

# Dynamique des Chromosomes durant la Mitose chez la Levure à Fission

Hadrien Mary

16 décembre 2015

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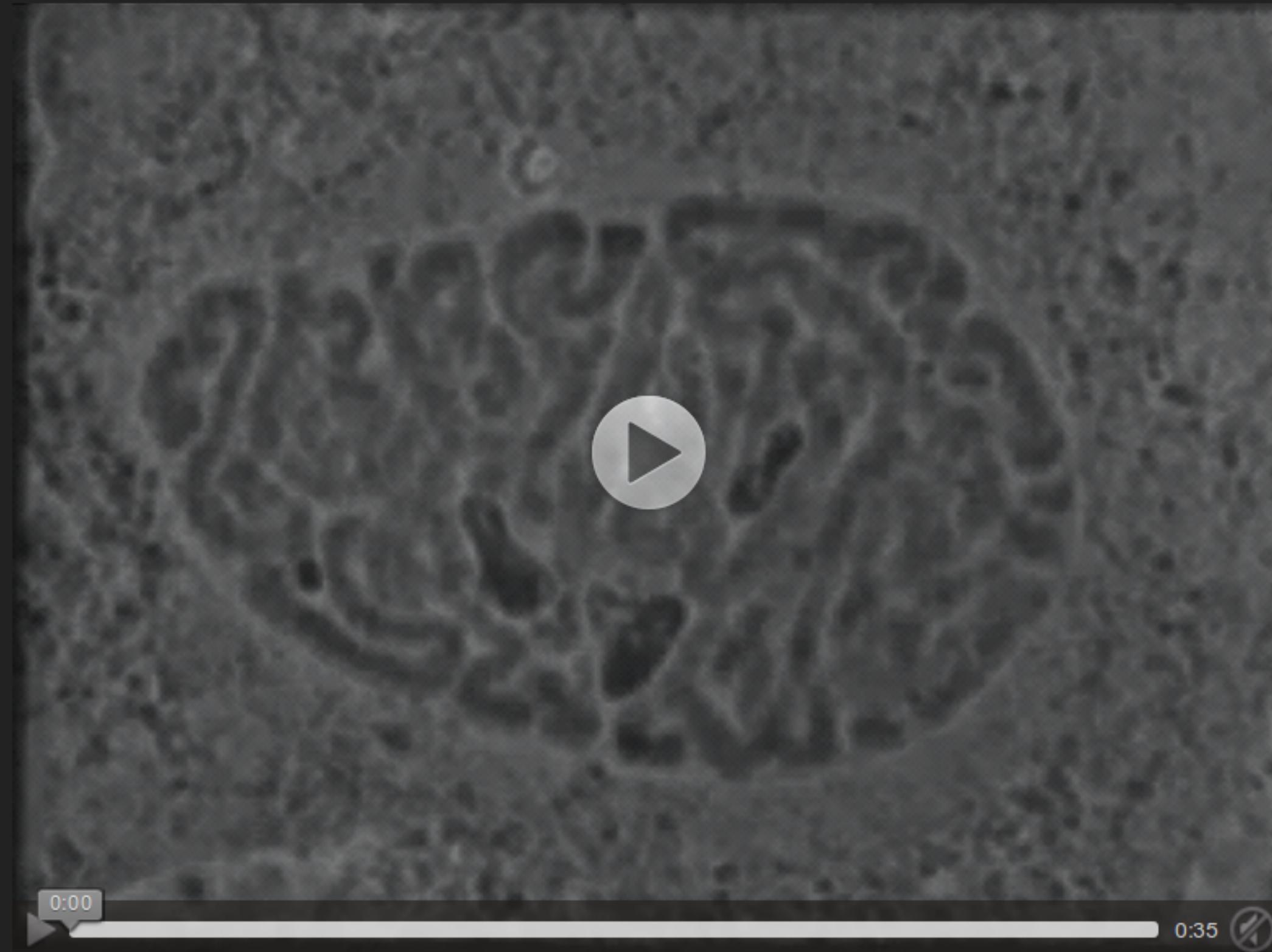
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# Introduction

# La mitose

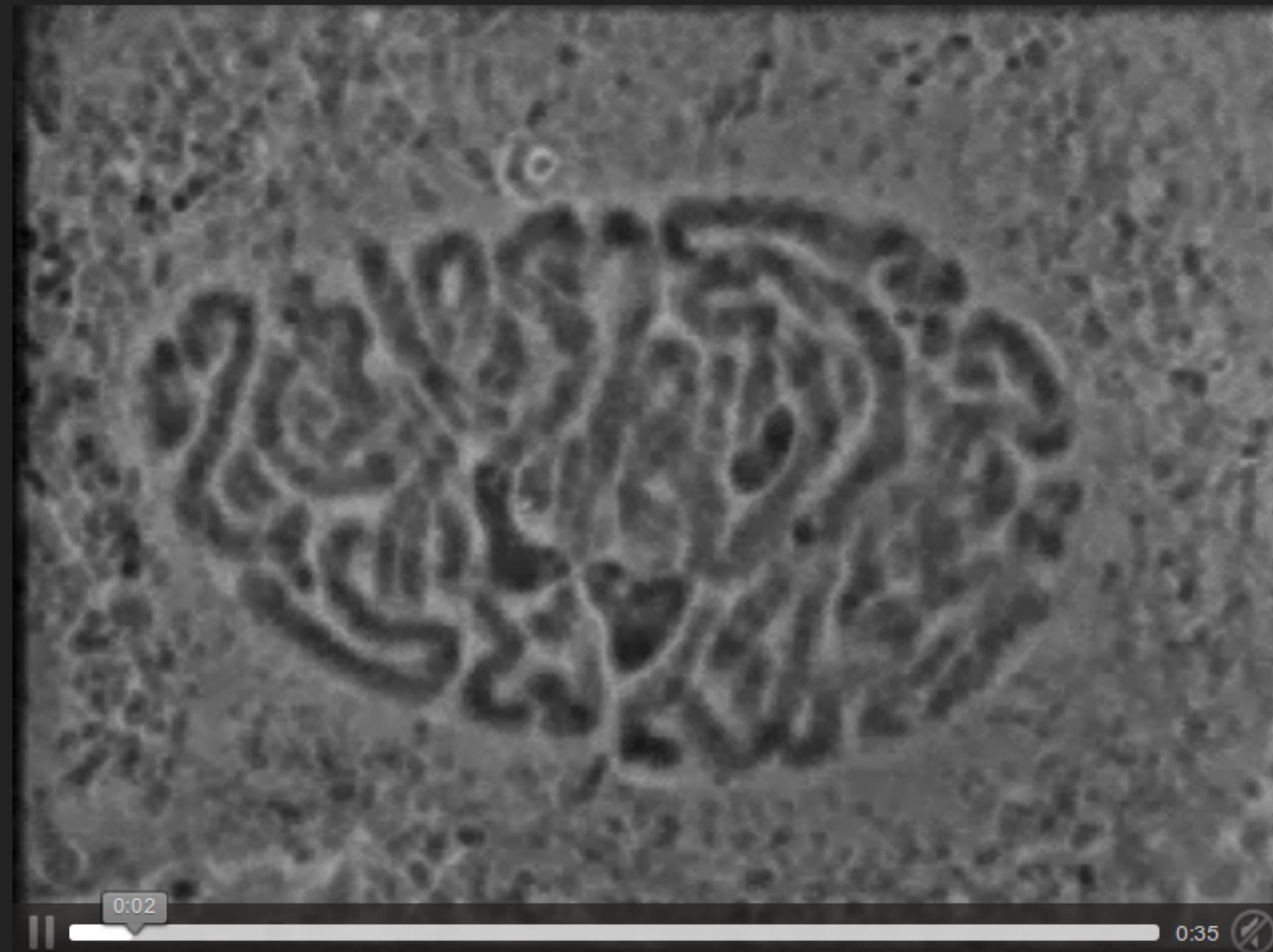
« Le rêve de chaque cellule est de devenir deux cellules. » (François Jacob, 1974)



*Haemanthus katherinae* cell, Bajer, 1956 (time x300)

# La mitose

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*Haemanthus katherinae* cell, Bajer, 1956 (time x300)

