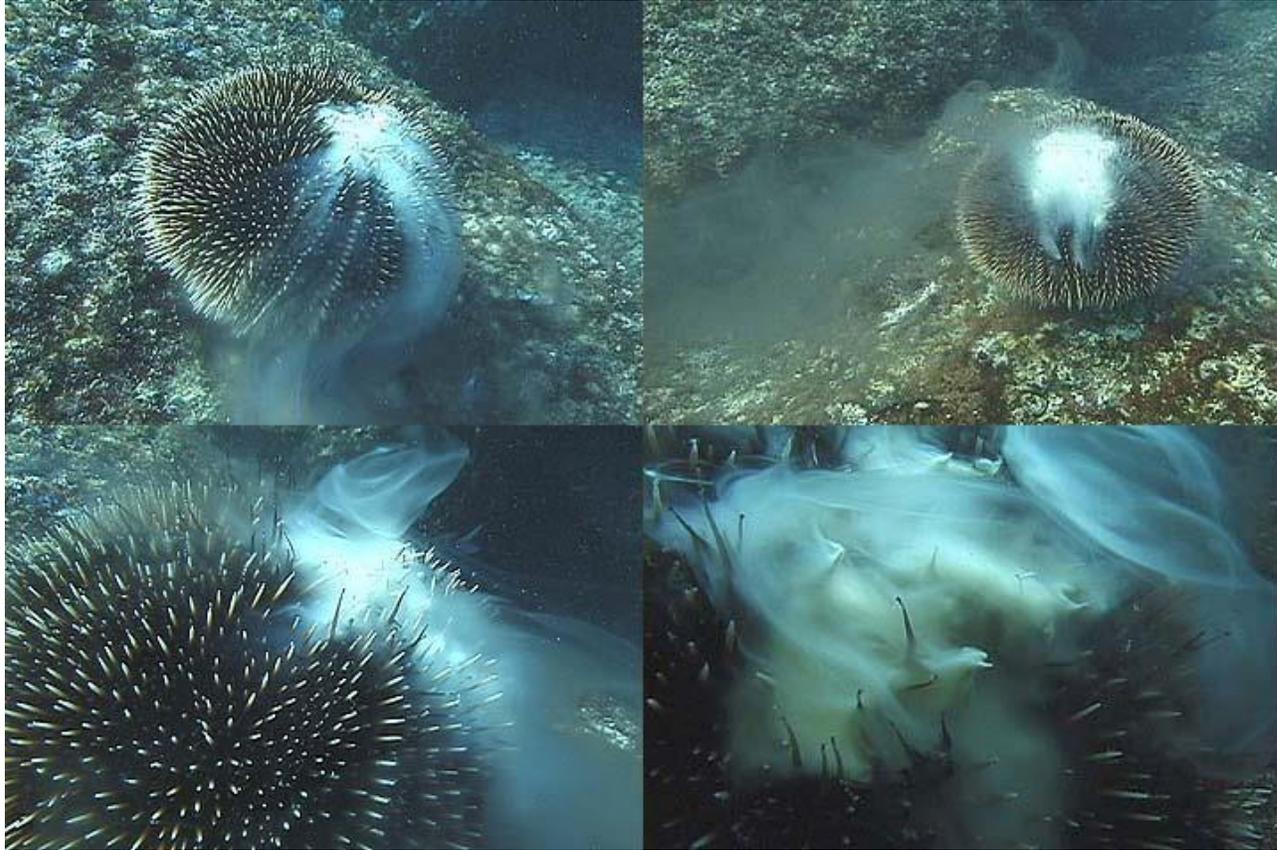


# Fertilización





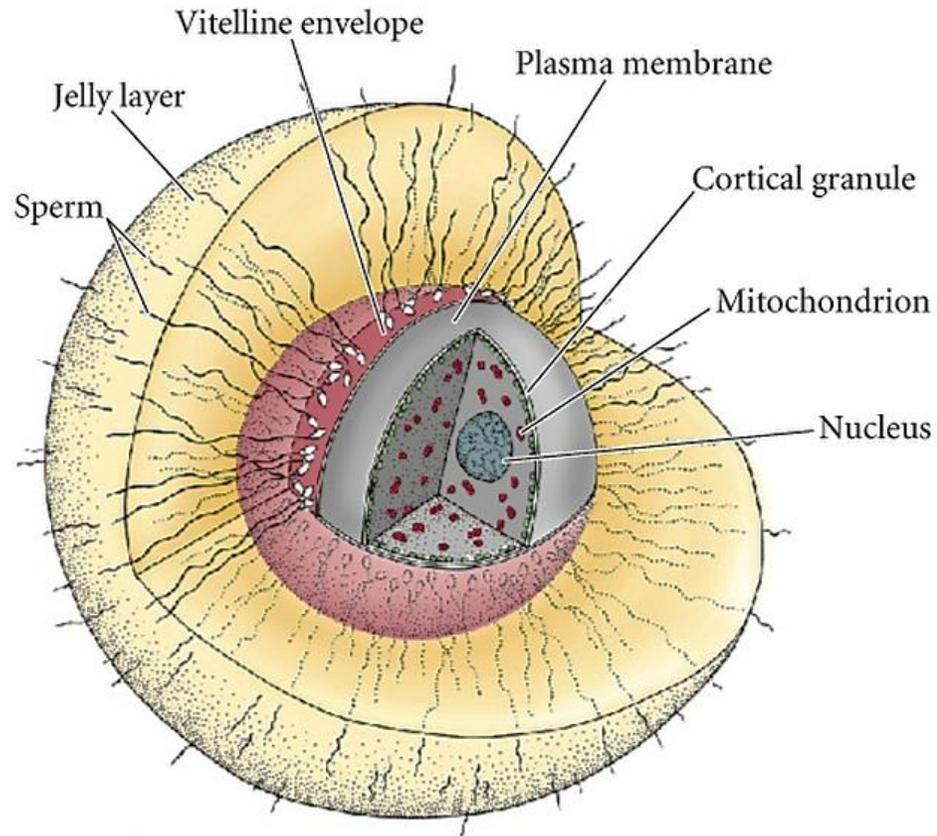
Liberación de gametos en erizo



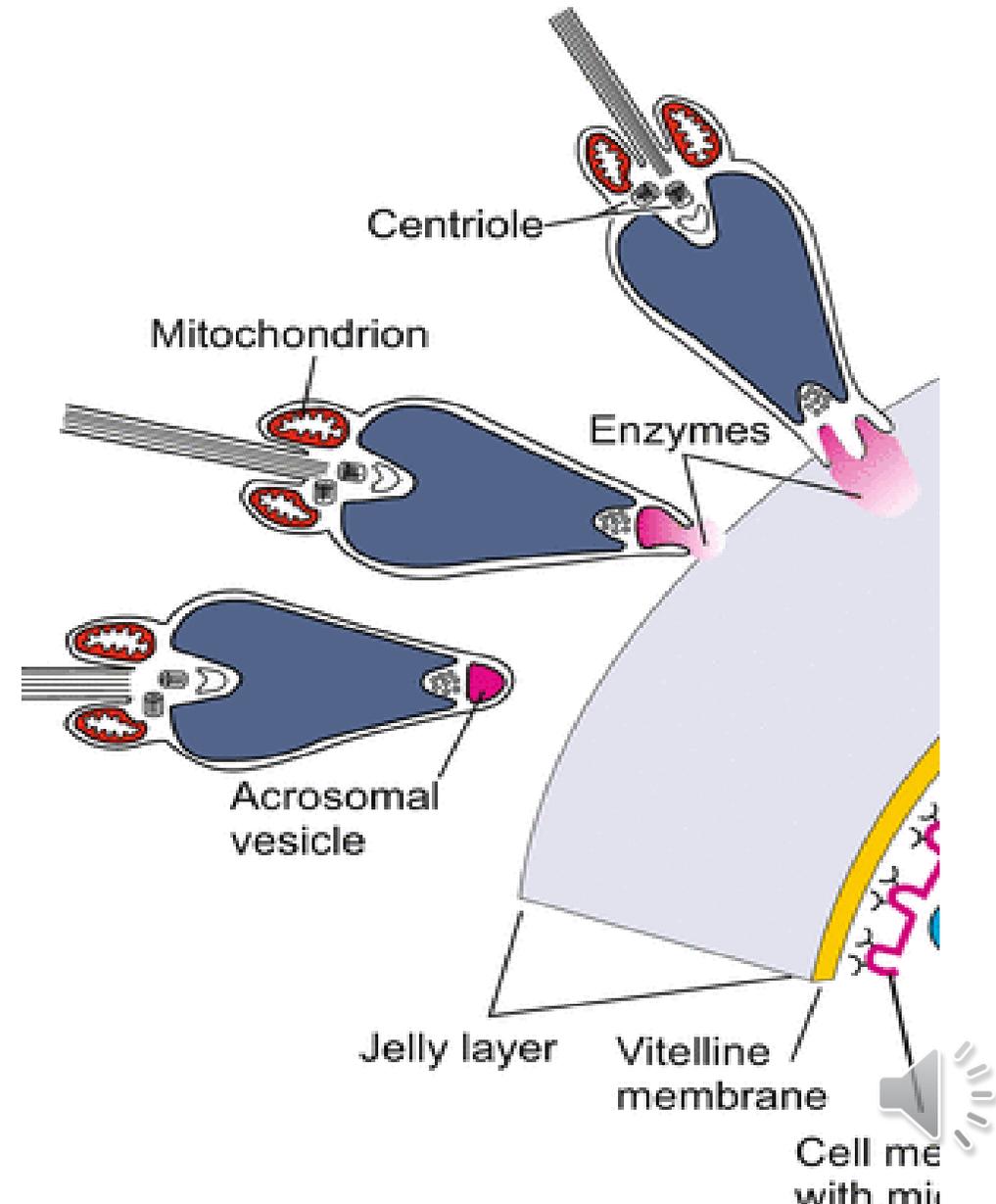
múltiples gametos alcanzando el óvulo de erizo



# Contacto y Reacción acrosómica

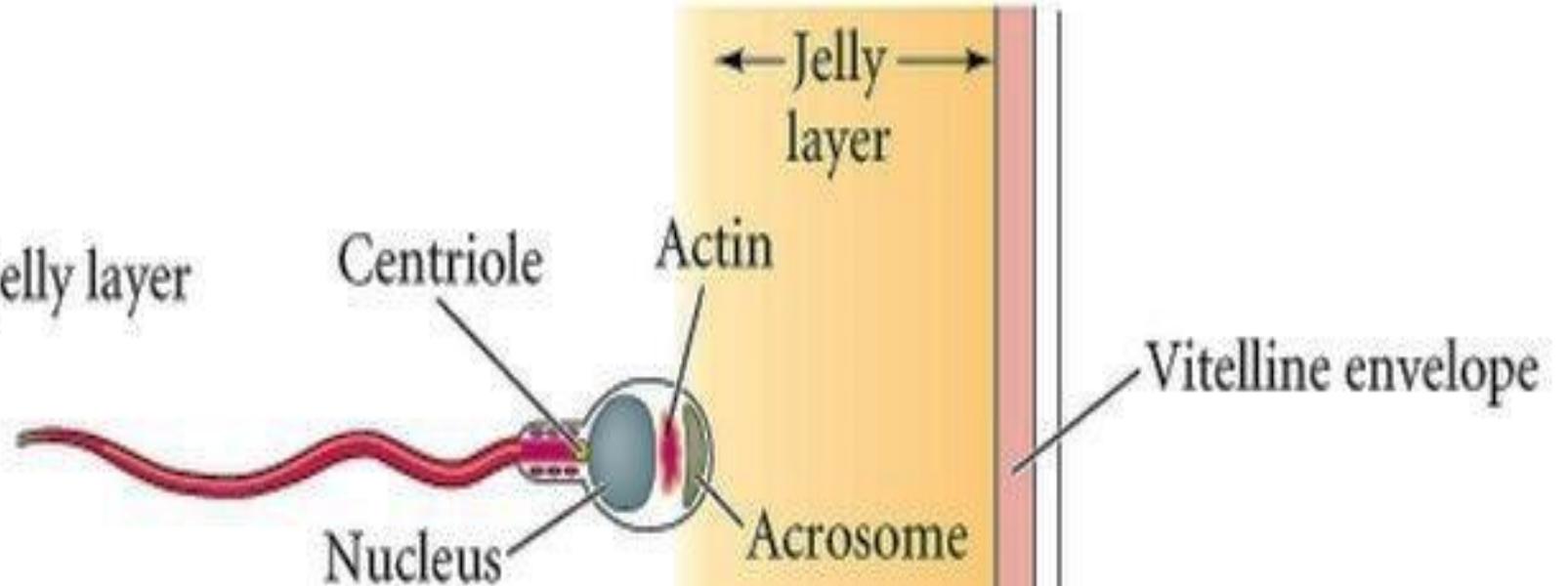


© 2000 Sinauer Associates, Inc.

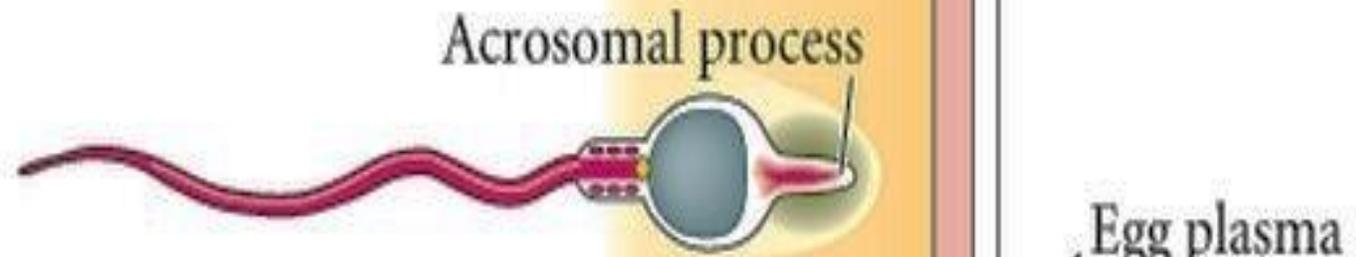


(A) SEA URCHIN

(1)- Sperm contacts jelly layer

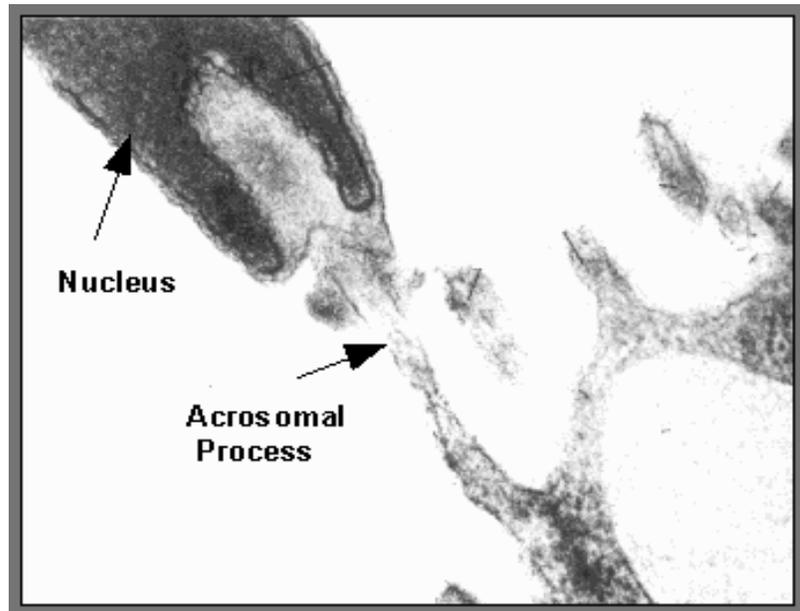


(2)- Acrosomal reaction

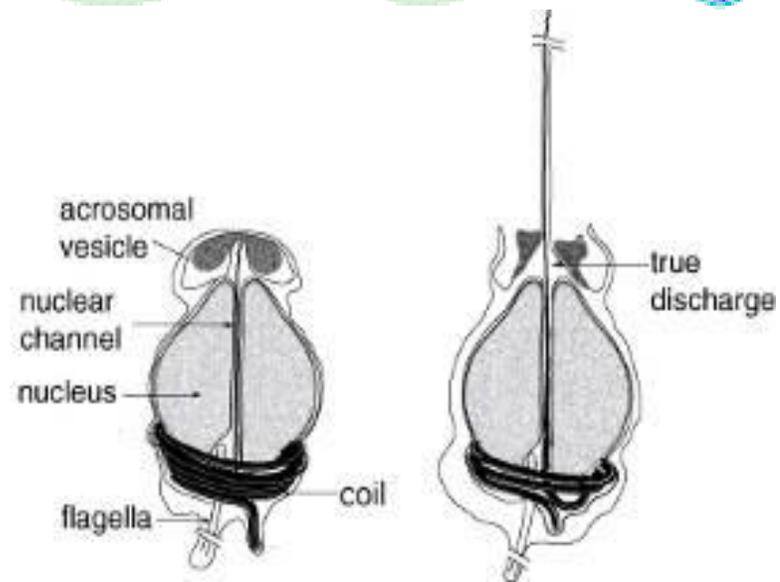
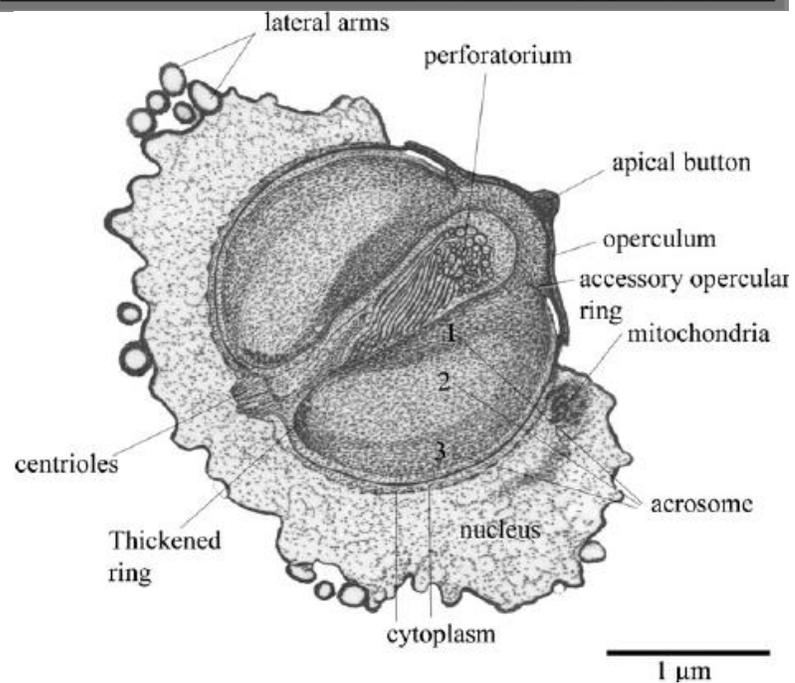
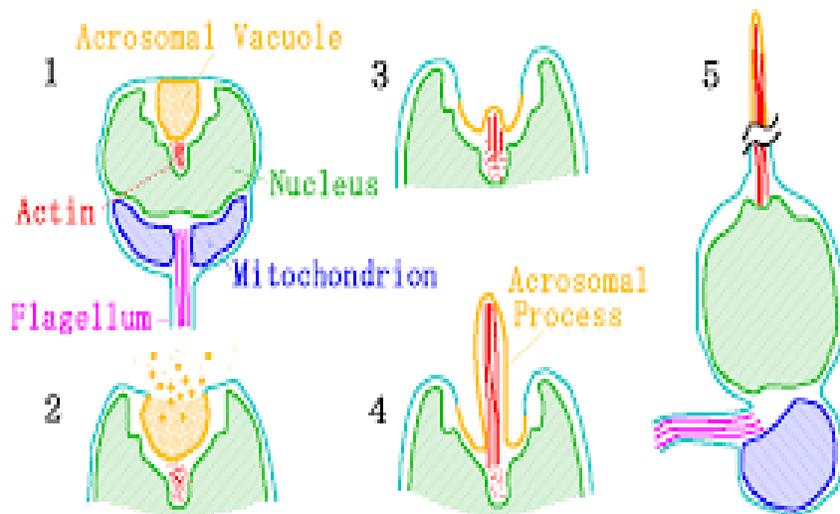


(3)- Digestion of jelly layer





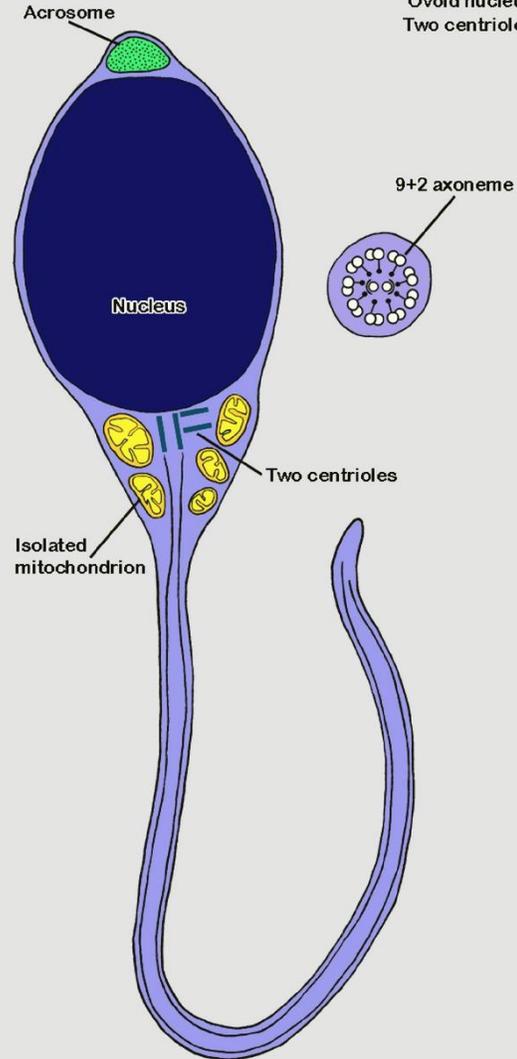
### Acrosomal Reaction in Starfish Sperm



(a)

## Eumetazoa

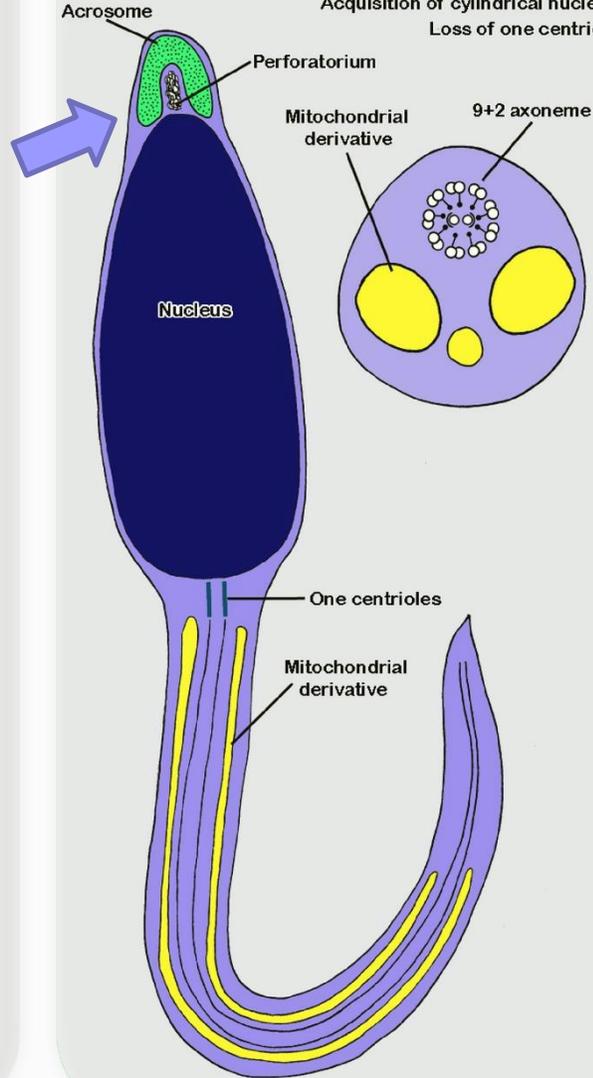
Acrosome not enclosing a perforatorium  
 Isolated mitochondria not inserted in flagellum  
 Ovoid nucleus  
 Two centrioles



(b)

