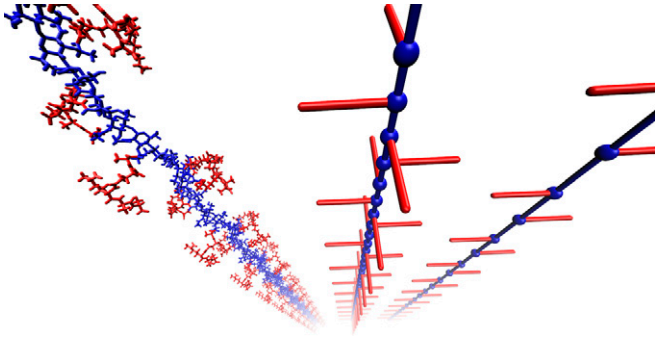
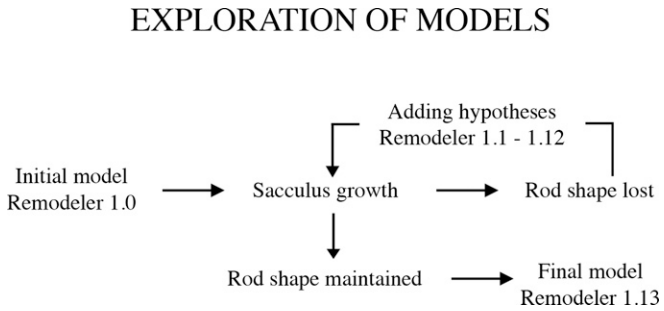
Supporting Information

Nguyen et al. 10.1073/pnas.1504281112



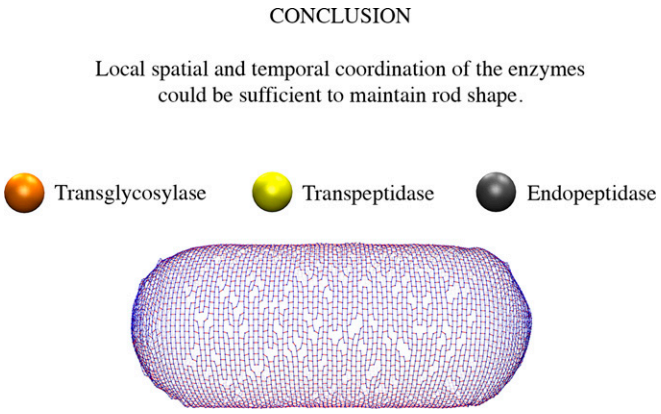
Movie S1. Model building: how PG is coarse-grained, a start sacculus is created, and enzymes are implemented.

Movie S1



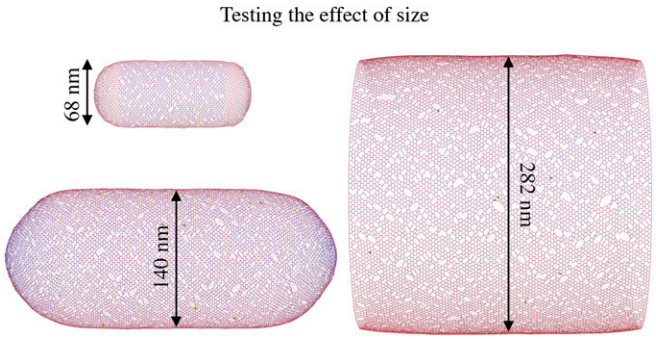
Movie S2. Exploration of models from the initial model (Remodeler 1.0) to the final model (Remodeler 1.13).

Movie S2



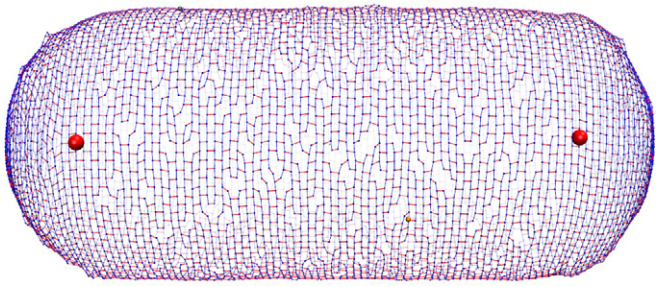
Movie S3. Final model: local spatial and temporal coordination of enzymes could be sufficient to maintain rod shape.

Movie S3



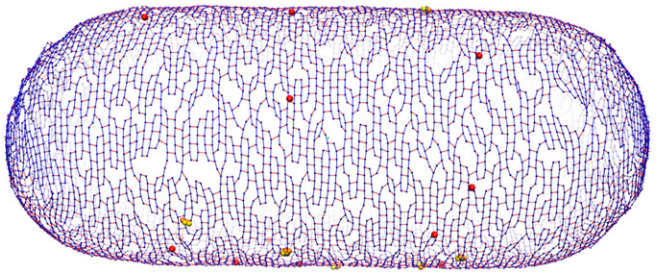
Movie S4. Simulations on bigger sacculi suggest that size does not fundamentally alter the basic challenges of maintaining integrity and rod shape during growth.

Movie S4



Movie S5. Effect of the first crosslink always on one side on twisting of the sacculus.

Movie S5



Movie S6. During the review process, we were asked by PNAS to address a recent finding that fluorescently-tagged PBP2 of *Escherichia coli* moves with a diffusive behavior (70). We then ran simulations where PBP2 is uncoupled from the complex and only functions when binding transiently to a complex. Within the parameter space tested, this model fails to maintain rod shape, as big holes form where PBP2 misses its turn.

Movie S6

Other Supporting Information Files

Dataset S1 (TXT)
Dataset S2 (TXT)
Dataset S3 (TXT)
Dataset S4 (TXT)
SI Appendix (PDF)