Complete Signalling Network

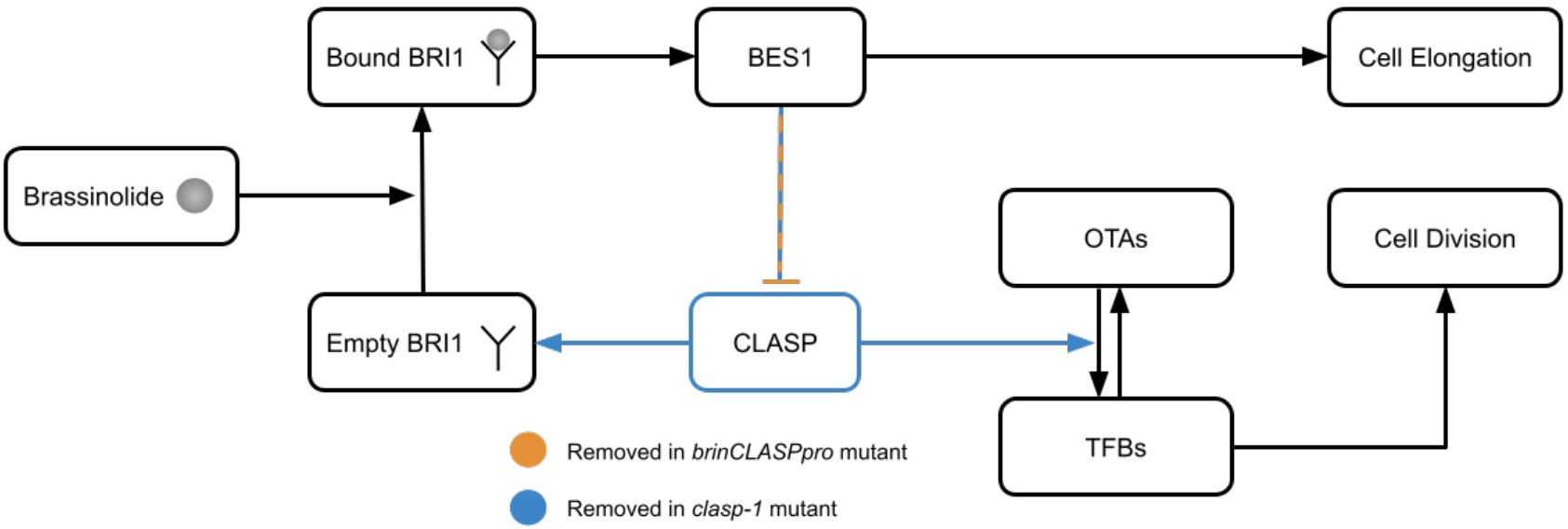

Figure: The signalling network used to inform model development.

