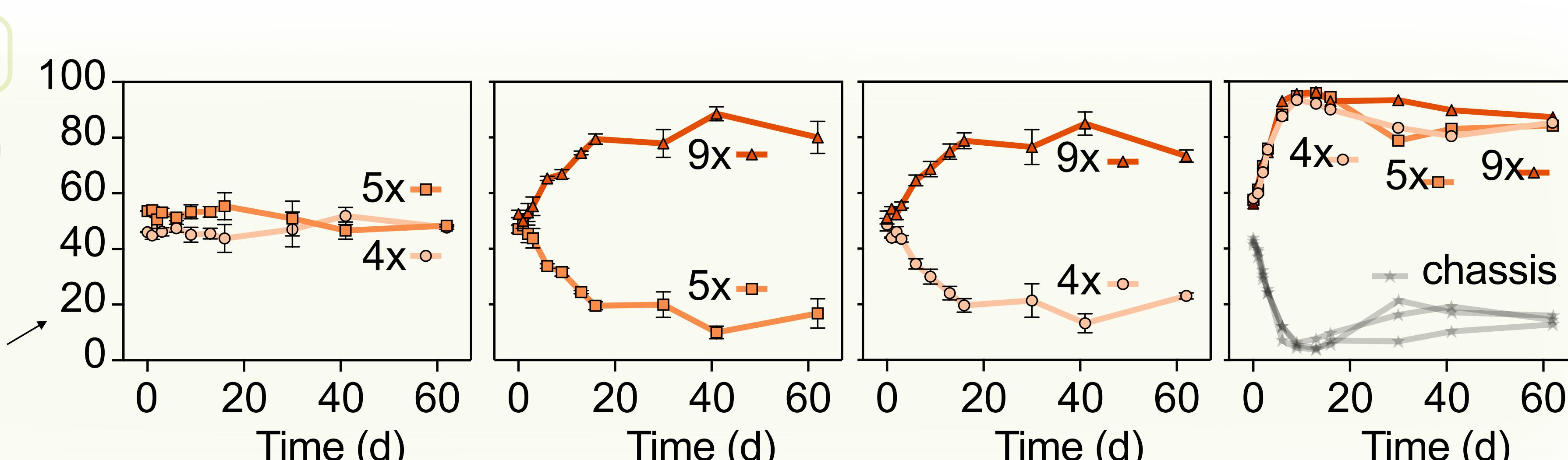
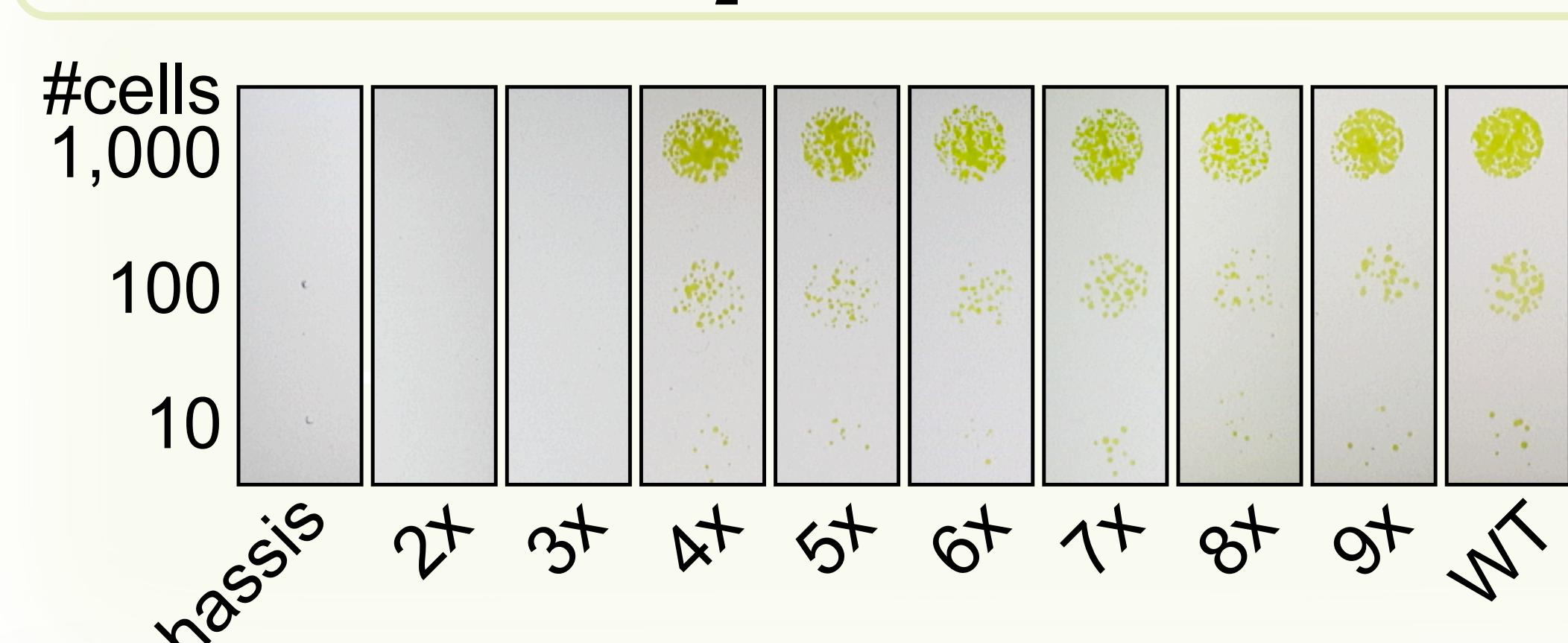
## Valency enhances Rubisco condensation *in silico*



## Multi-scale imaging reveals valency affects partitioning and packing density of Rubisco in the pyrenoid



## Valency affects CO<sub>2</sub>-fixation efficiency in the pyrenoid



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