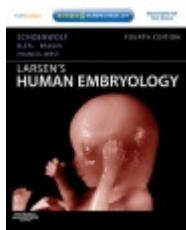
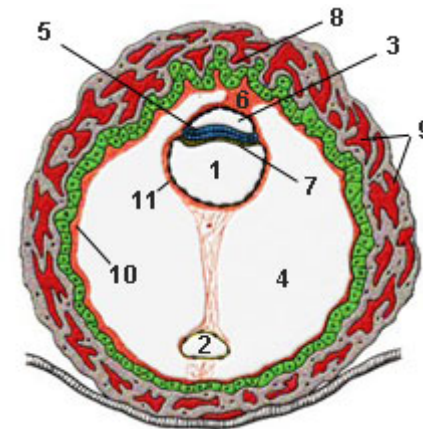
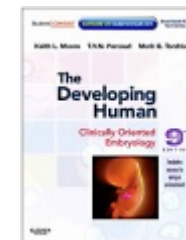


ANAT2341: Week 1 and 2



Resources ANAT2341:
<http://php.med.unsw.edu.au/embryology/>
Larsen's Human Embryology
The Developing Human: Clinically Oriented Embryology



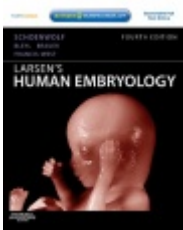
Dr Annemiek Beverdam – School of Medical Sciences, UNSW
Wallace Wurth Building Room 234 – A.Beverdam@unsw.edu.au

