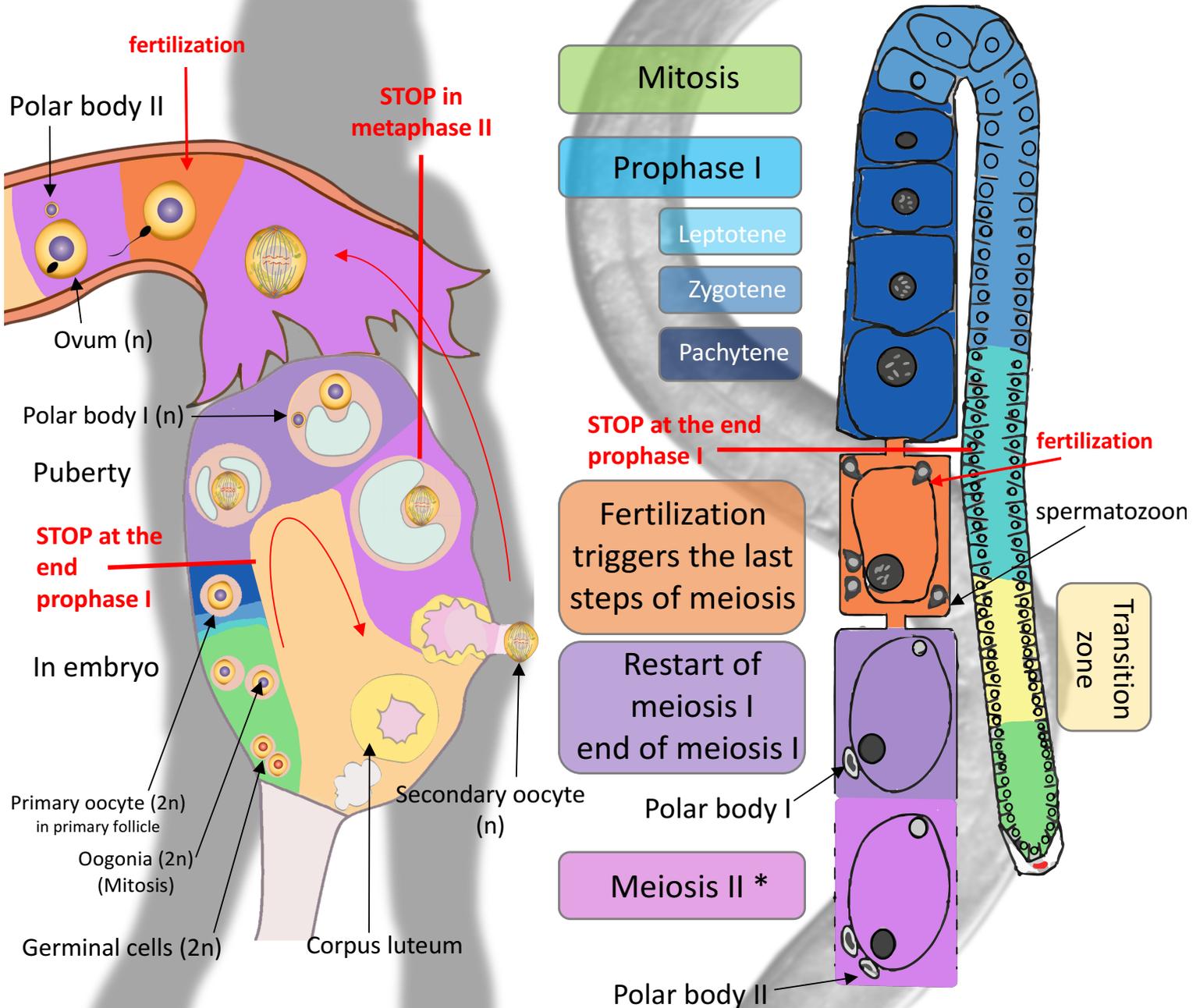


Oogenesis



*After ovulation, human oocyte stops in metaphase II. Meiosis II is completed only if fertilization occurs

**C. elegans* oocytes don't stop in meiosis II

Human: The stock of oocytes is produced during embryonic development (in women) while spermatozoa are produced from puberty to death (in men)

***C. elegans*:** the stock of spermatozoa is produced during larval stages while oocytes are produced during adult stage.