## Hexapoda

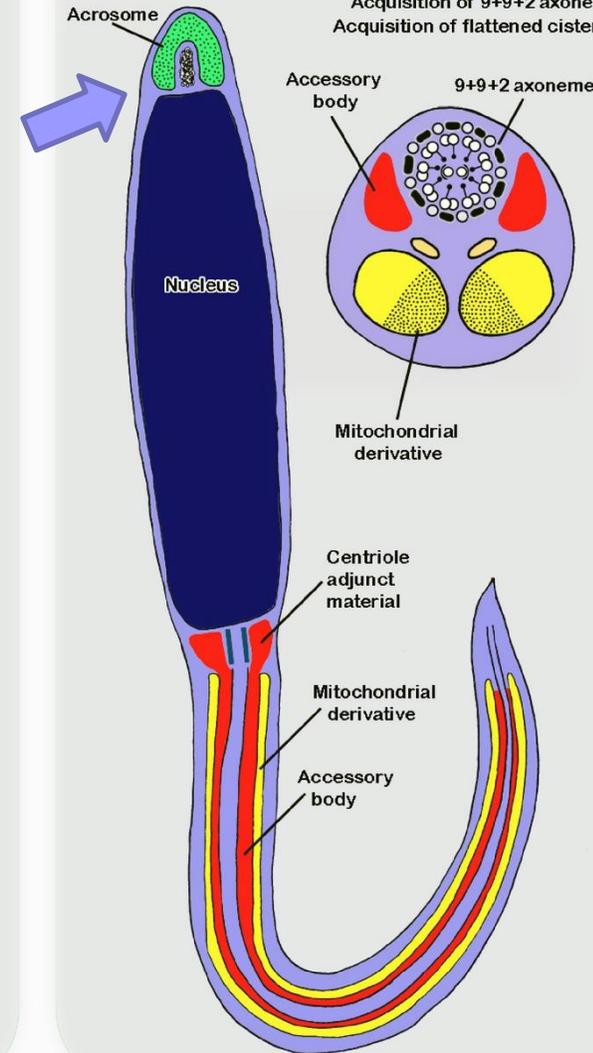
Acrosome enclosing a perforatorium  
 Acquisition of elongated mitochondrial derivatives  
 Acquisition of cylindrical nucleus  
 Loss of one centriole



(c)

## Dicondylia

Acquisition of centriole adjunct material  
 Acquisition of crystallization of mitochondrial matrix  
 Acquisition of accessory bodies  
 Acquisition of 9+9+2 axoneme  
 Acquisition of flattened cisterns



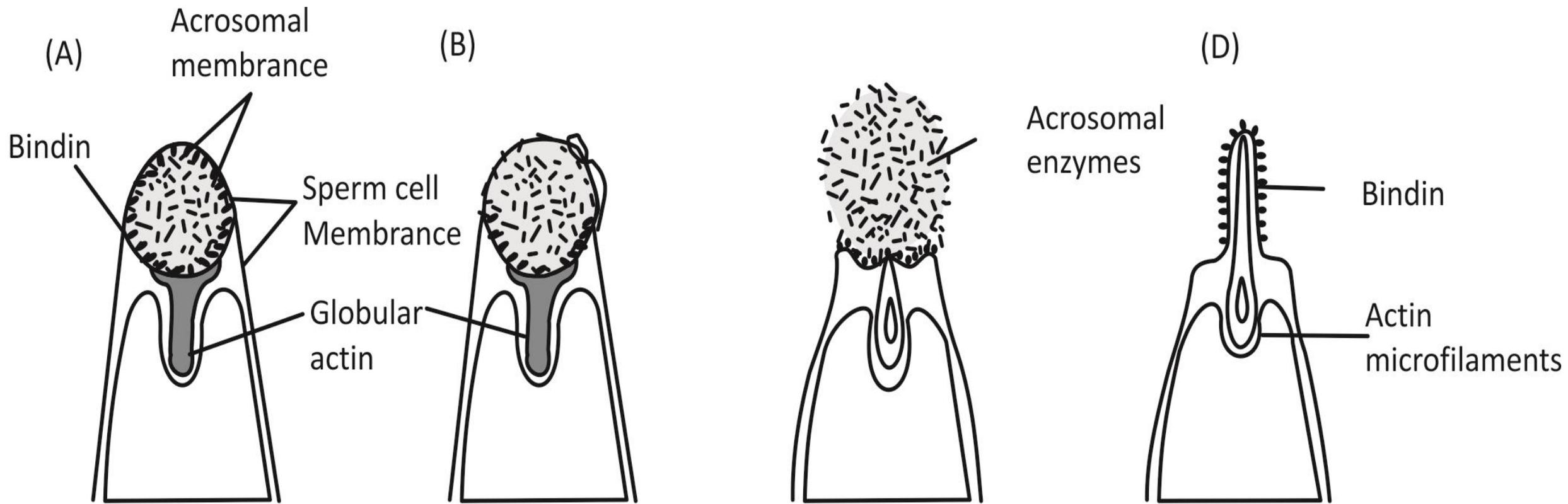
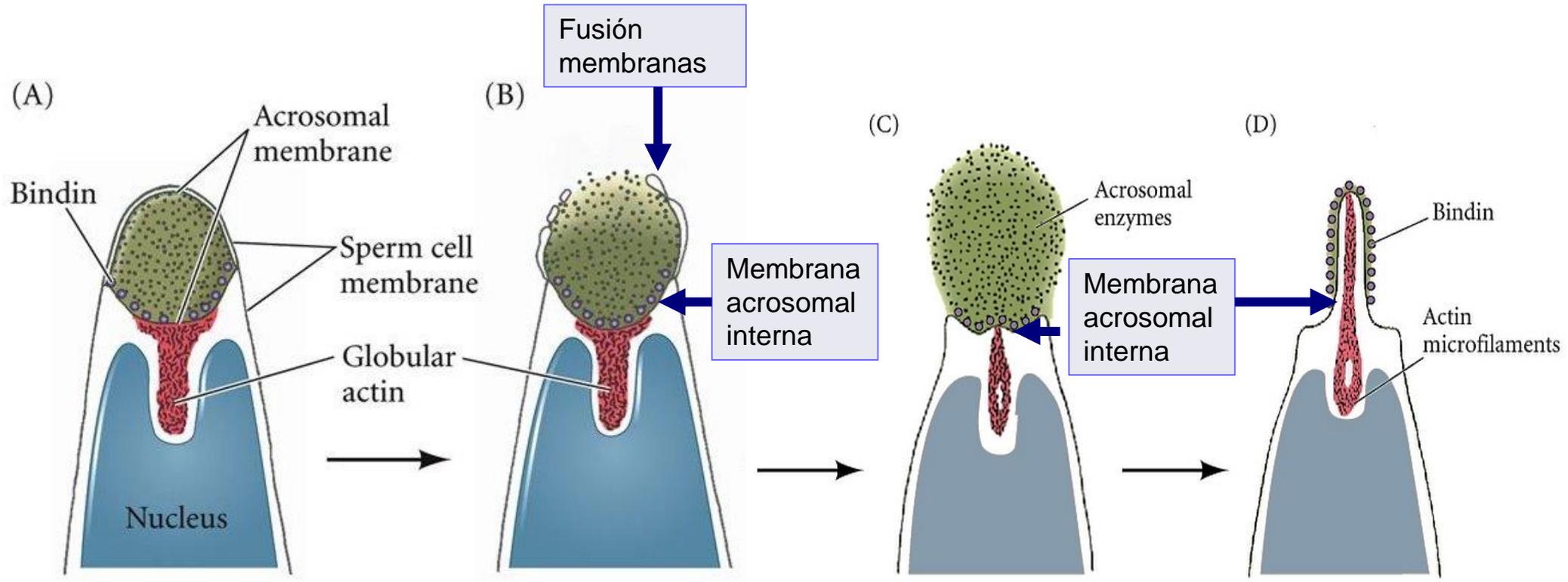
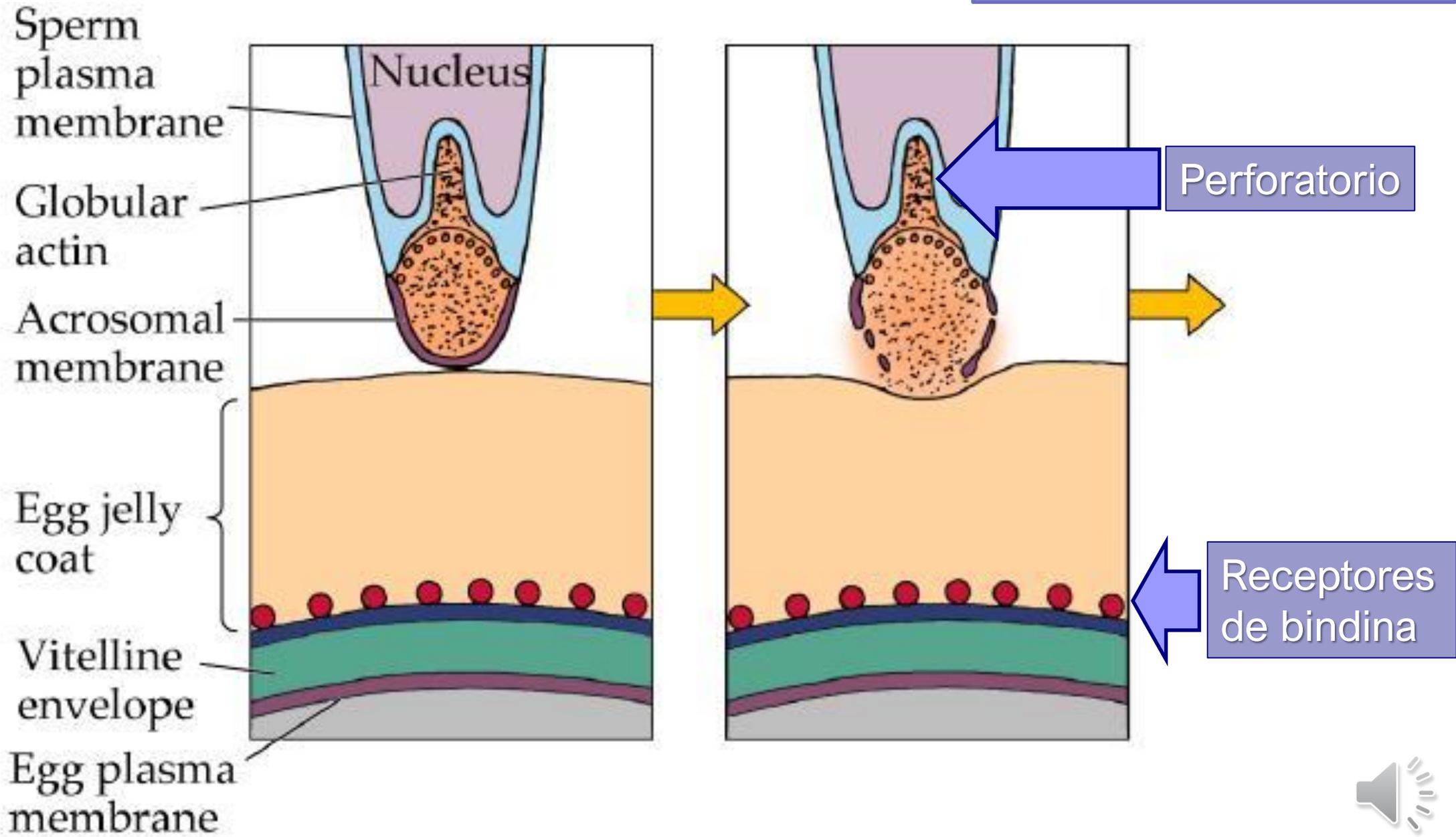