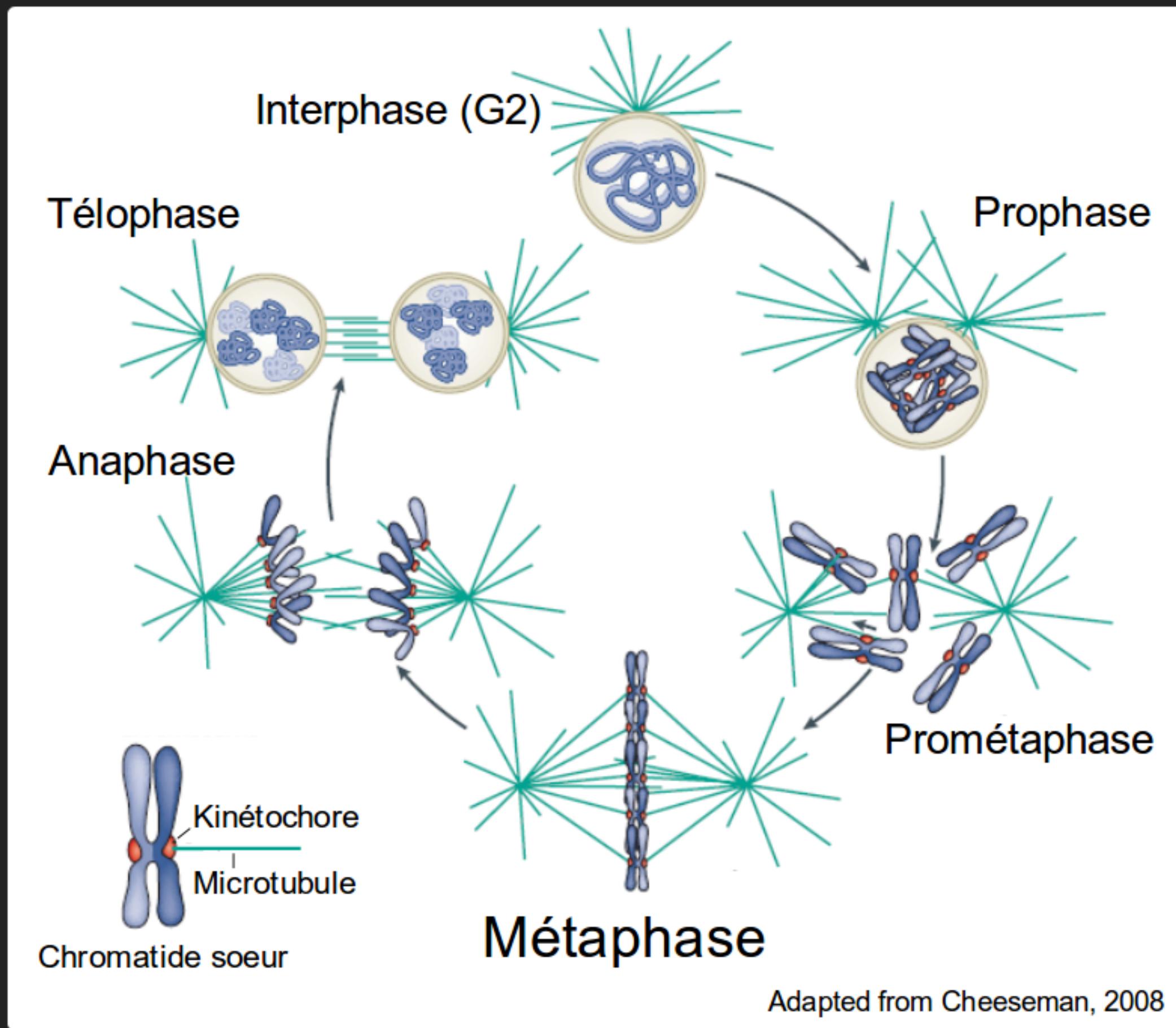
# La mitose

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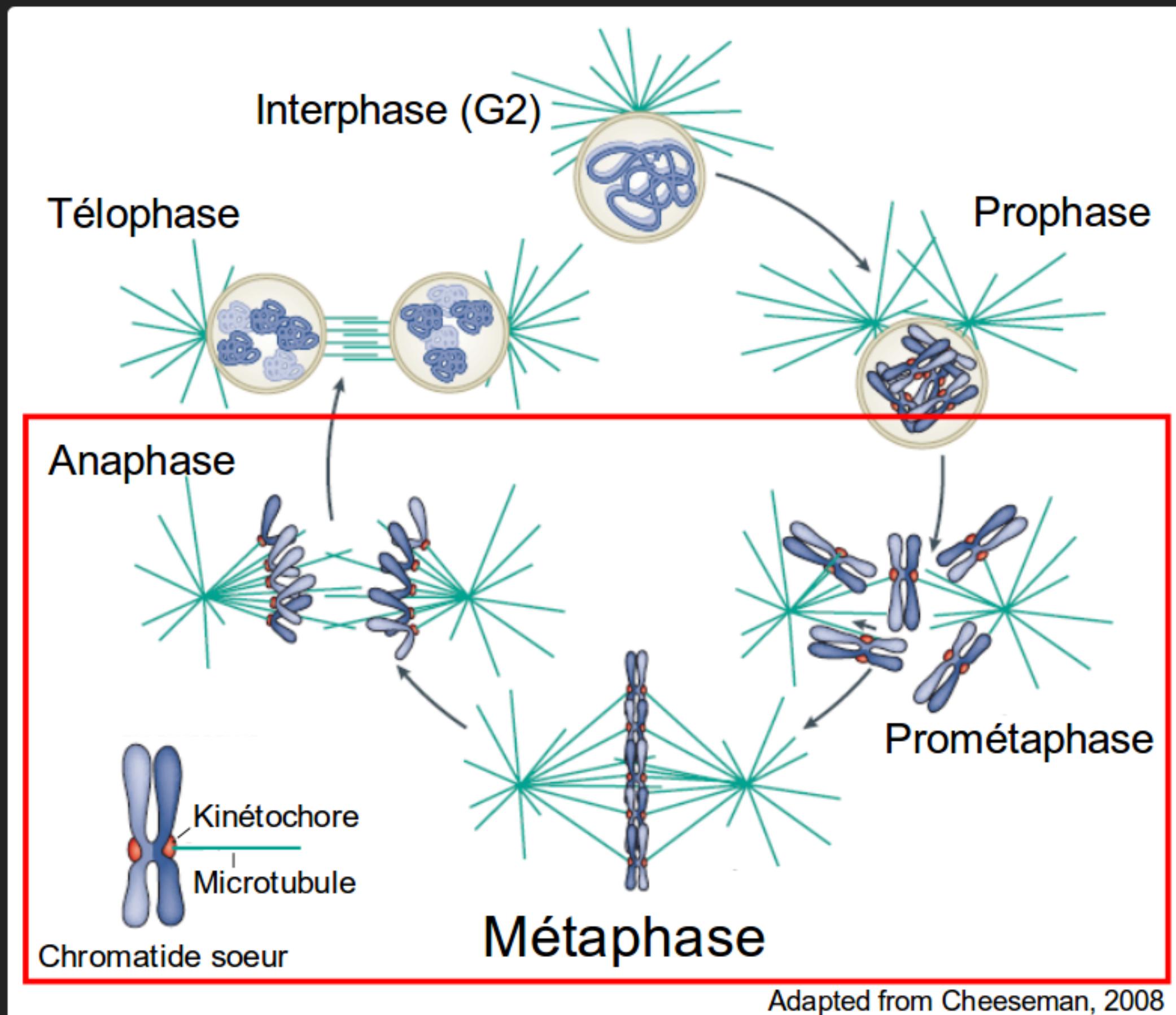


Haemanthus katherinae cell, Bajer, 1956 (time x300)