Simplified Signalling Network

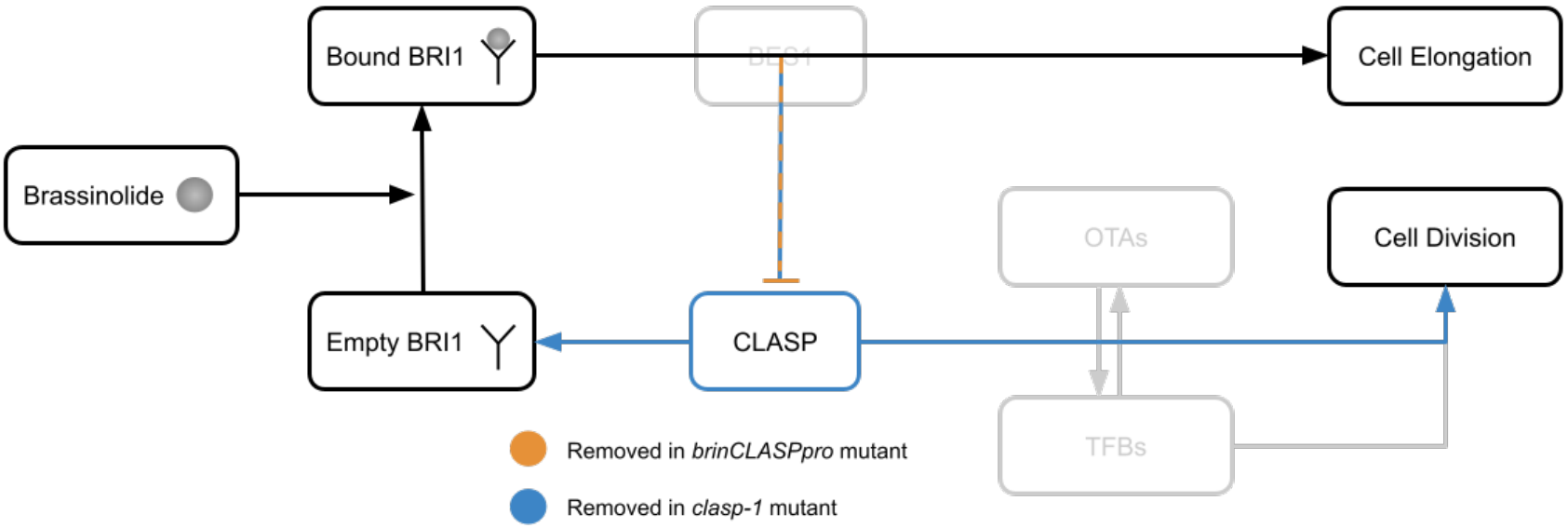

Figure: The abridged signalling network used in the model itself.

Cell Division Model

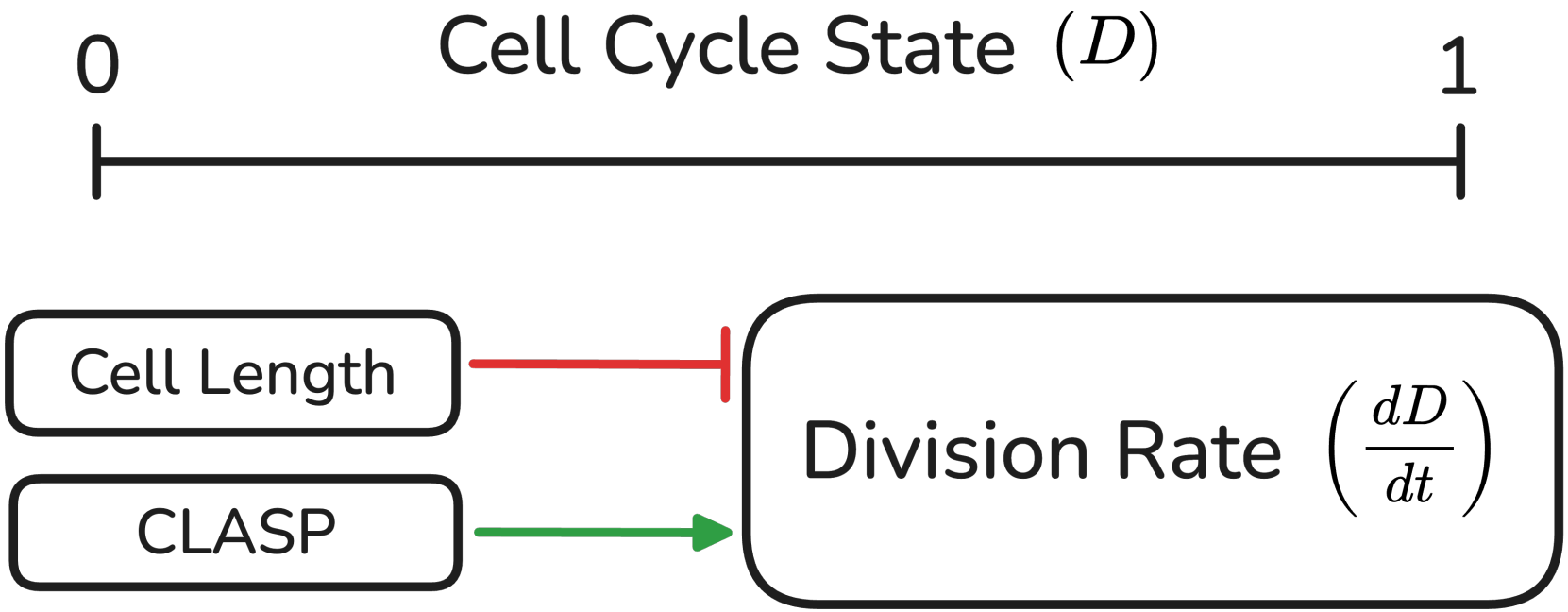

Figure: Overview of the cell division model.

