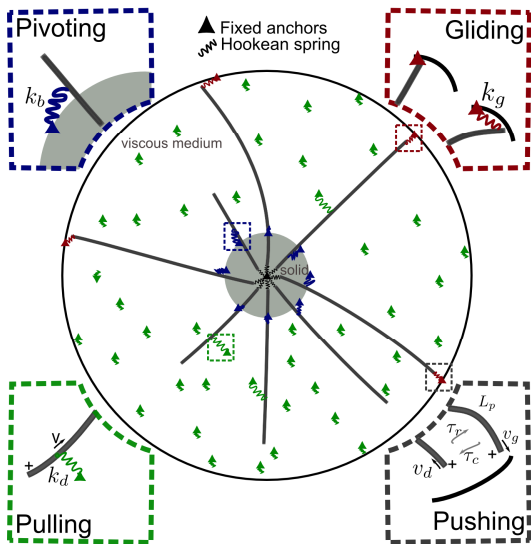# Supplemental Materials

Molecular Biology of the Cell

Letort et al.
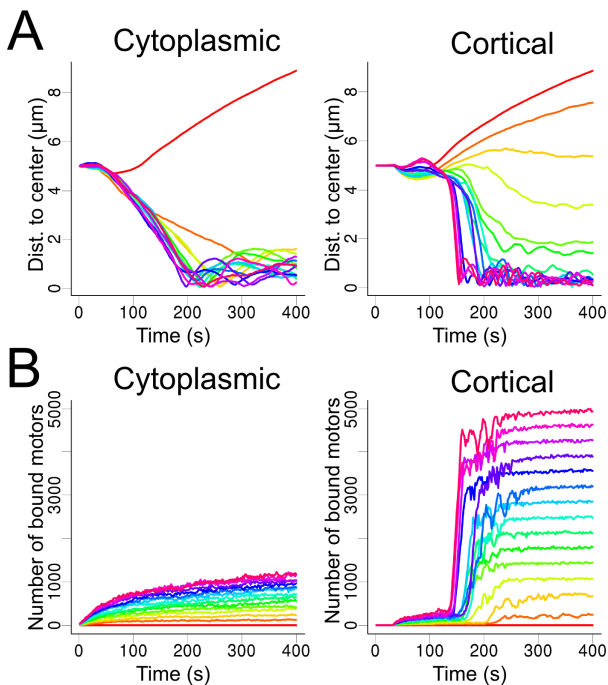
Figure S1

Figure S1: Main components in the model.
Schematic representation of the model of the simulations, su mmarizing the main forces acting on centrosome and the main actors implementation.
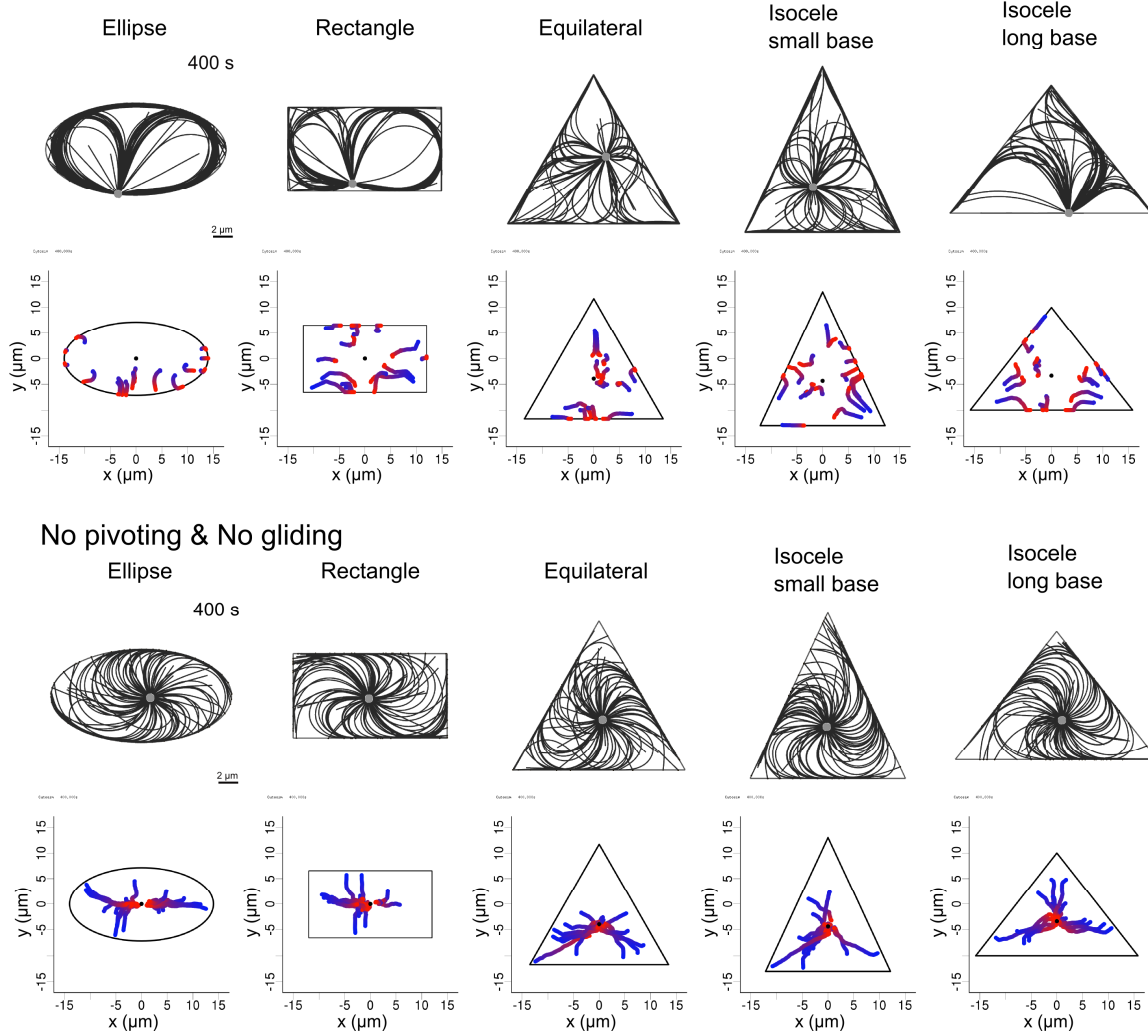
Figure S2

Figure S2: differences of centrosome trajectories according to motor distributions
(A) Distance of centrosome to cell center according to time, for cytoplasmic motor distribution (left) and cortical motor distribution (right). (B) Number of motor bound to MTs according to time, for simulations

with cytoplasmic motor distribution (left) and cortical motor distribution (right). (A-B) Colors represented simulations with different number of motors, from 0 (red) to 5600 (purple).

