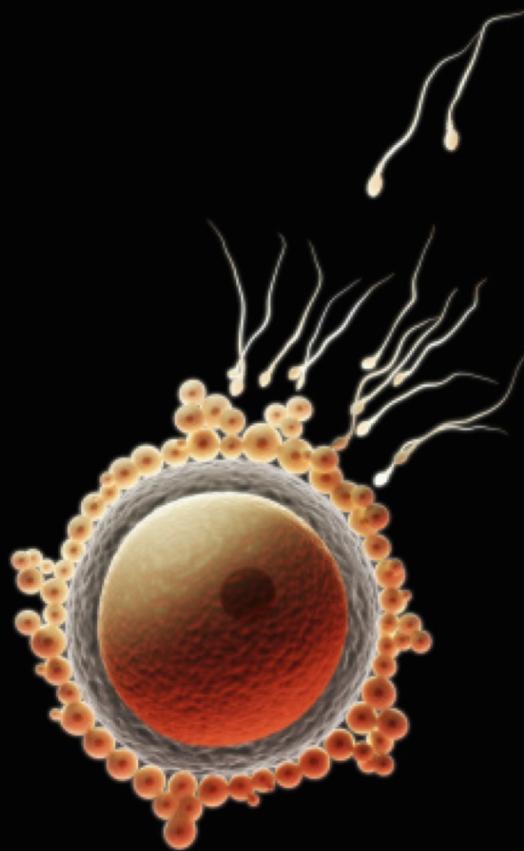


Fécondation



environ 200 spermatozoïdes

La polyspermie



Ovocytes humains fécondés in vitro



1 seul
pronoyau

3 pronoyaux

4 pronoyaux

Triploïdie humaine



2 pronoyaux

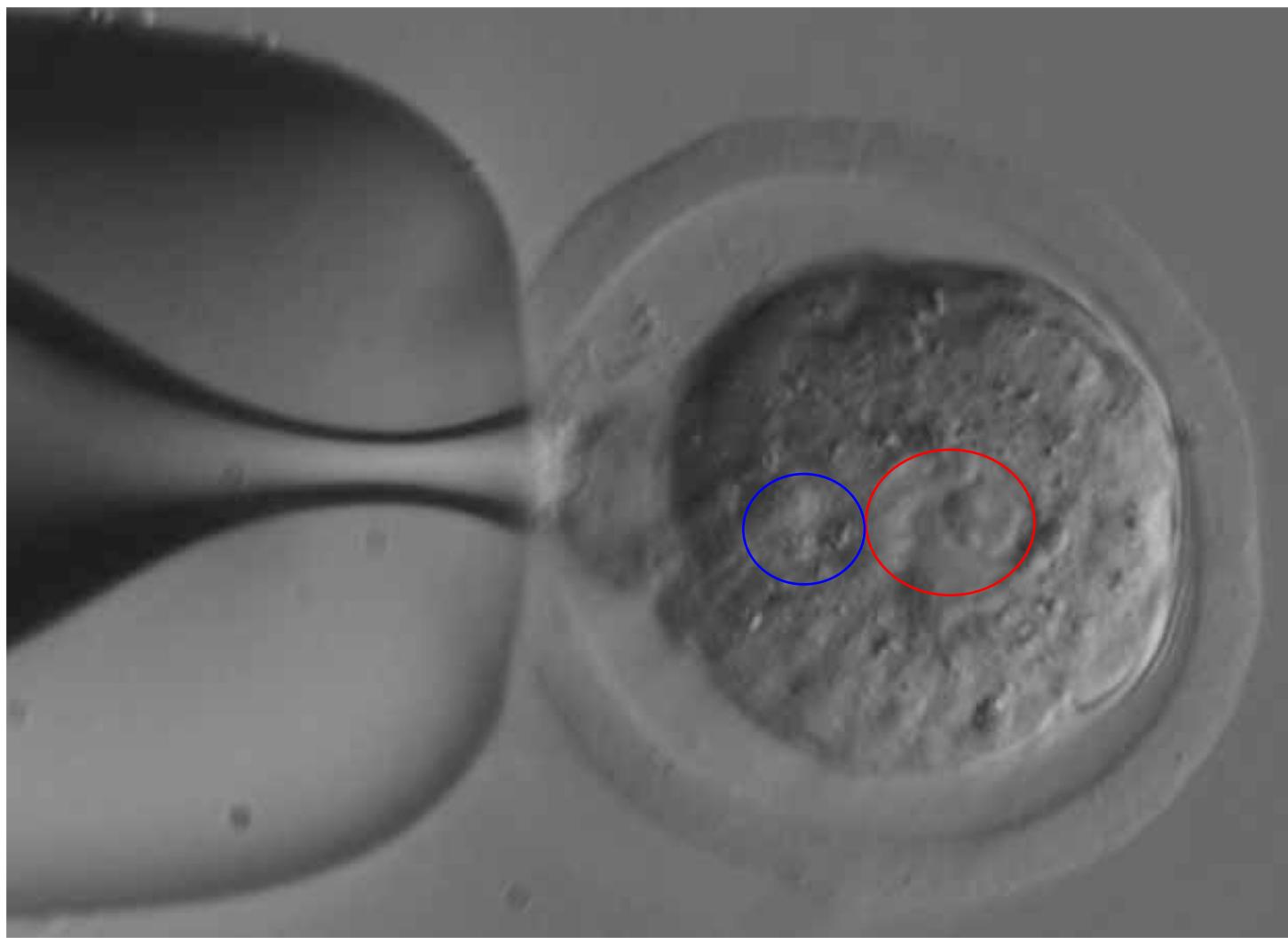
dispermie

The incidence of triploidy in conventional IVF averages 4% per cycle and at least one triploid prezygote is found in 60% of all IVF cycles (Escriba *et al.*, 2006).