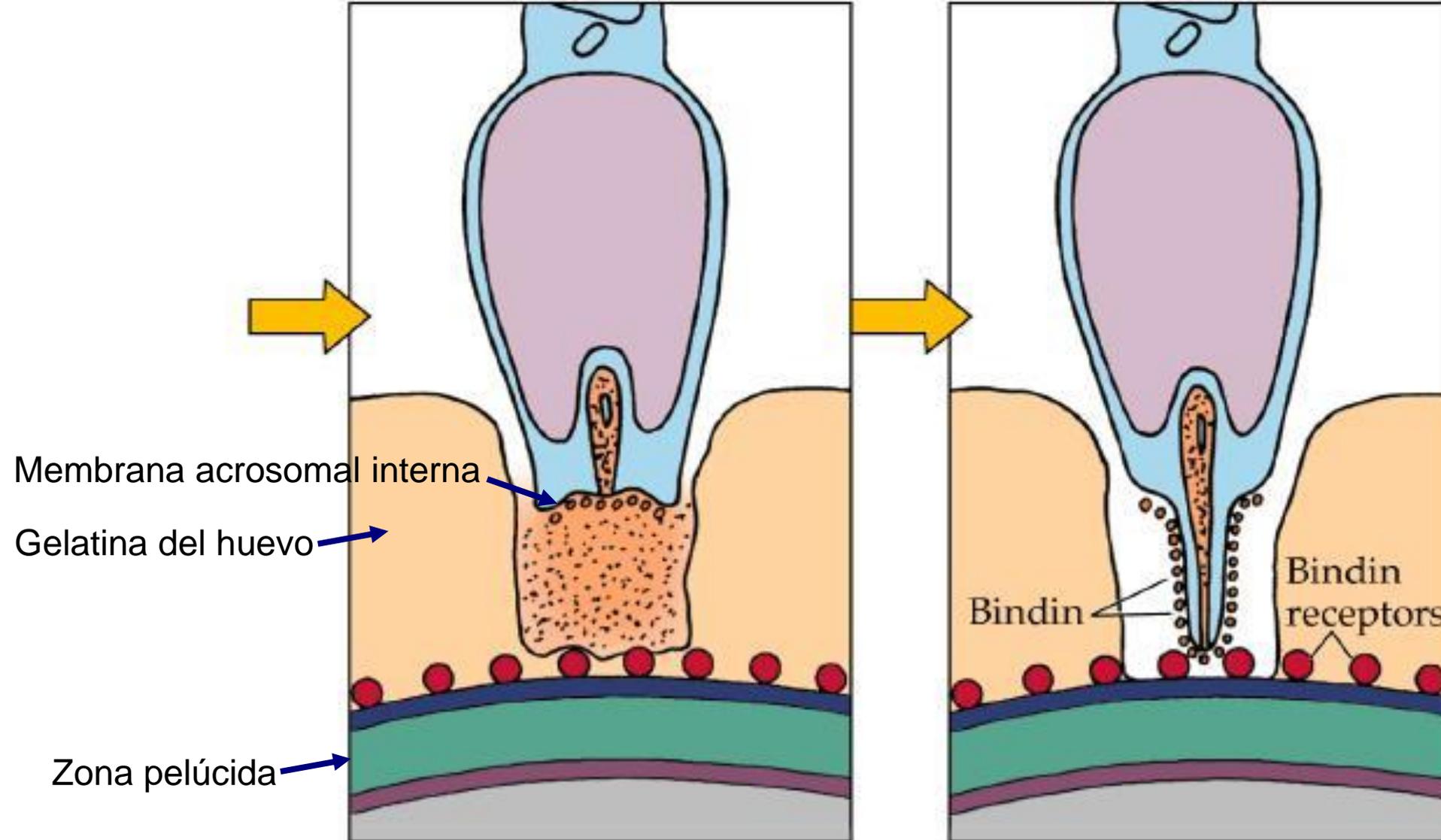
Fig. : Acrosomal reaction in sperm





# Reacción acrosómica

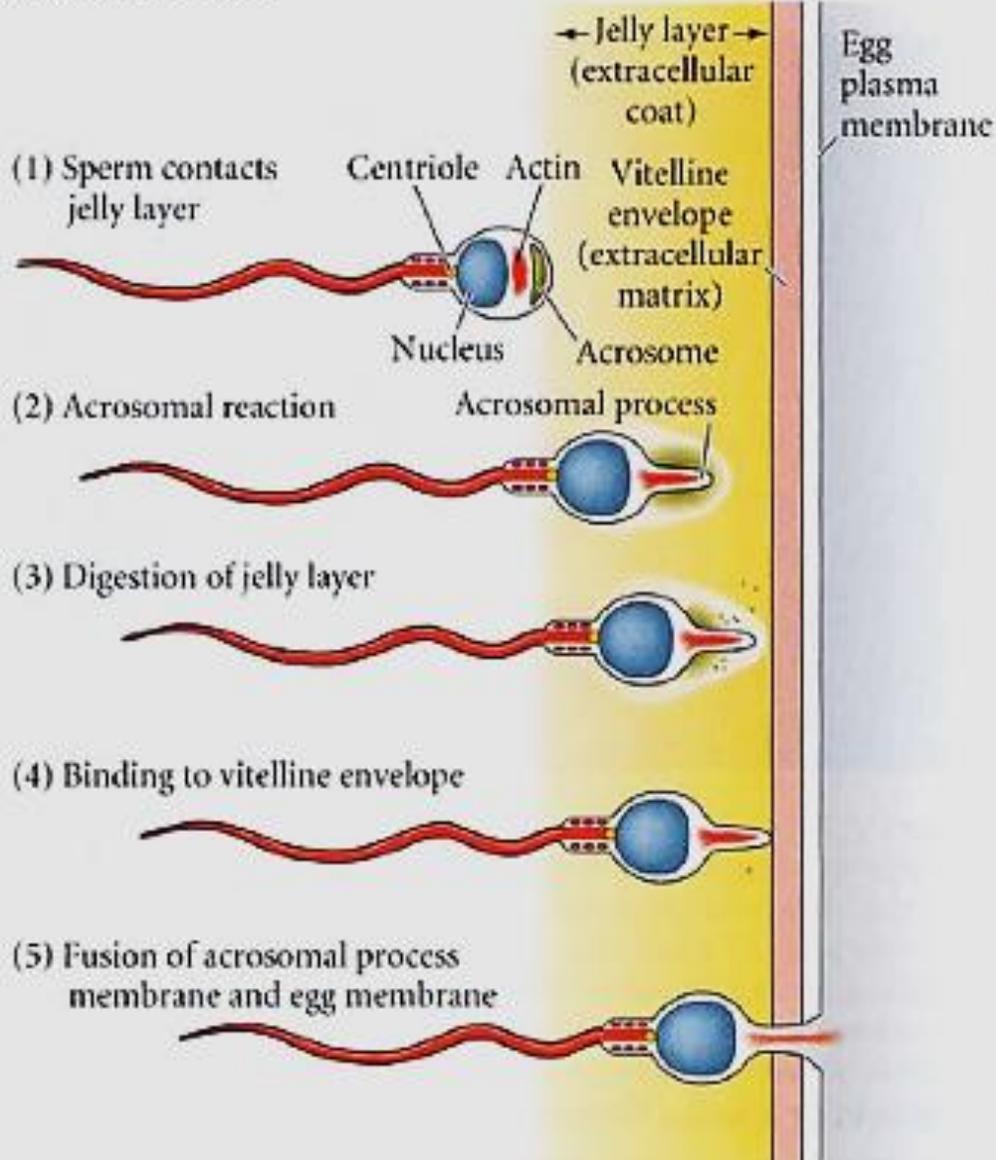




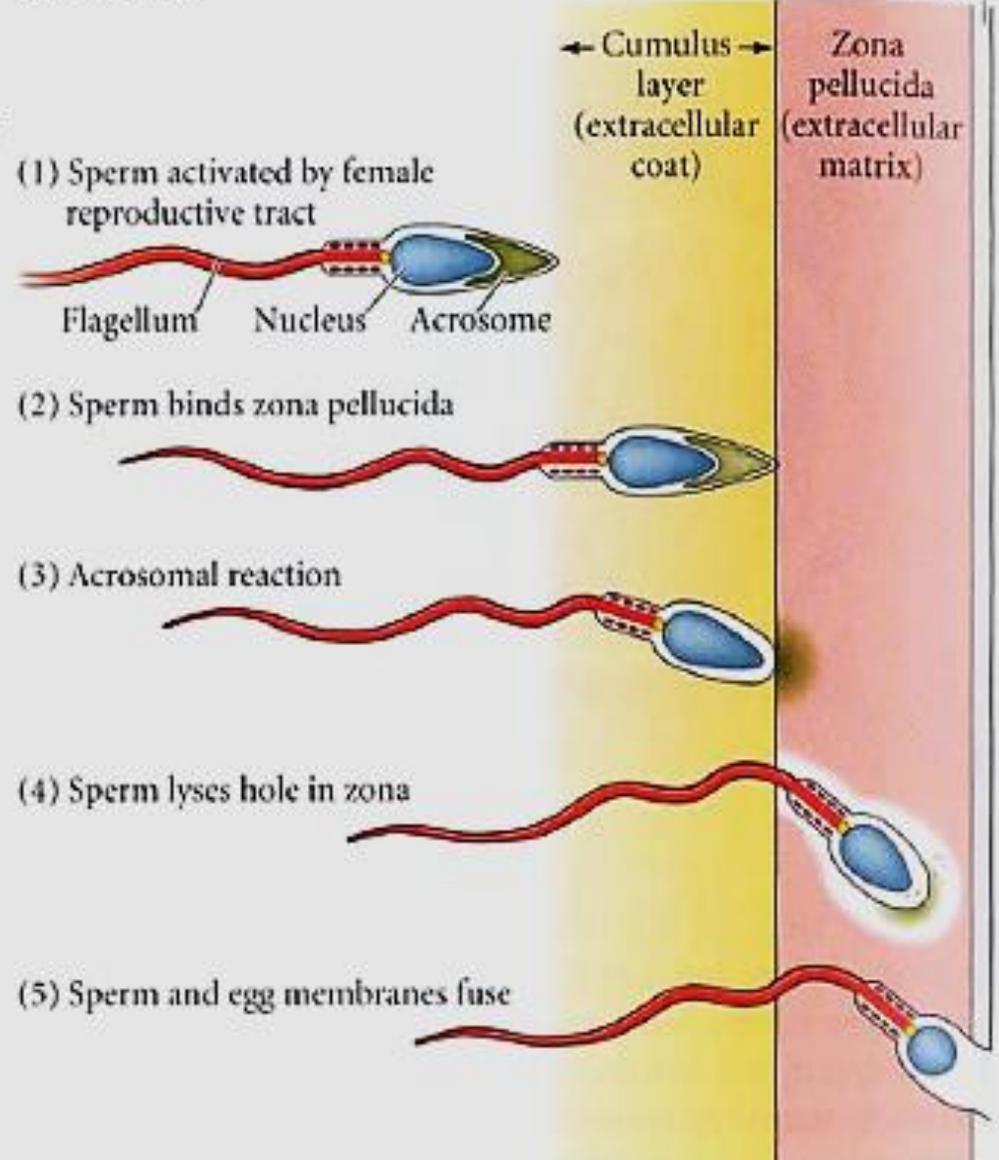
Reconocimiento  
especie-  
específico

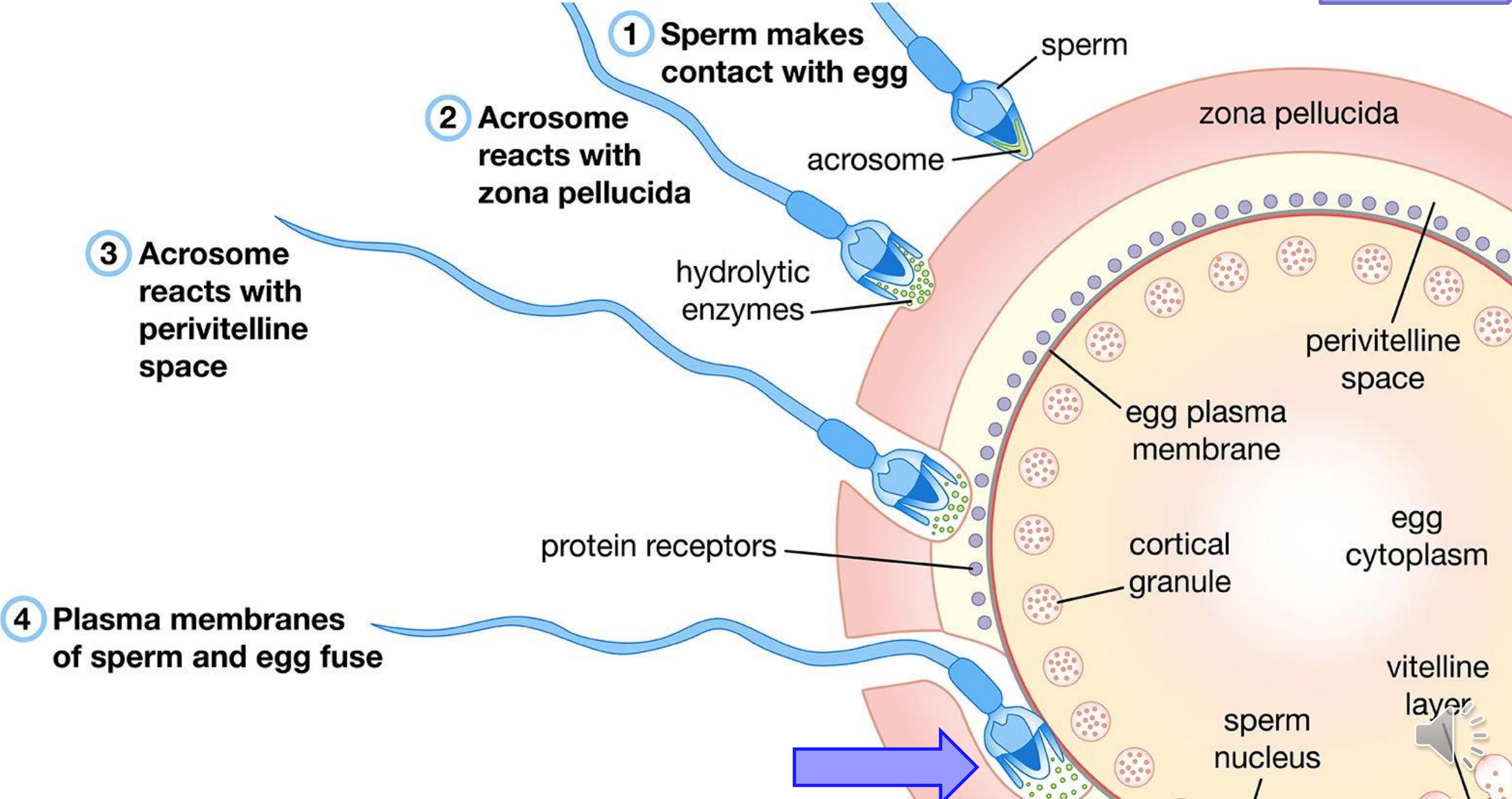


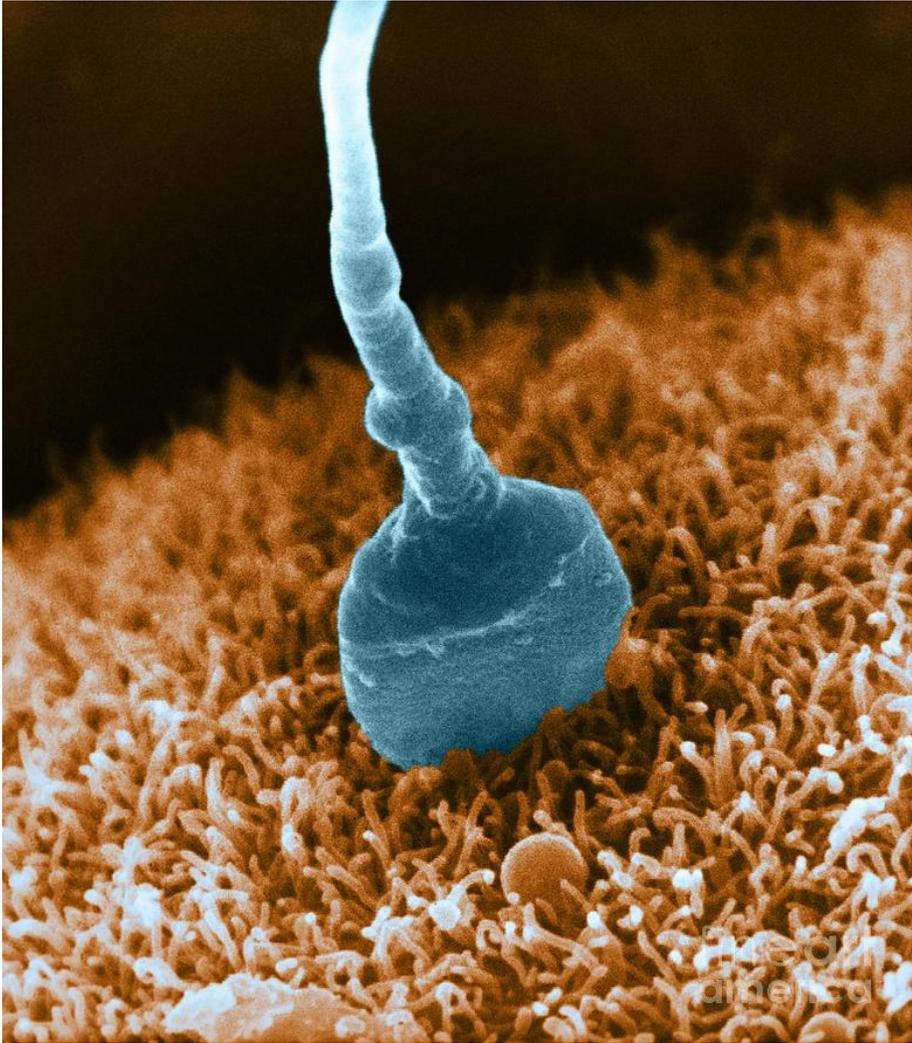
(A) SEA URCHIN

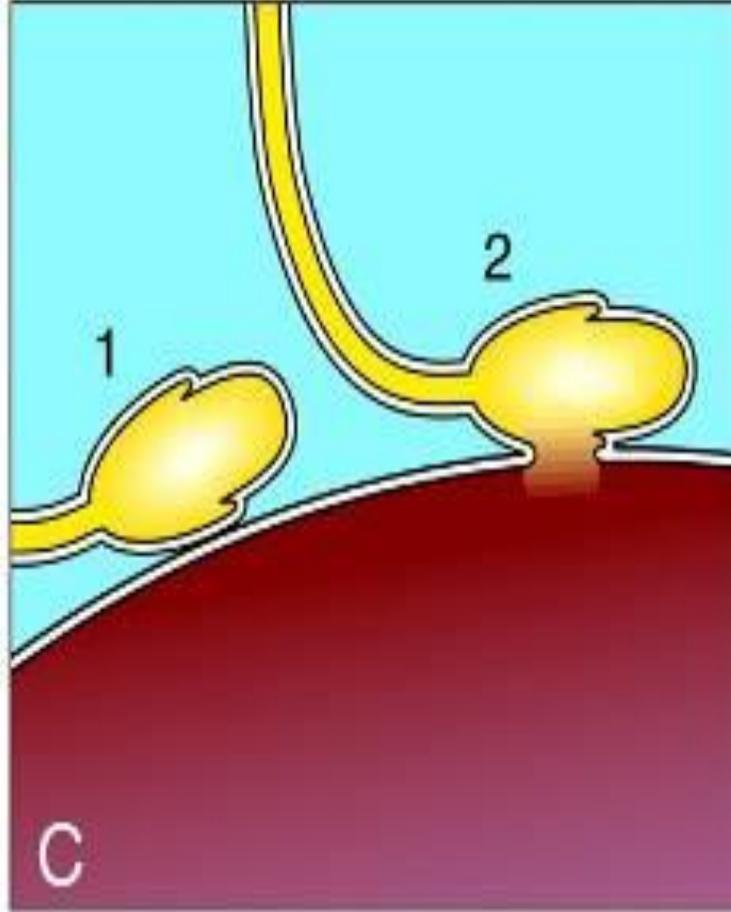
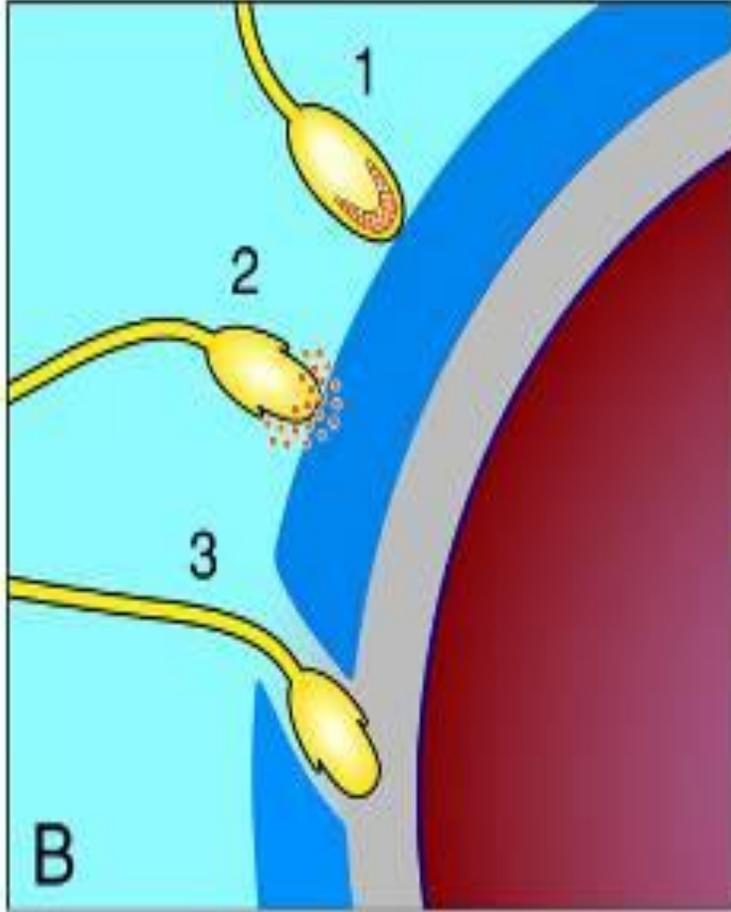
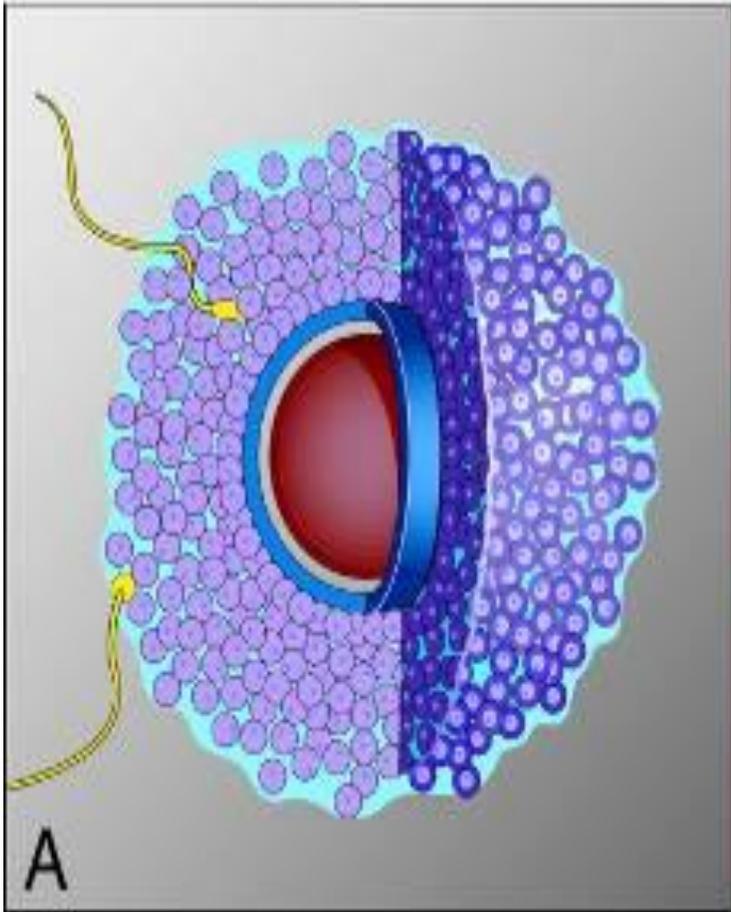


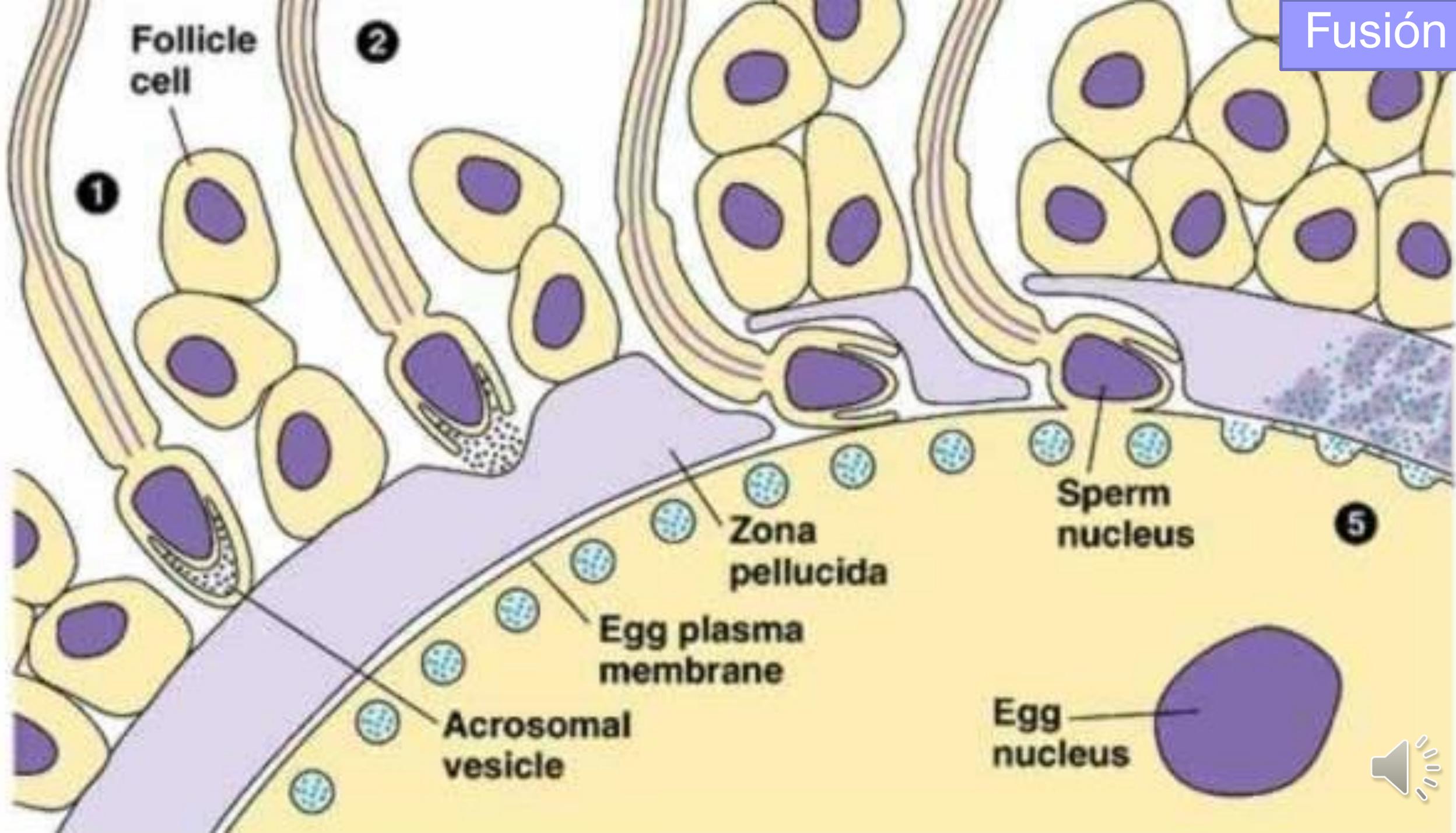
(B) MOUSE

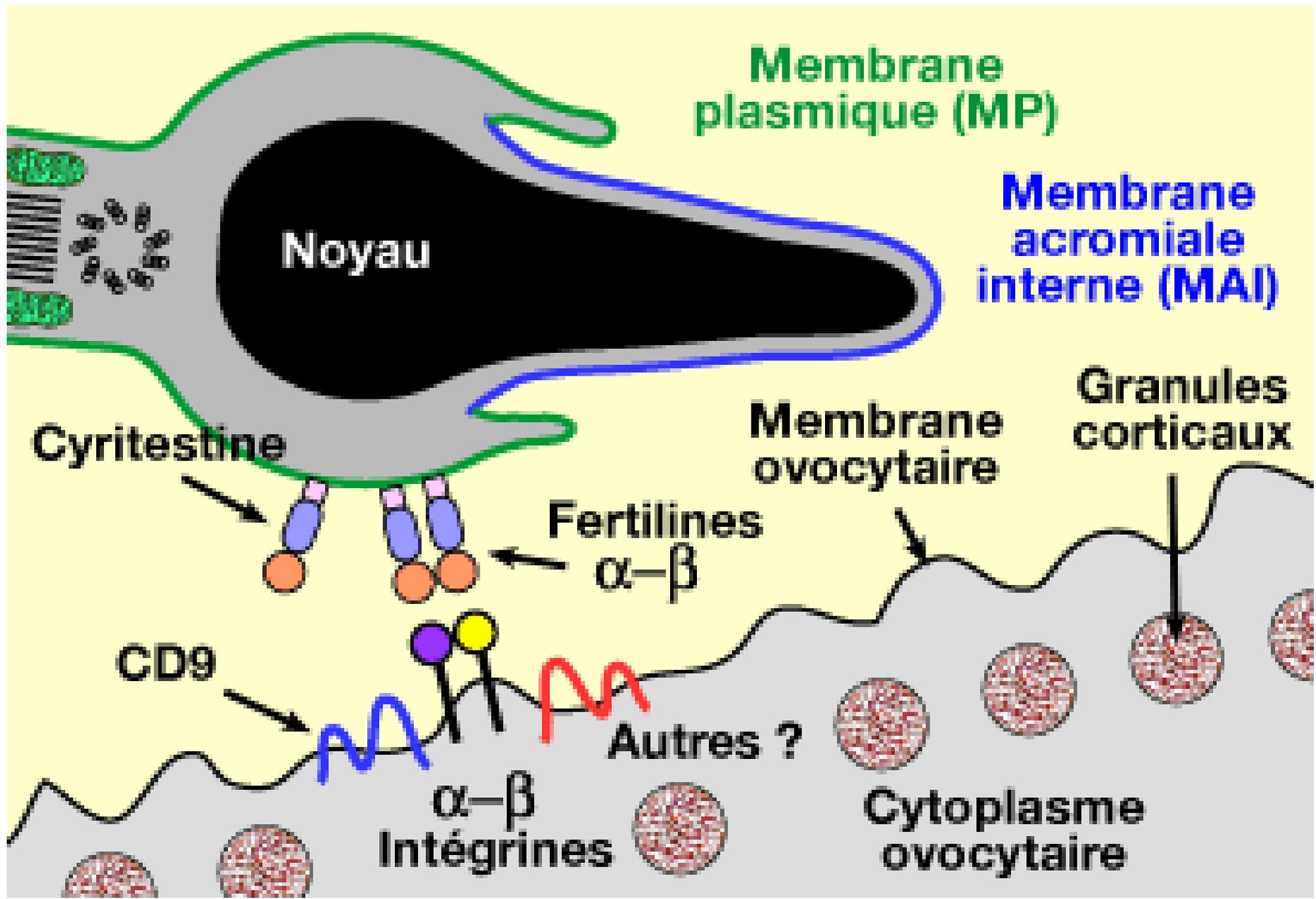


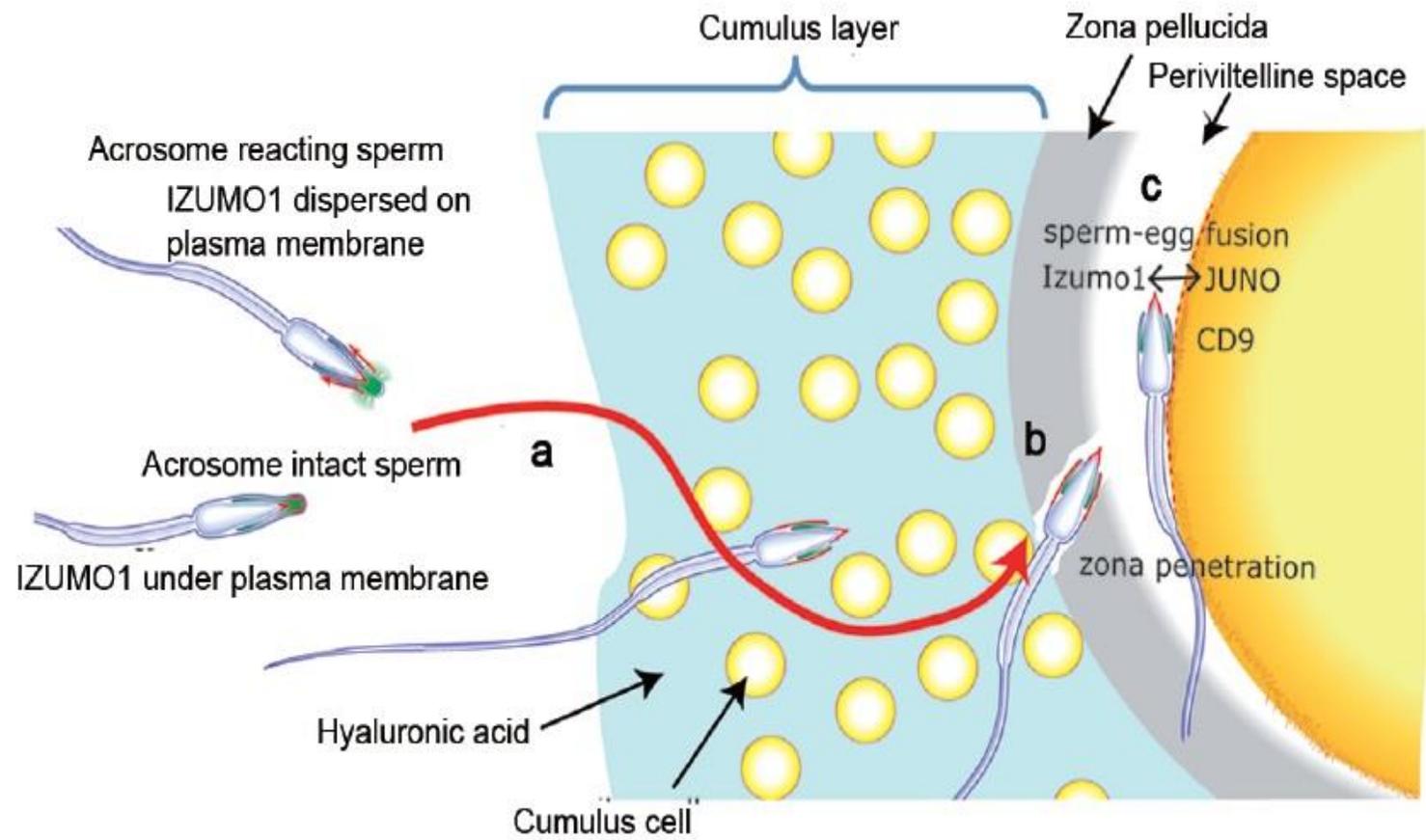
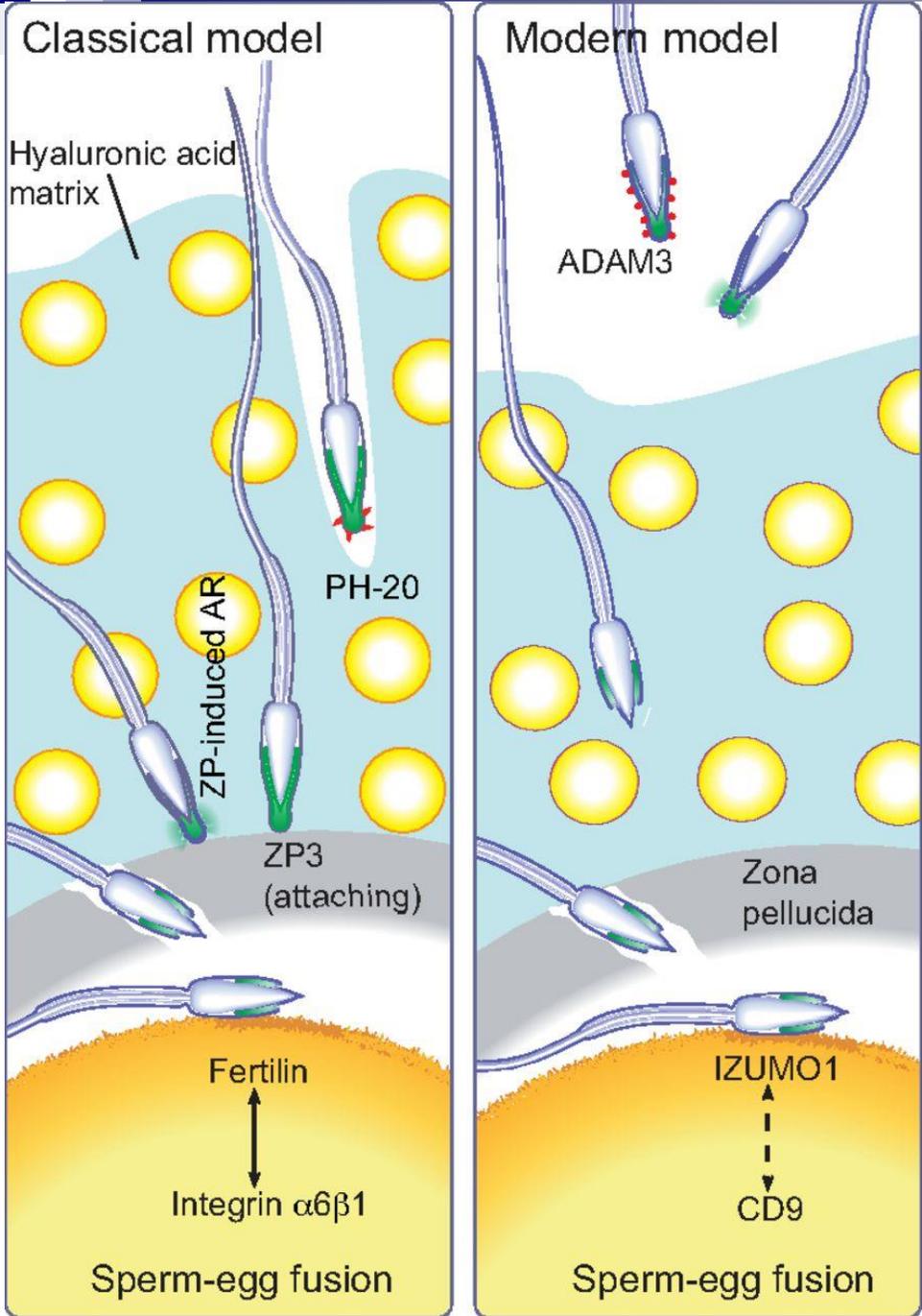