Fertilization Lecture

Cell division, mitosis and meiosis

Gametogenesis: oogenesis and spermatogenesis

Fertilization



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Week 1/2 Lecture overview

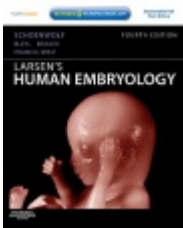
Fertilization

Cleavage stages

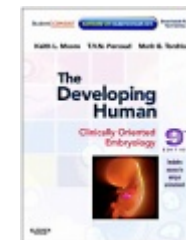
Morula , Compaction,

Blastocyst formation, hatching, implantation

Generation of bilaminar embryo

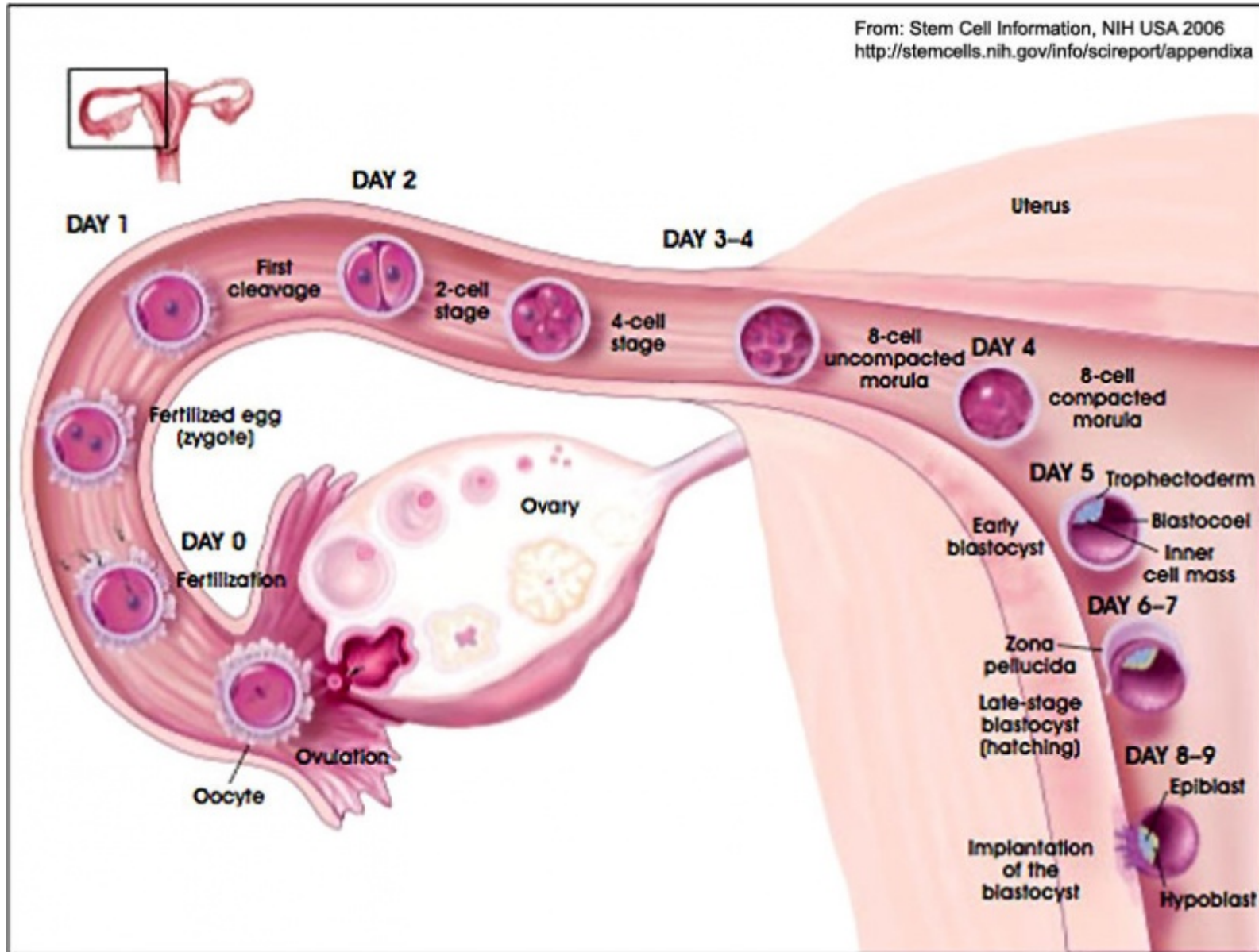


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Week 1/2

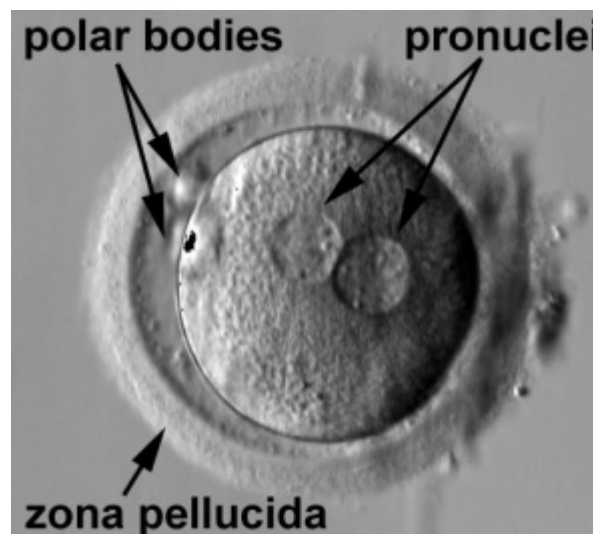
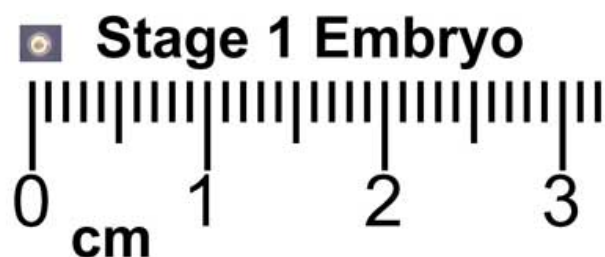


Fertilization

Spermatozoa
Sperm Binding
Acrosome Reaction
Membrane Fusion

Oocyte
Membrane Depolarization
Cortical Reaction
Meiosis 2

Zygote Formation
Diploid cell
Male and Female pronuclei
First mitotic division within 24h