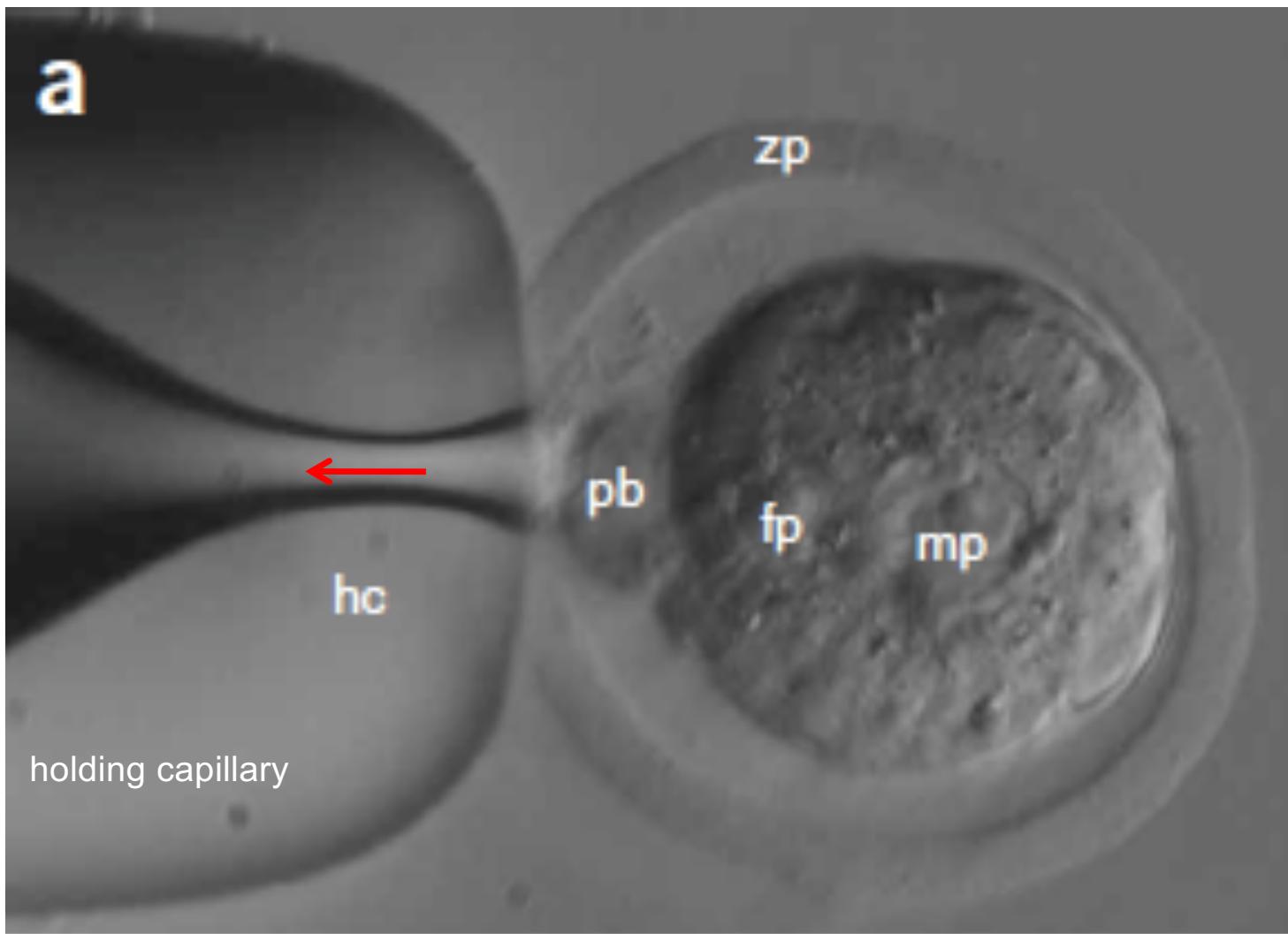
Ovocyte fécondé de souris



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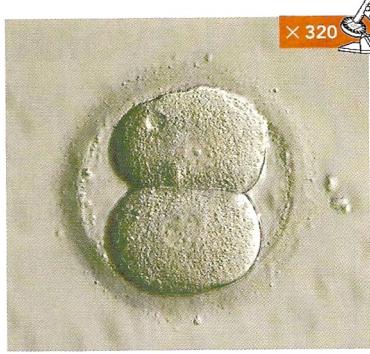
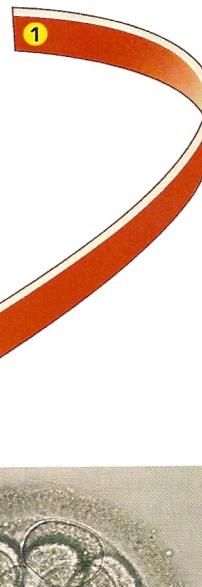
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1 Formation de la cellule œuf*

Juste après la fécondation, le noyau de l'ovule et celui du spermatozoïde fusionnent pour former la cellule œuf.

↑
pas de fusion



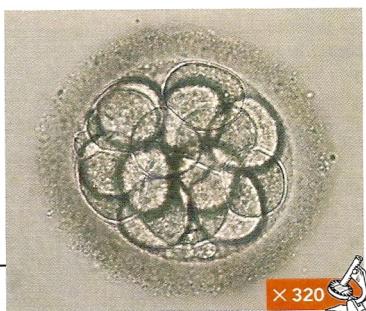
2 Embryon* au stade 2 cellules

La division* commence : trente heures après la fécondation, la cellule œuf s'est divisée en deux et devient l'embryon. Poussé par le mouvement des cils de la trompe, l'embryon se dirige vers l'utérus.



3 Embryon au stade 4 cellules

Quarante heures après la fécondation, l'embryon s'est divisé deux fois.



5 Embryon au stade 16 cellules

Soixante heures après la fécondation, l'embryon s'est divisé quatre fois.