Data Preparation

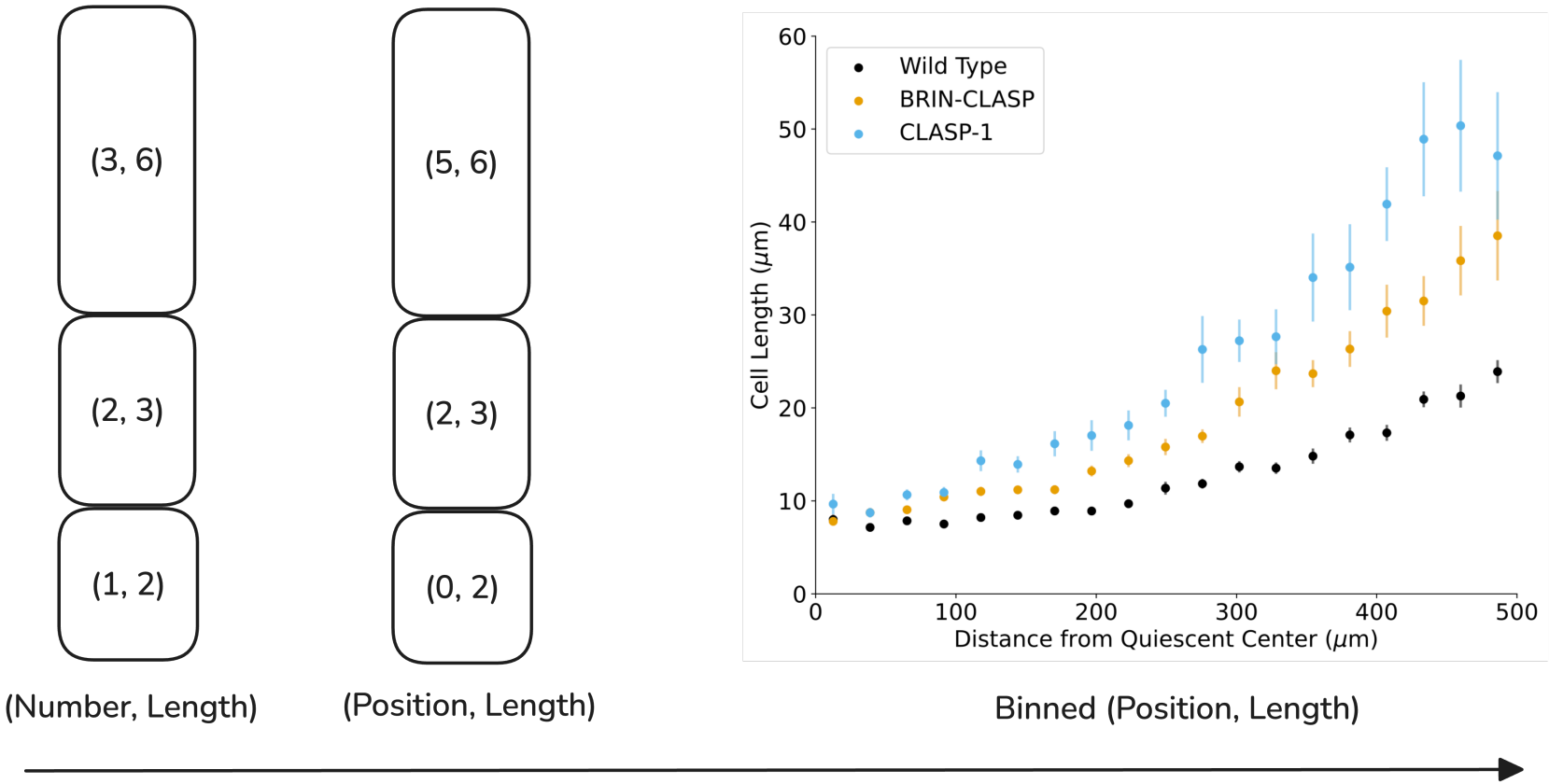

Figure: Overview of the data processing pipeline.

Initial Results (1/2)