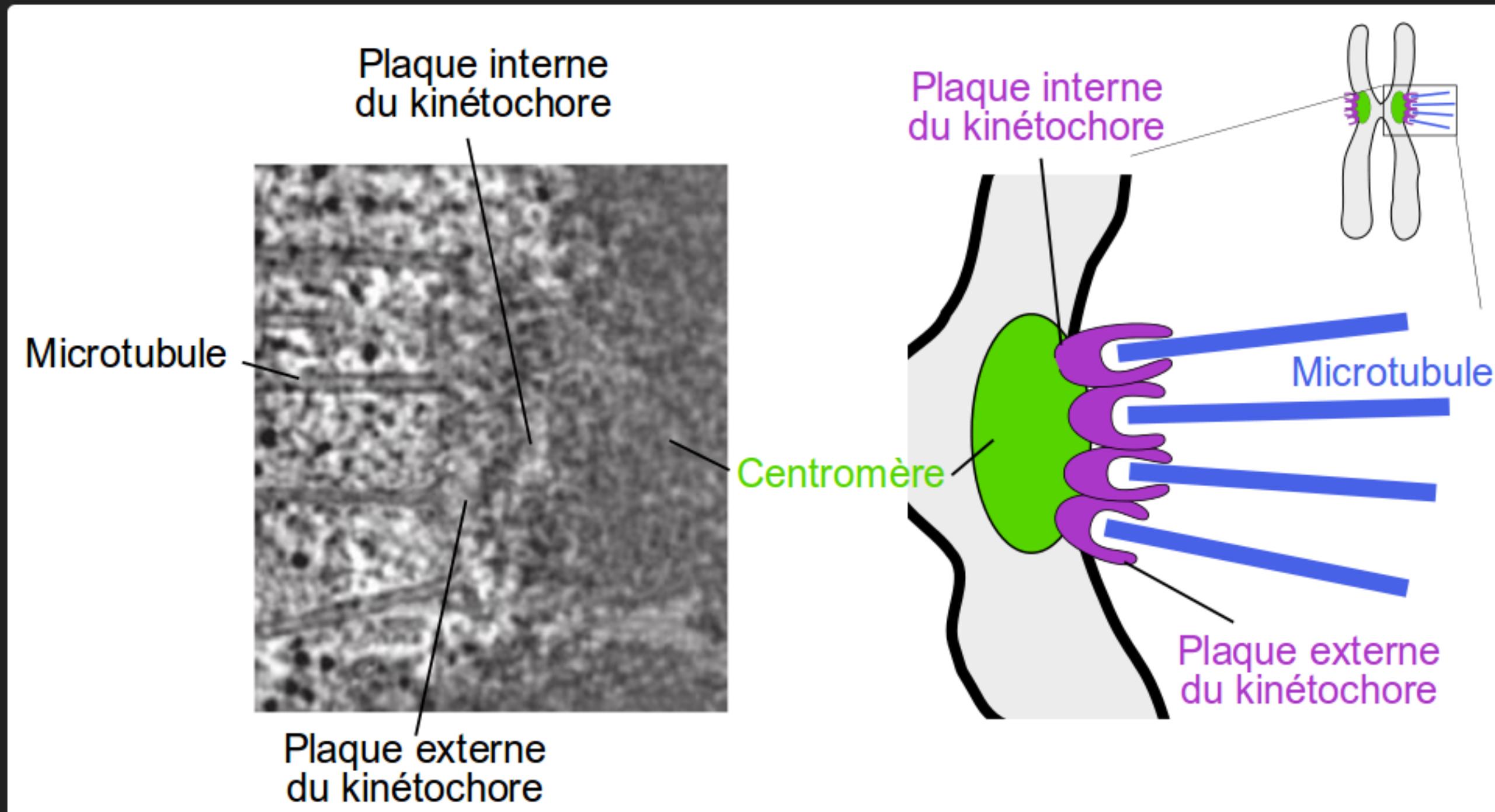
# La mitose



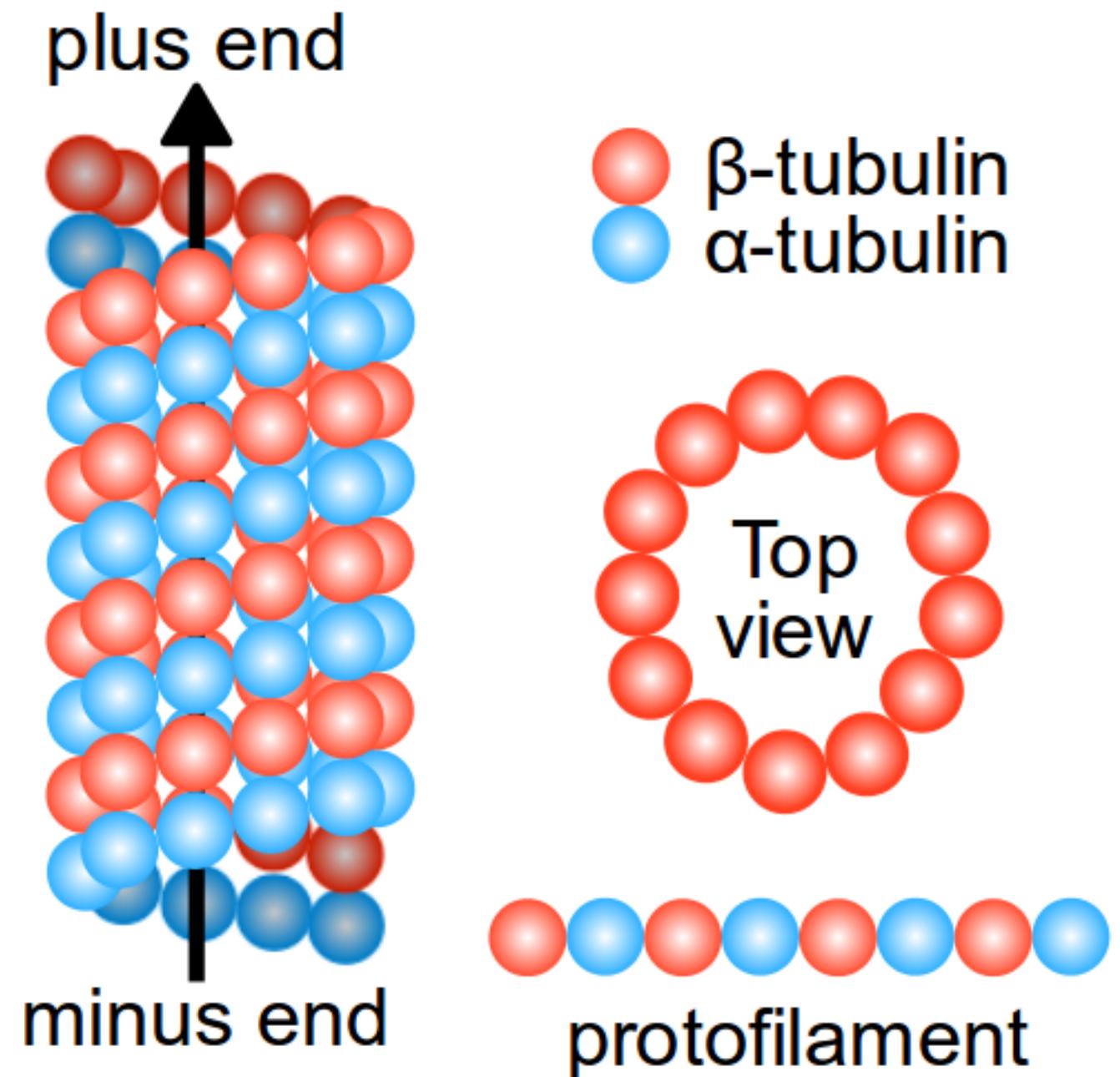
# La mitose



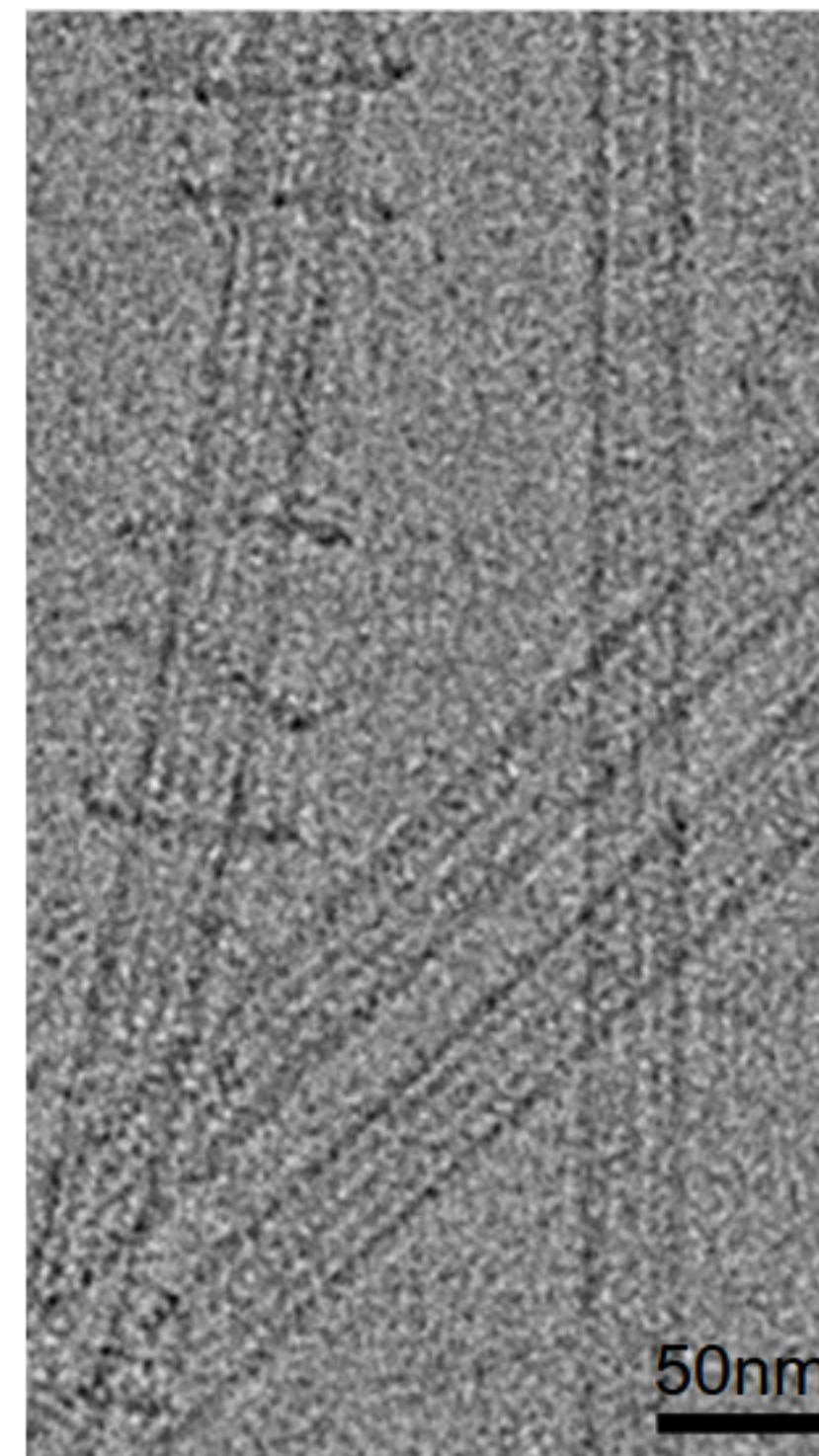
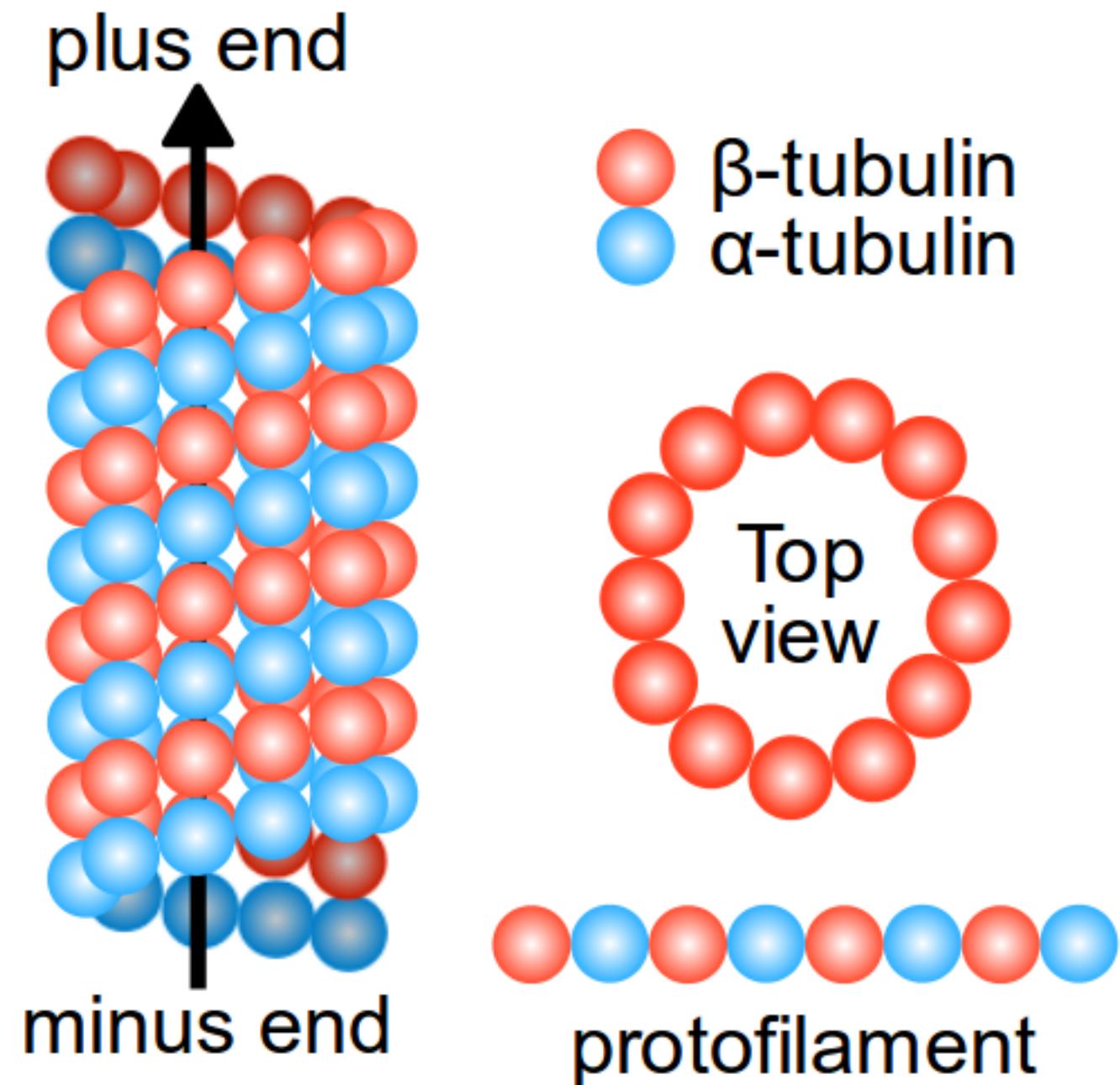
# Le kinétochore



# Les microtubules

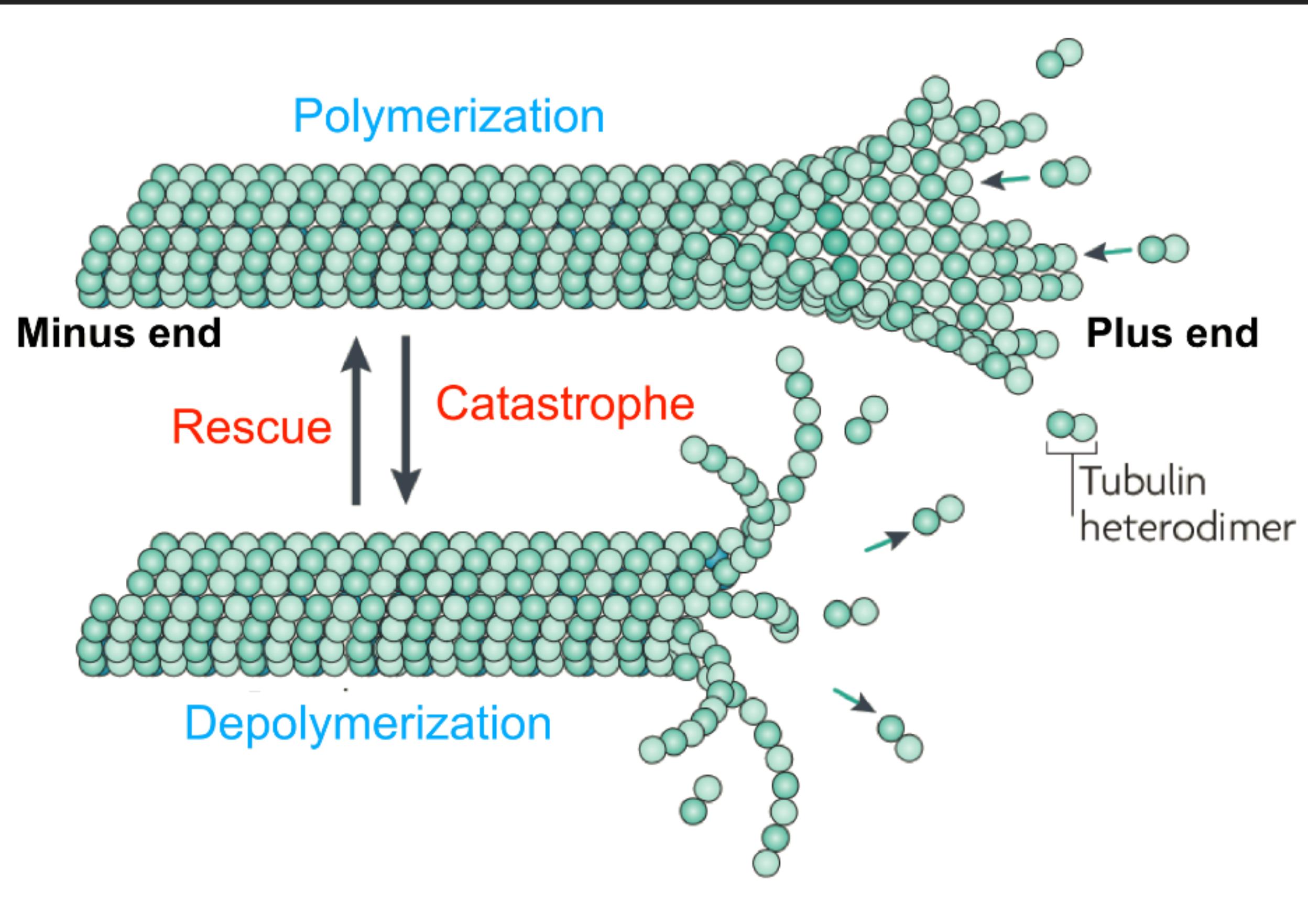


# Les microtubules

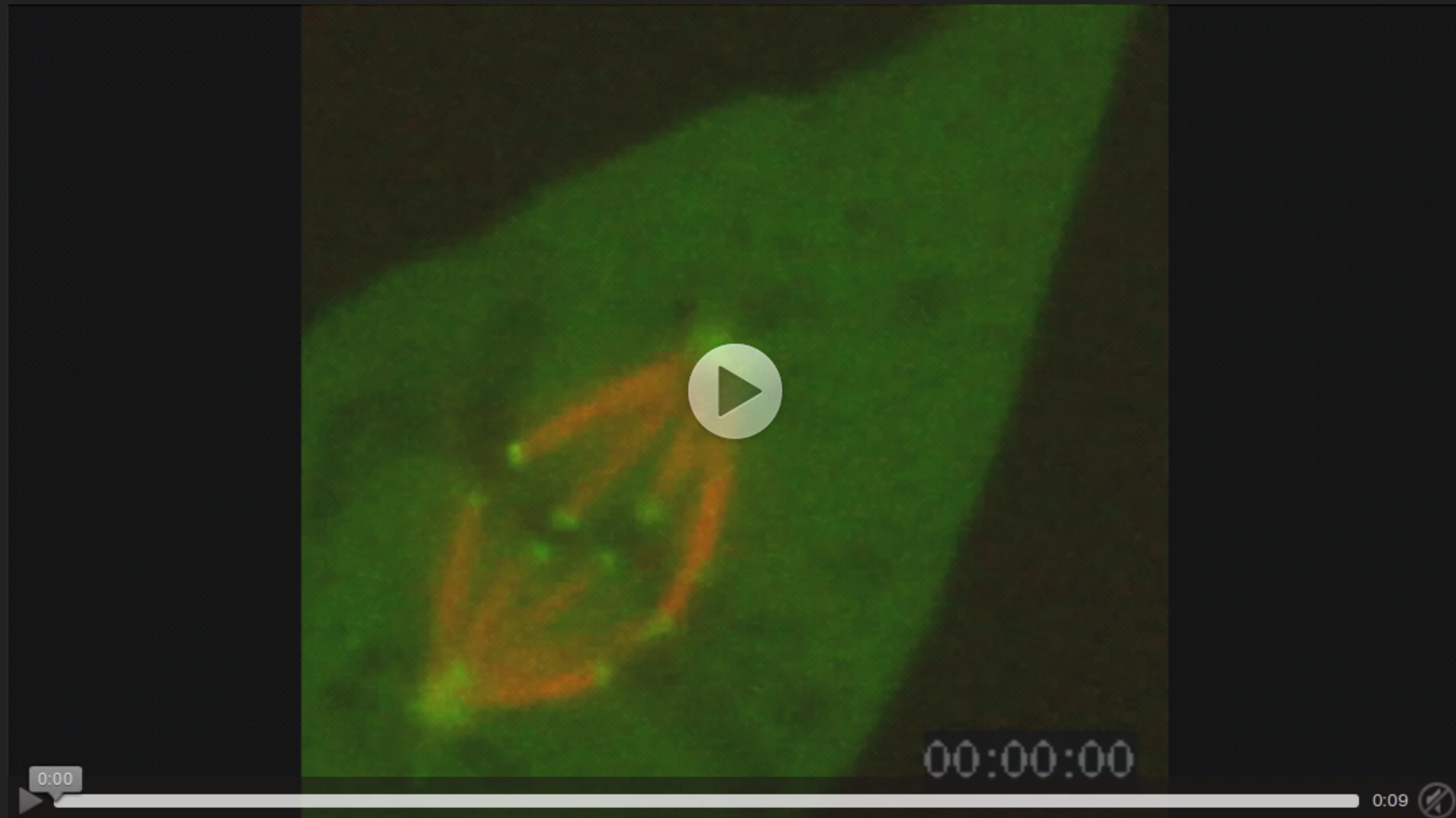


(Nogales, 2009)