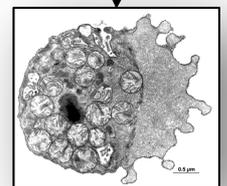
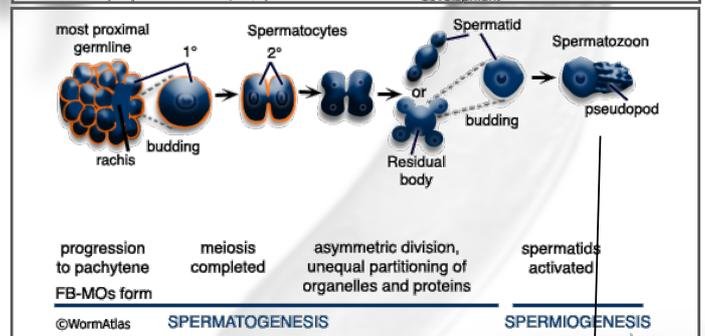
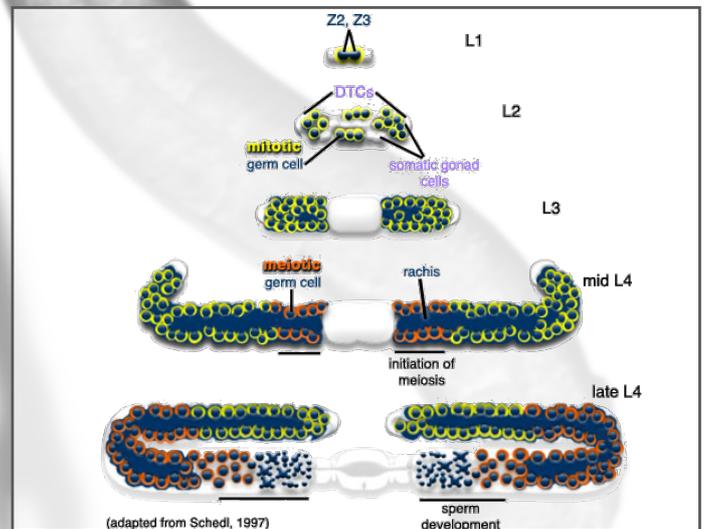
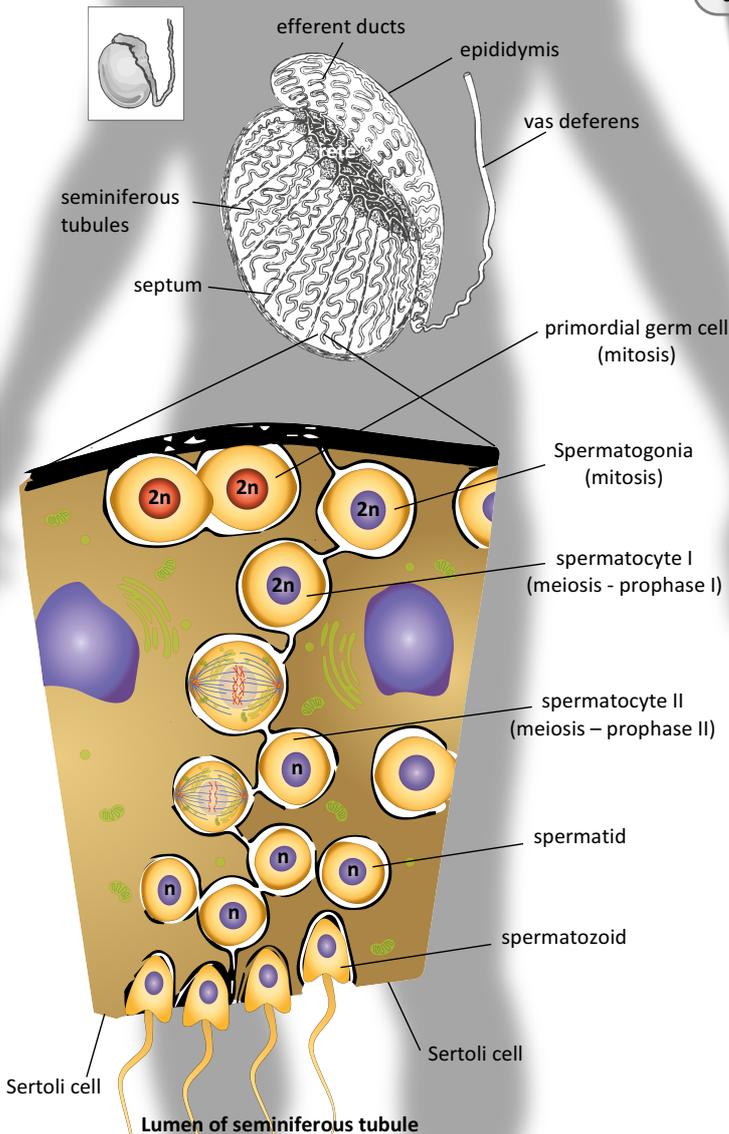
Spermatogenesis

Spermatogenesis starts at puberty, in men and goes on during its entire life (reaching a production peak at 20 years old and decreasing after 40). It takes place in the seminiferous tubules within the testes.

First, many primordial germ cells divide mitotically to form spermatogonia (2n). Then these spermatogonia enter meiosis.

In *C. elegans* spermatogenesis starts at the larval stage 4. Note that the generation of germ cells occurs during embryonic development. Z2 and Z3 cells will divide to produce the germ cells (the equivalent of the primordial germ cells in human). This process takes place at the same time in both gonads of the worm.

While these cells are mitotically dividing, they progress towards the so called « transition zone » of the gonad where meiosis is initiated. Finally, spermatozoons will be fully developed at the late L4 stage.



During meiosis, a spermatogonium progresses in the seminiferous tubules toward the lumen of the tubules to become 4 spermatides. Finally, every spermatide differentiates in spermatozoon. In men, it takes 70 days for a spermatogonium to become 4 fully developed spermatozoa.

Spermatozoa are stocked in spermatheca until fertilization. It takes 10 hours to complete meiosis and fully developed spermatozoa. It corresponds to the L4 developmental stage of the worm. At the adult stage, worms stop producing male gametes and produce only oocytes.

Human: The stock of oocytes is produced during embryonic development (in women) while spermatozoa are produced from puberty to death (in men)

C. elegans: the stock of spermatozoa is produced during larval stages while oocytes are produced during adult stage.