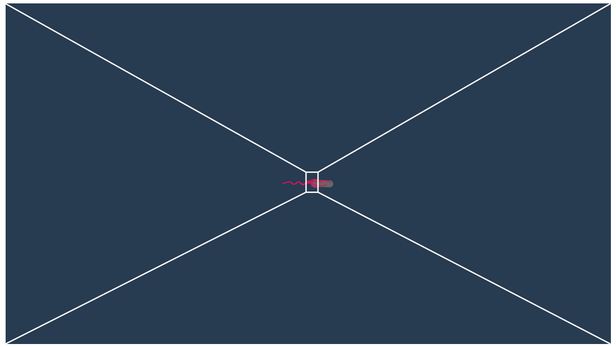
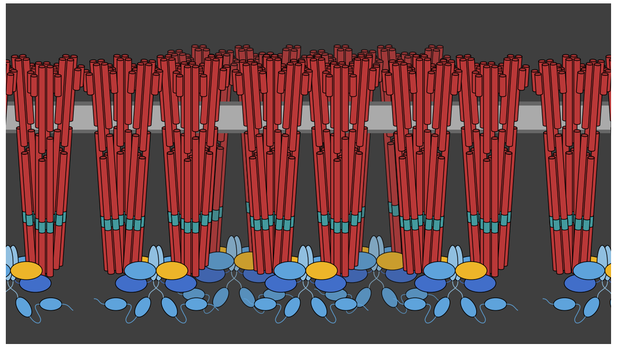
Chemotaxis Animation Storyboard - Chapter V #1

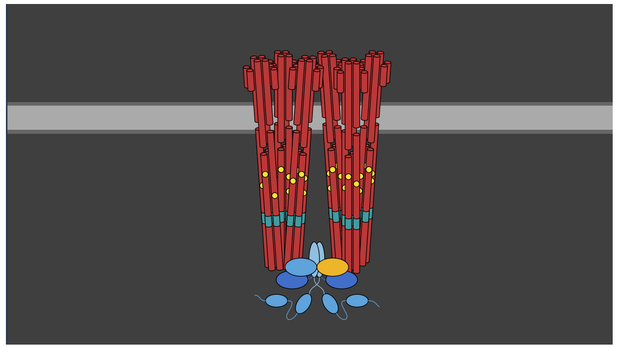
1.1
Label fifth chapter



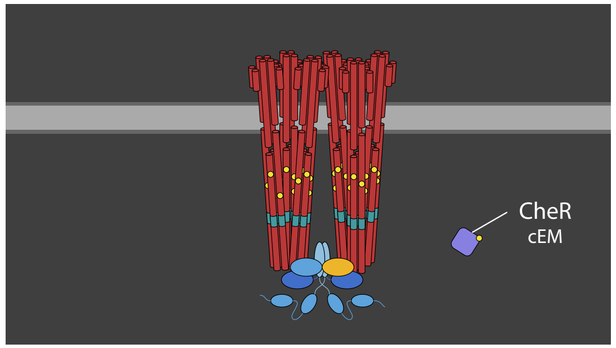
1.2
Animation: Zoom in to live cell's chemosensory array



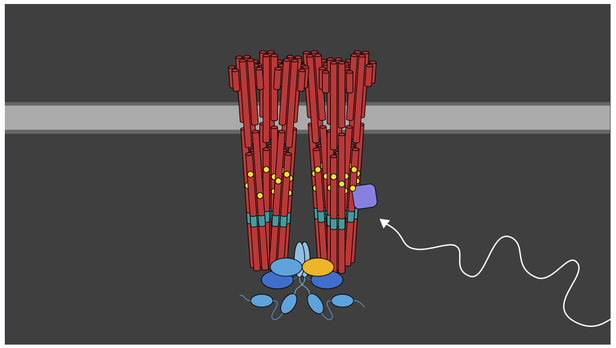
1.3
Animation: Zoom in to part of the array