# Les microtubules

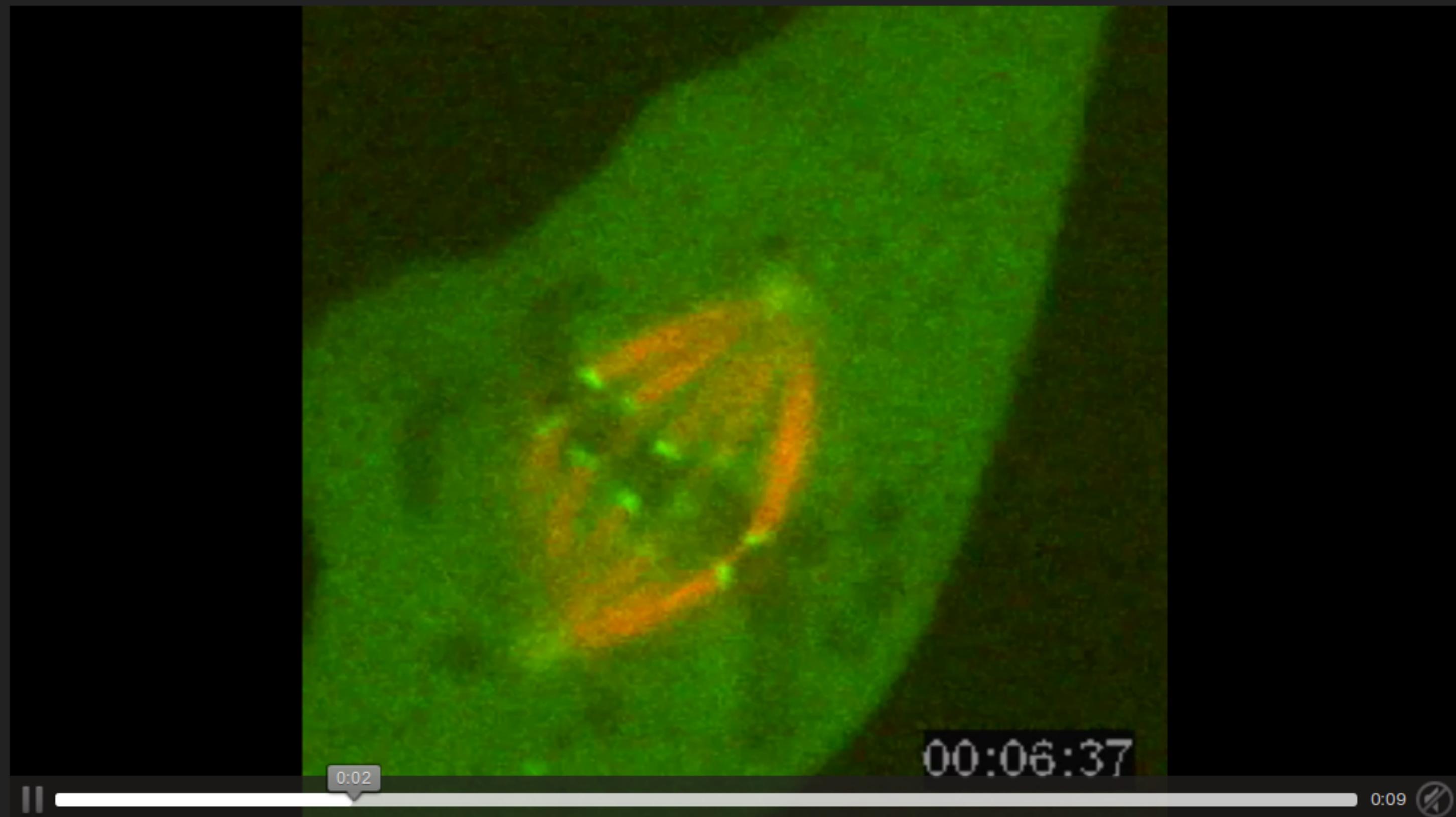


# L'attachement entre le kinétochore et les microtubules



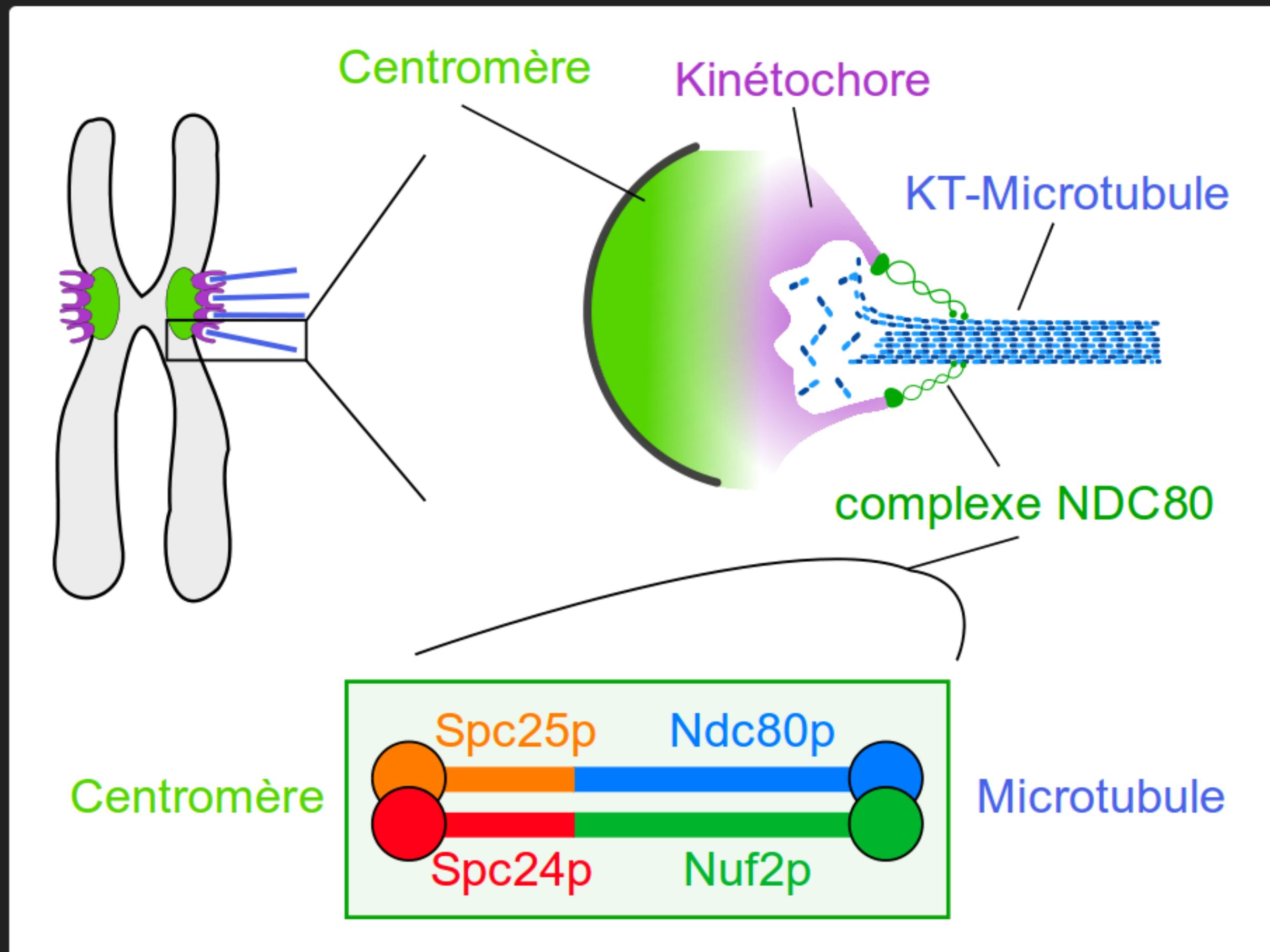
PtK1 cell, Cimini, 2004

# L'attachement entre le kinétochore et les microtubules

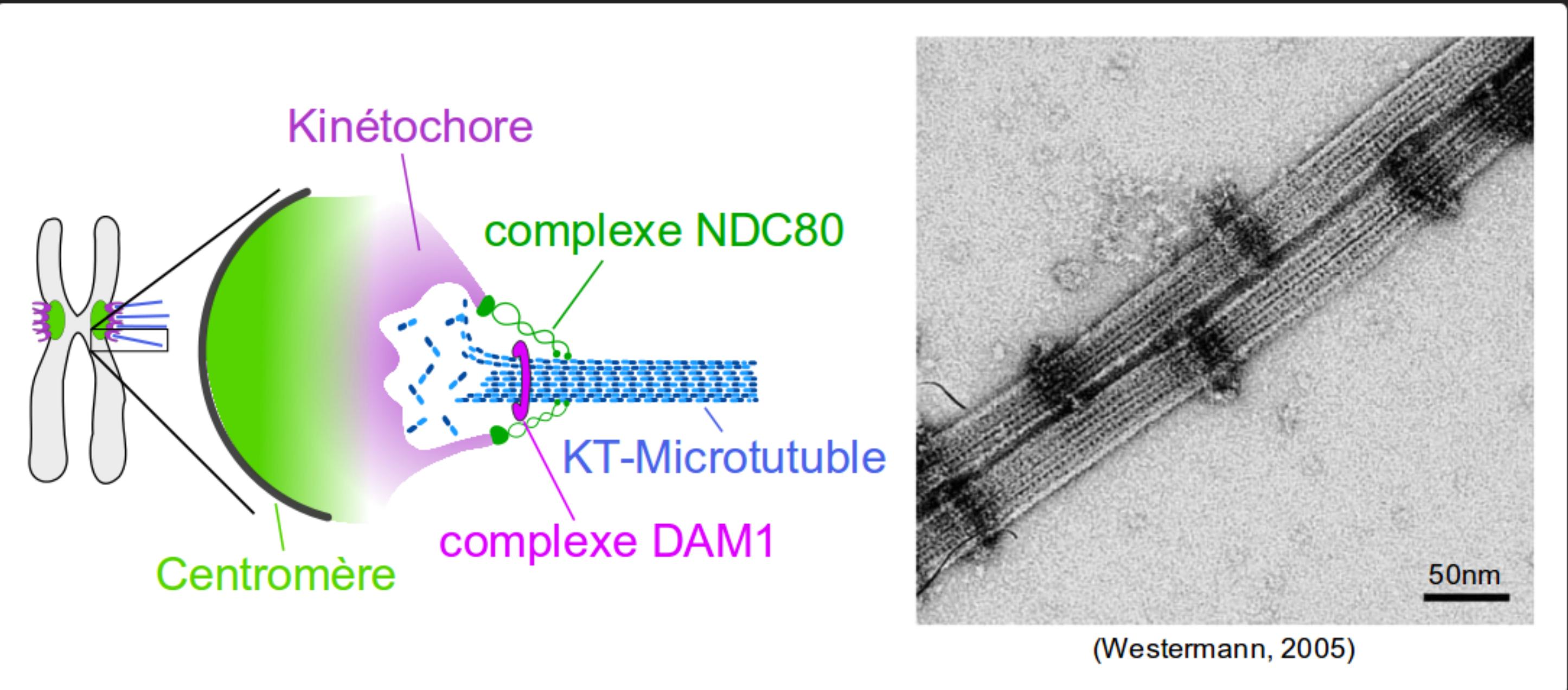


PtK1 cell, Cimini, 2004