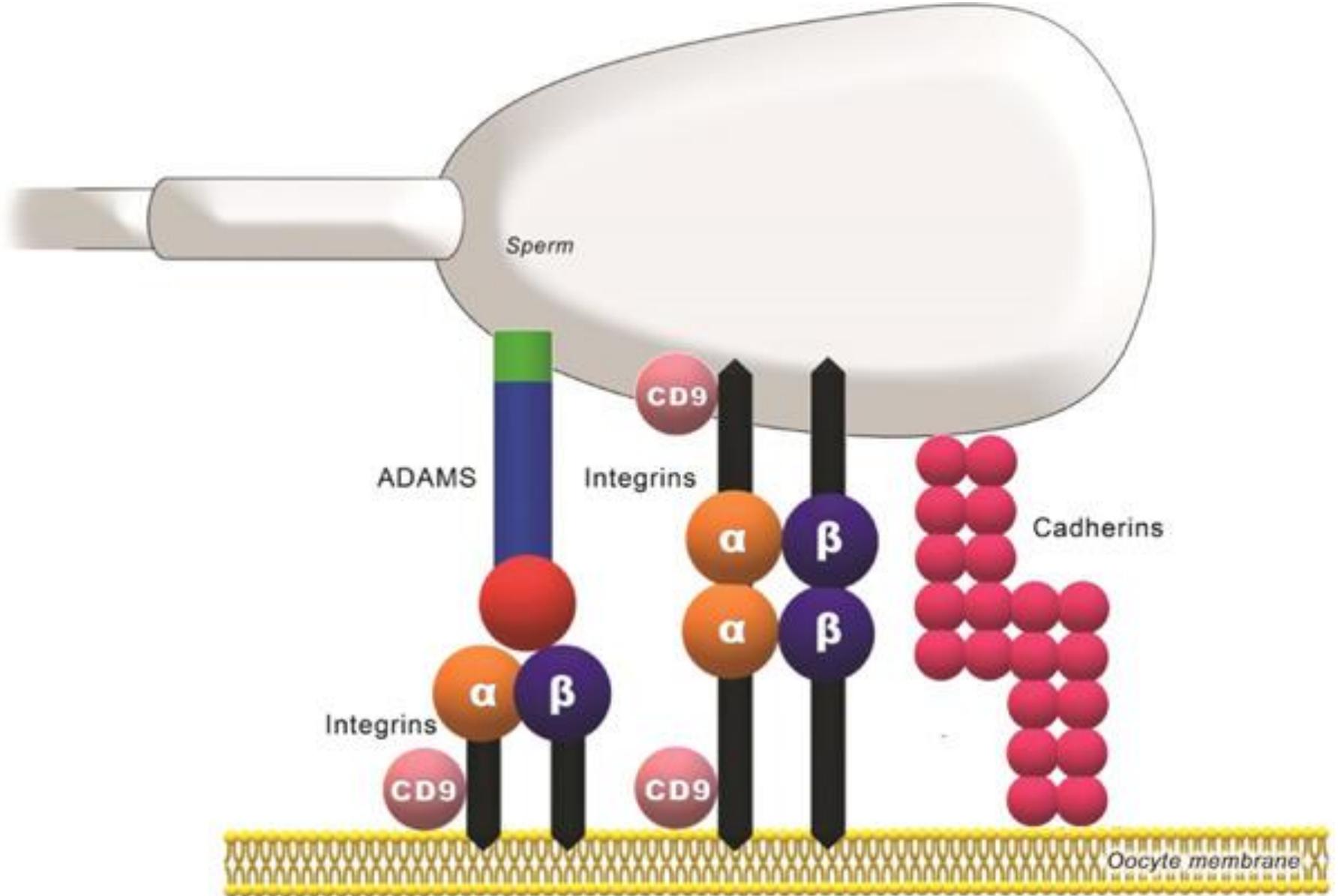






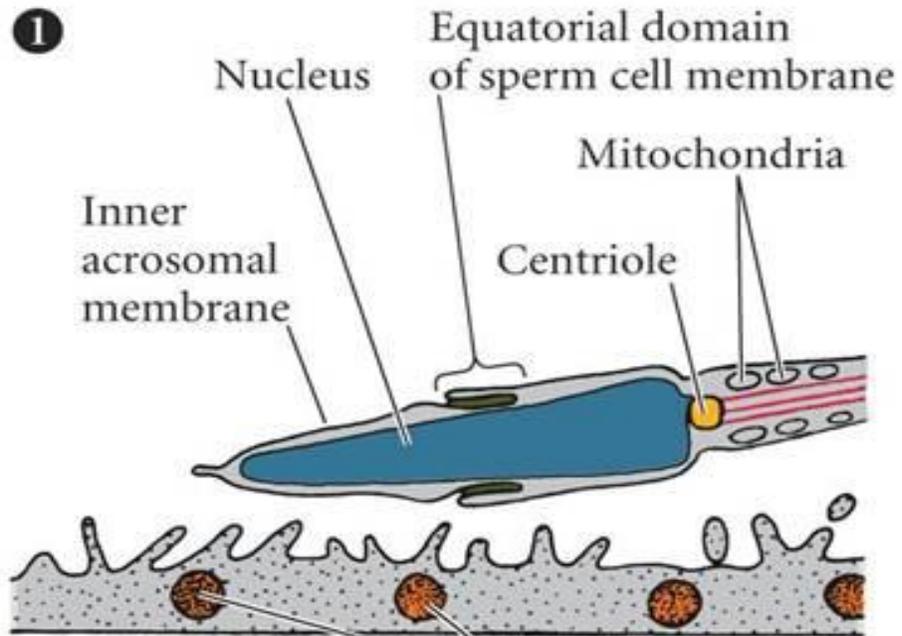




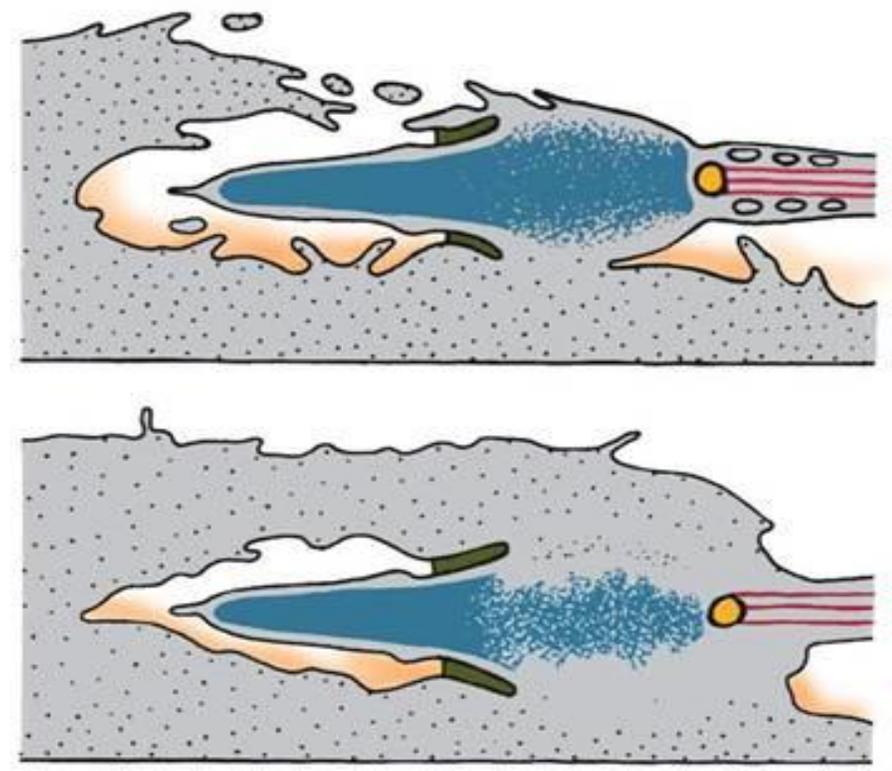
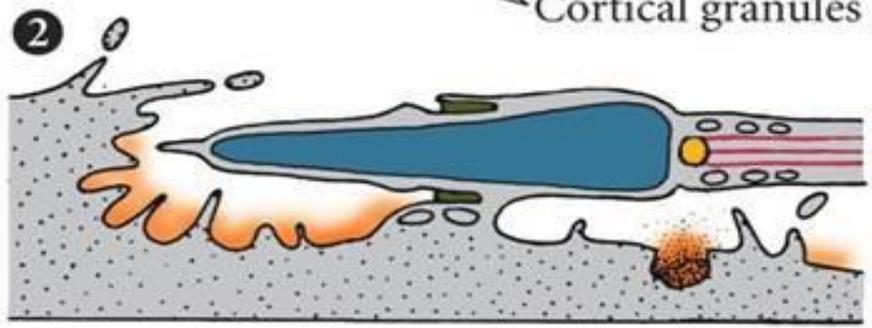


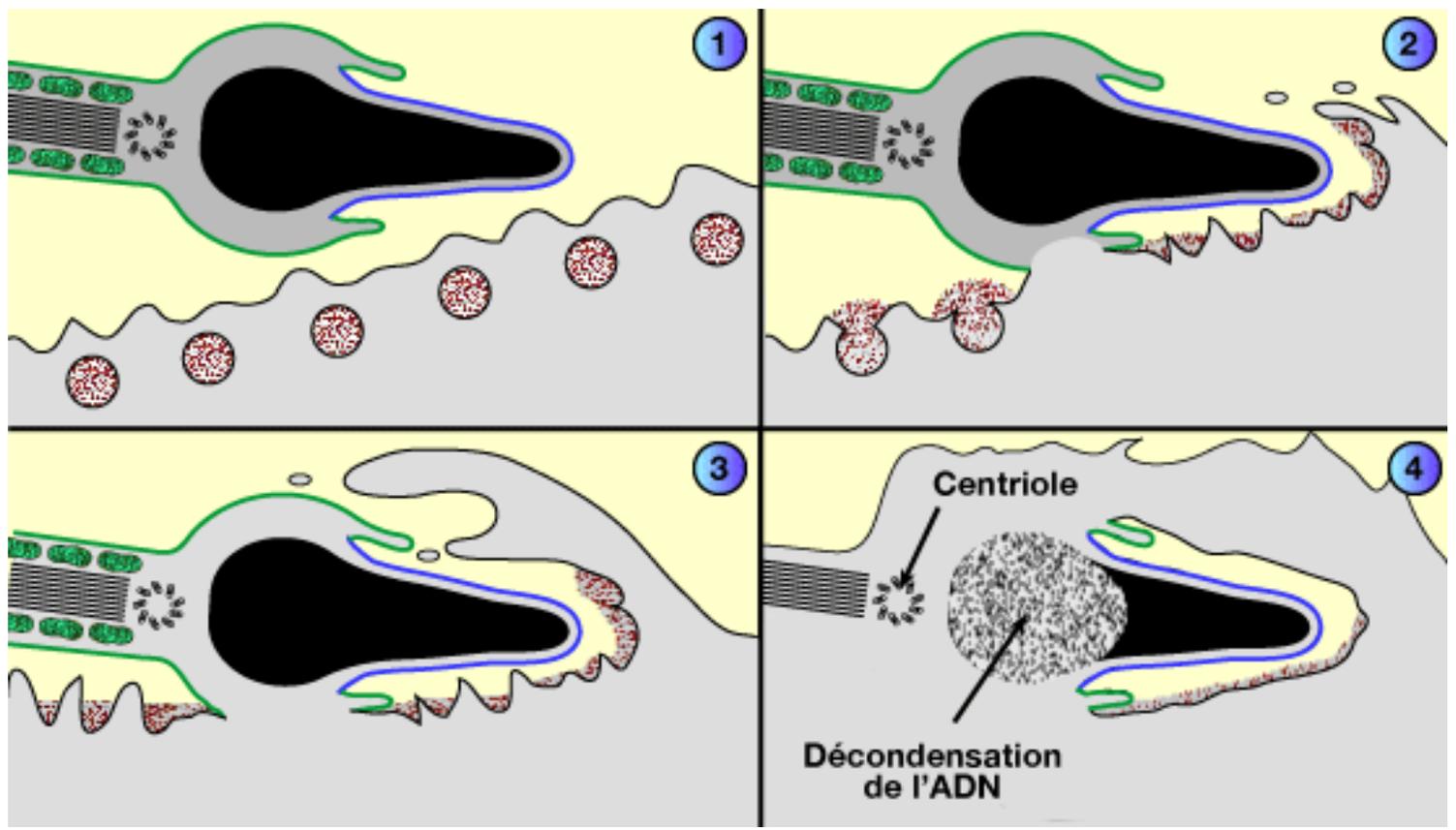
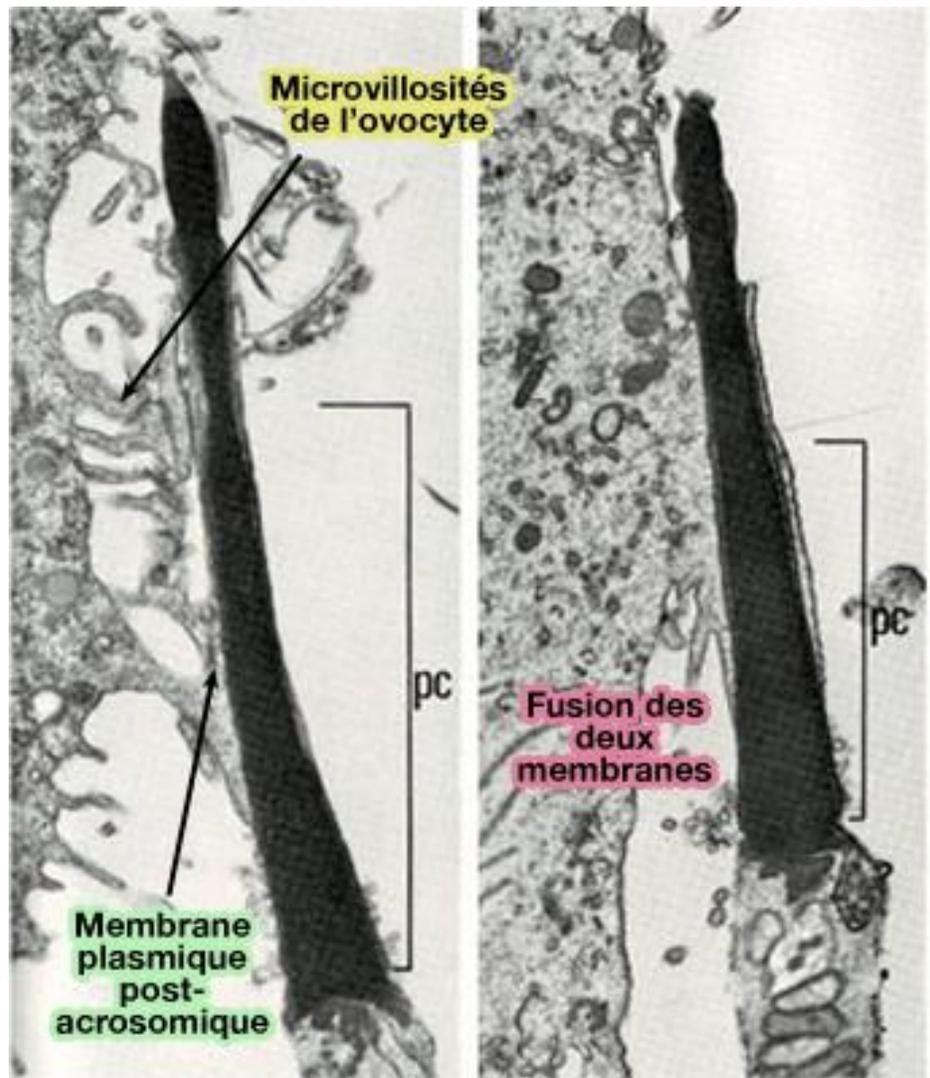
(E)

1

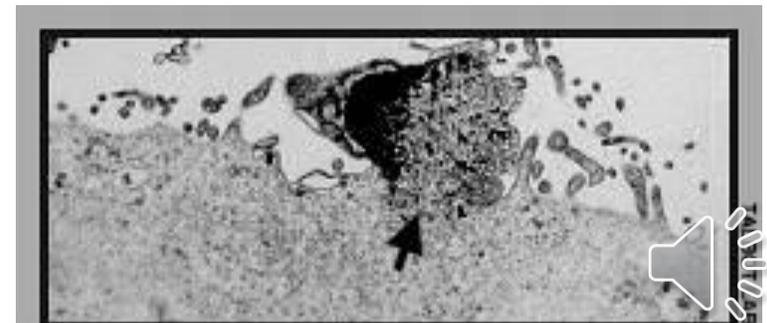
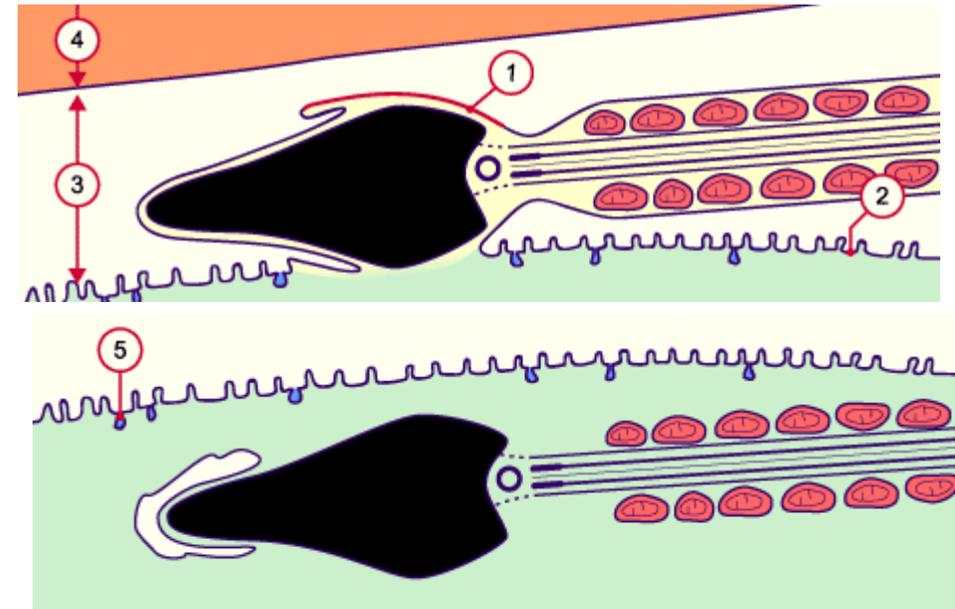
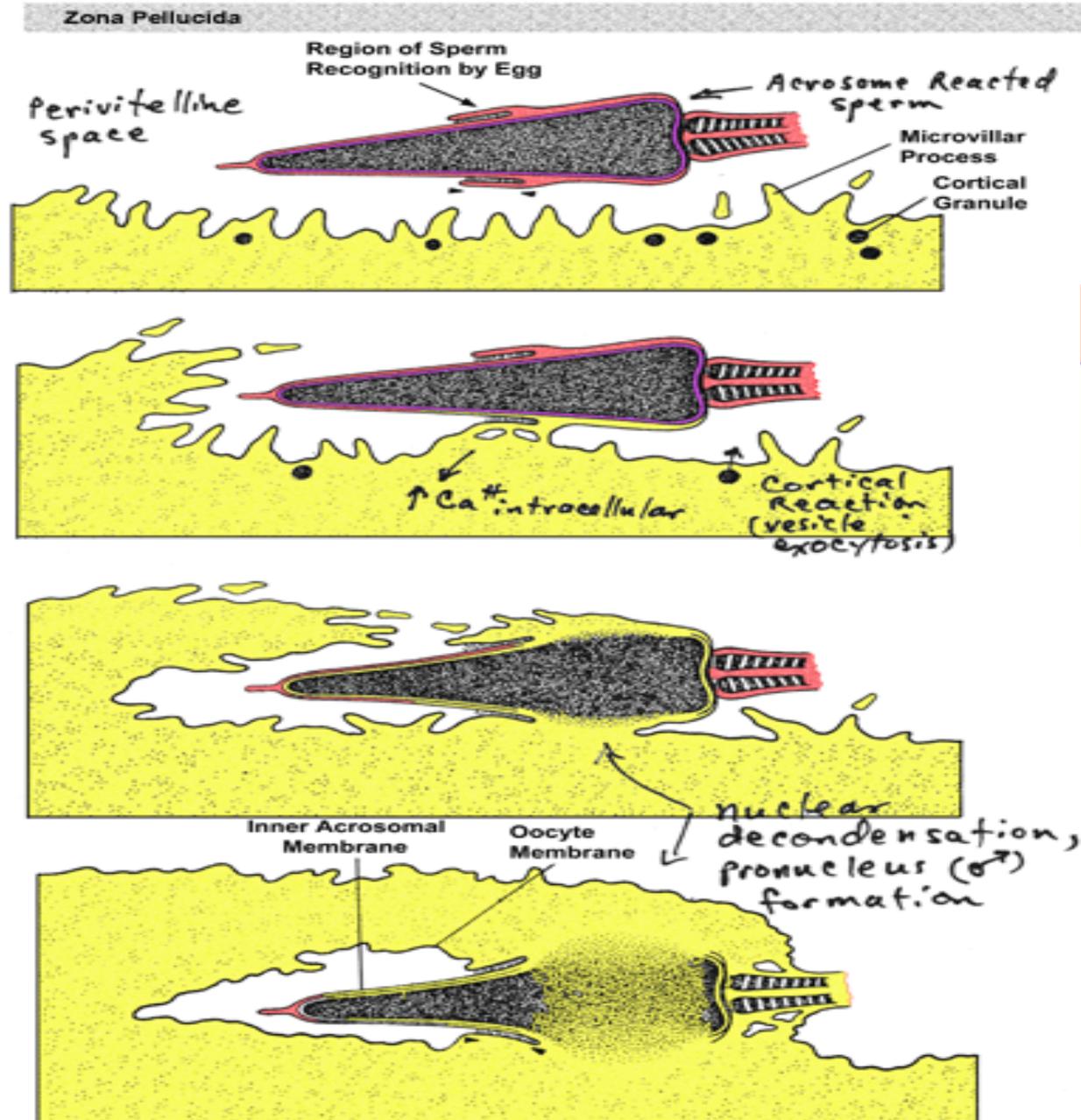


2



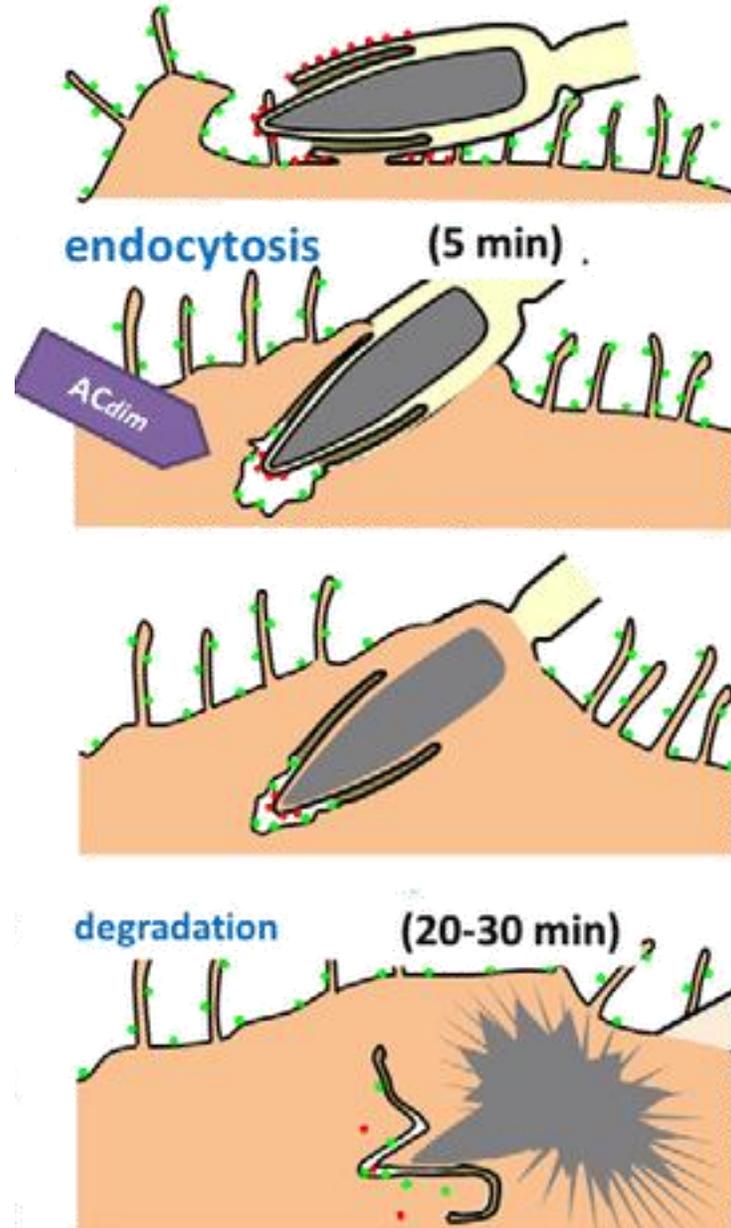


## Fertilization: Sperm/Egg Fusion



FUSED SPERM WITH DECONDENSING NUCLEUS

Modified from Bedford & Cooper, *Cell Surface Reviews*, V. 5, *Membrane Fusion*, Poste & Nicolson (ed), Elsevier/North Holland Biomedical Press: Amsterdam, 1978.



