# Figure S1: automated analysis of cell position and movements

A

t=0    1h30    1h45    3h30    4h45    12h15    14h45    15h    15h30    17h15

MITOSIS
DETECTION ←  selected frames for nuclei movement analysis  → MITOSIS
DETECTION

B

raw data

t=0    15min    30min    45min    60min    75min    90min    105min    120min    135min

thresholded and segmented pictures

nucleus-nucleus axis measurement

C

angle (degree)

180
150
120
90
60
30
0
0    200    400    600    800
time (min)

30 to 40 angle values
per analyzed movie

hundreds of
movies

angular distribution
of nucleus-nucleus axis
orientation

90°

180°                    0°

8%

16%

270°

$n_{cell} = 164$
$n_{angle} = 7669$

$$speed = \frac{angle(t2) - angle(t1)}{t2 - t1}$$

angular speed (degree/min)

1.5

1.0

0.5

0.0
0    200    400    600    800
time (min)

moving frames
non-moving frames

one percentage
of moving frame
per analyzed movie

hundreds of
movies

proportion of
moving frames (%)

100

60

20

$n_{movies} = 164$