1.4
Animation: Isolate a single array unit



1.5
Animation: CheR diffuses in. Label it



1.6
Animation: CheR attaches to a methylation site

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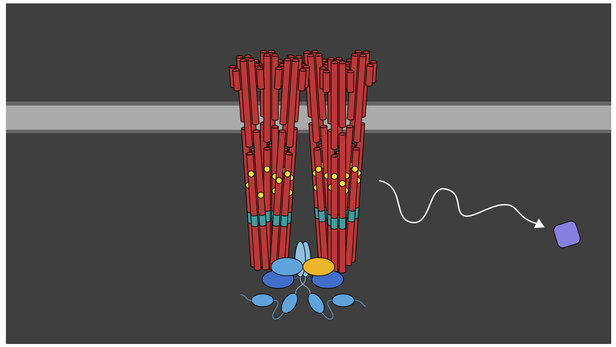
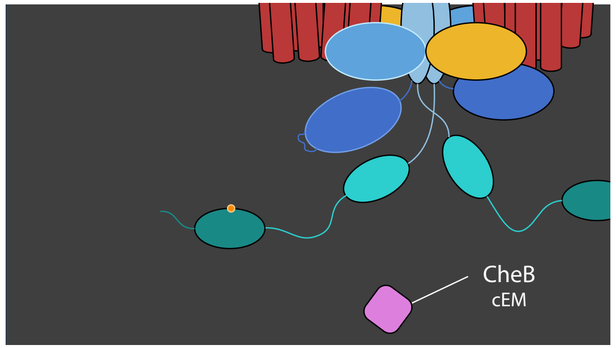
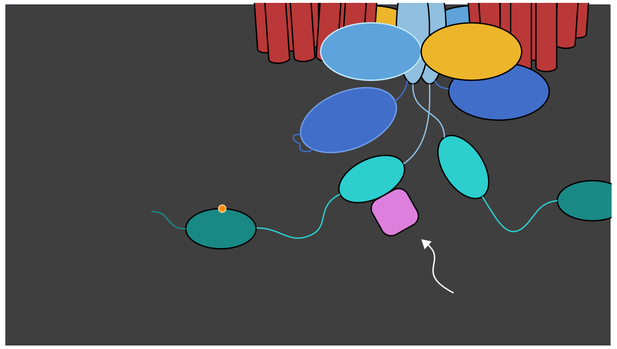


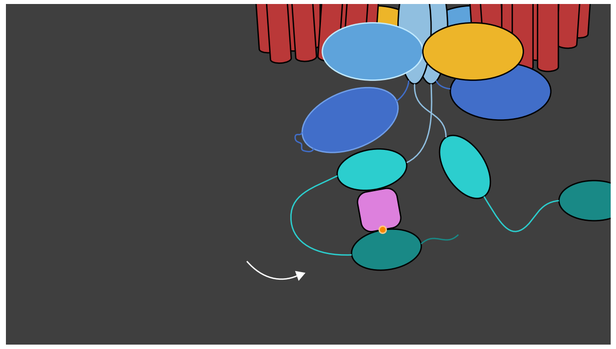
1.7
Animation: CheR unbinds and diffuses away



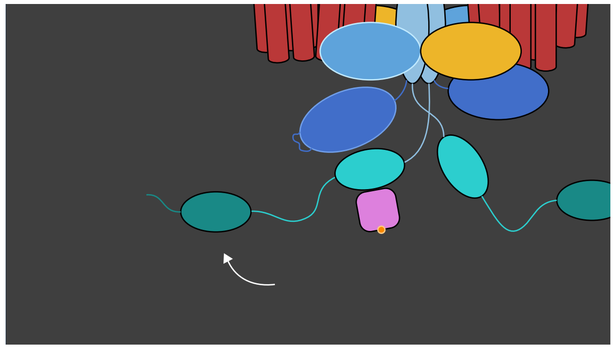
1.8
Animation: Pedestal down to see more of the cytoplasm. CheB diffuses through cytoplasm. Label CheB