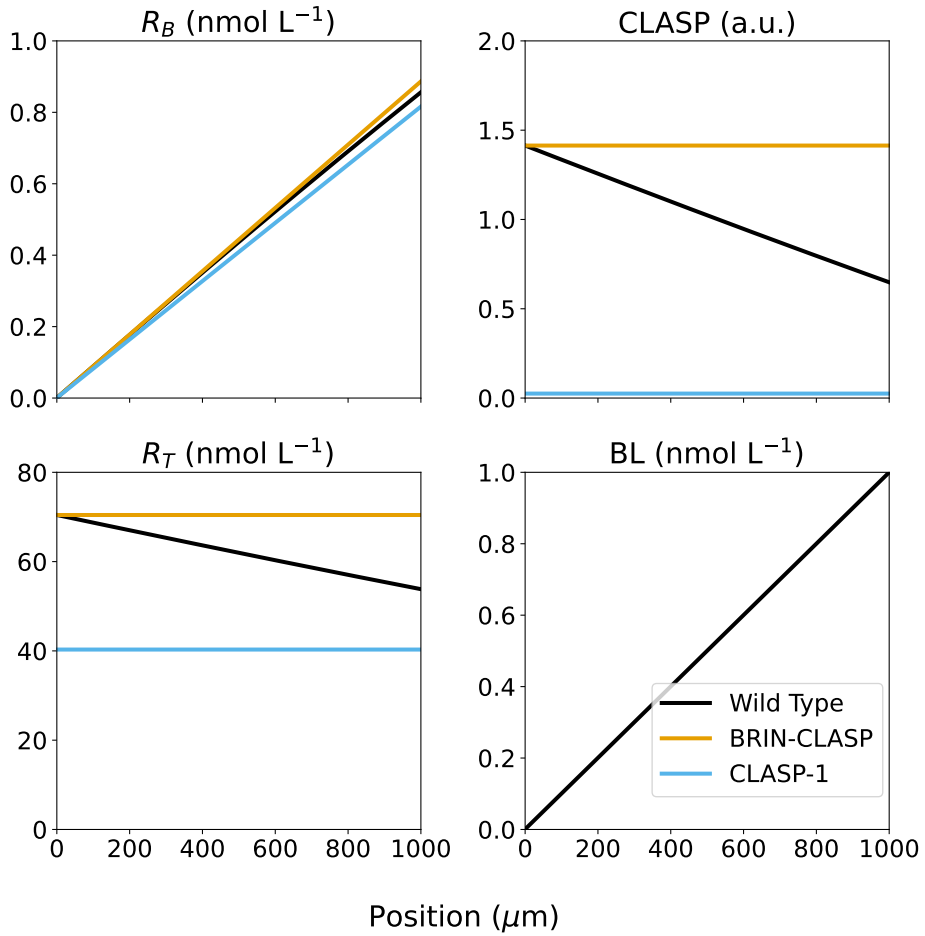

Figure: Estimated protein levels from the intracellular model.

Initial Results (2/2)