Fusión de las membranas plasmáticas

Endocitosis del espermatozoide y entrada al ooplasma

Degradación de la membrana nuclear

Descondensación de cromatina y cambio de protaminas por histonas de origen del ovocito

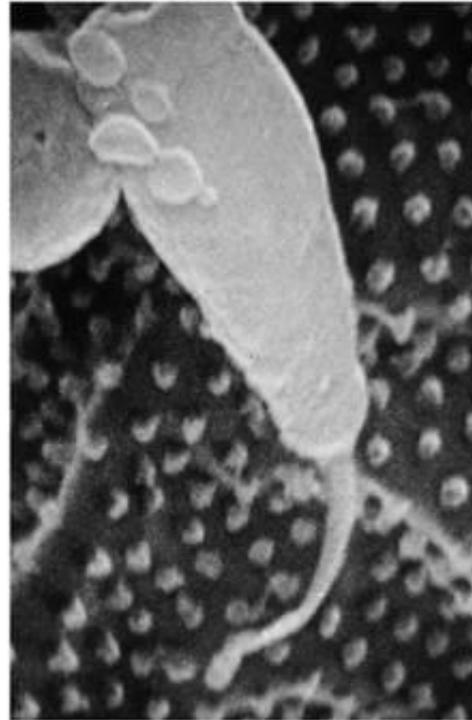




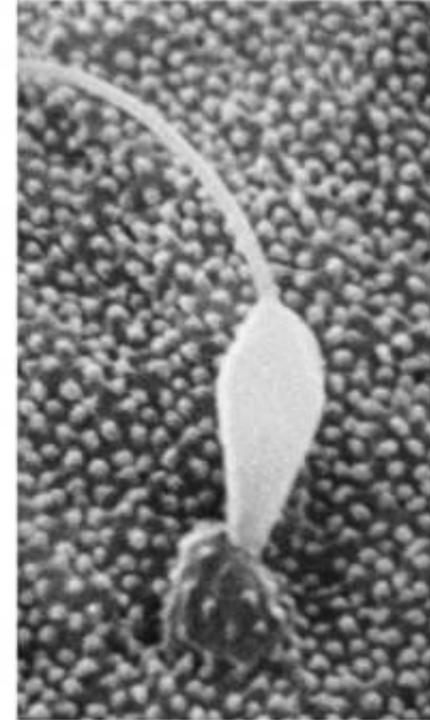
Erizo de mar,

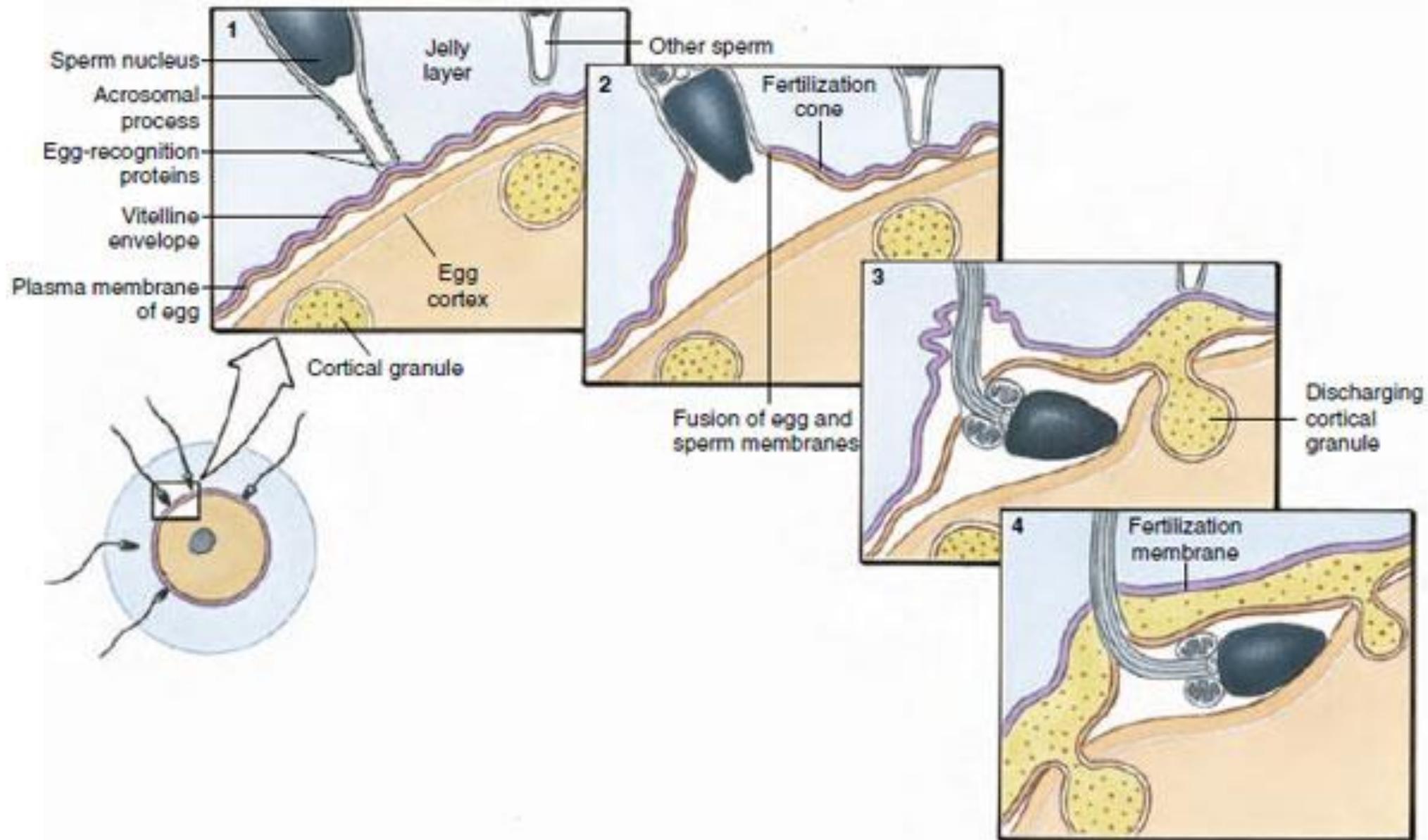
Penetración del esperma

(A)



(B)

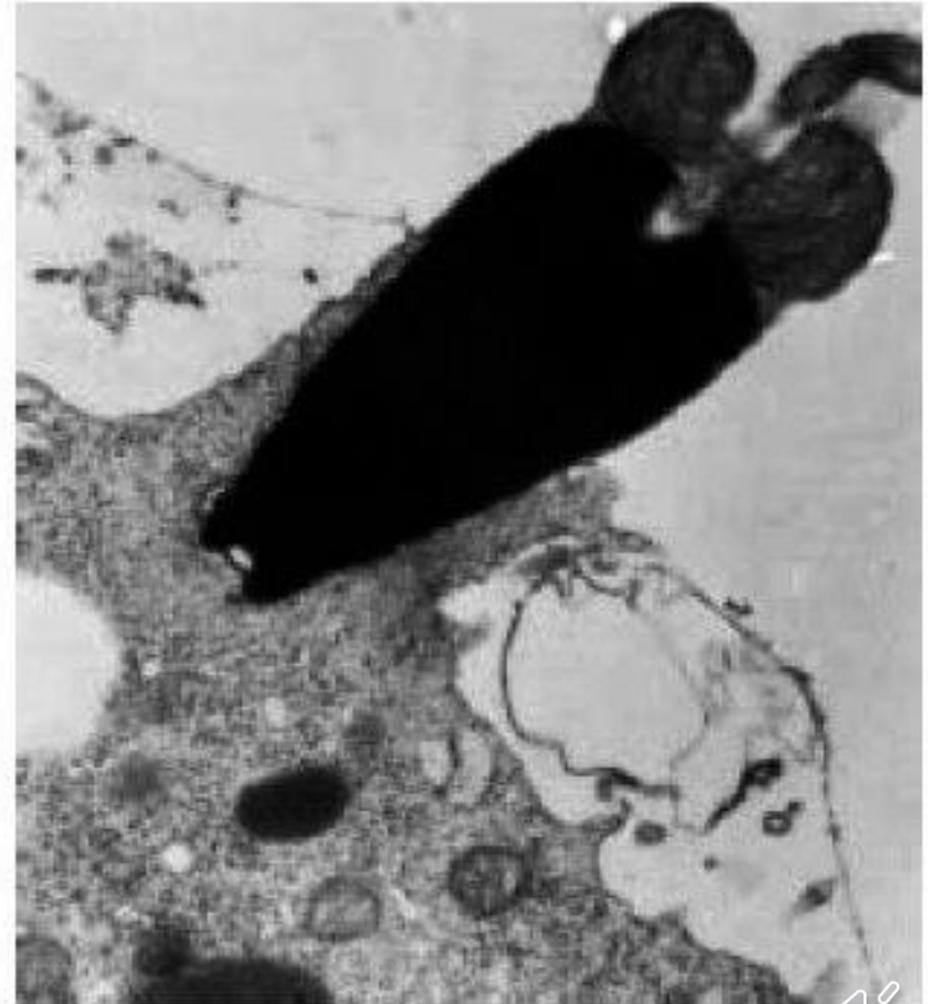
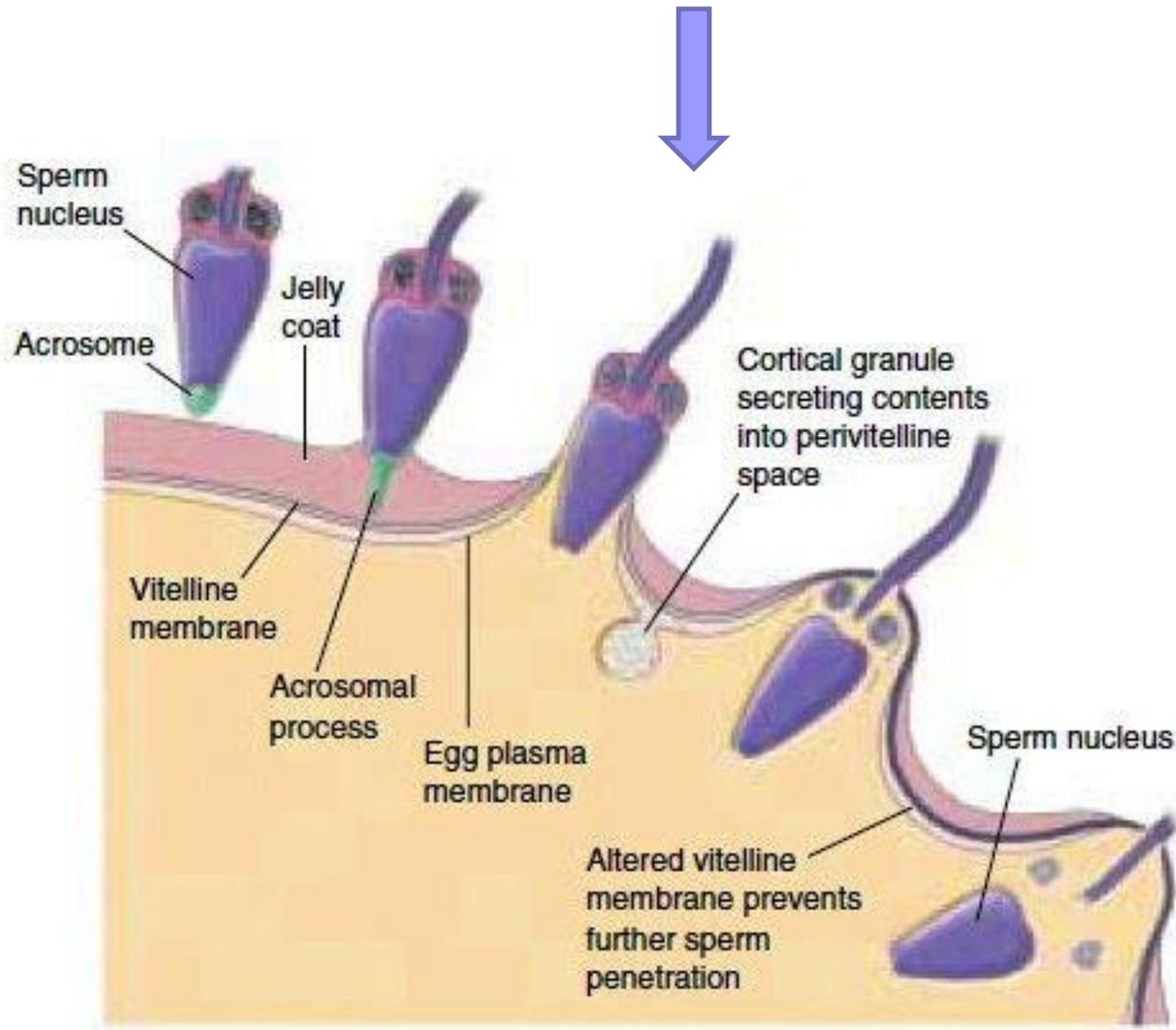




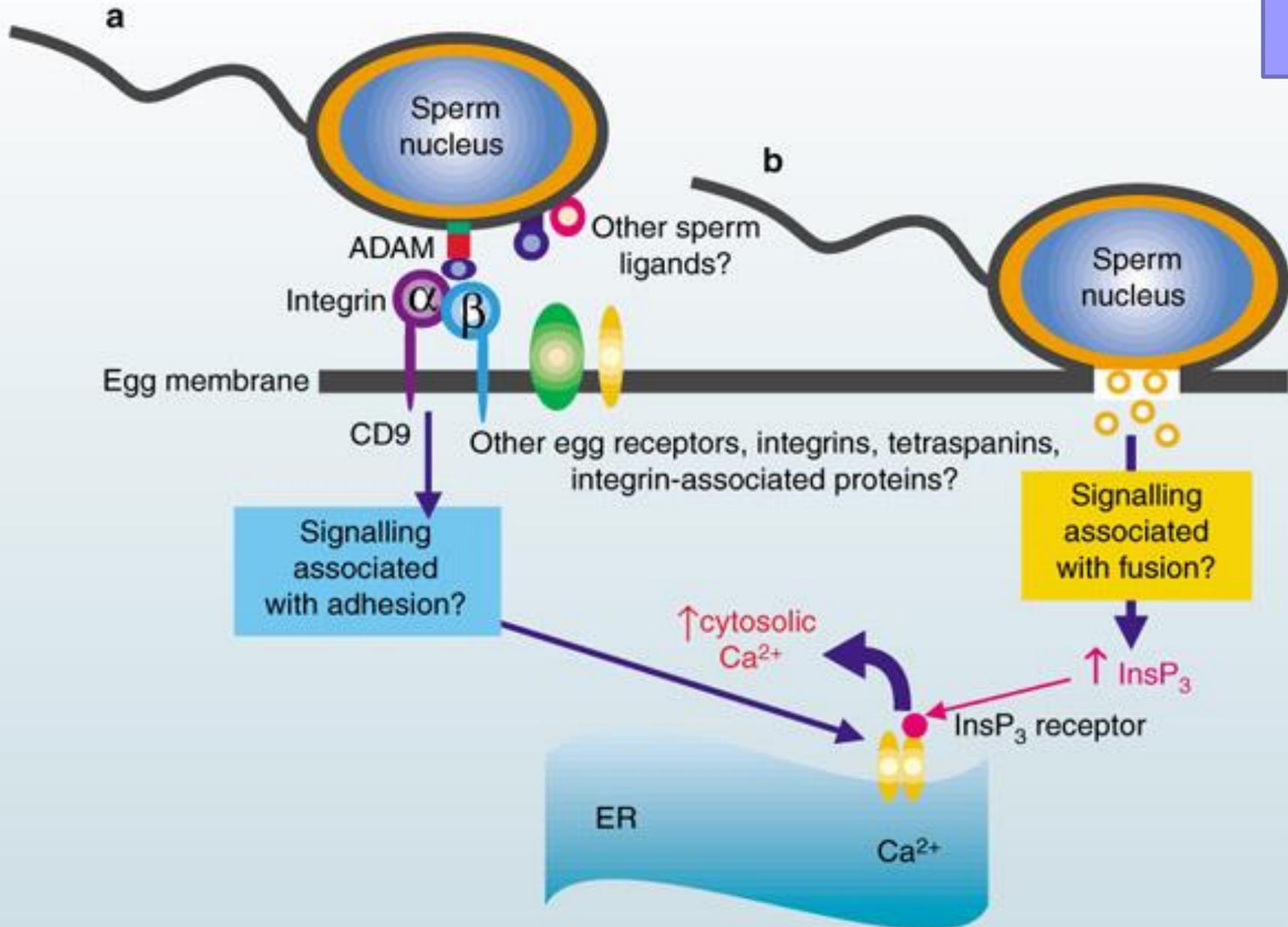


La fusión de membranas en el erizo es entre la membrana acrosomal interna y la membrana plasmática





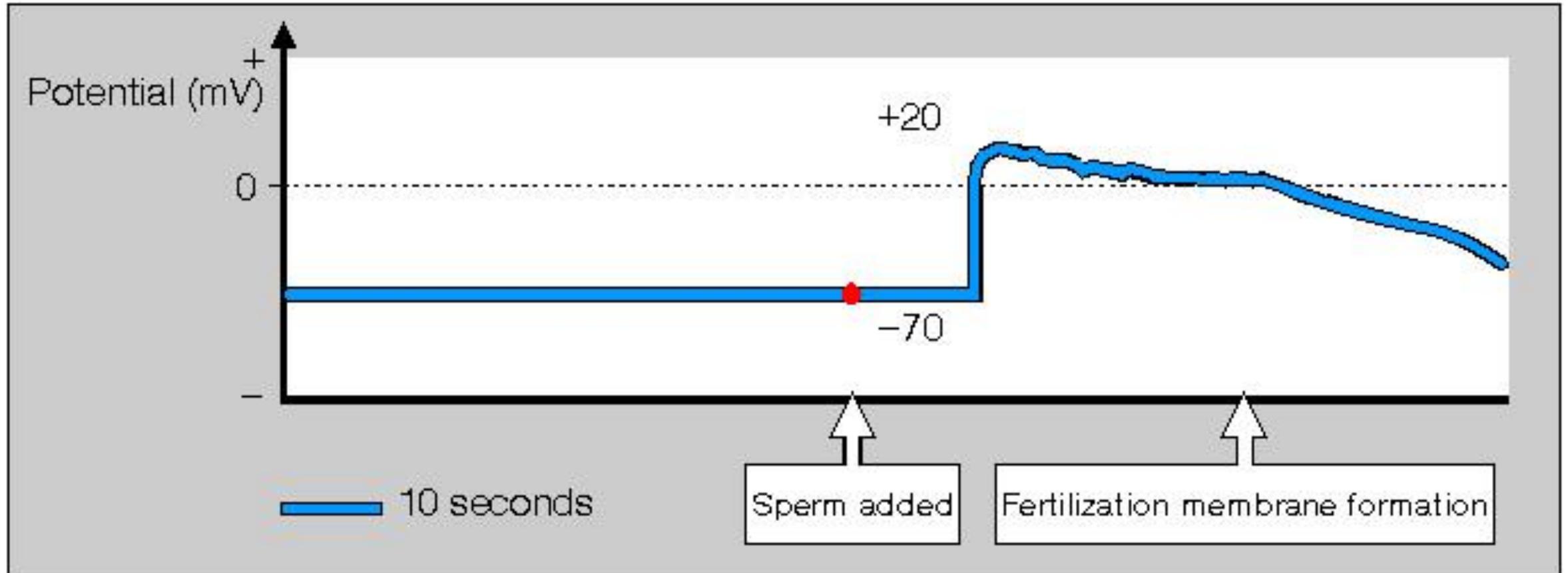
# Fusión y activación de la célula huevo



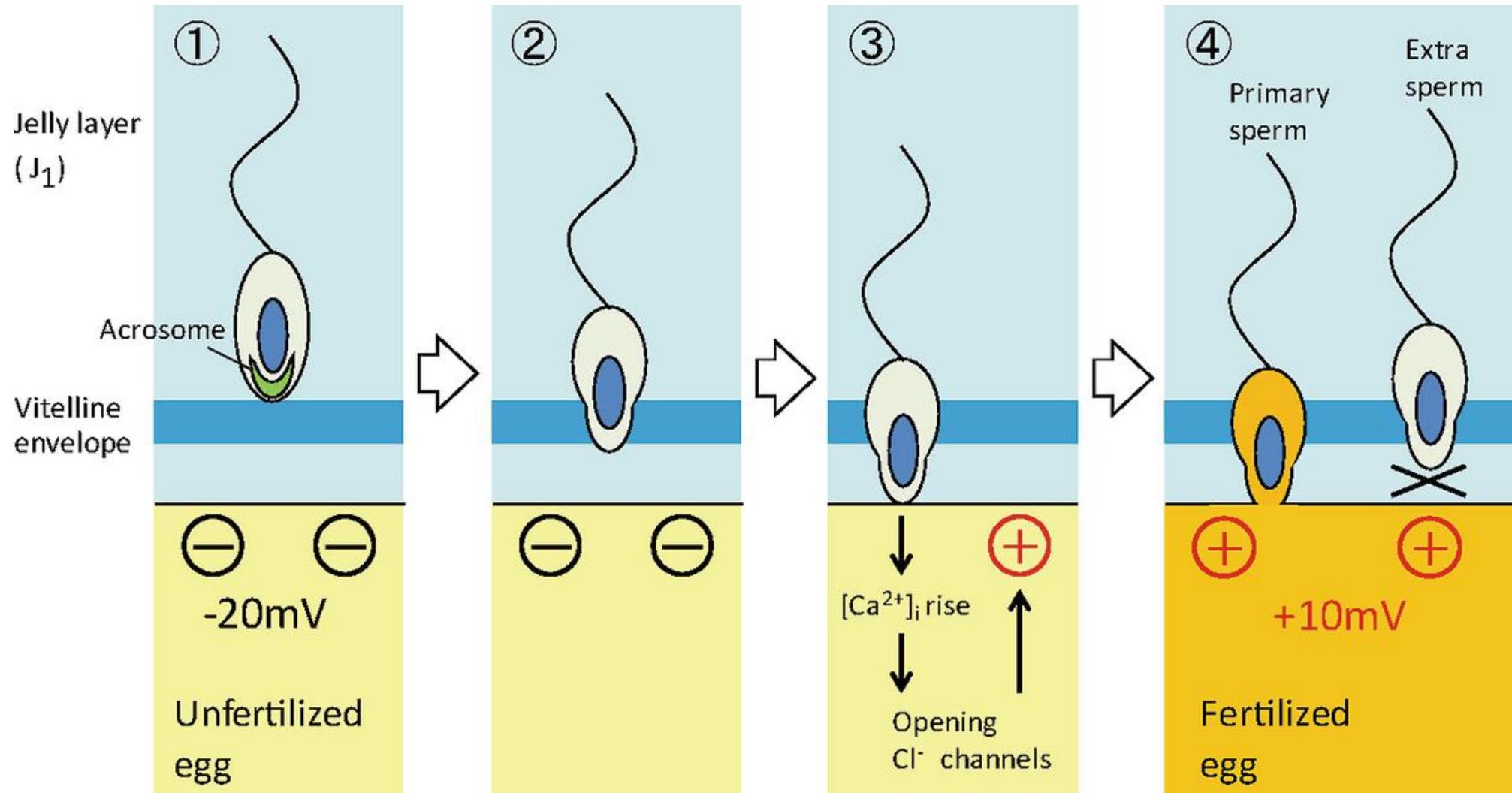
La fusión de ambas membranas produce **señales de activación**