Normal Fertilisation

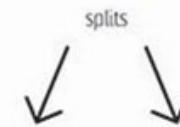


Fraternal twins
Dizygotic



Share 1/2 DNA
50% maternal
50% paternal

Identical twins
Monozygotic

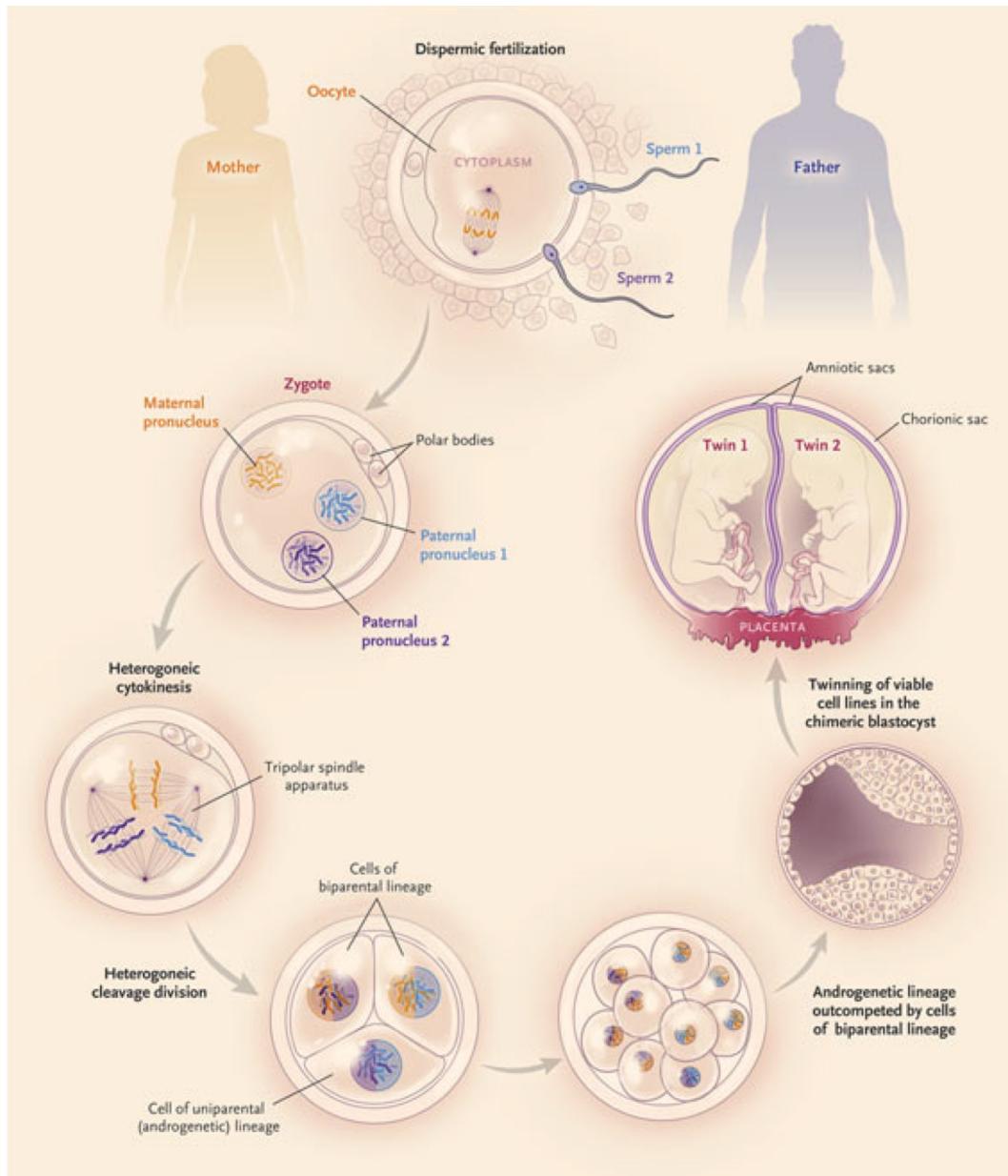


Share all DNA
100% maternal
100% paternal

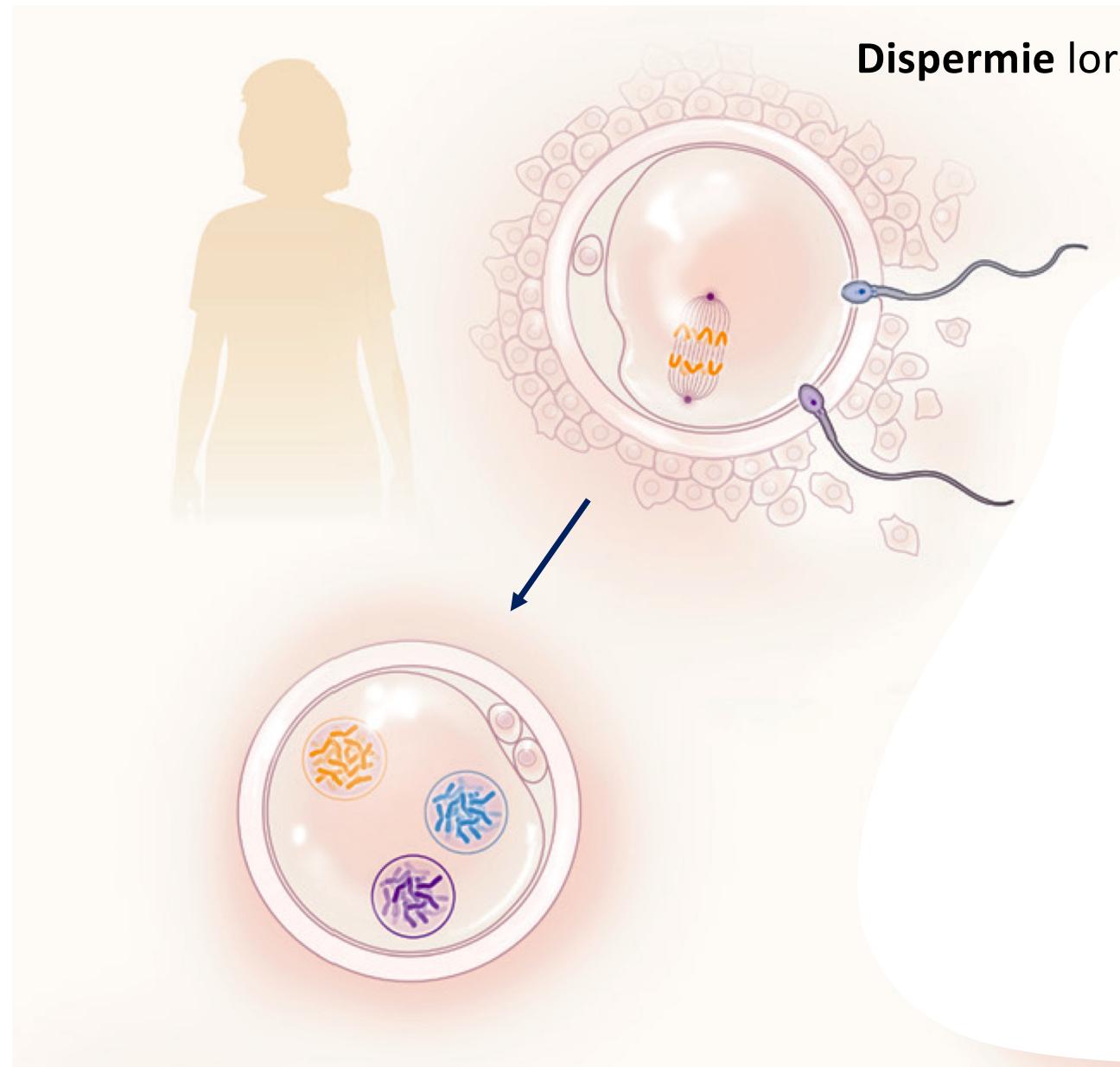
Semi-identical twins
Sesquizygotic

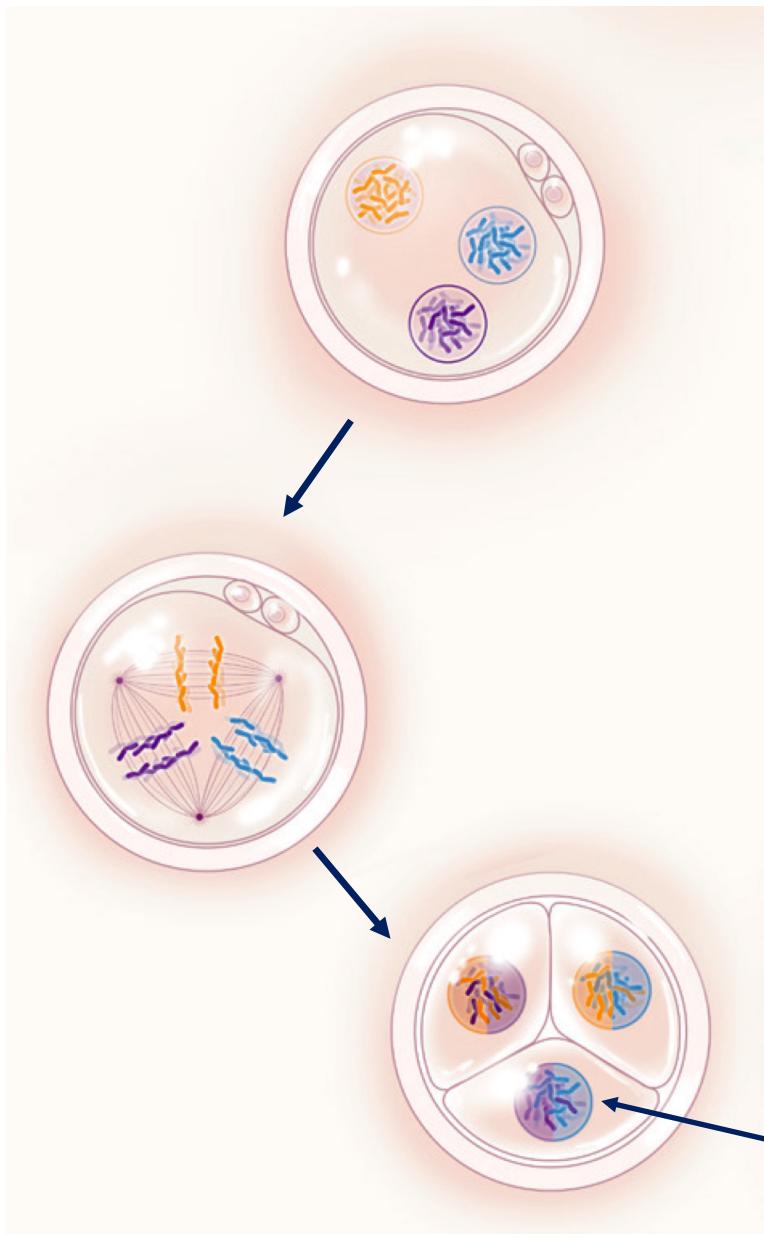


Share 3/4 DNA
100% maternal
50% paternal



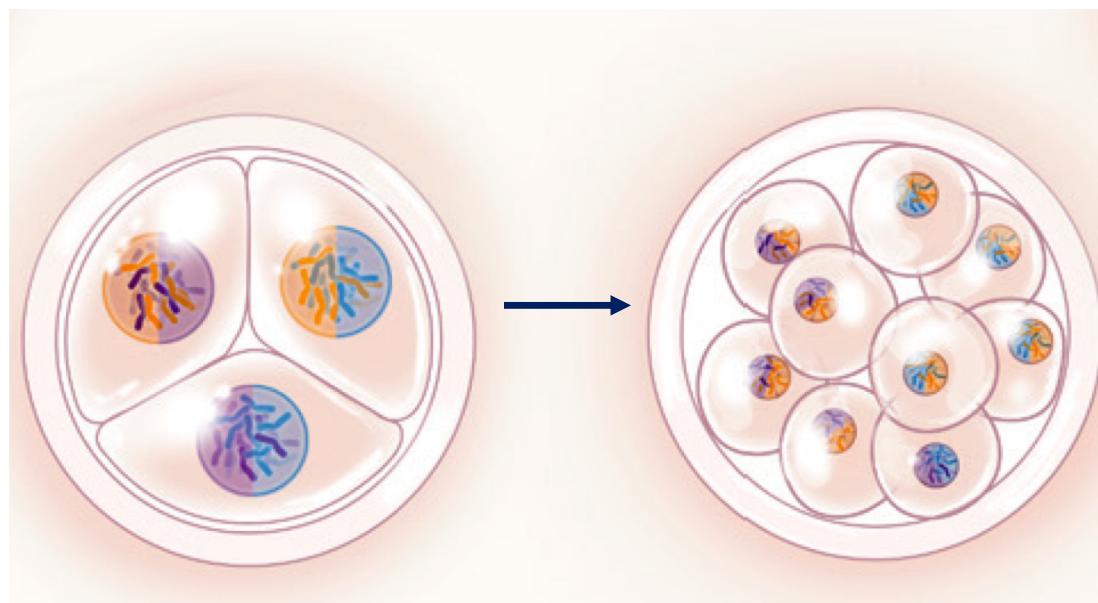
Dispermie lors de la fécondation



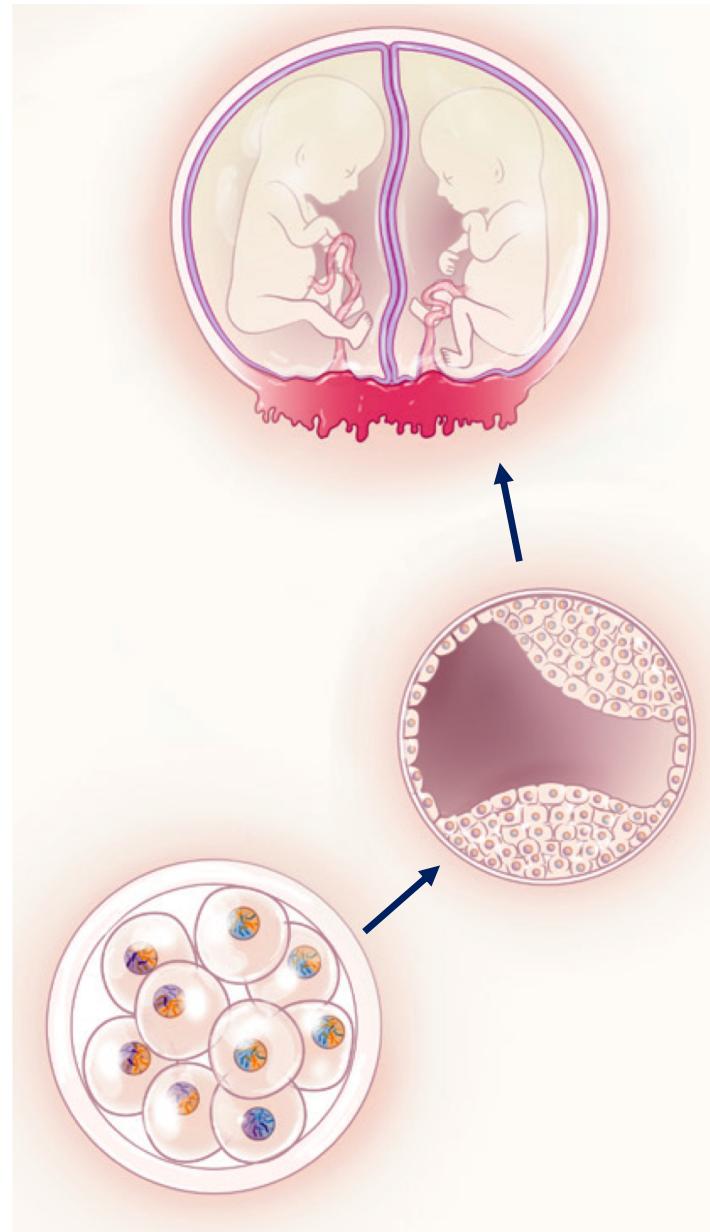


génome paternel + génome paternel
(pas de contribution maternelle!)

éliminé



Jumeaux sesquizygotiques