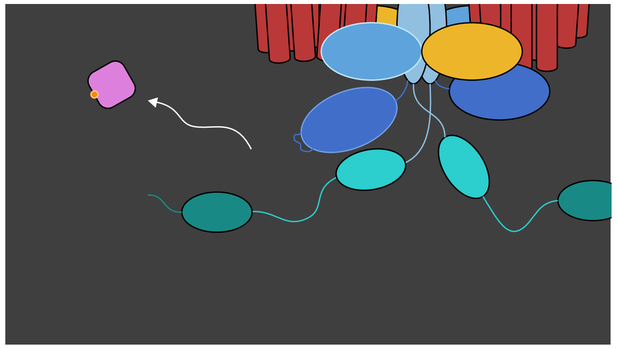
1.9
Animation: CheB binds to P2



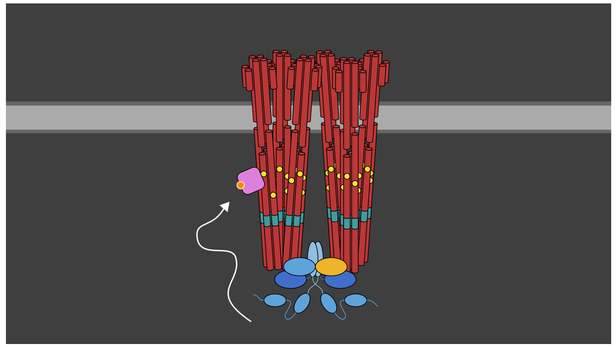
1.10
Animation: P1 binds to CheB



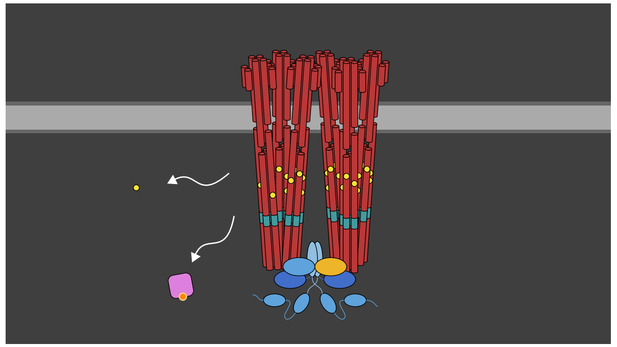
1.11
Animation: P1 transfers its phosphate to CheB and unbinds



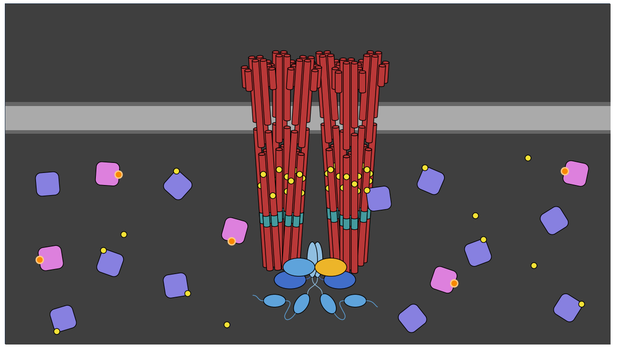
1.12
Animation:CheB-P unbinds from P2



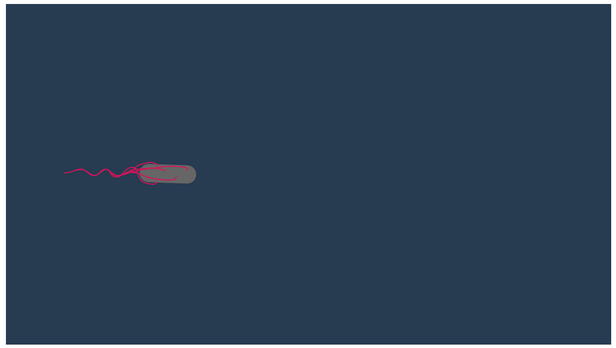
1.13
Animation: CheR attaches to a methyl group



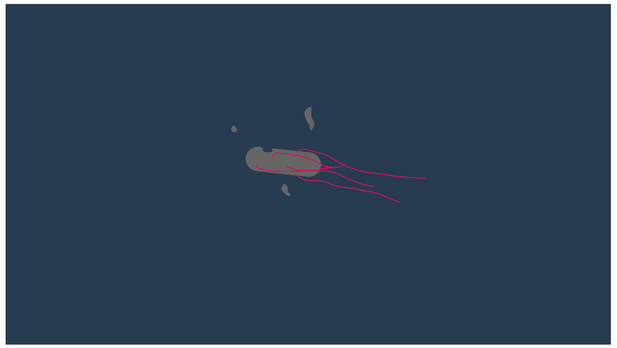
1.14
Animation: CheR demethylates the MCP. CheR and methanol diffuse away