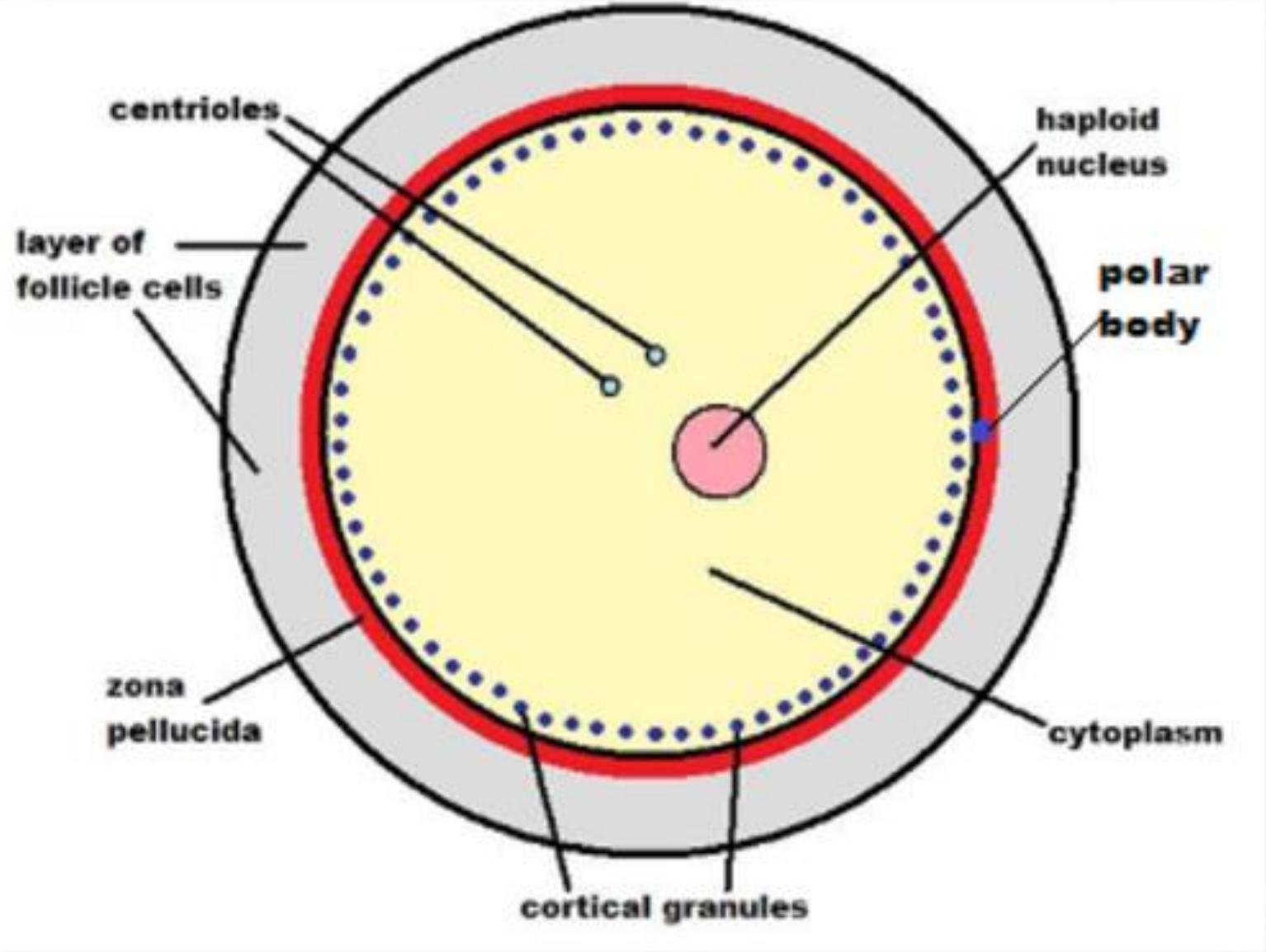


# Primer bloqueo a la polispermia

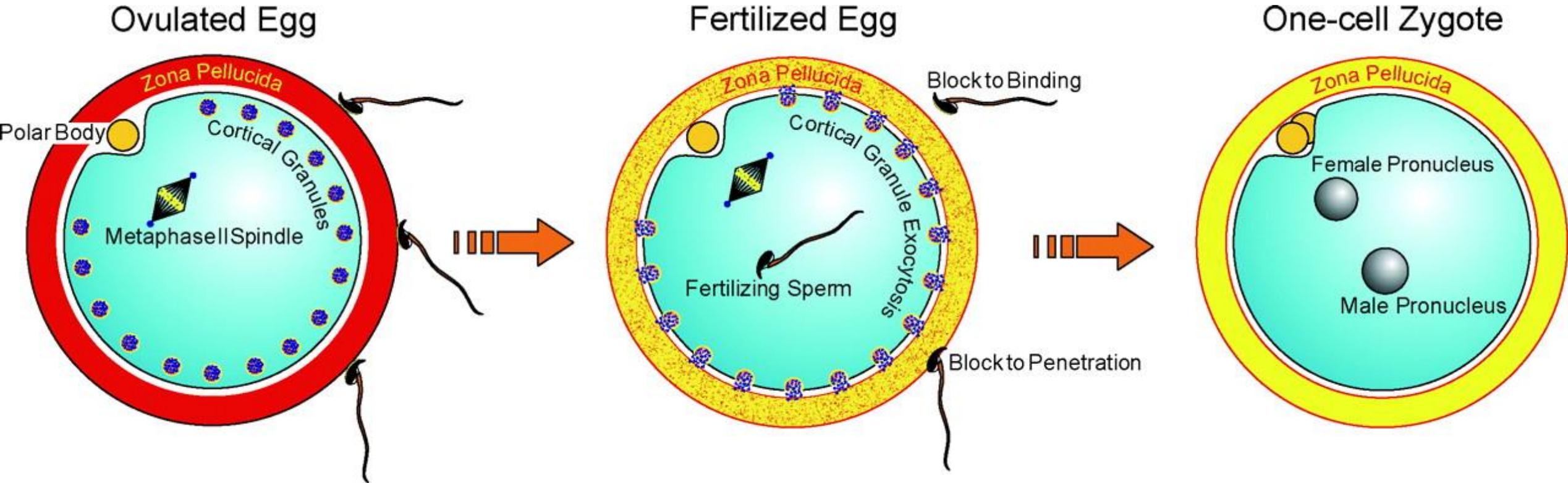


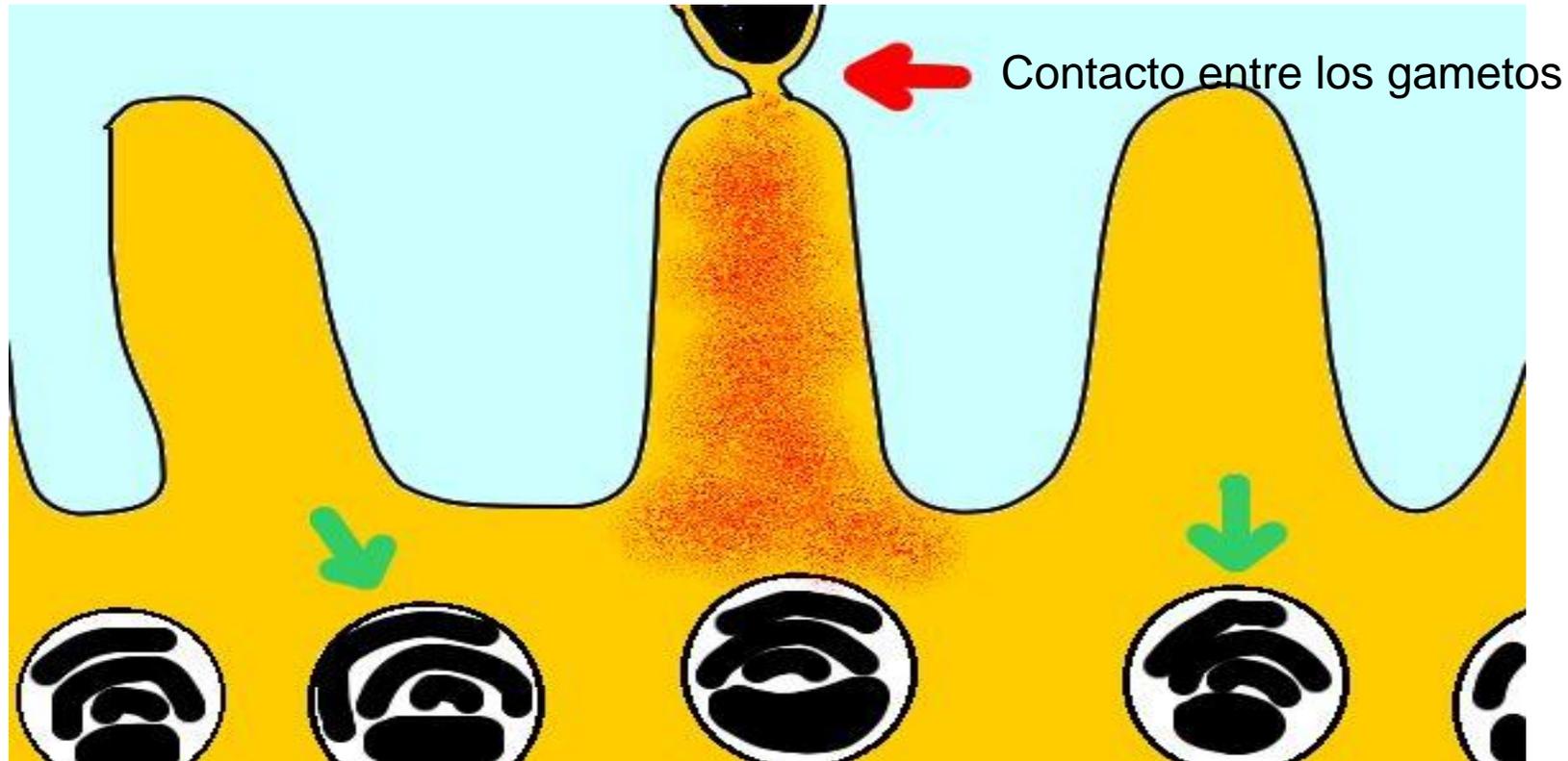
# Primer bloqueo a la polispermia





# Segundo bloqueo a la polispermia

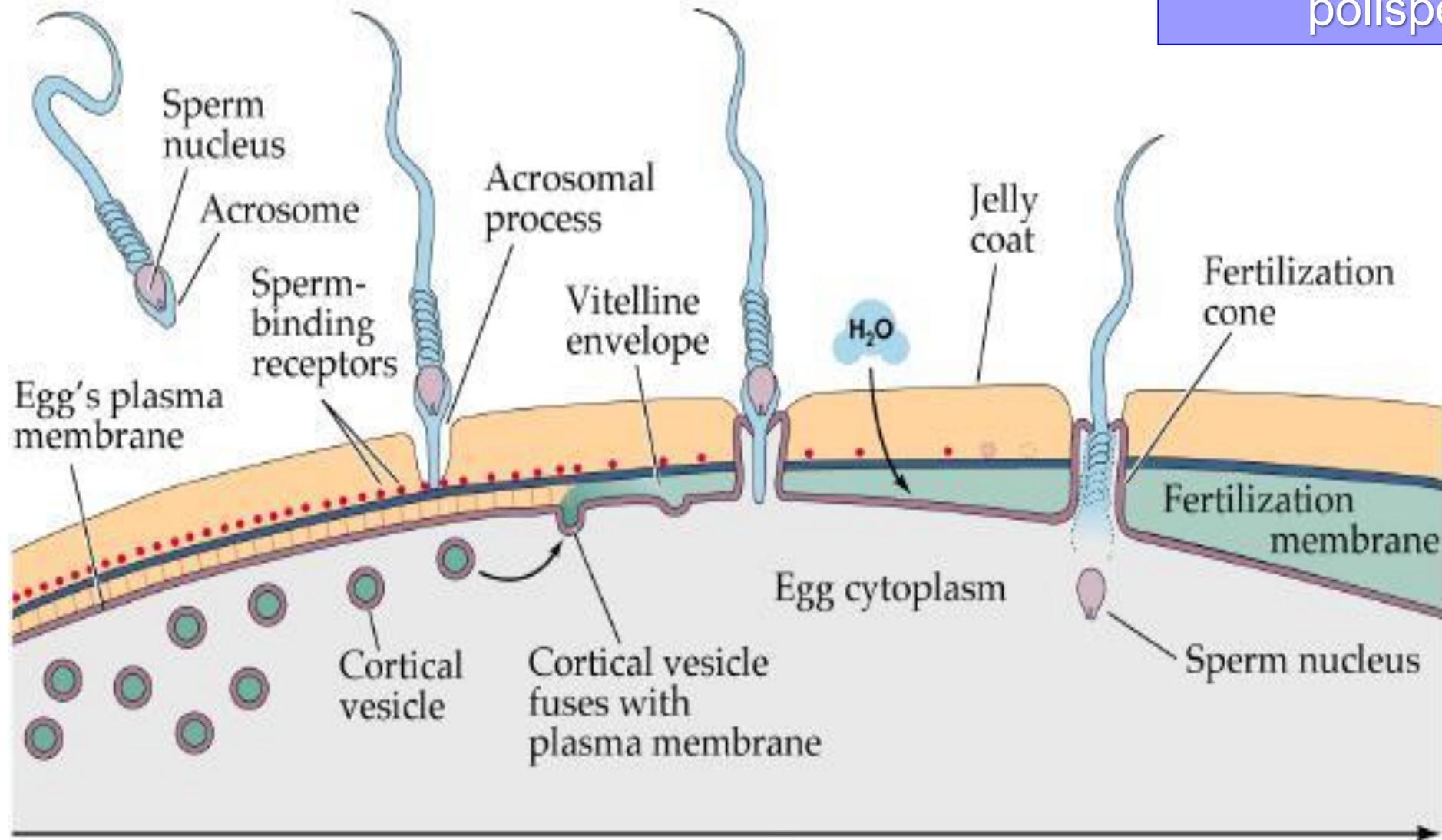




Fusión de membrana plasmática del huevo con la membrana acrosomal interna en erizo. Las flechas verdes muestran los gránulos corticales listos para la reacción cortical.



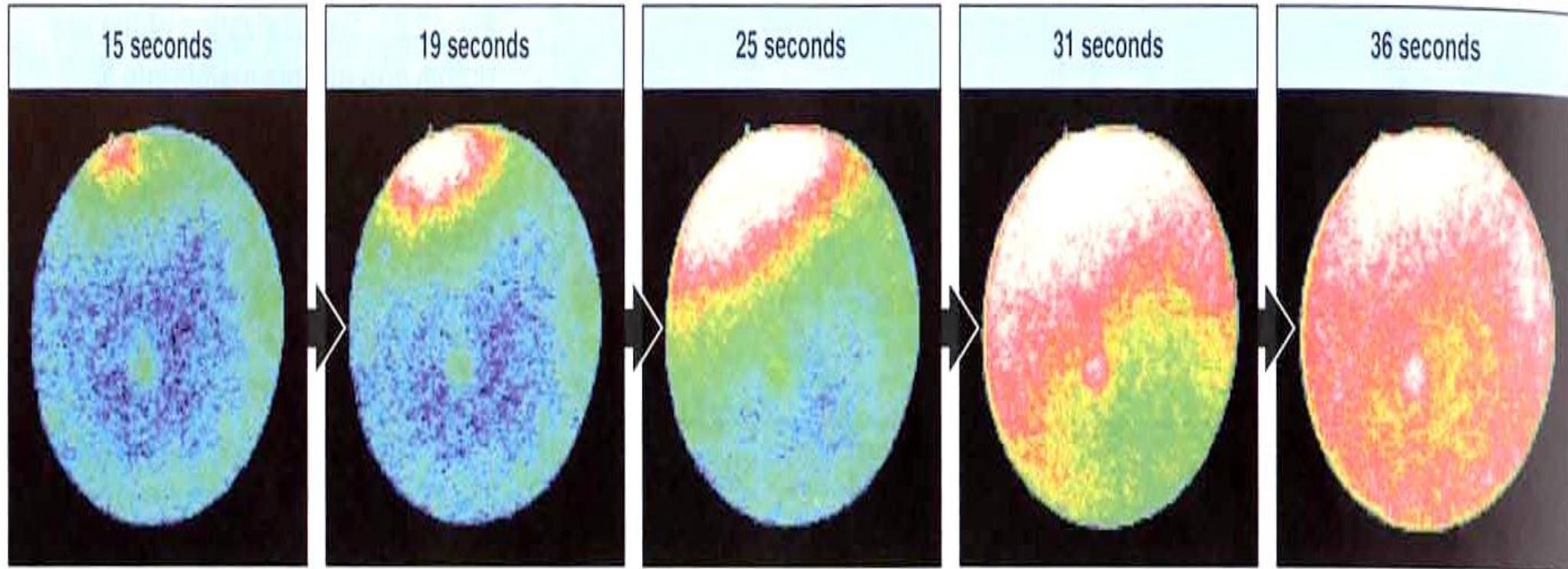
# Segundo bloqueo a la polispermia



20-30 seconds

En erizo de mar

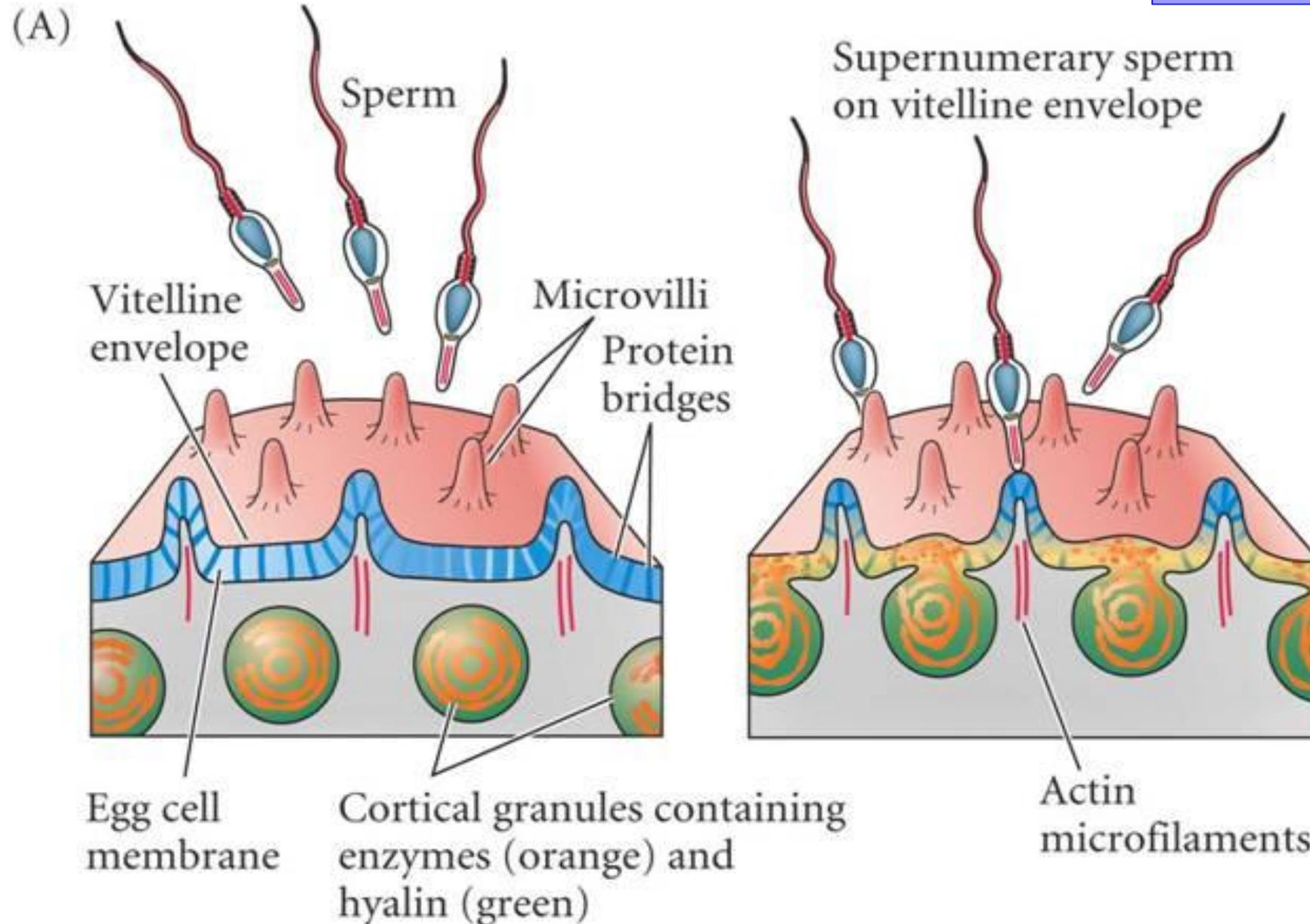


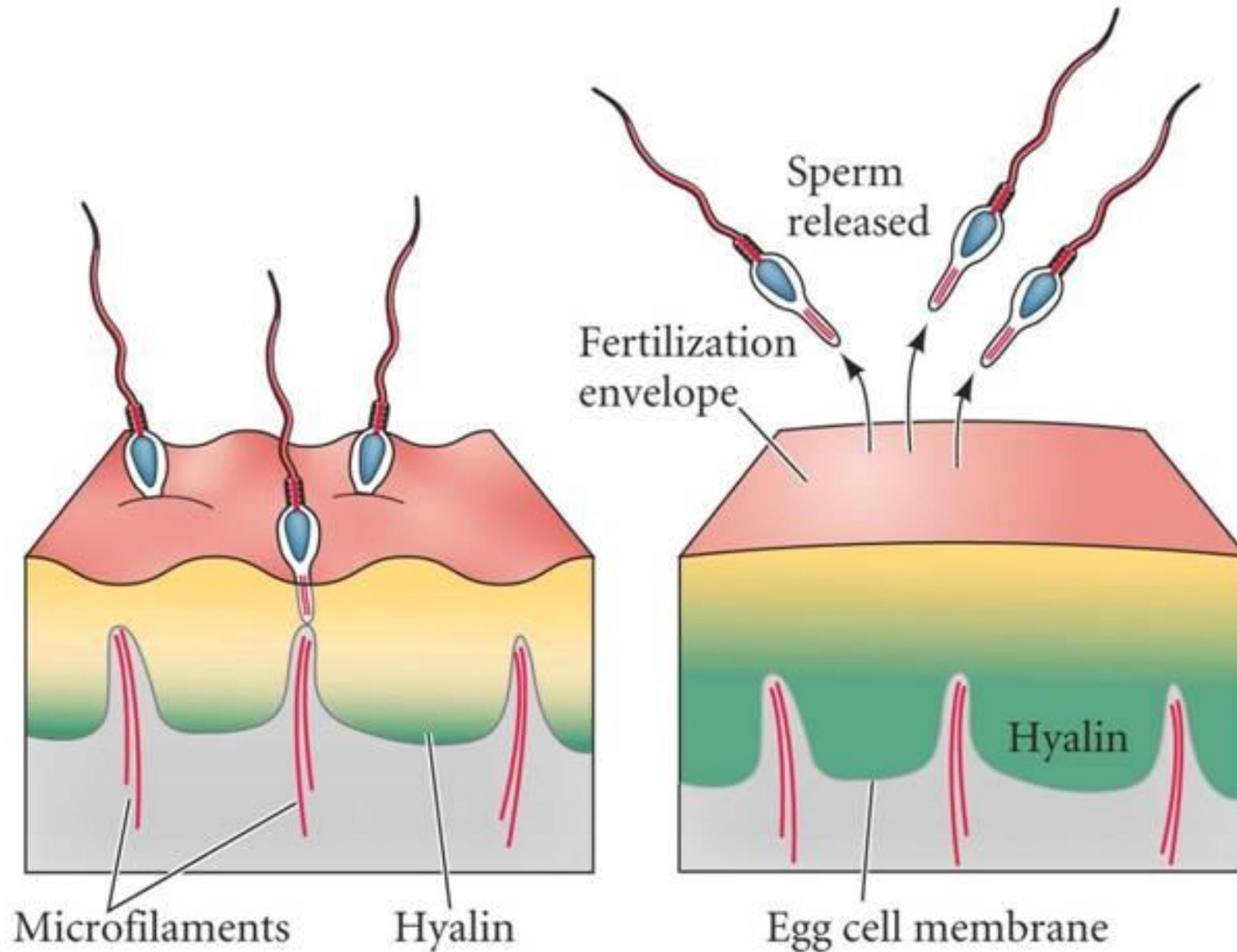


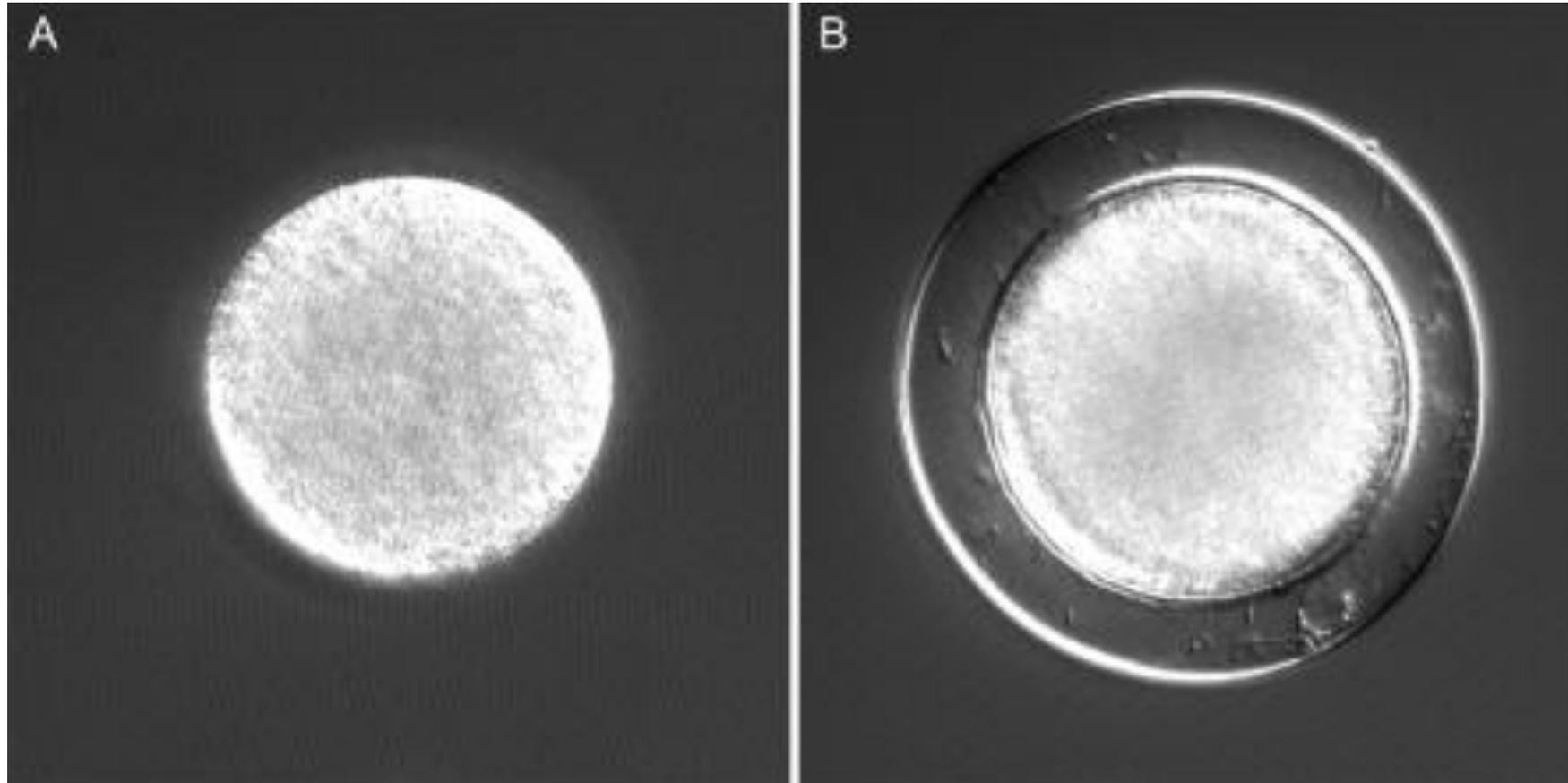
**Fig. 12.25 Calcium wave at fertilization.** A series of images showing an intracellular calcium wave at fertilization in a sea urchin egg. The fertilizing sperm has fused just to the left of the top of the egg, and triggered the wave. Calcium ion concentration is monitored with a calcium-sensitive fluorescent dye, using