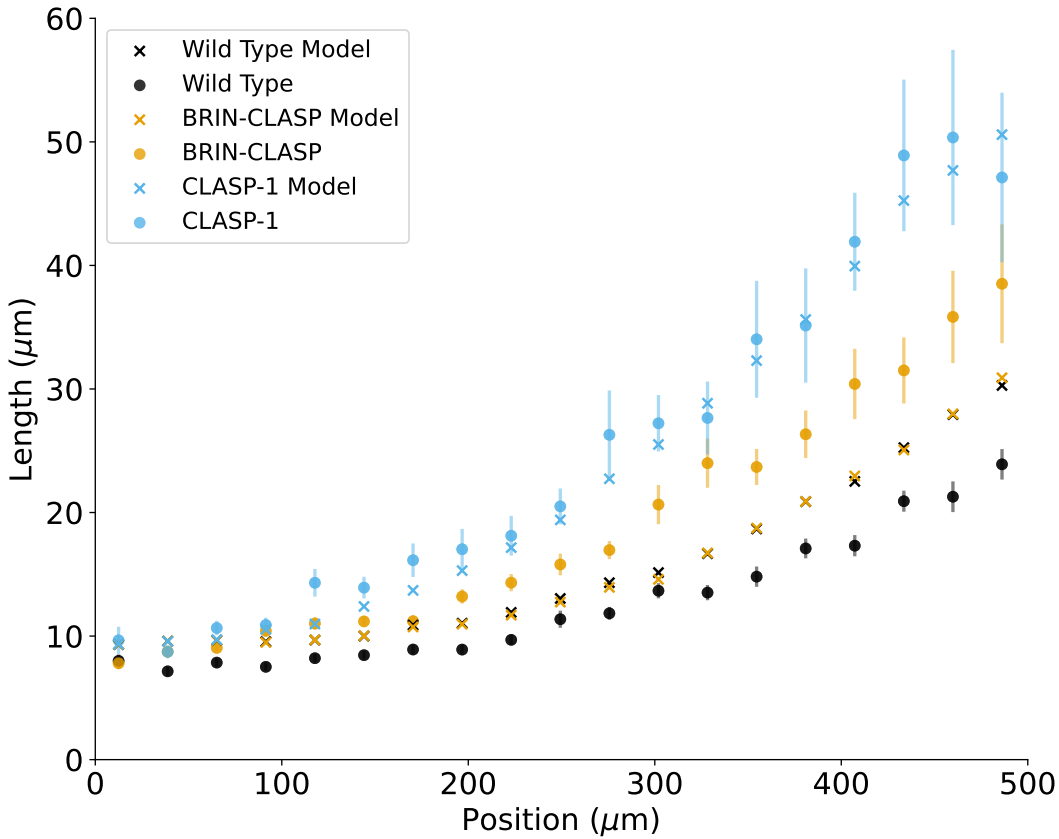

Figure: The initial model was unable to explain *brinCLASPpro*.

Explaining *brinCLASPpro*

Idea 1: Increasing Growth

- Decrease R_T or increase B relative to the wild type.
- Additional growth needs to occur in the division zone.

This didn't work...

Idea 2: Inhibiting Division

- Decrease cell division relative to the wild type.
- This may be caused by an excess of CLASP.

This did work!

Improved Results (1/3)

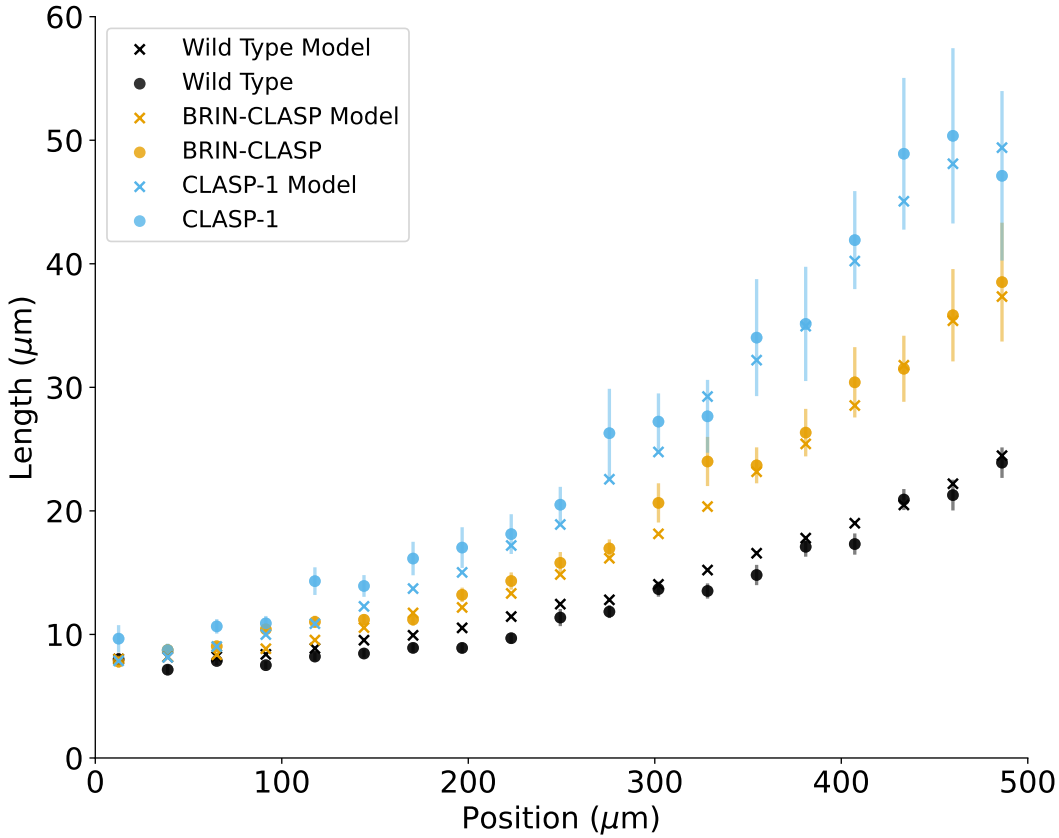

Figure: Inhibition of cell division by high concentrations of CLASP is sufficient to differentiate the *brinCLASPpro* mutant from the wild type.