Cleavage stages

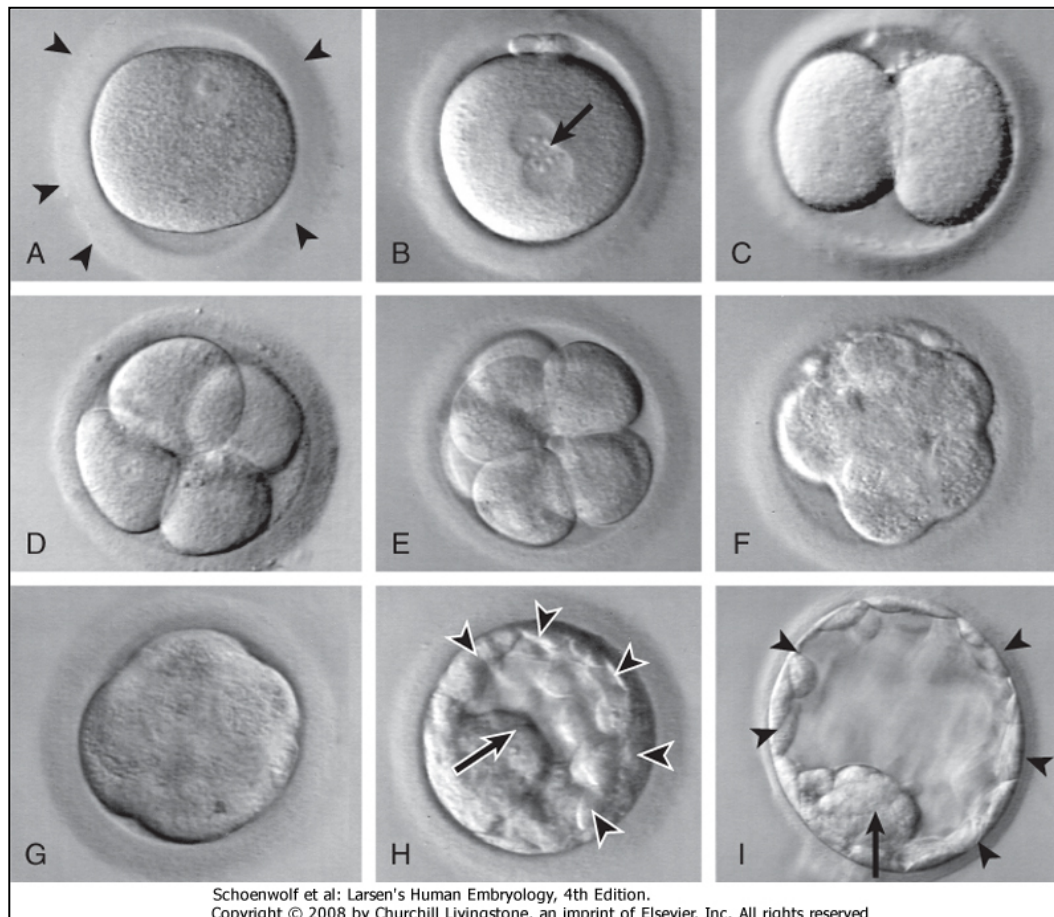
Day 1-3

Blastomeres

No gap stages

Synchronous/asynchronous cell division

Zona Pellucida



Cleavage stages