Figure S3

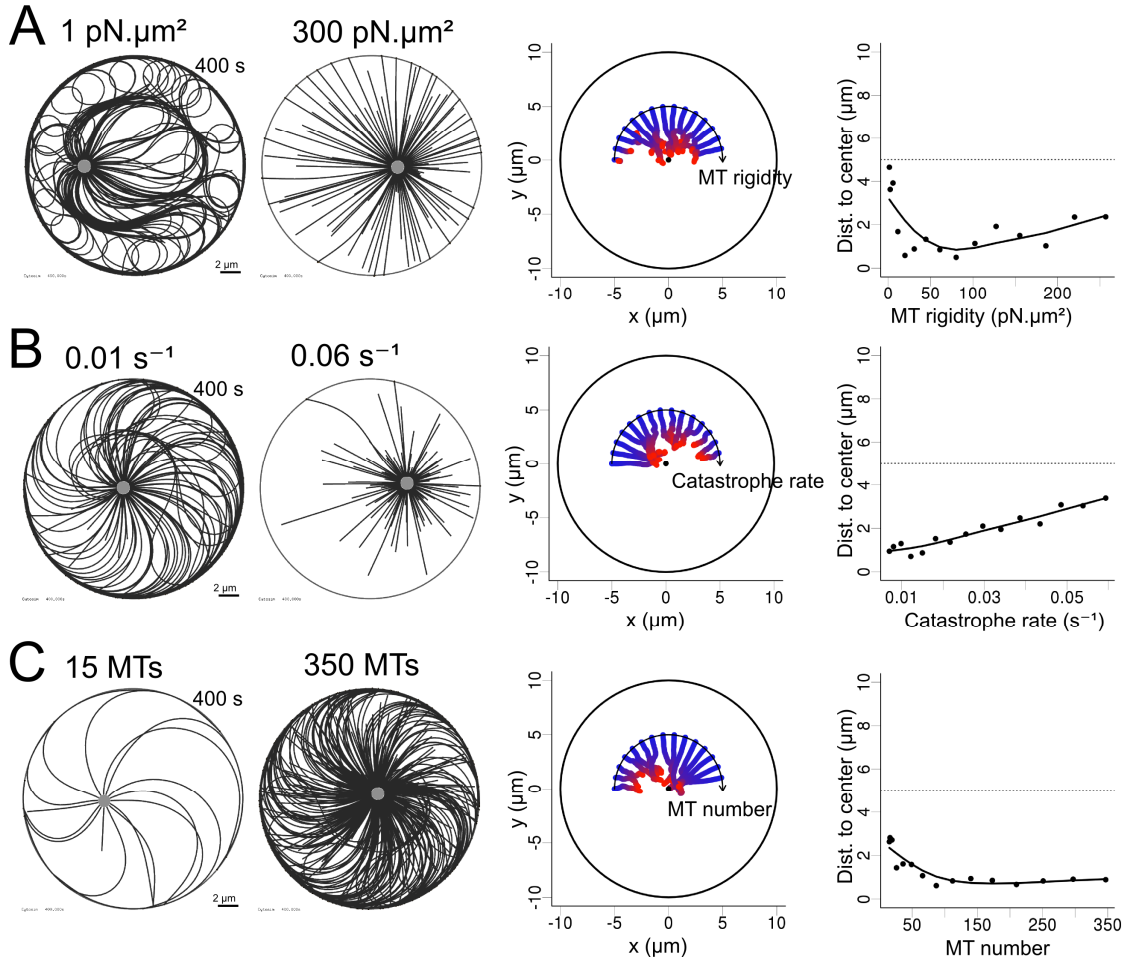# A Pivoting & Gliding

No pivoting & No gliding

Figure S3: Effects of pushing force in different cell geometries.
Simulations where MT pivoting and gliding are allowed (top) or not allowed (bottom).
Snapshots (400 s) for different geometries: ellipse, rectangle, equilateral triangle, acute isosceles triangle and isosceles triangle whose base is the longest side. 15 Trajectories of centrosomes are shown for each geometry. For each trajectory, time is indicated by the color, from blue (0 s) to red (400 s). A black dot indicates the cell gravity center.

Figure S4

A

1 pN.µm²   300 pN.µm²

B

0.01 s⁻¹   0.06 s⁻¹

C

15 MTs   350 MTs

Figure S4: Efficiency of pushing forces when pivoting and gliding are not allowed.

(A-C) Trajectories of centrosomes obtained when one parameter is varied : MT rigidity, from 1 to 300 pN.µm²; MT unloaded catastrophe rate from 0.01 to 0.06 /s and number of MTs from 15 to 350.

(Leftmost two columns) Snapshots (400 s) for 2 different conditions for each varied parameter. (middle column) Multiple trajectories obtained for centrosomes initially positioned along an arc, while the value of the parameter is increasing from left to right. For each trajectory, time is indicated by the color, from blue (0 s) to red (400 s). A black dot indicates the cell gravity center. (right column) Centrosome positioning as a function of one parameter, measured by the distance to the cell center. The dashed lines represent the initial centrosome-center distance (half the confinement radius).