ChatGPT does not get it !

 ChatGPT

Semi-identical twins, also known as sesquizygotic twins, occur when a single fertilized egg splits in two and forms two embryos. These embryos develop into twins who share the same genetic material, but not necessarily the same chromosomes. Normally, when a fertilized egg splits, it forms identical twins, who share the same chromosomes. But in the case of semi-identical twins, the egg splits later than usual and some of the chromosomes are already separated. This means that the twins will have different sets of chromosomes, making them not identical. Semi-identical twins are a rare occurrence, and it's estimated that they happen in 1 out of every 100 million births. They are usually diagnosed at a later stage, as they may not present any obvious physical differences. It's important to note that the term "semi-identical" is not an official medical term, and it's still under debate among scientists. Some researchers prefer to use the term "biparental" twins, as they have genetic material from both parents.

Prévention de la dispermie

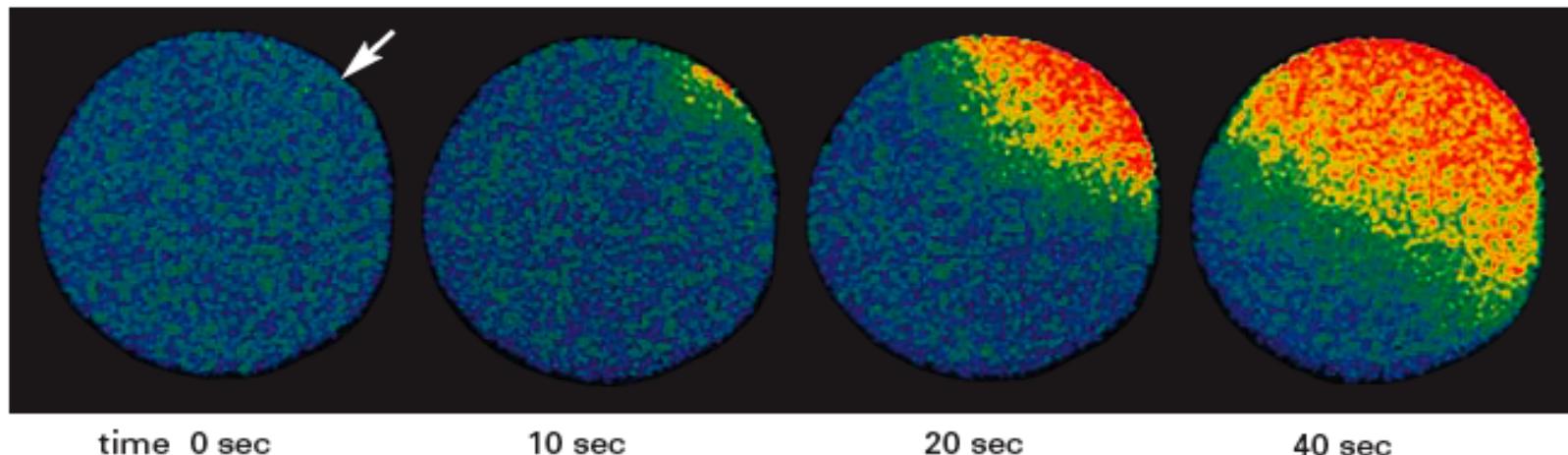
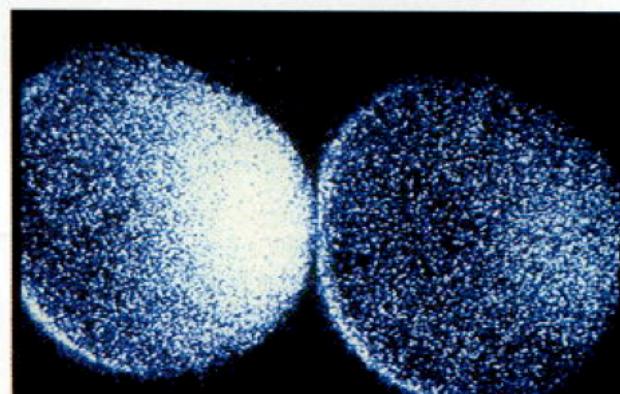
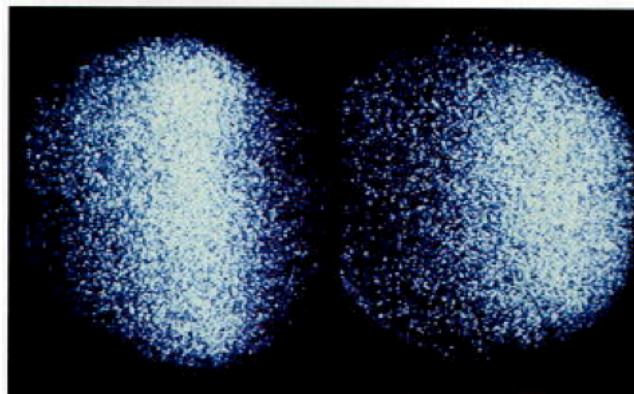
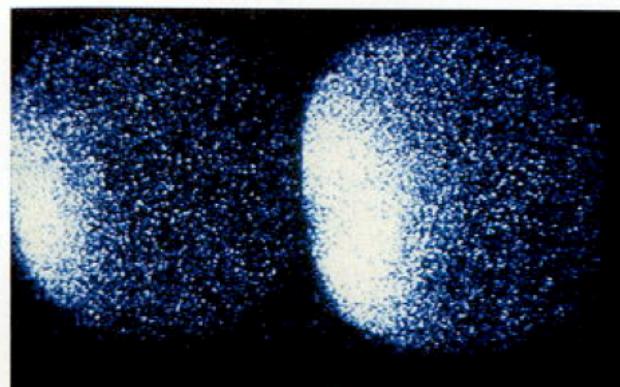
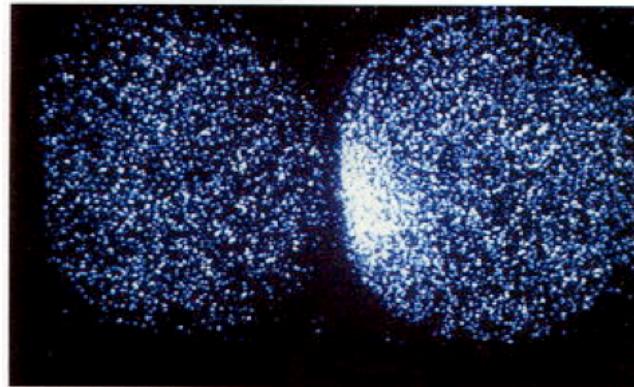