Day 1-3

Blastomeres

No gap stages

Synchronous/asynchronous cell division

Zona Pellucida

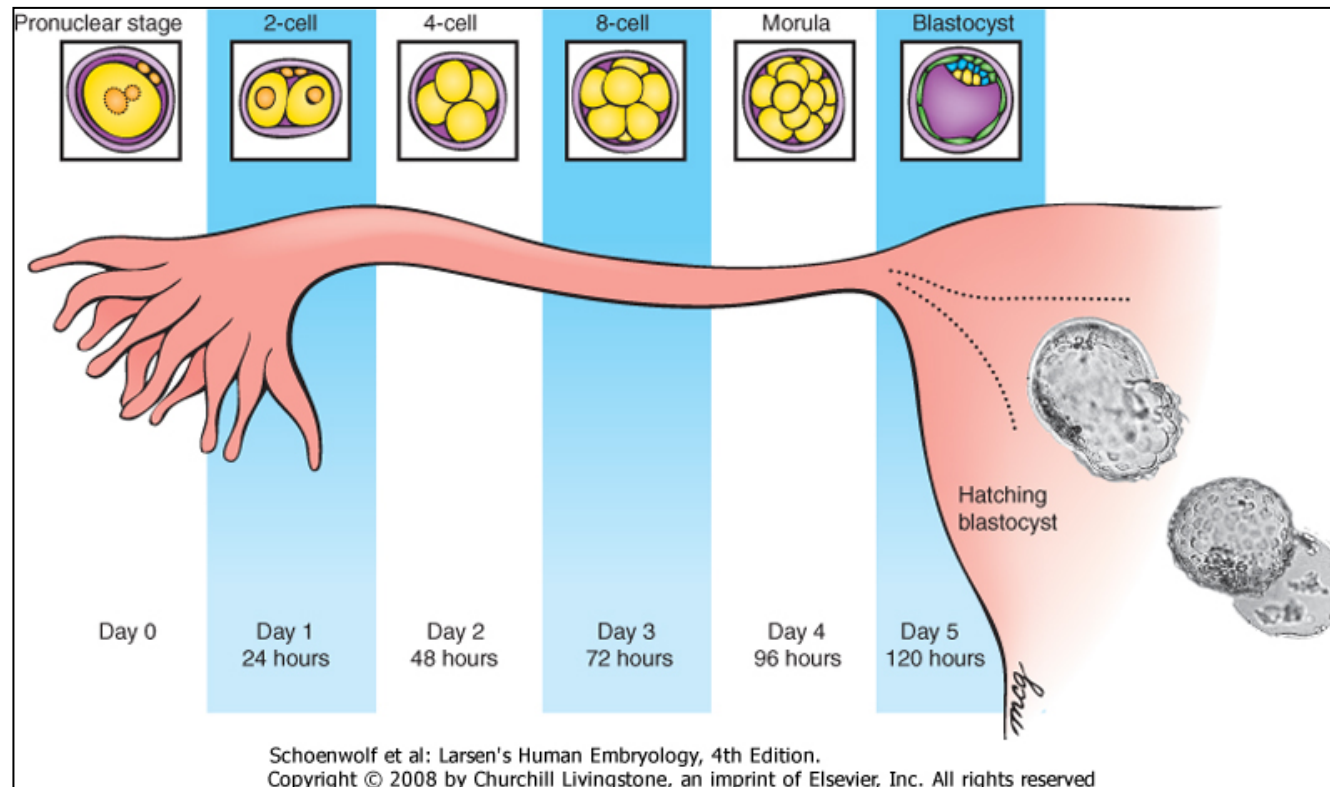
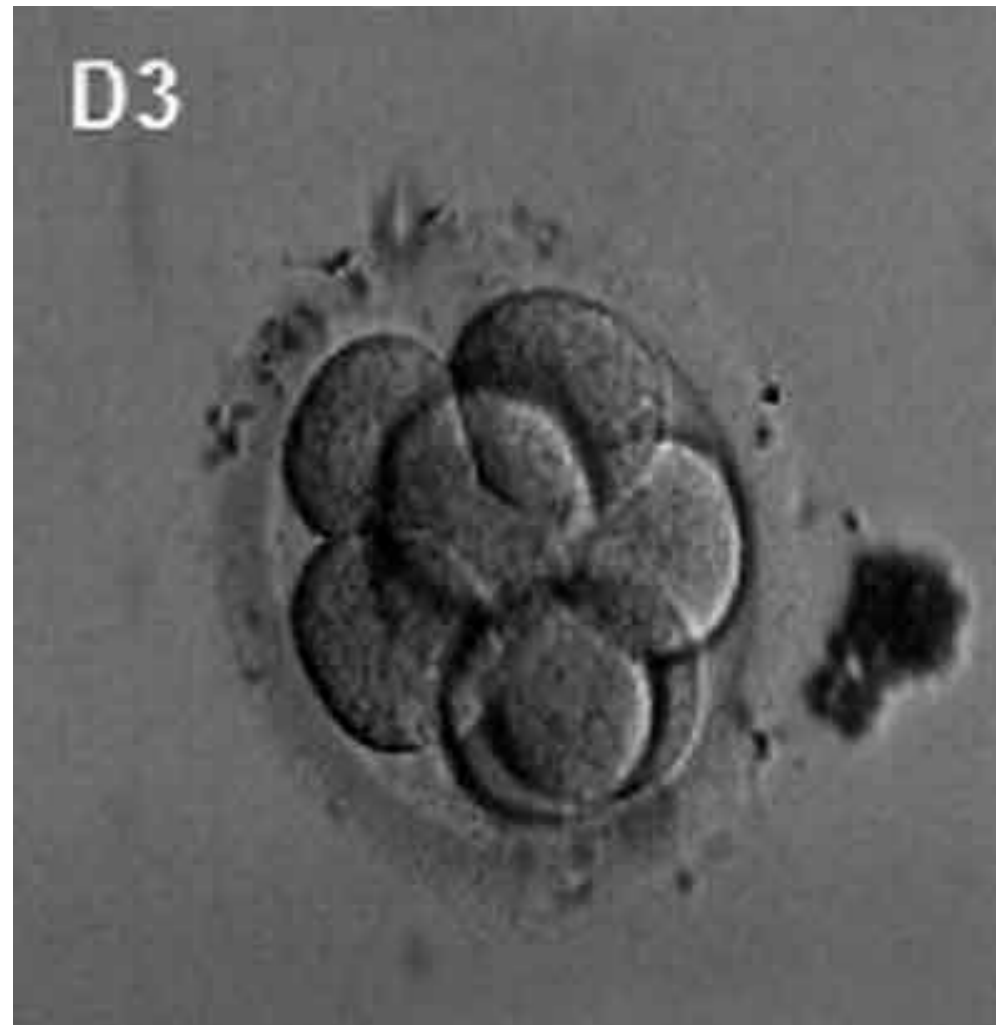