Imrpoved Results (2/3)

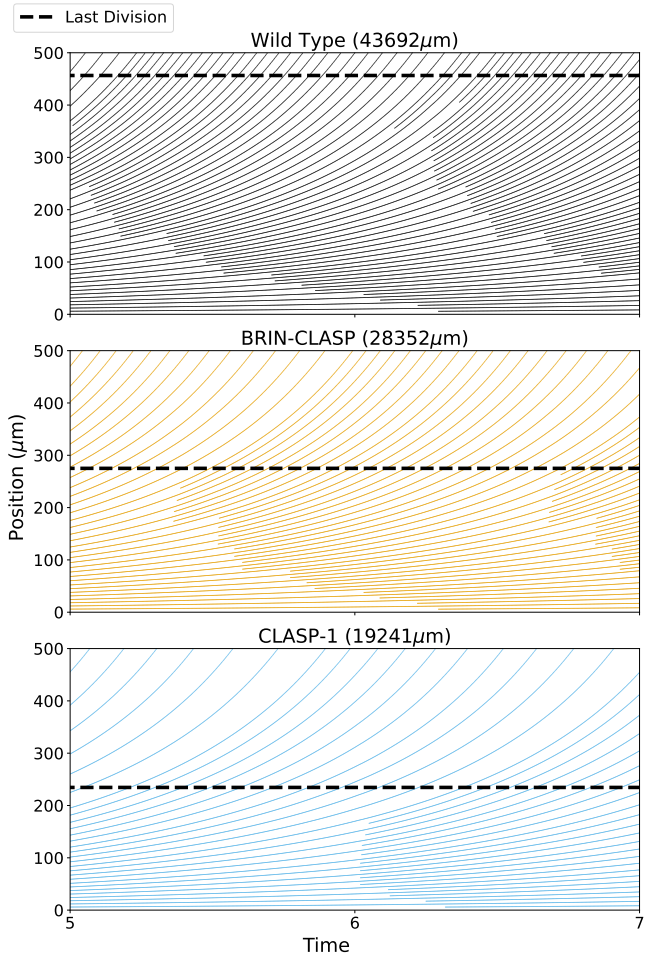

Figure: Division zone profiles for each mutant.

Improved Results (3/3)

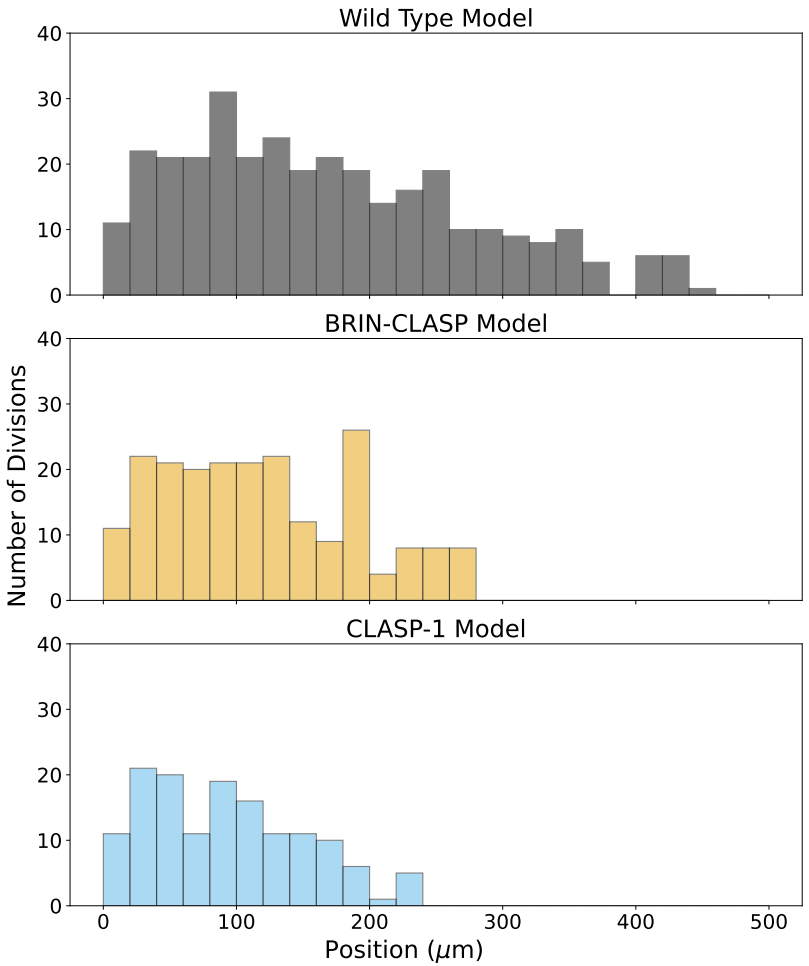

Figure: Histogram of division locations by mutant.