# L'attachement : le complexe NDC80

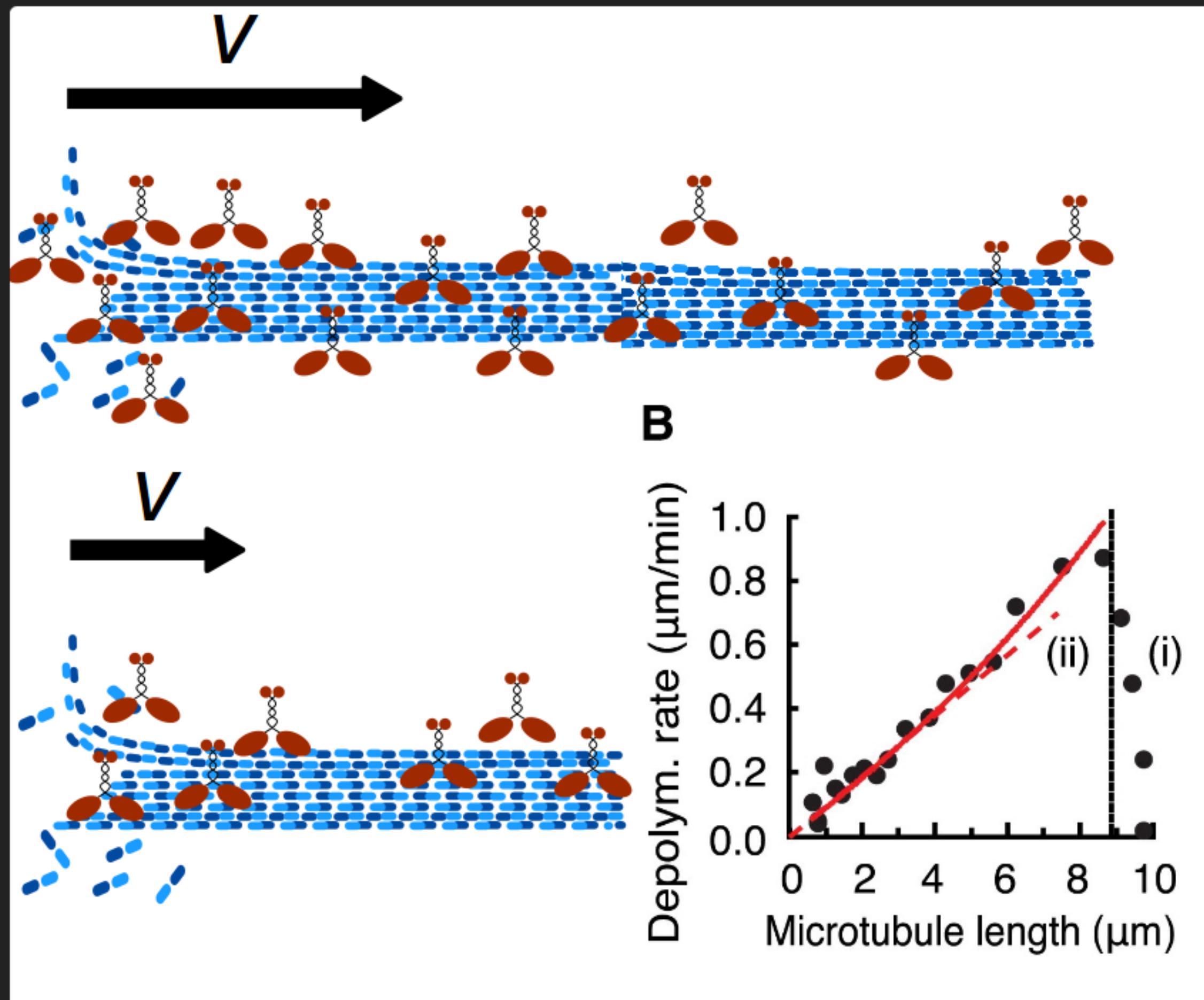


# L'attachement : le complexe DAM1

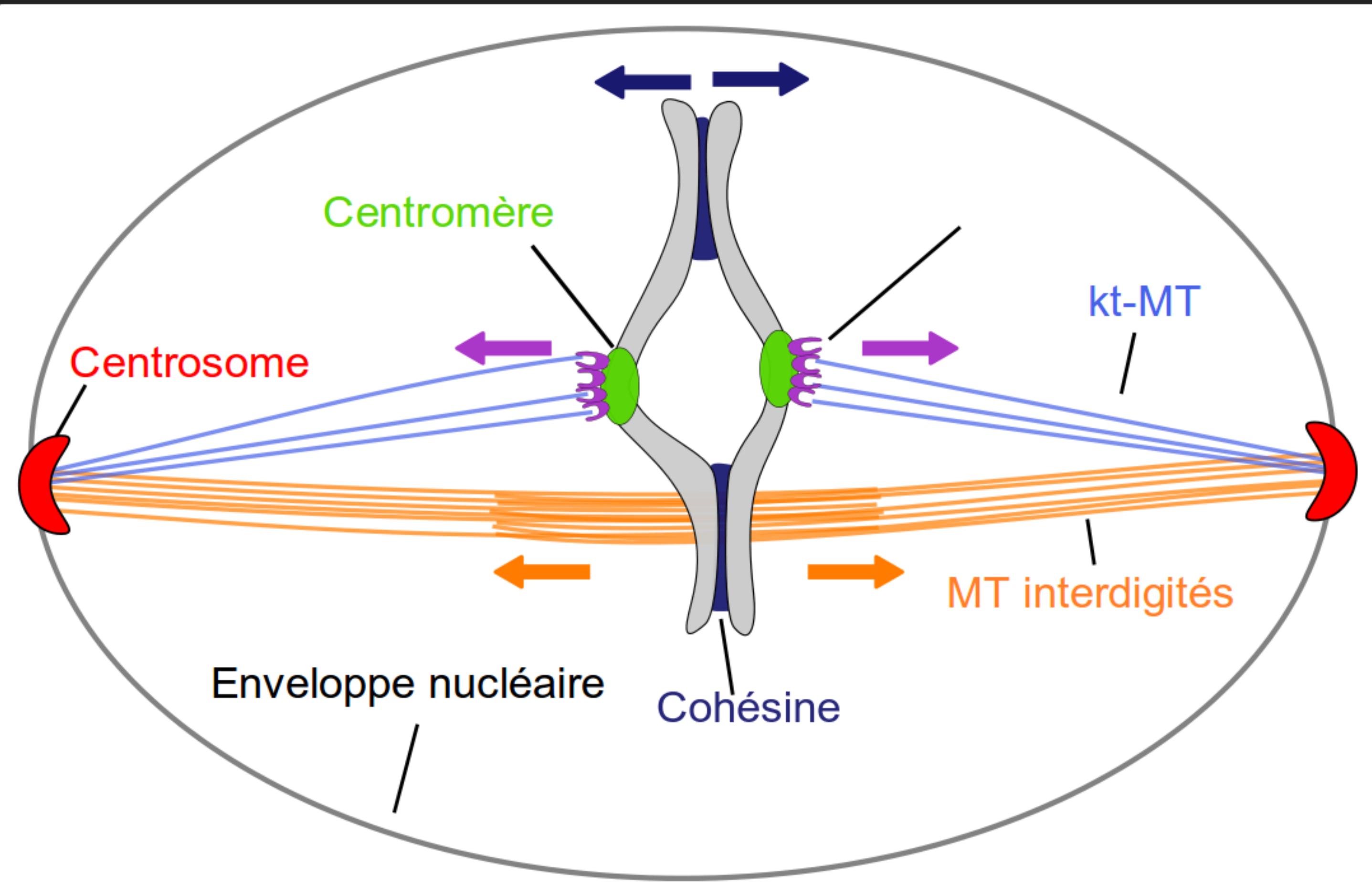


# Les kinésines

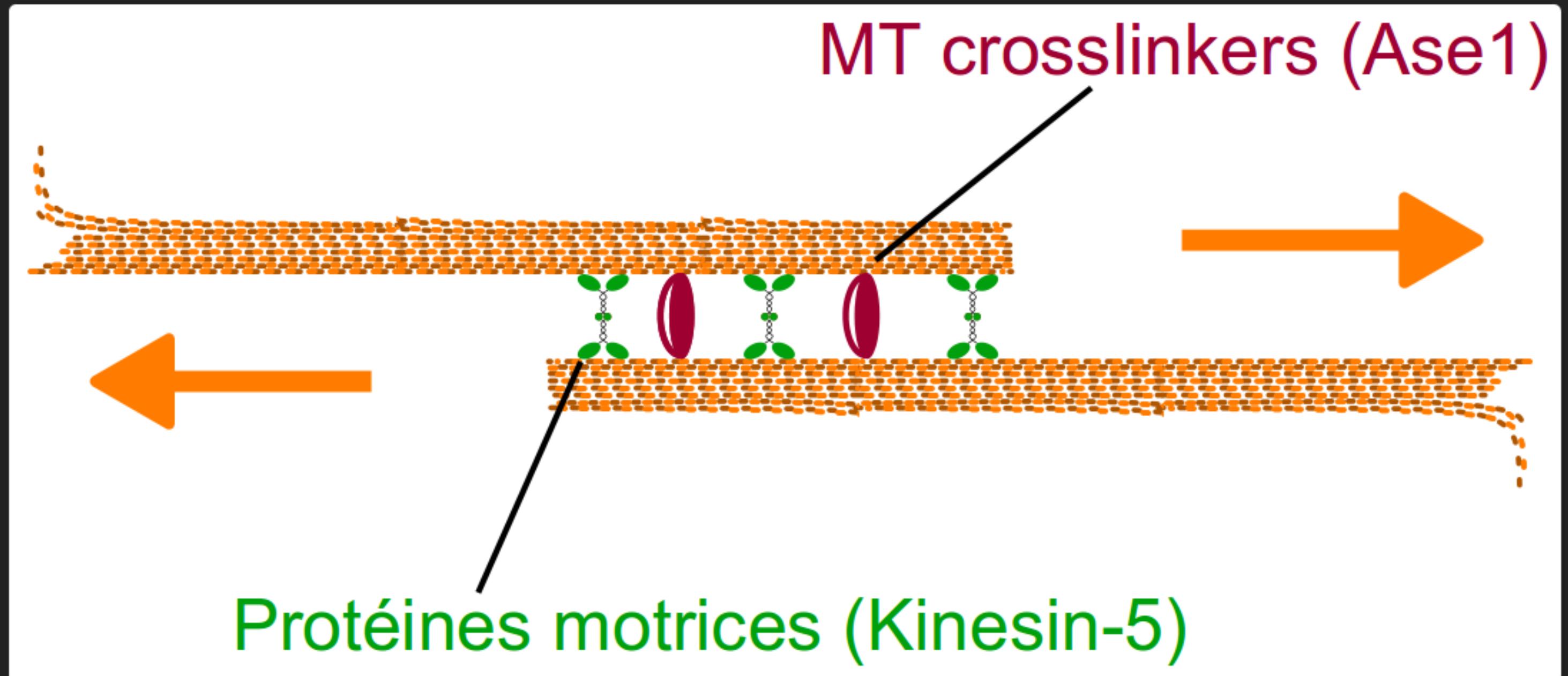
# La kinésine 8



# Le fuseau mitotique



# Le fuseau mitotique : la midzone



# La métaphase : point d'orgue de la division cellulaire

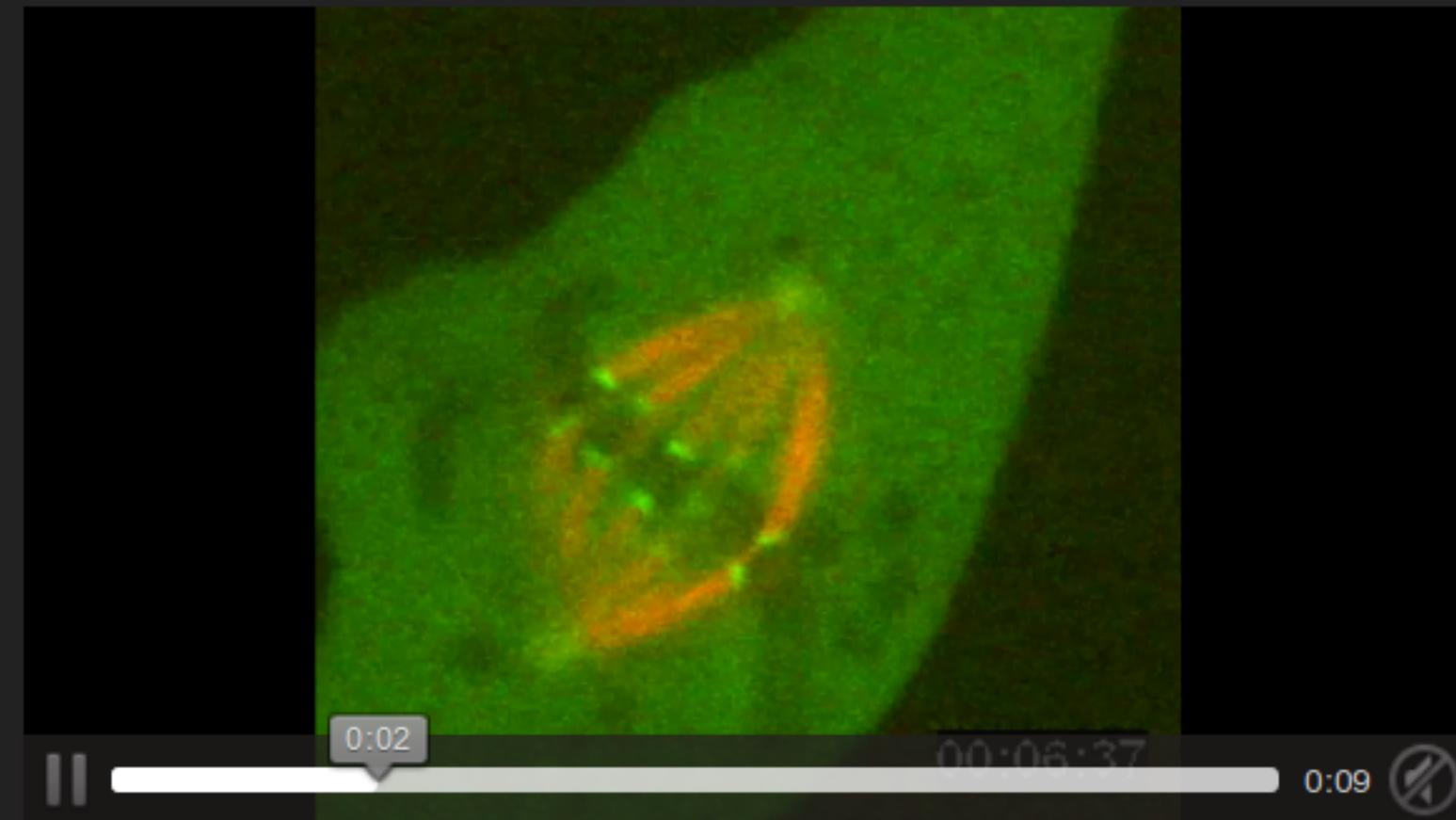