Figure 16–26 Fertilization of an egg by a sperm triggers an increase in cytosolic Ca^{2+} in the egg. This starfish egg was injected with a Ca^{2+} -sensitive fluorescent dye before it was fertilized.

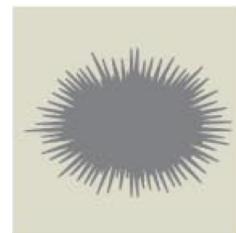
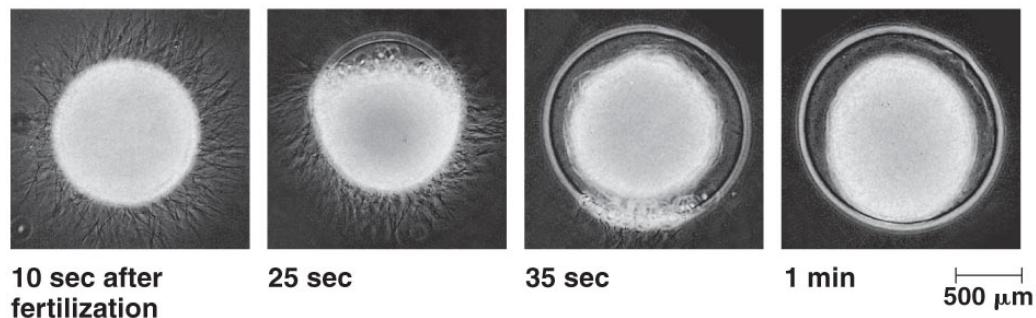
Alberts' Essential Cell Biology

Vague de calcium traversant l'ovocyte de l'oursin durant la fertilisation

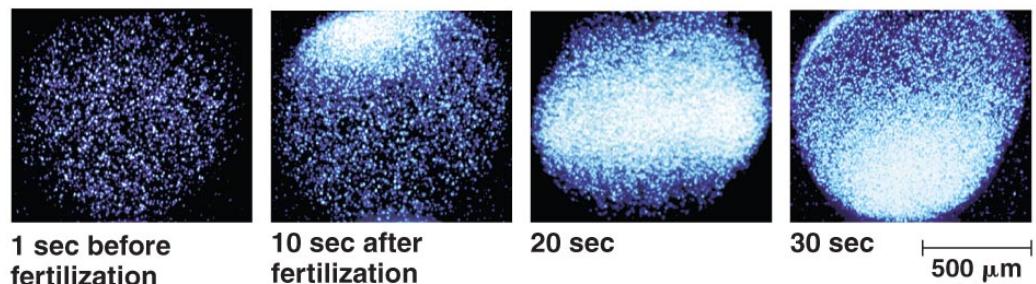


La vague prend environ **30 secondes** pour traverser l'ovocyte.

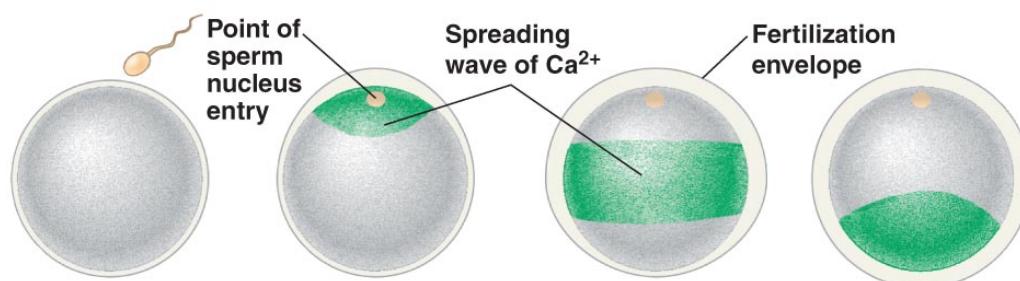
EXPERIMENT



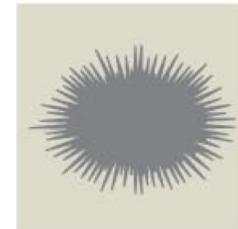
RESULTS



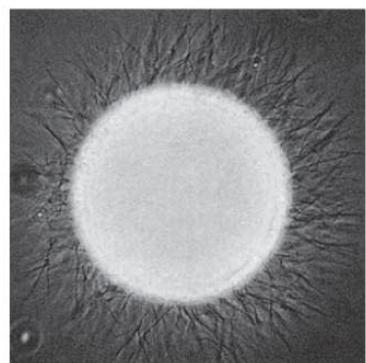
CONCLUSION



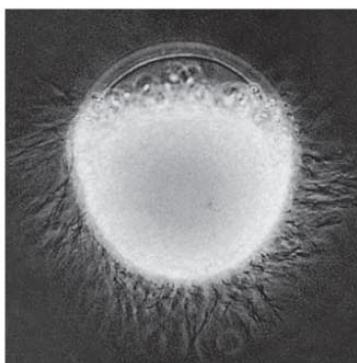
Fécondation chez l'oursin :