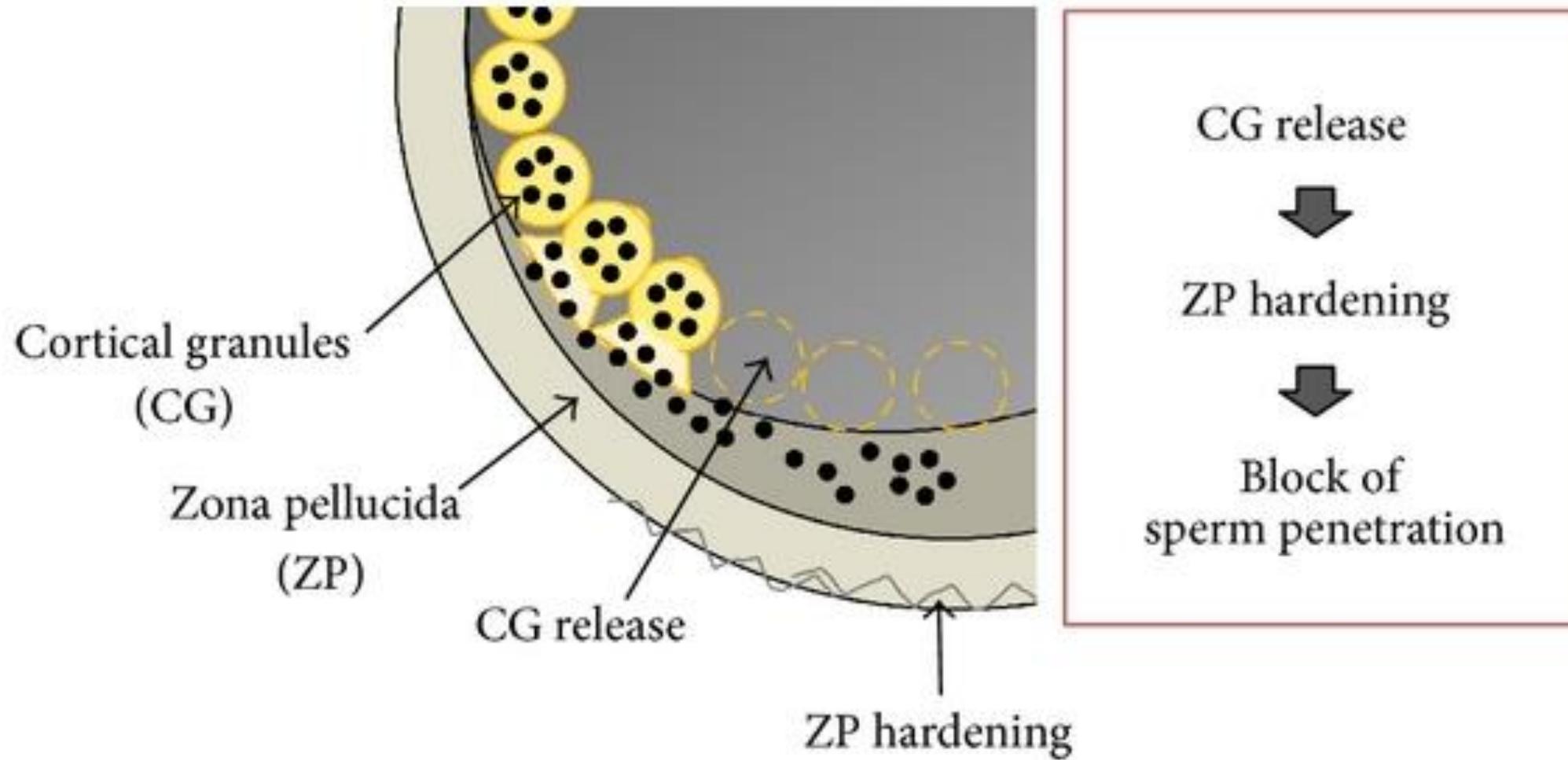
confocal fluorescence microscopy. Calcium concentration is shown in false color: red is the highest concentration, then yellow, green, and blue. Times shown are seconds after sperm entry. Photographs courtesy of M. Whitaker.