PtK1 cell, Cimini, 2004



HeLa cell, Stumpff, 2008

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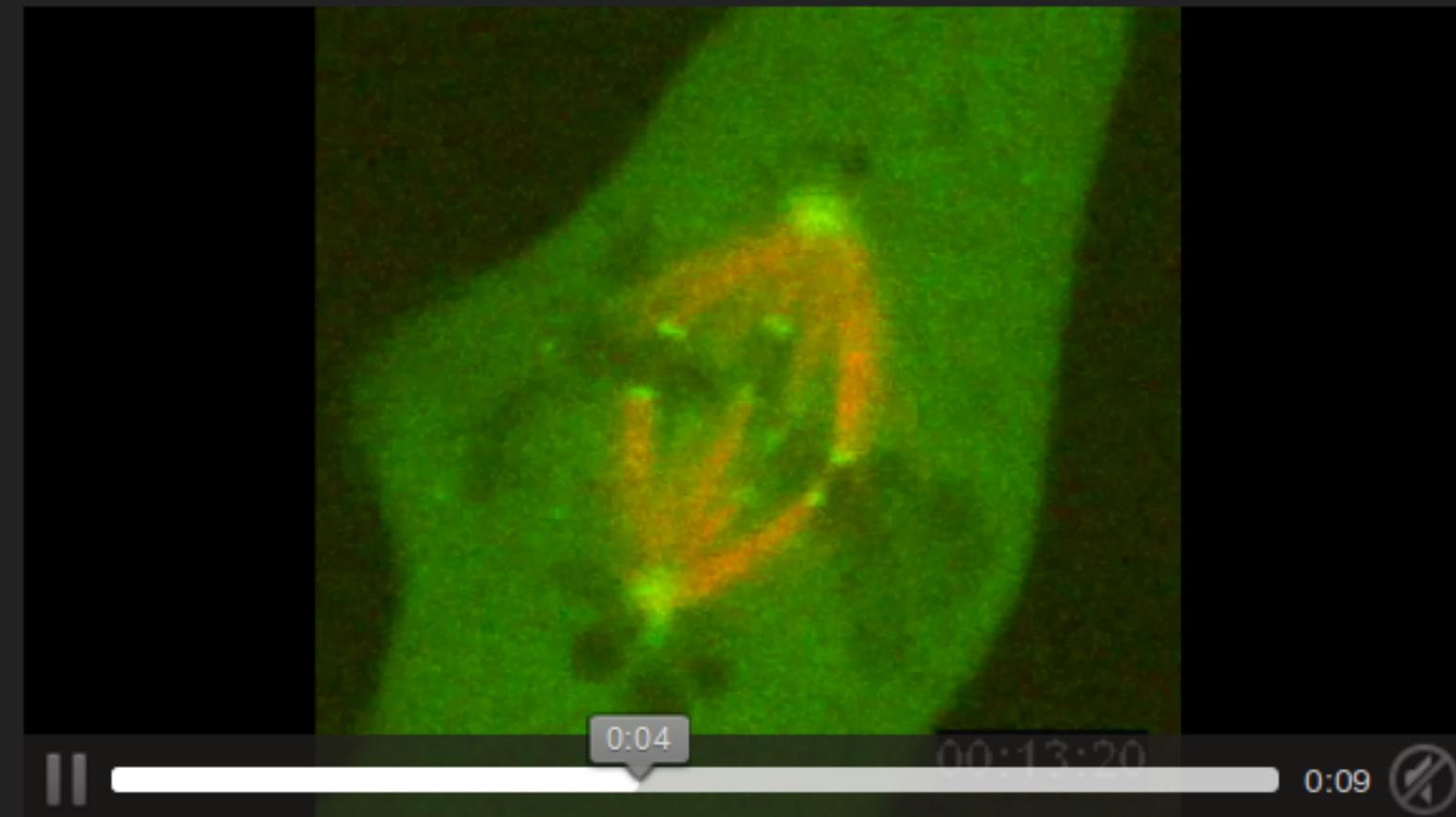


PtK1 cell, Cimini, 2004

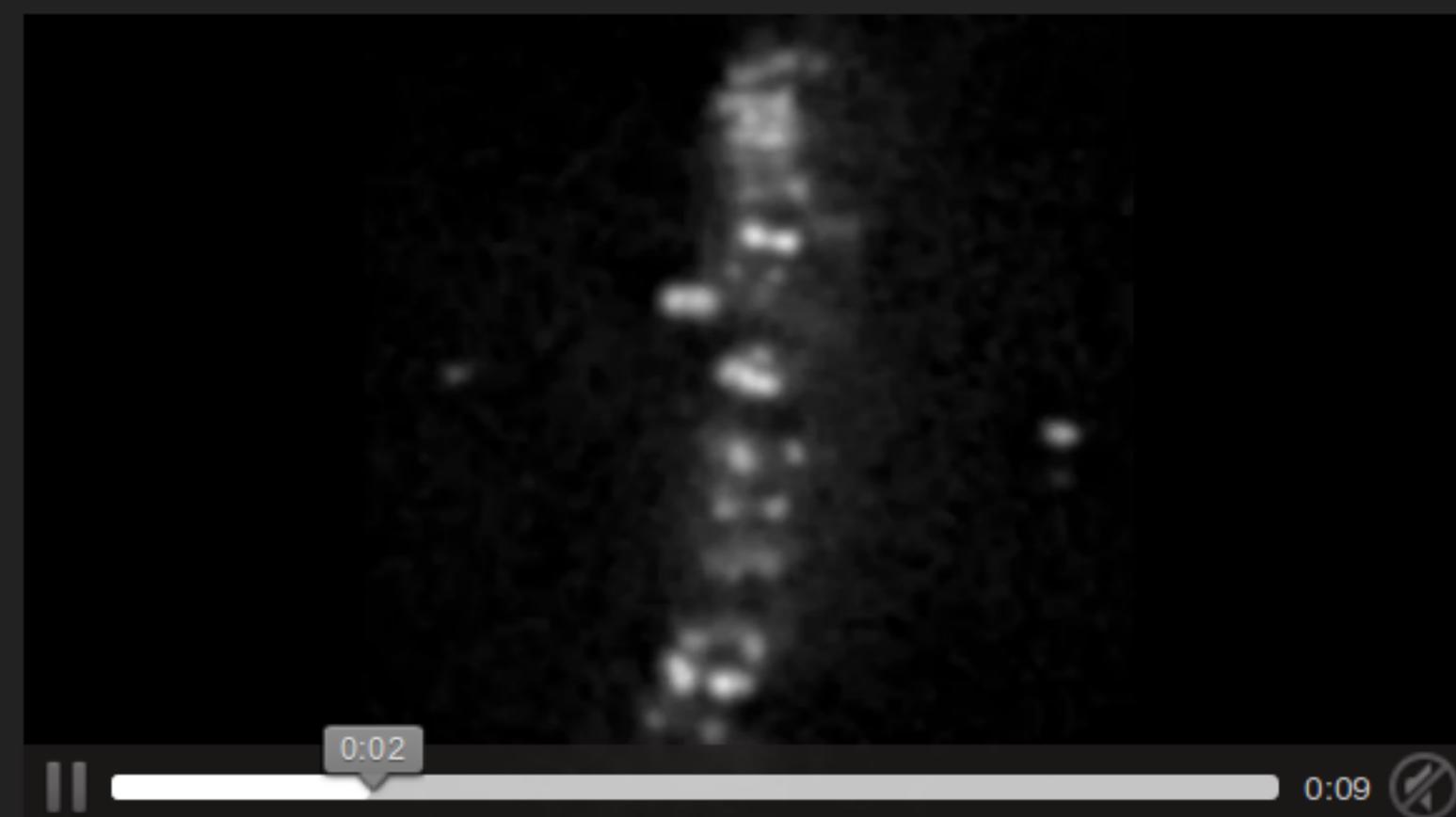


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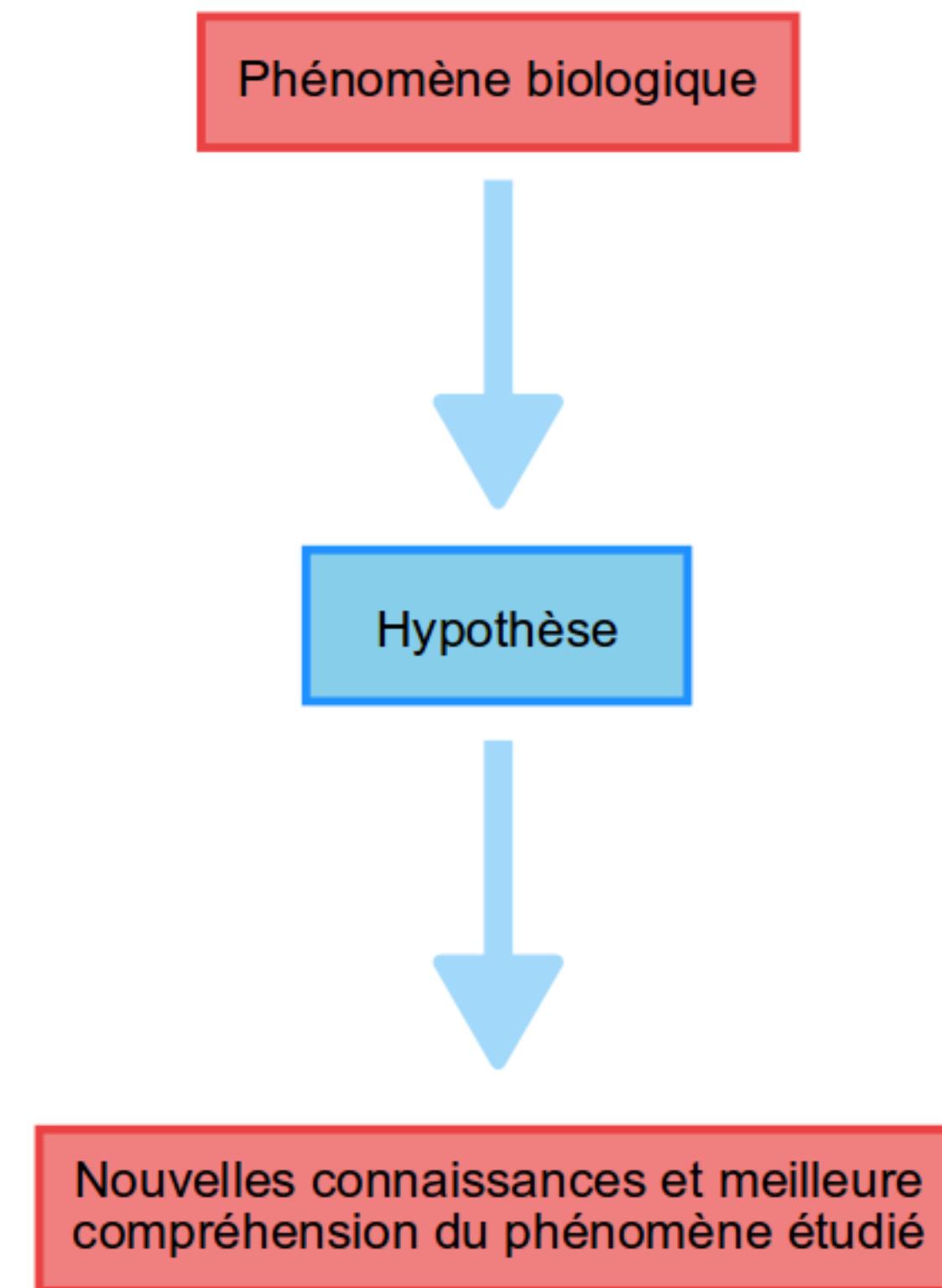