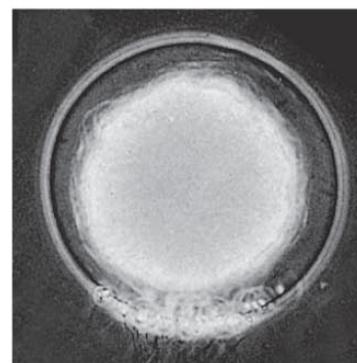
EXPERIMENT



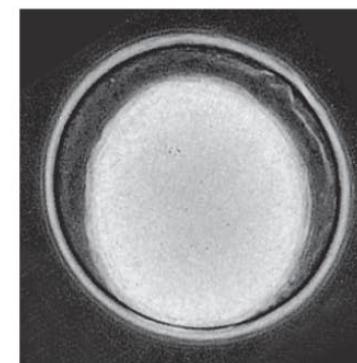
10 sec after
fertilization



25 sec



35 sec

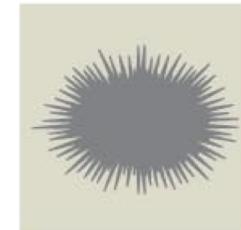


1 min

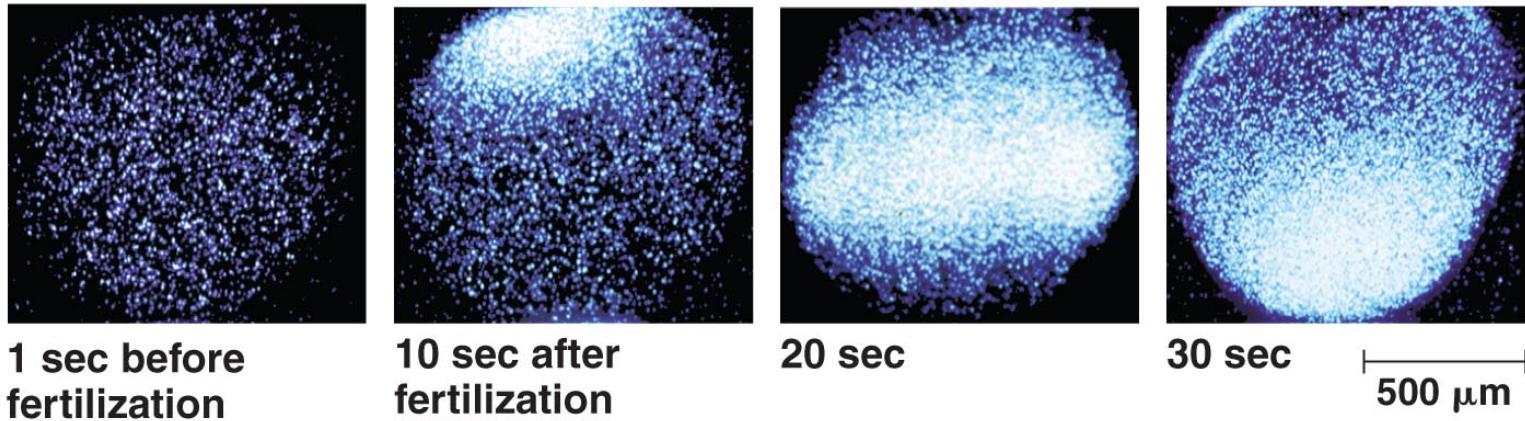
500 μm

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Fécondation chez l'oursin :