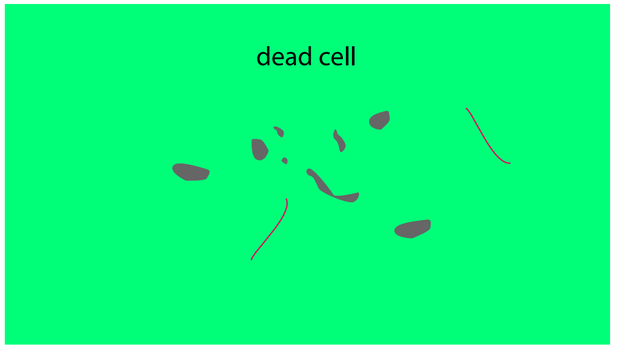
1.15
Animation: Show CheRs methylating and CheB-Ps demethylating the array. The system is at equilibrium



1.16
Animation: Zoom out to see the cell running and tumbling



1.17
Animation: Pan camera right and zoom in to a dead cell



1.18
Animation: Cell nutrients scatter through extracellular space

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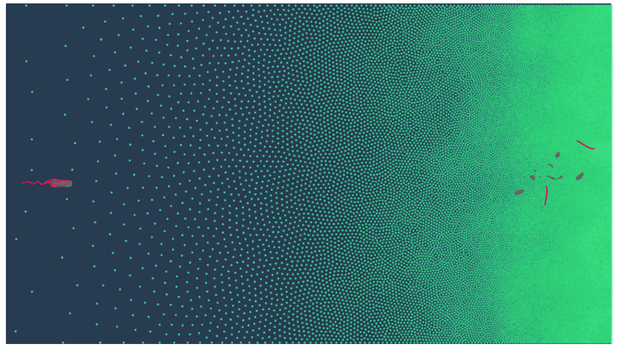
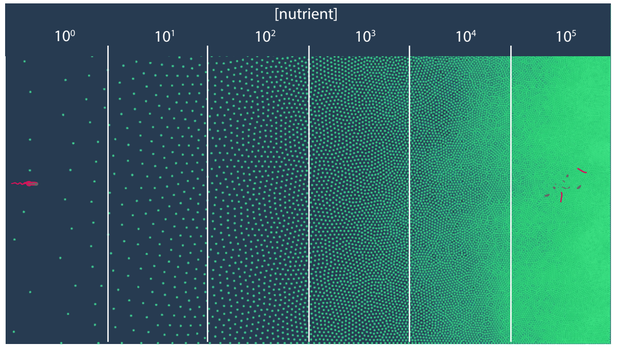
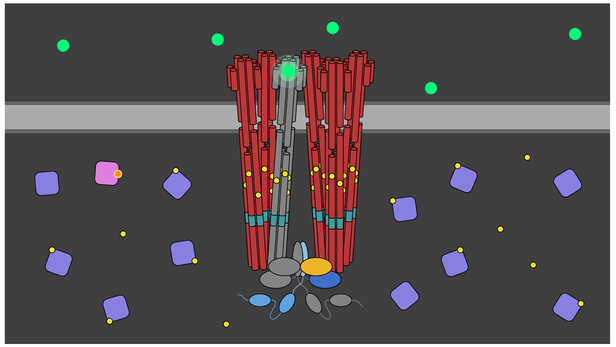


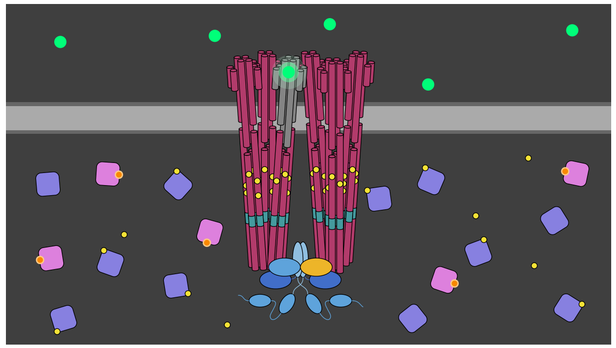
1.19
Animation: Zoom out to see nutriet gradient and live cell



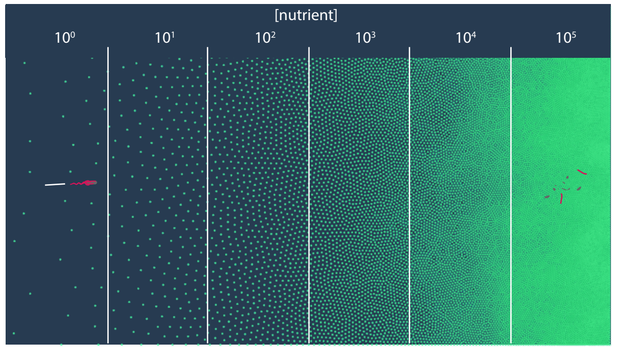
1.20
Animation: Show the labeled nutrient gradient