PtK1 cell, Cimini, 2004

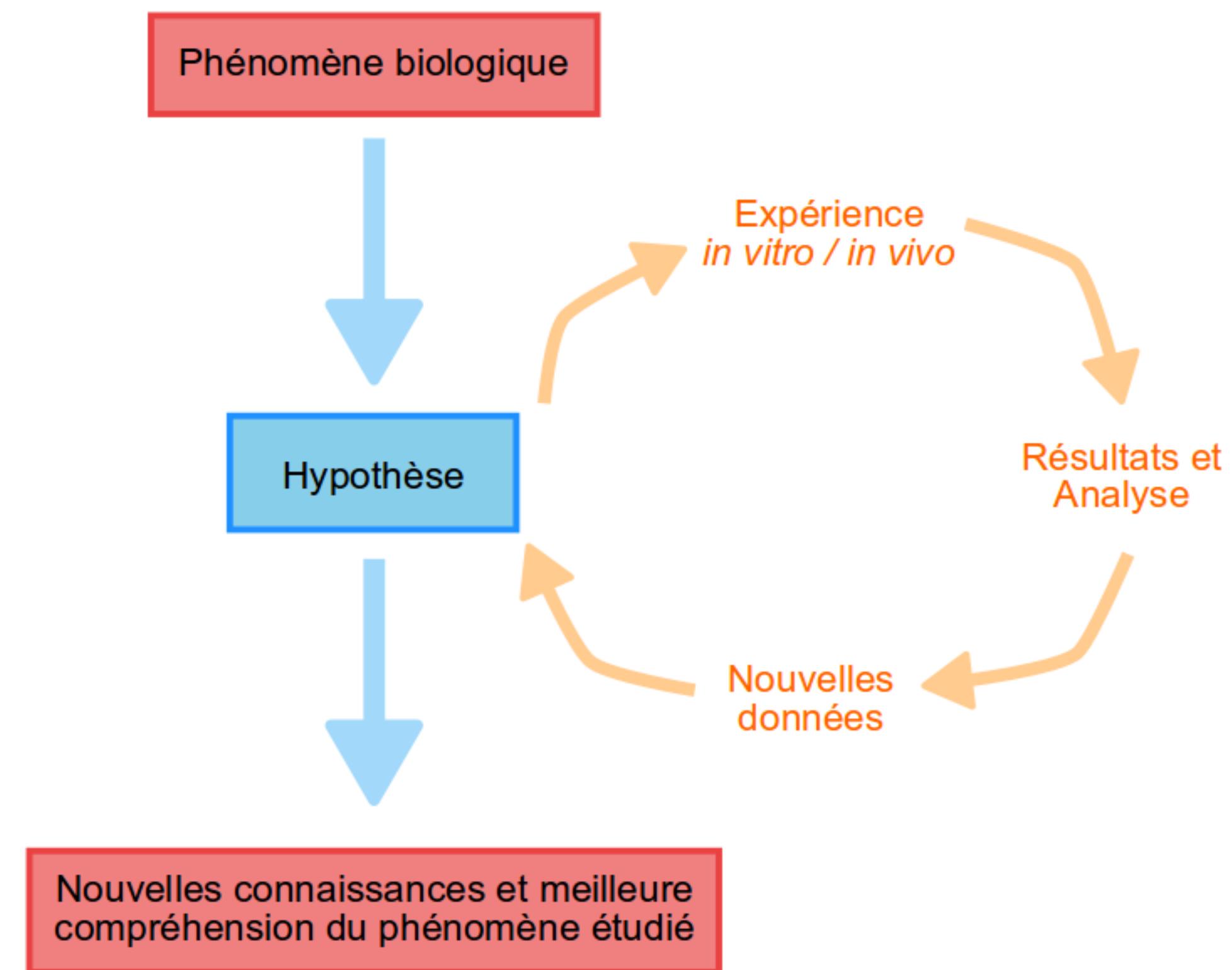


HeLa cell, Stumpff, 2008

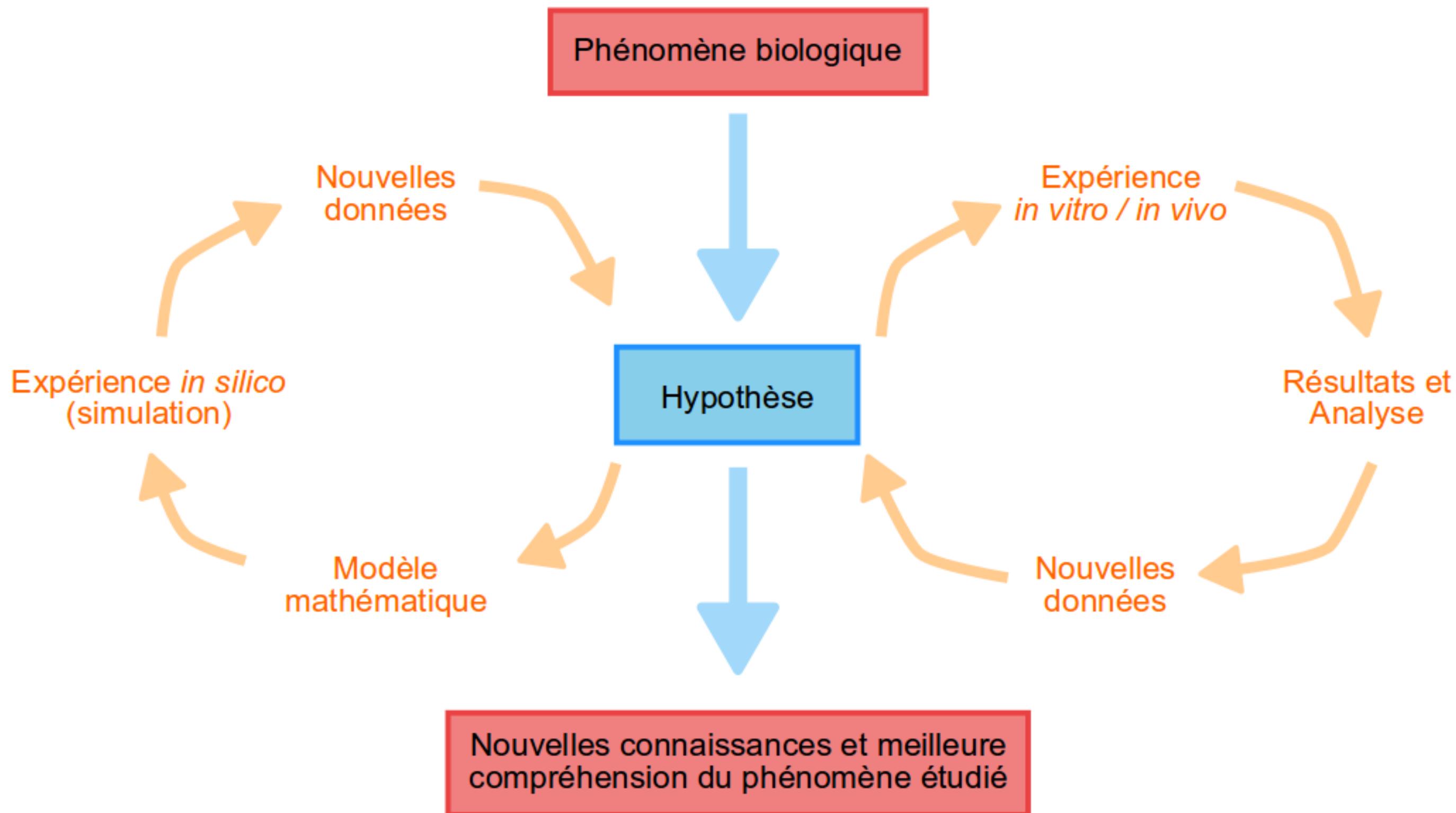
# La modélisation en biologie



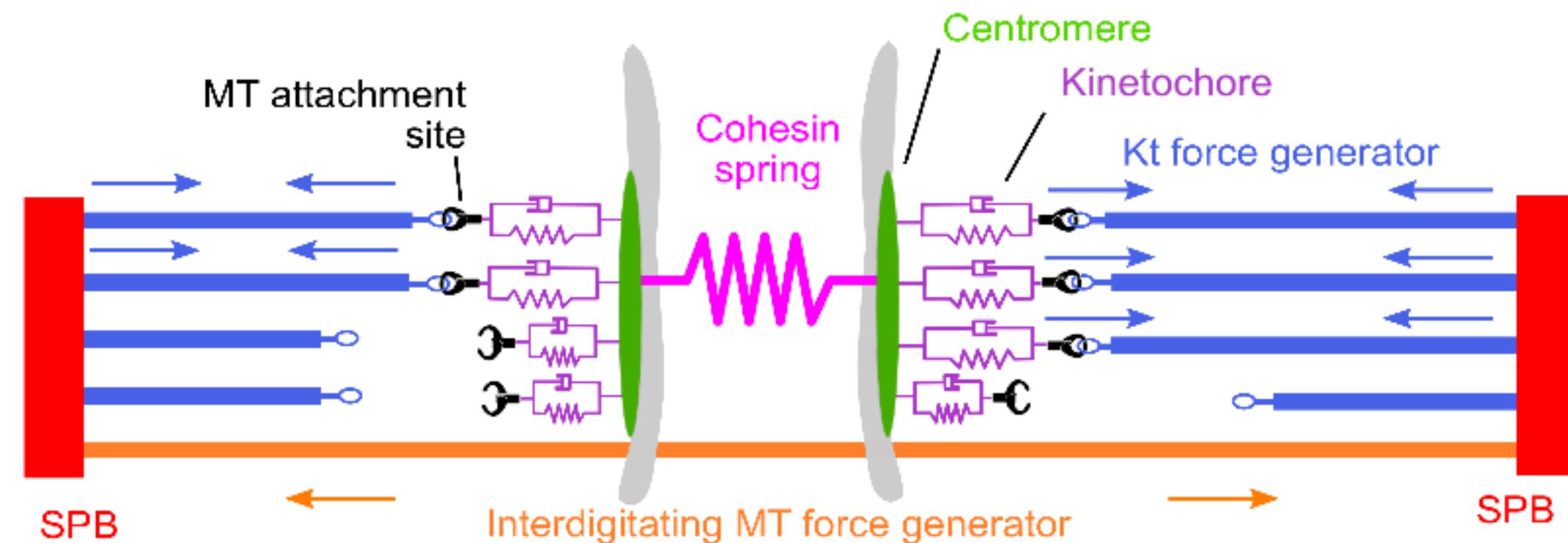
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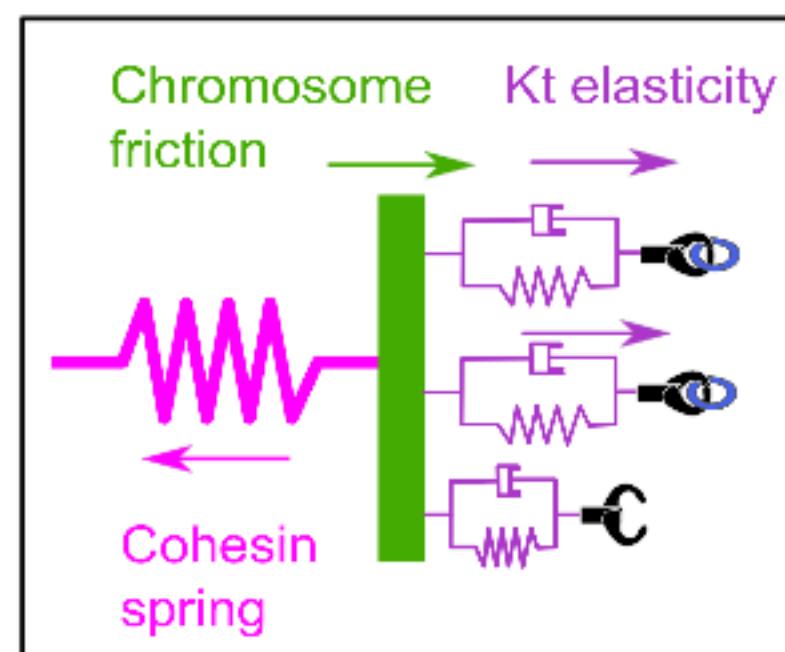
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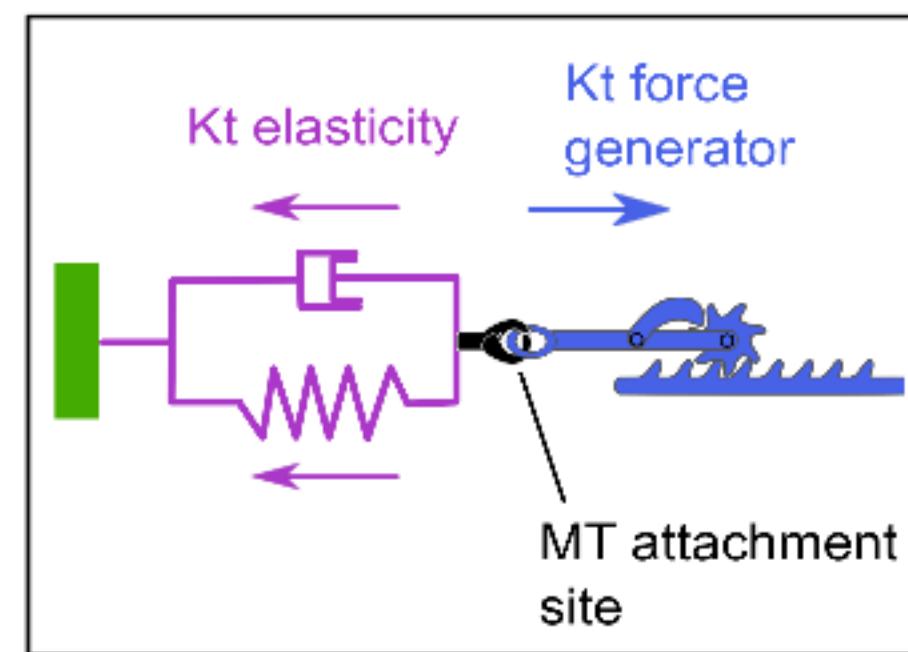
# Modélisation mathématique de la ségrégation des chromosomes : la théorie