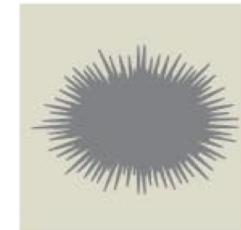


RESULTS

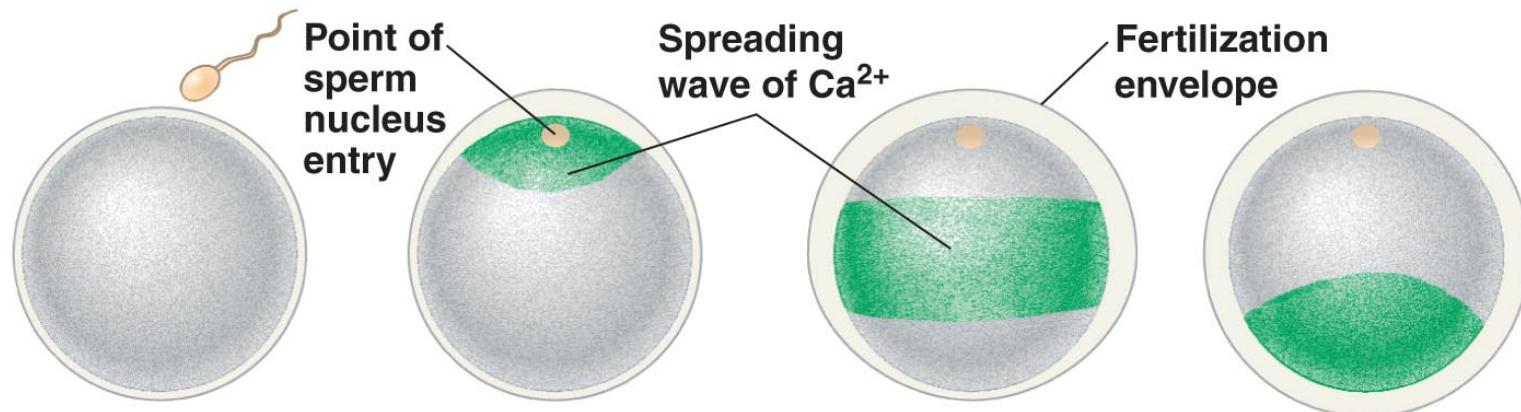


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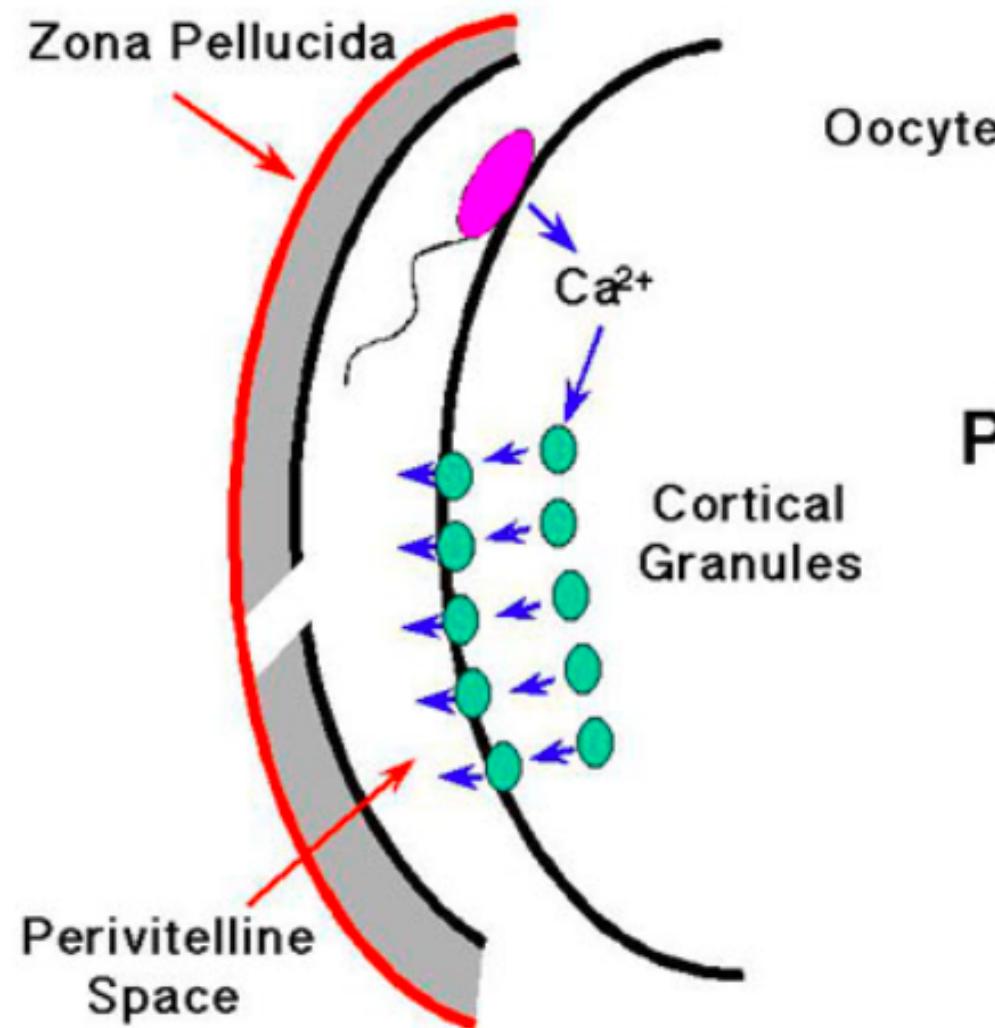
Fécondation chez l'oursin :



CONCLUSION

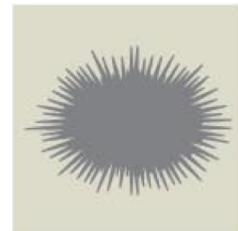


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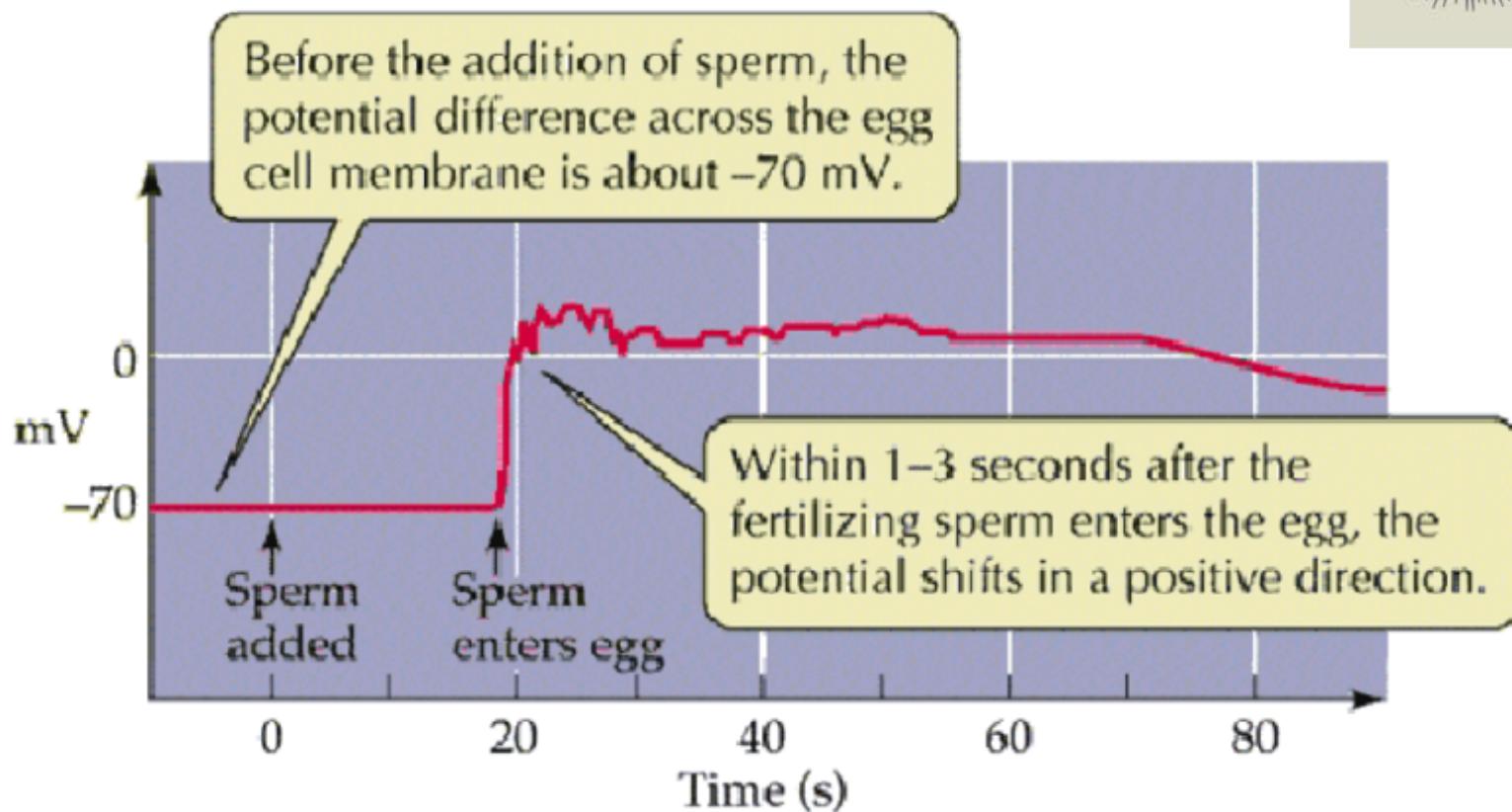


Mécanismes pour éviter la polyspermie.

Block to Polyspermy



Fast block to polyspermy



from LIFE: The Science of Biology, Purves et al, 1998

http://biology.kenyon.edu/courses/biol114/Chap13/Chapter_13B.html

Prévention rapide de la polyspermie