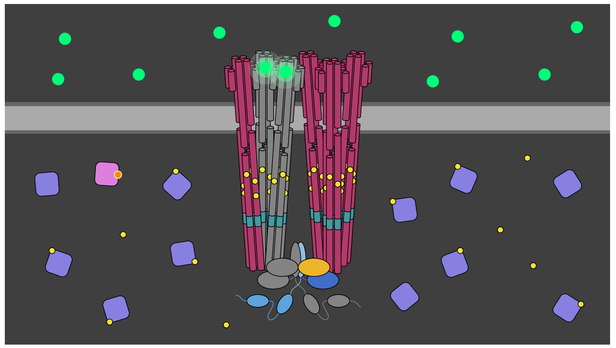
1.21
Animation: Zoom in to live cell's array. A nutrient binds, deactivating the unit and reducing CheB-P levels



1.22
Animation: Low CheB-P levels raise methylation, tightening and reactivating the array, restoring equilibrium



1.23
Animation: Zoom out to see cell moving up the nutrient gradient



1.24
Animation: Zoom in to cell's array. Two nutrients bind, deactivating the unit and reducing CheB-P levels

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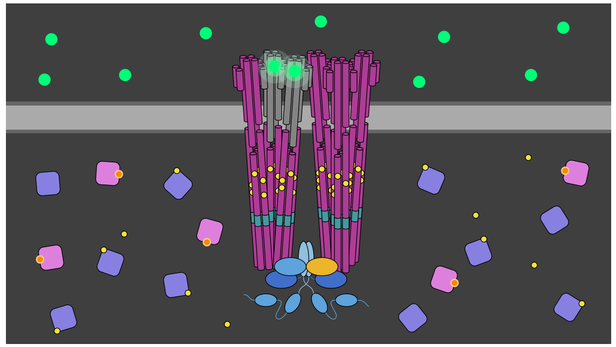
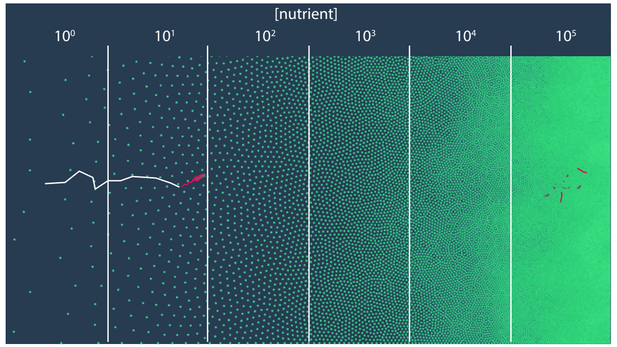
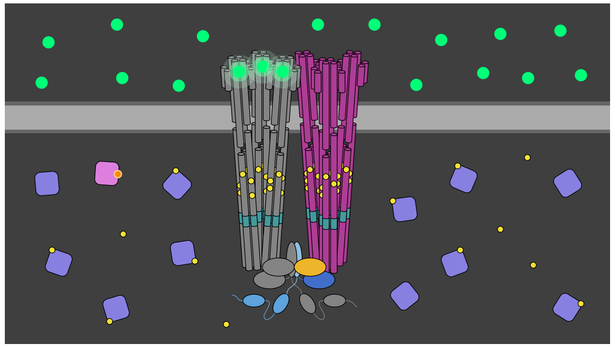


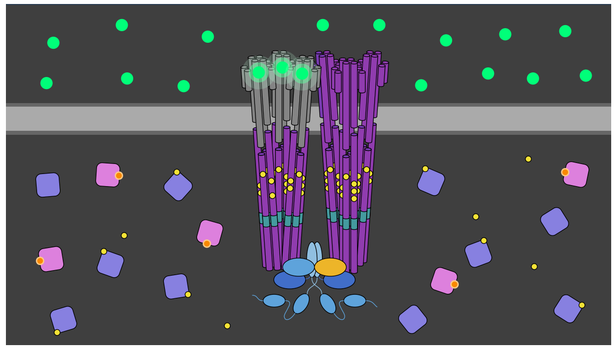
1.25
Animation: Low CheB-P levels raise methylation, tightening and reactivating the array, restoring equilibrium