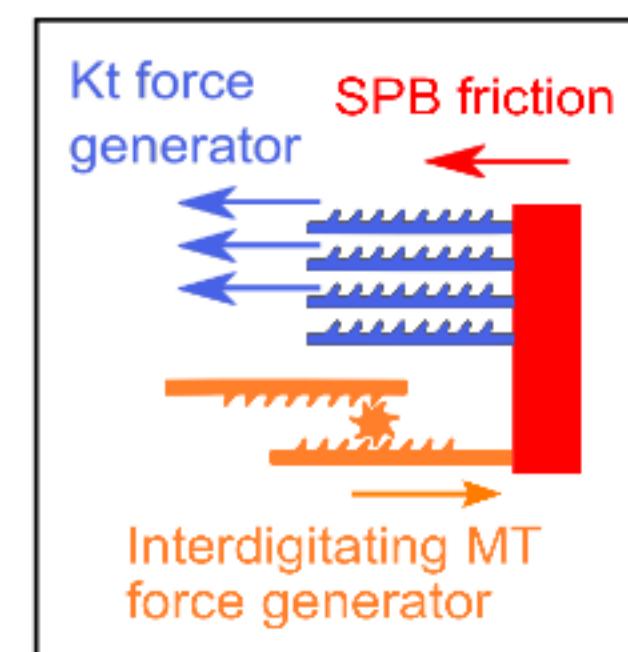
Centromere force balance



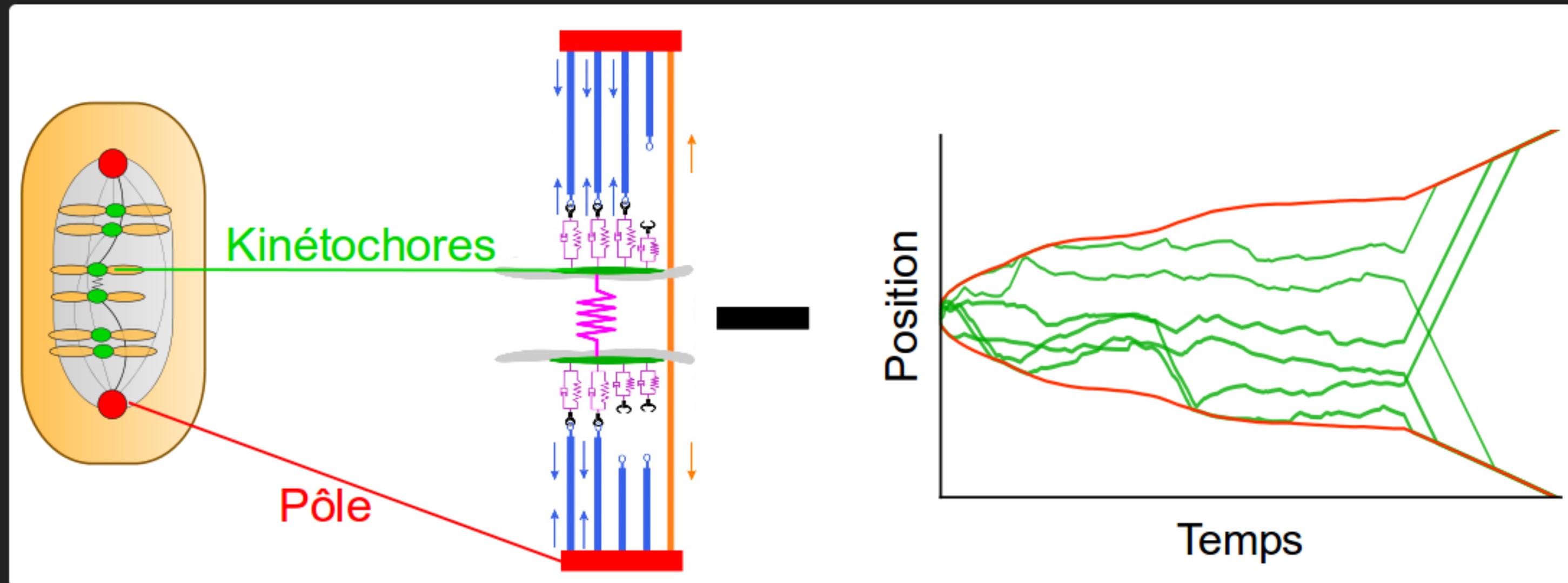
Attachment site force balance



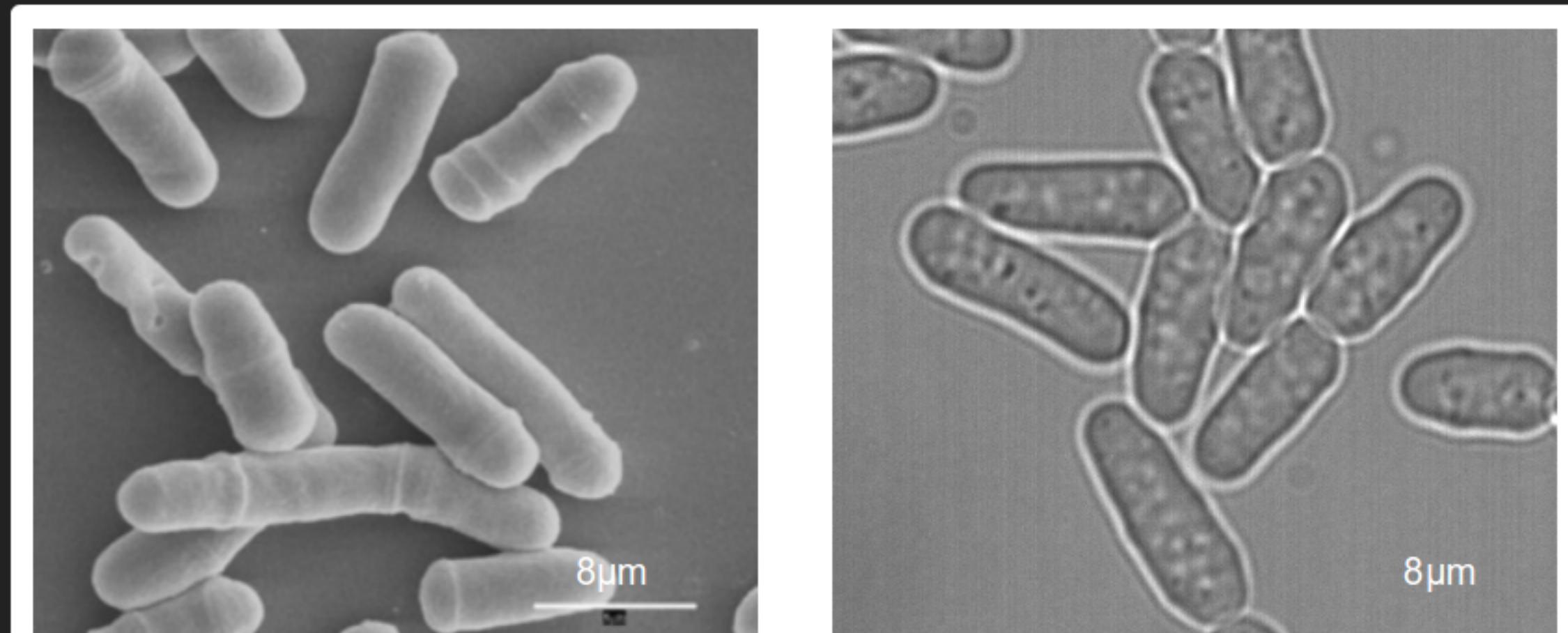
SPB force balance



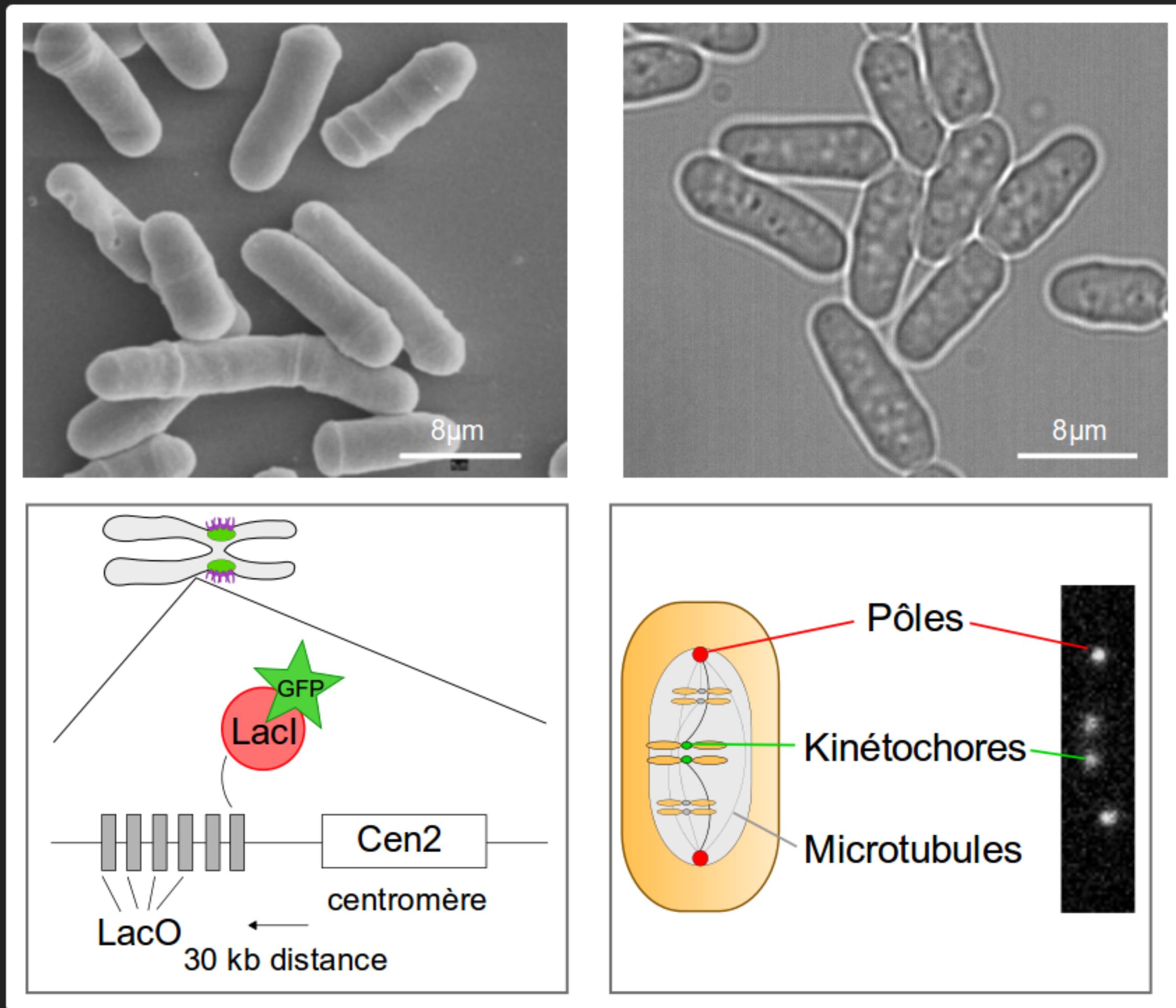
# Modélisation mathématique de la ségrégation des chromosomes : la pratique



# Un modèle biologique idéal : *Schizosaccharomyces pombe*



# Un modèle biologique idéal : *Schizosaccharomyces pombe*



# Résultats

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# Discussion

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# Remerciement

## Equipe Tournier-Gachet (LBCMCP)

- Céline Reyes
- Tong Li
- Simon Cabello
- Yannick Gachet
- Sylvie Tournier

## Autres

- Guillaume Gay ([damcb.com](http://damcb.com))
- Jonathan Fouchard
- Tiphaine Gautier
- Clémence Gruget
- Thomas Mangeat



Ce travail de thèse a été soutenu par ANR Blanc 1206 01 "Chromocatch" et FRM (ING 2012 1226 280) "innovative project".

Merci

Les supp