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Geometric control of bacterial cell shape

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How bacteria grow into specific, 3D shapes remains a central mystery in microbiology. We have developed an imaging and analysis pipeline to simultaneously probe the shape of cells and the localization of proteins in 3D during growth. We find evidence for feedback between the local geometry of the cell, localization of key morphological proteins, and cell growth that helps to ensure the maintenance of rod-shape in elongating *Escherichia coli* cells.