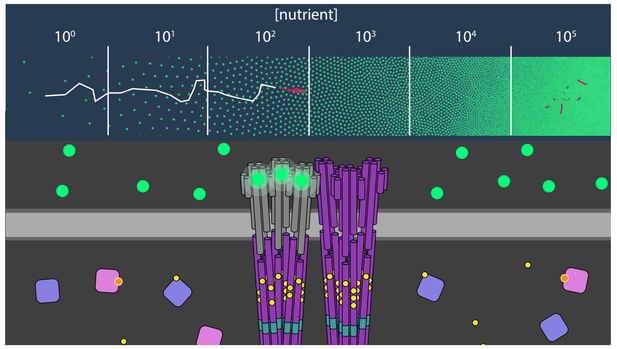
1.26
Animation: Zoom out to see cell moving up the nutrient gradient



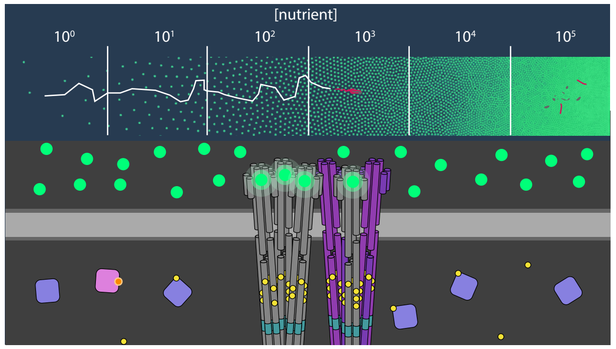
1.27
Animation: Zoom in to cell's array. Three nutrients bind, deactivating the unit and reducing CheB-P levels



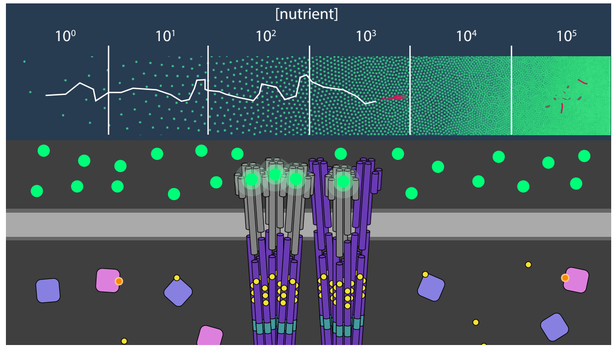
1.28
Animation: Low CheB-P levels raise methylation, tightening and reactivating the array, restoring equilibrium



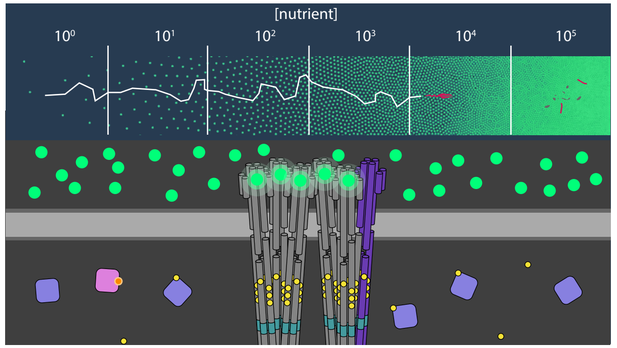
1.29
Animation: Show the nutrient gradient cropped on top and the the array animation on the bottom



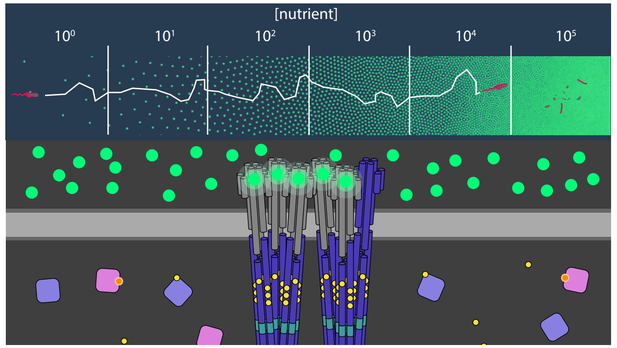
1.30
Animation: Four nutrients bind, deactivating the unit and reducing CheB-P levels, causing longer runs