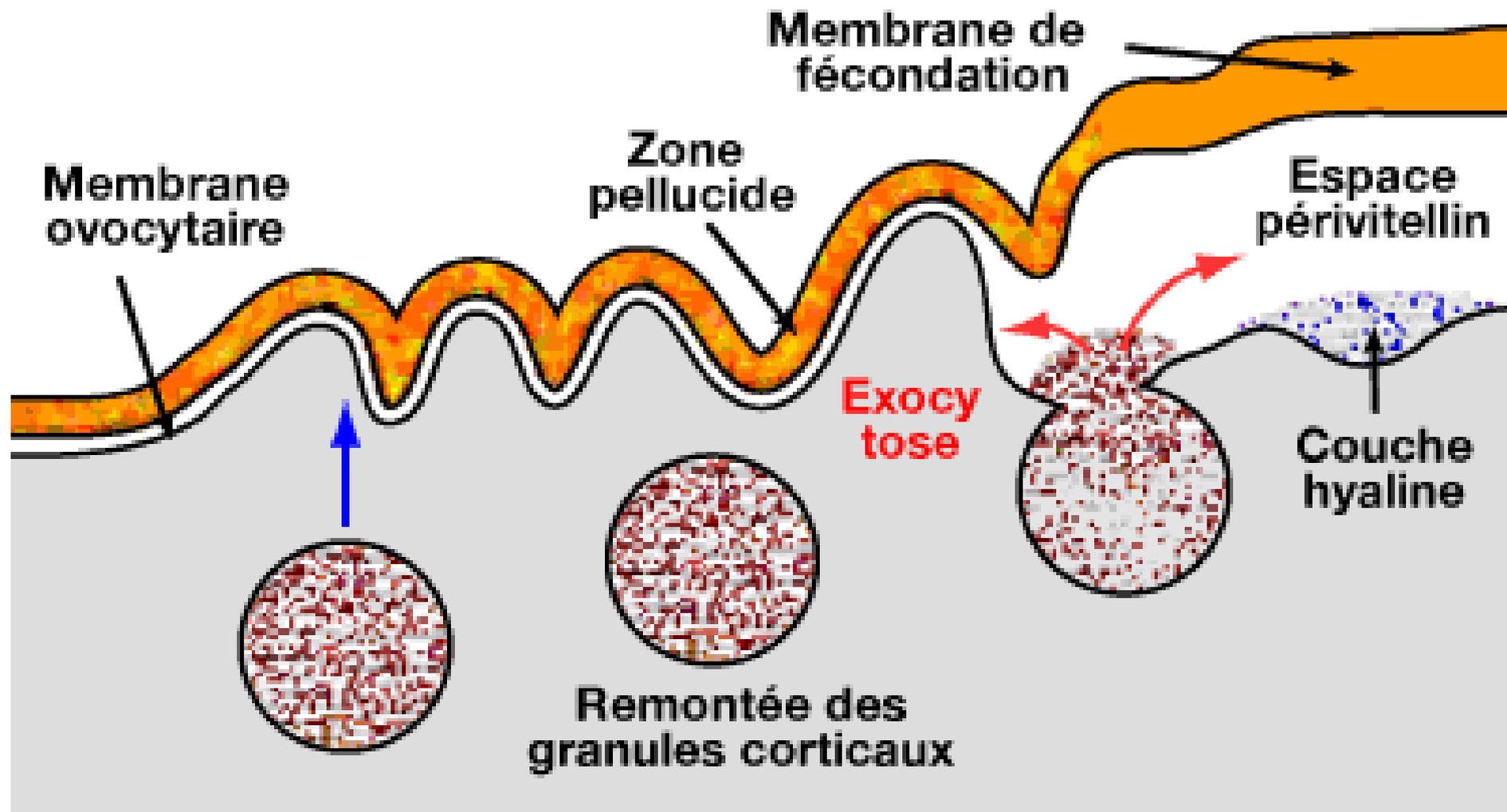


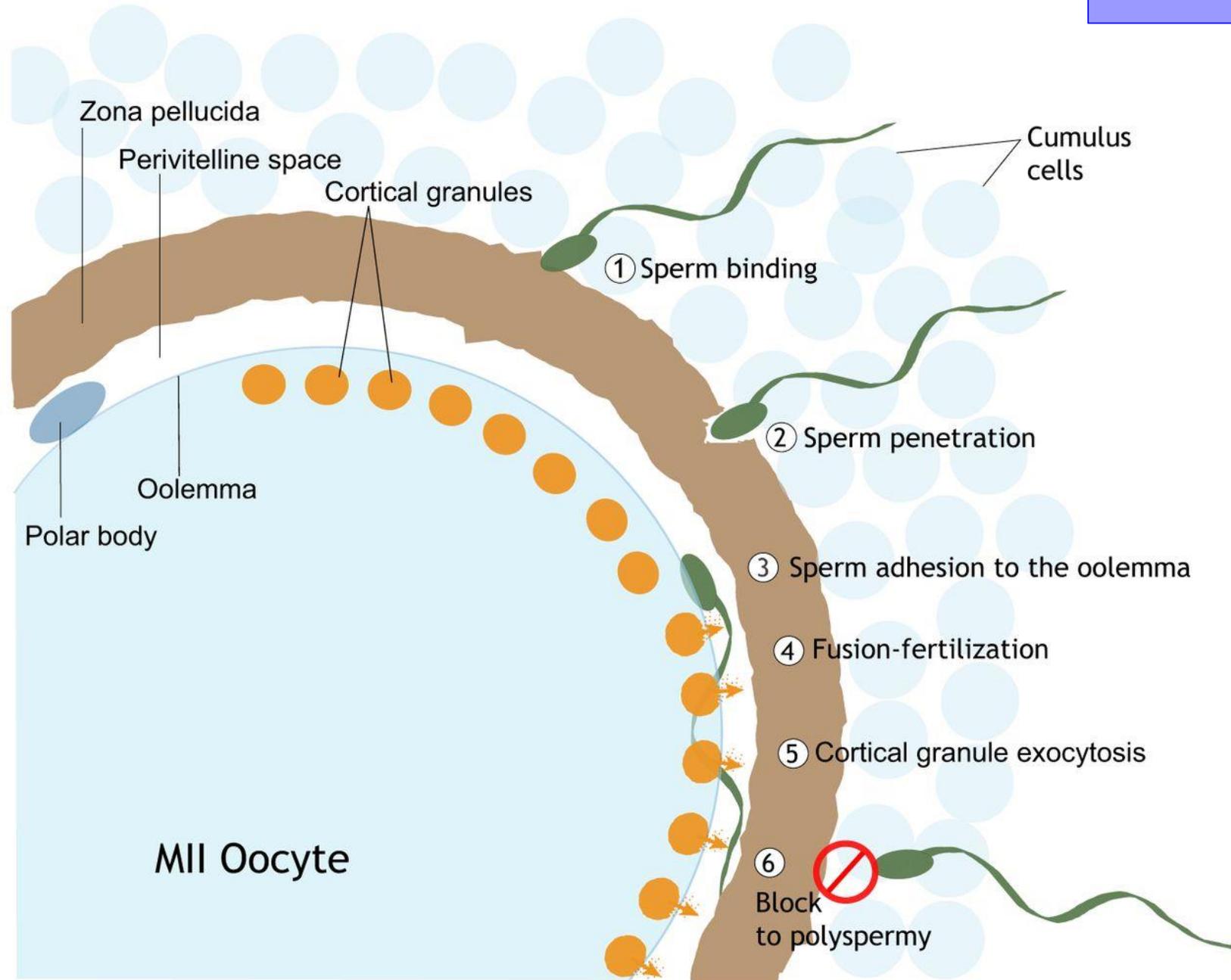


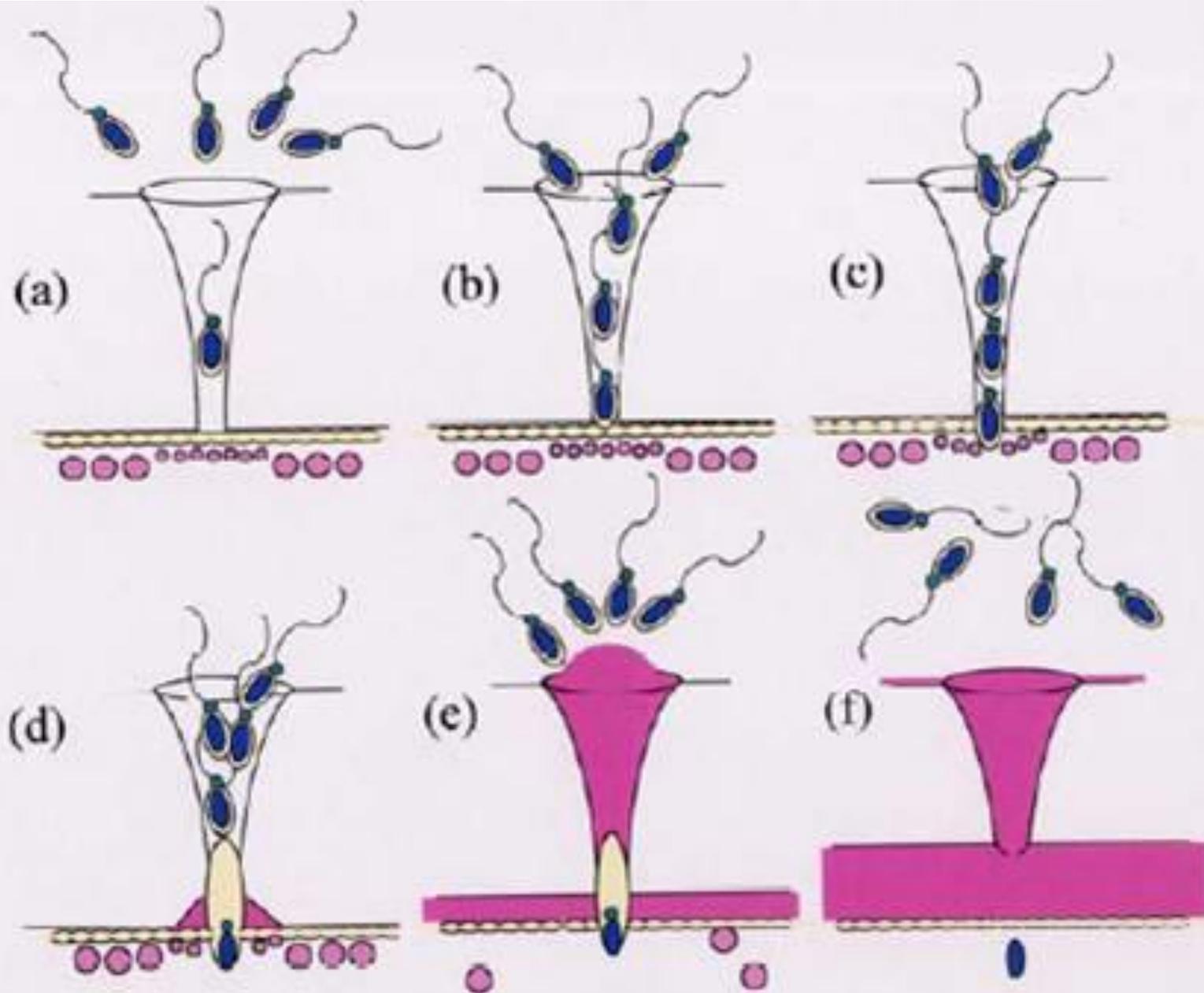




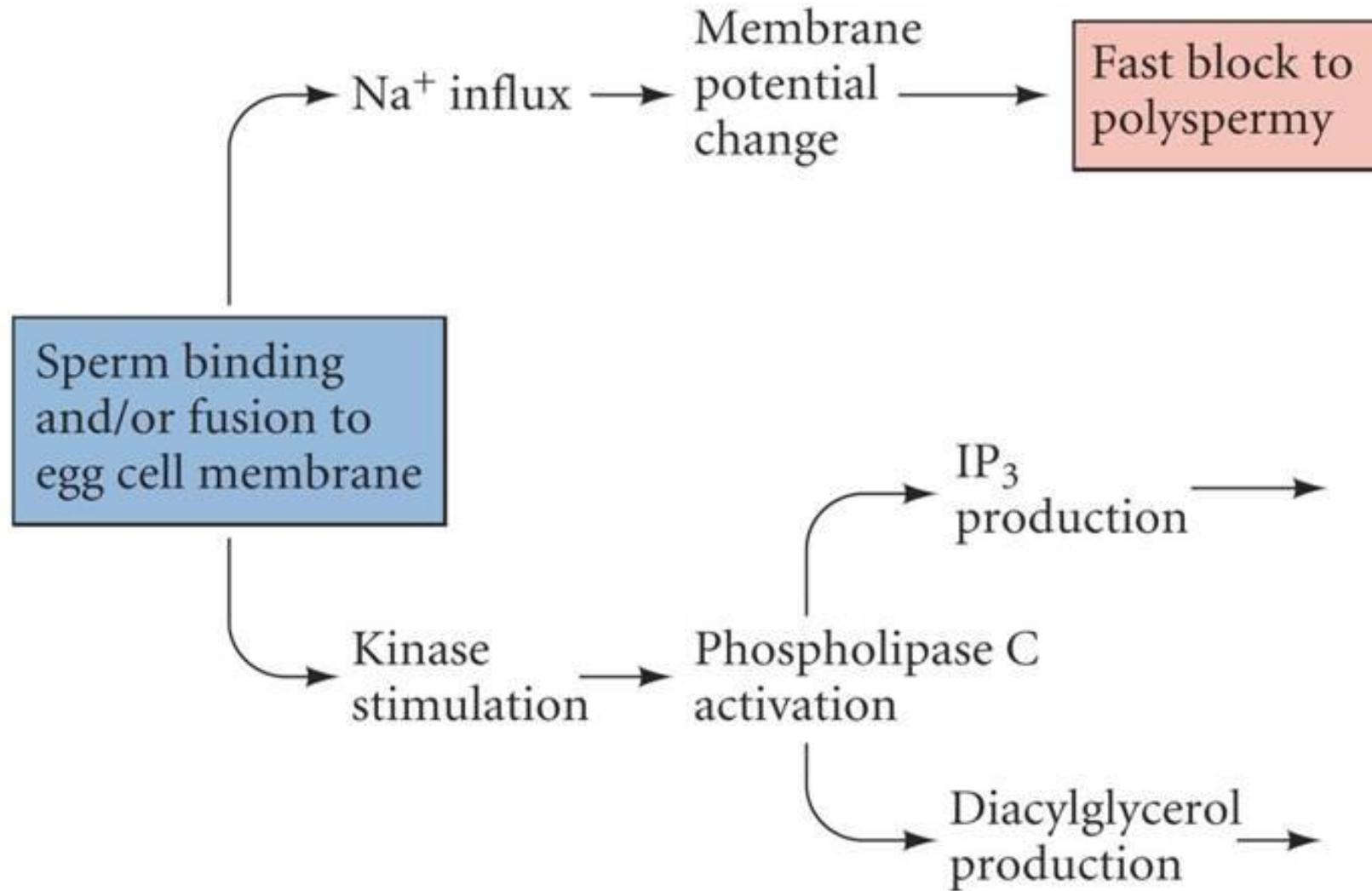


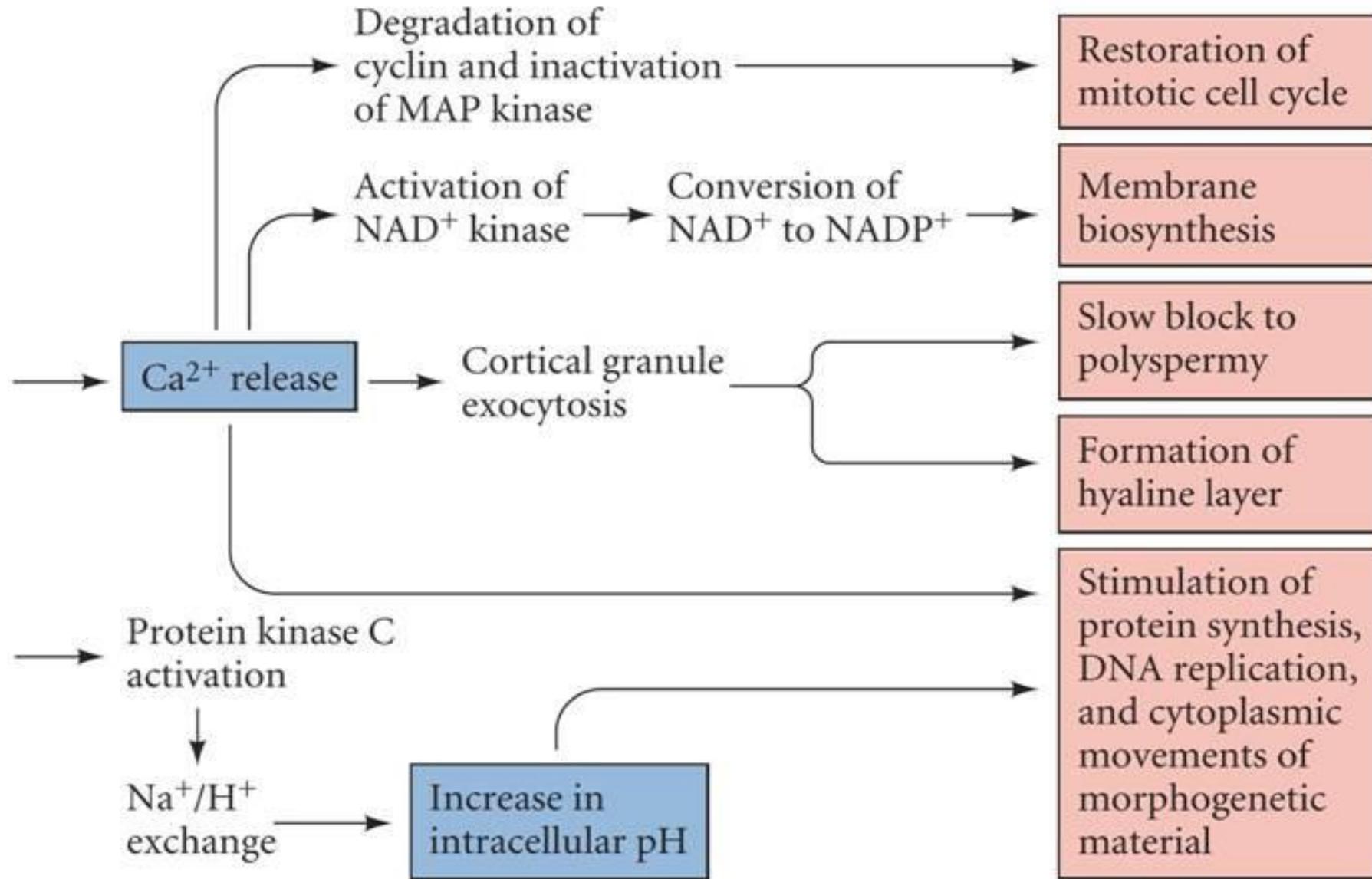


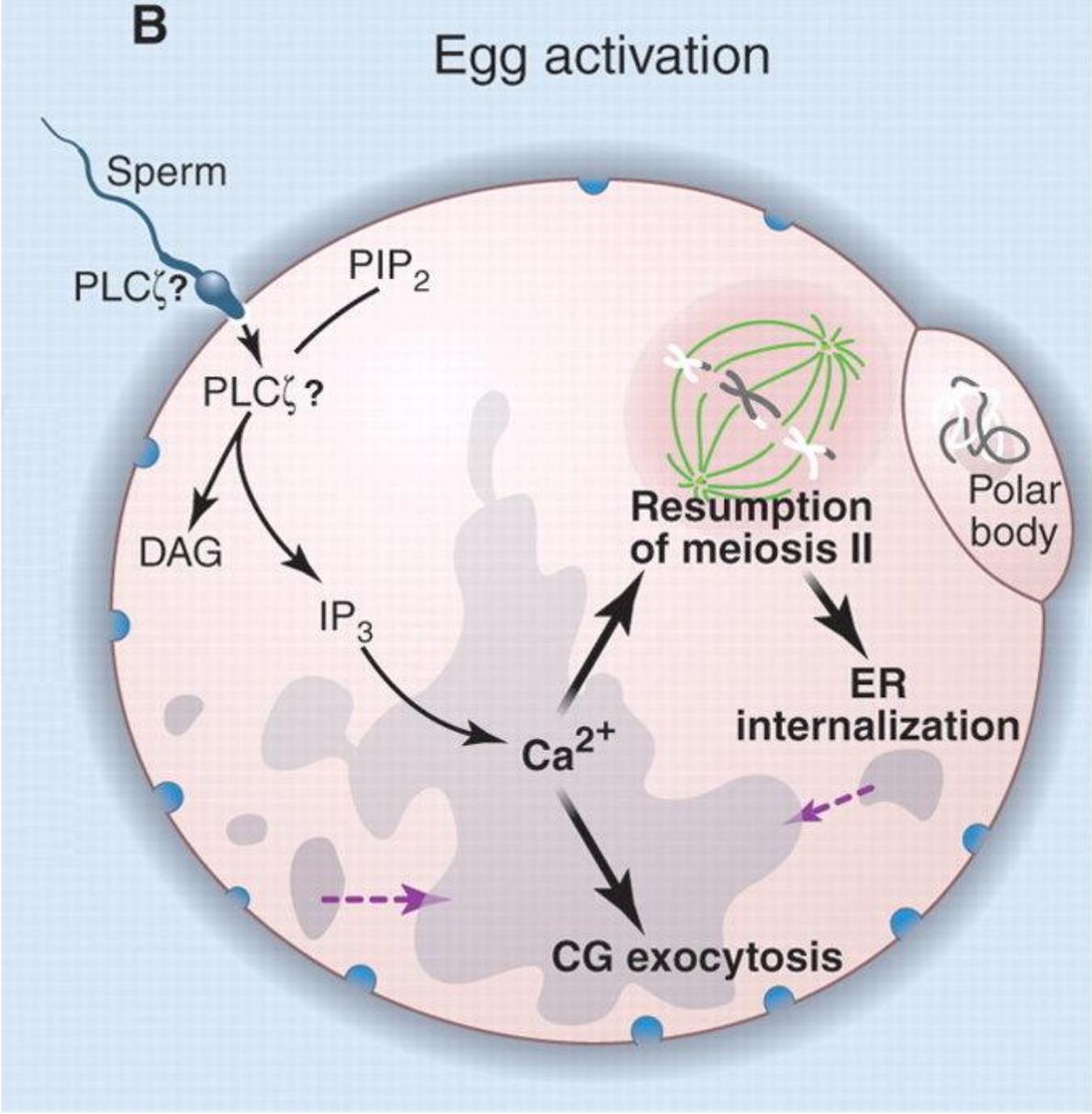




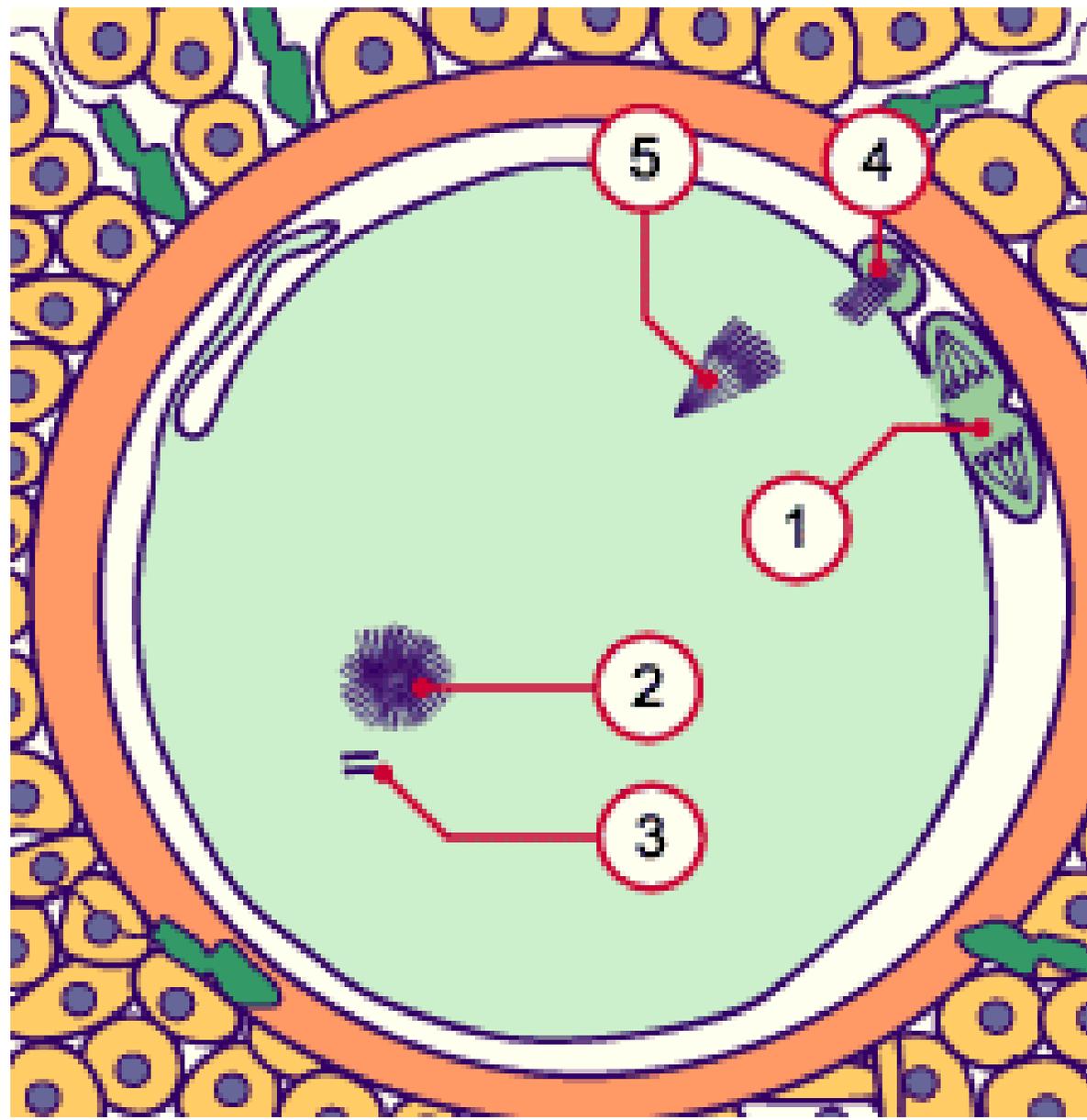


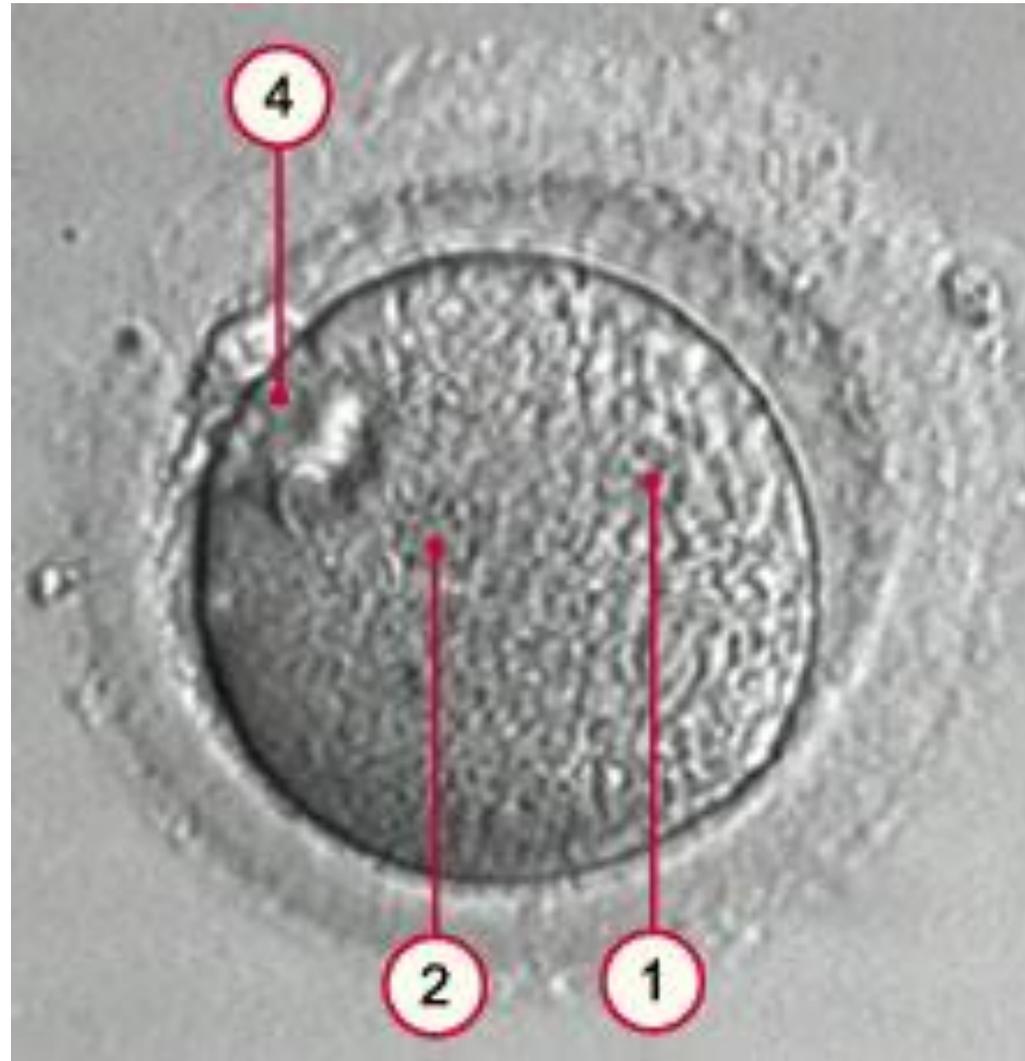
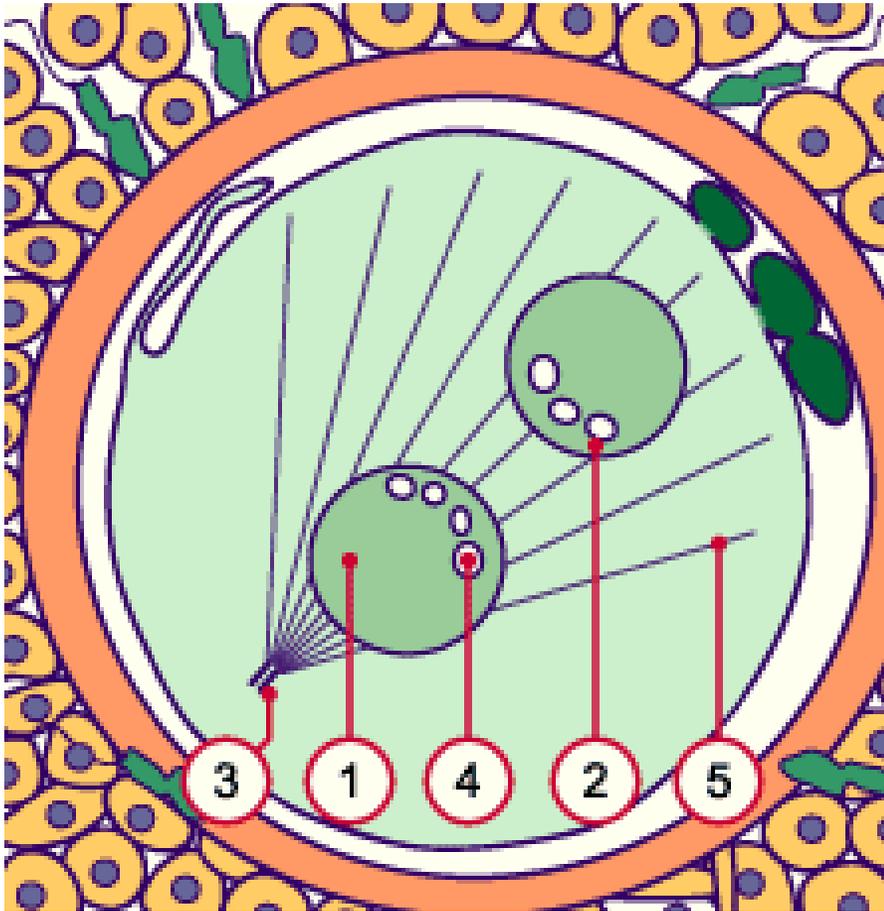




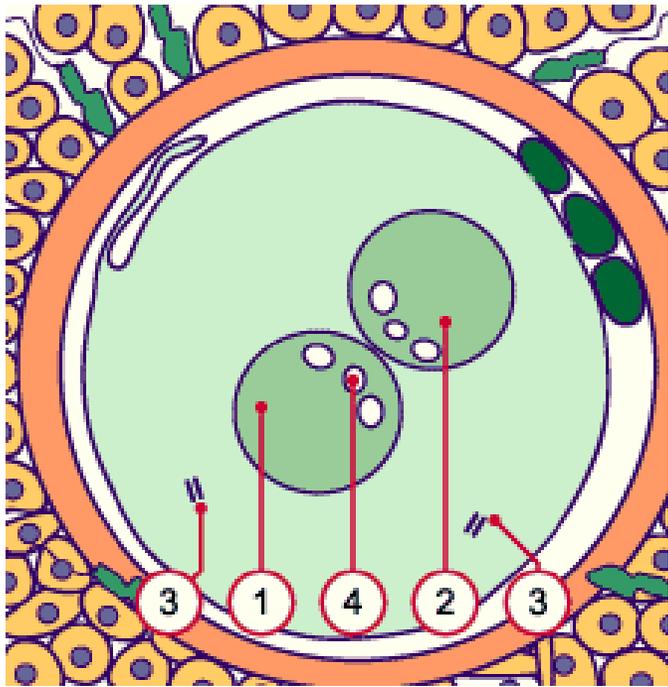


# Fusión del material genético

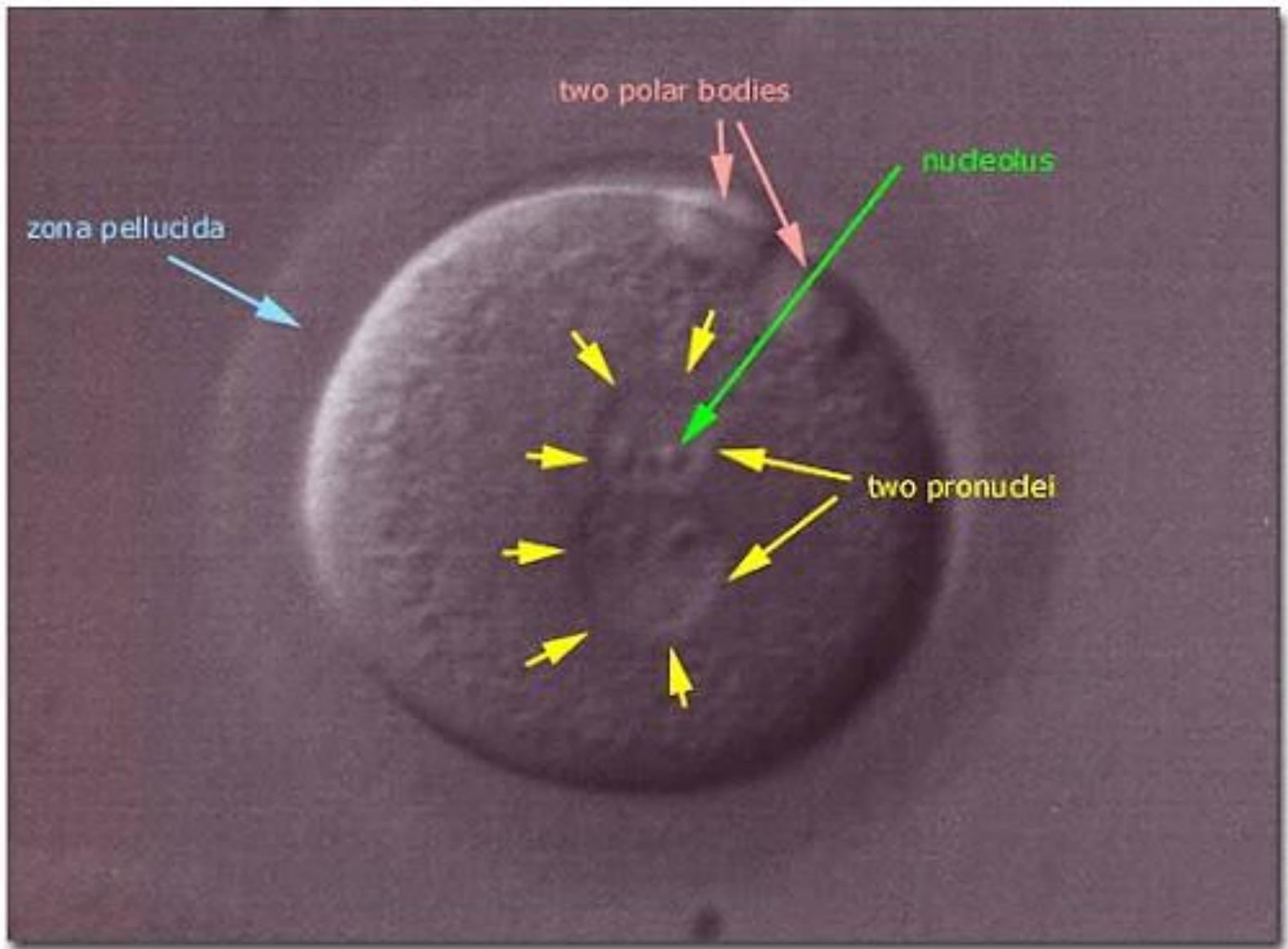




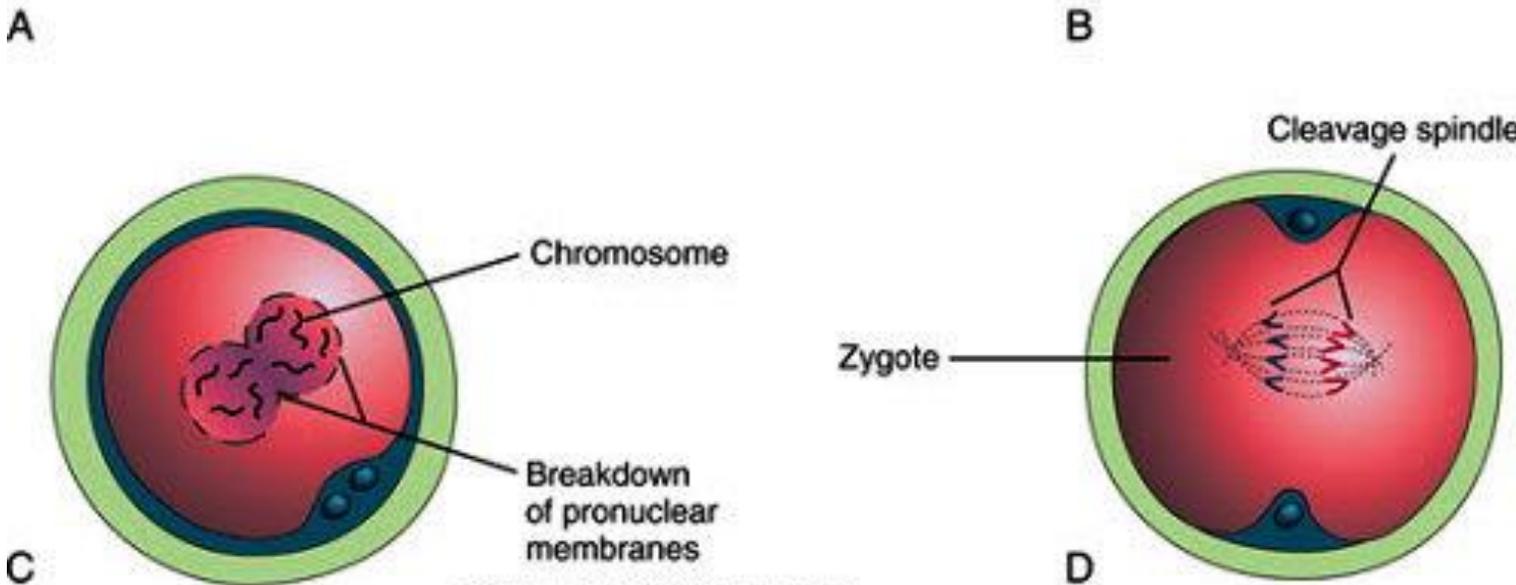
# Fusión del material genético



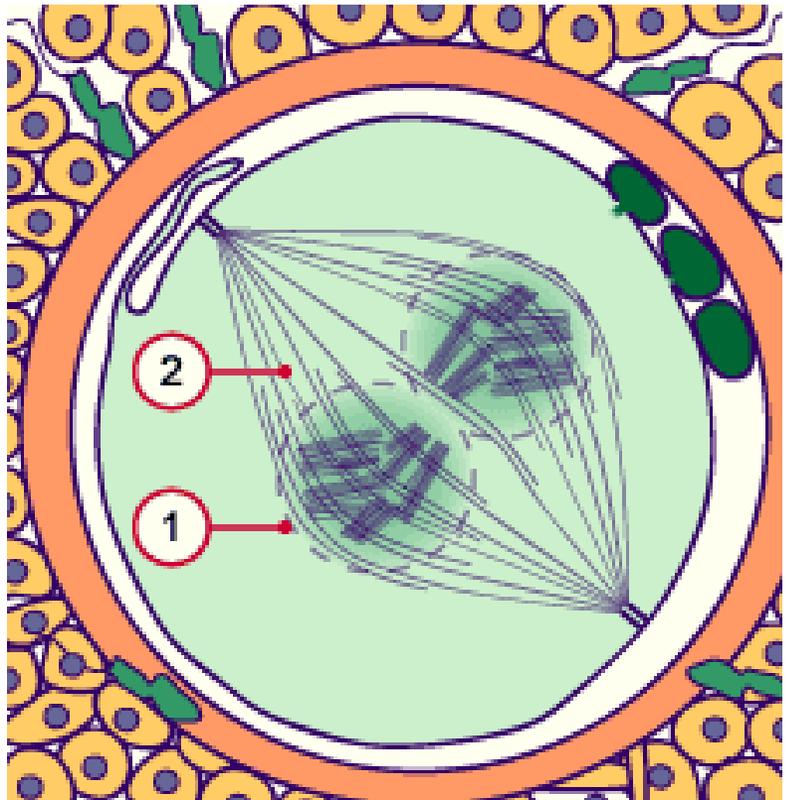
# Fusión del material genético



# Fusión del material genético



Moore et al: Before We Are Born, 8e  
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(a)



(b)