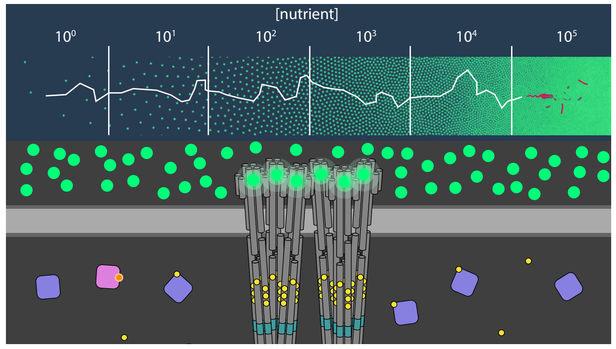
1.31
Animation: Low CheB-P levels raise methylation, tightening and reactivating the array, restoring equilibrium. Cell runs and tumbles up the gradient



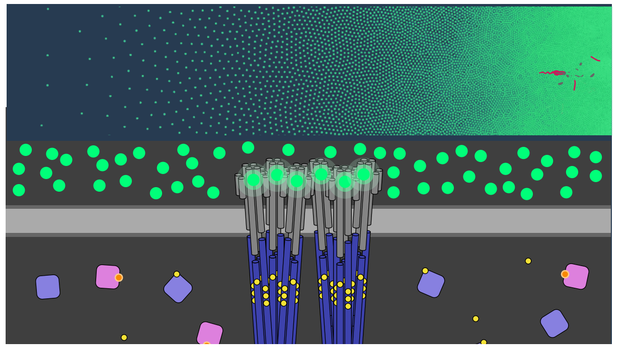
1.32
Animation: Five nutrients bind, deactivating the unit and reducing CheB-P levels, causing longer runs



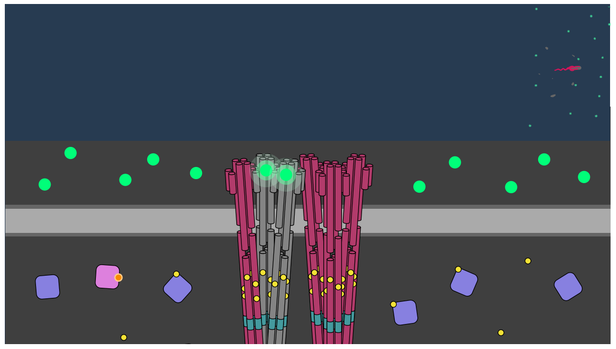
1.33
Animation: Low CheB-P levels raise methylation, tightening and reactivating the array, restoring equilibrium. Cell runs and tumbles up the gradient



1.34
Animation: Six nutrients bind, deactivating the unit and reducing CheB-P levels, causing longer runs



1.35
Animation: Low CheB-P levels raise methylation, tightening and reactivating the array, restoring equilibrium. Cell runs and tumbles up the gradient



1.36
Animation: Nutrients diffuse away. The array becomes more sensitive, and methylation levels drop

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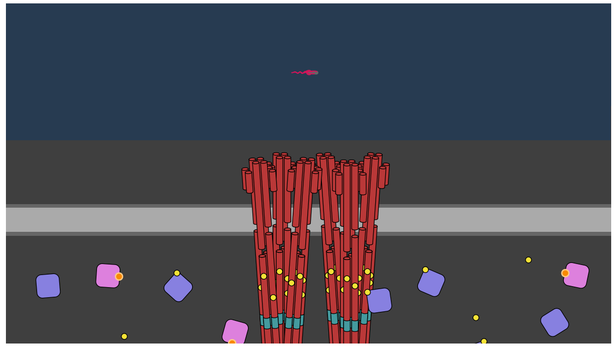
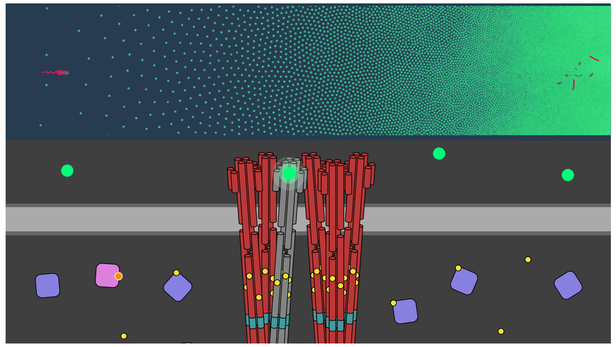


1.37
Animation: Array sensitivity increases and methylation decreases until reaching baseline equilibrium estate. Cell continues to run and tumble



1.38
Animation: Another gradient appears. The cell swims towards it and the cycle starts to repeat.