Fig 1-16 Larsen's

Morula

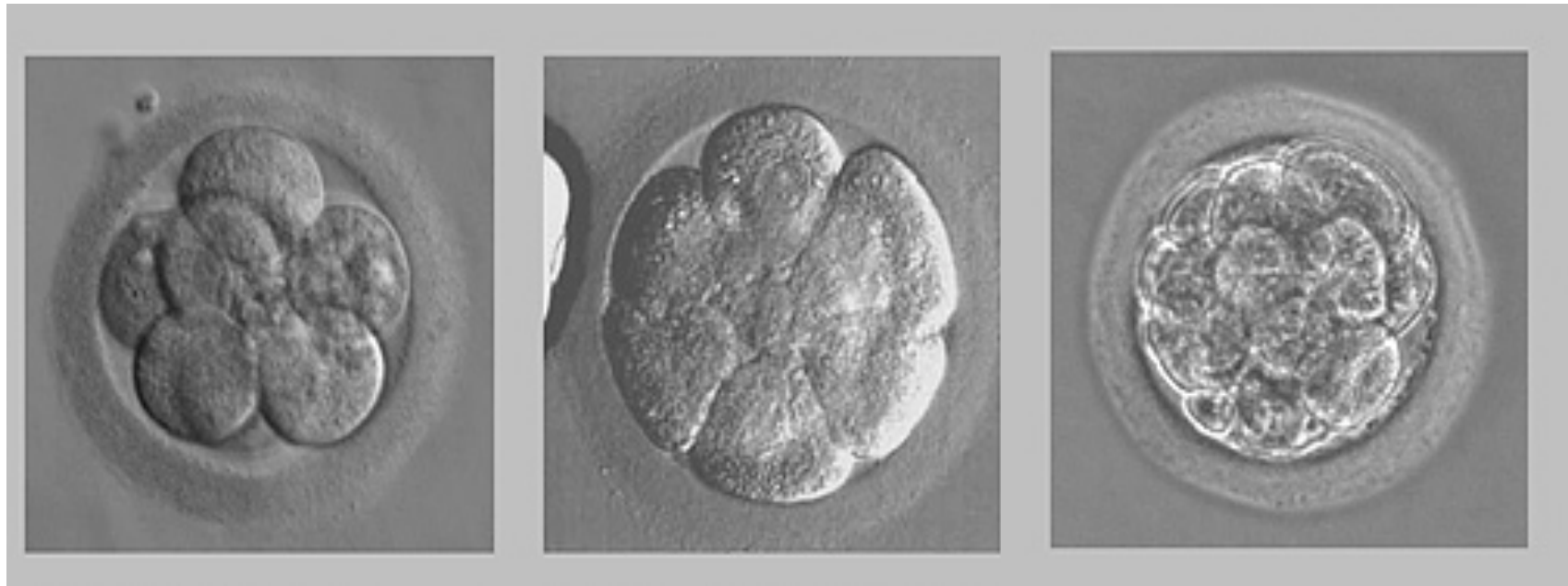
Day 3



Compaction

Day 3-4

Maximization of cell-cell contacts
Generation of inside-outside polarity
Fluid absorption



Blastocyst formation and hatching

Blastocoel formation (day 4-5)
Trophoblast and inner cell mass
Hatching (day 5-6)



http://php.med.unsw.edu.au/embryology/images/b/b4/Week1_001.mp4

http://php.med.unsw.edu.au/embryology/images/a/ae/Human_blastocyst_day_3-6.mp4

Implantation

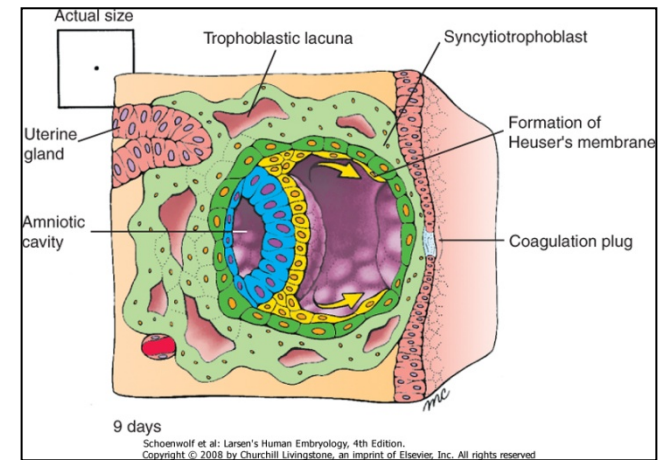
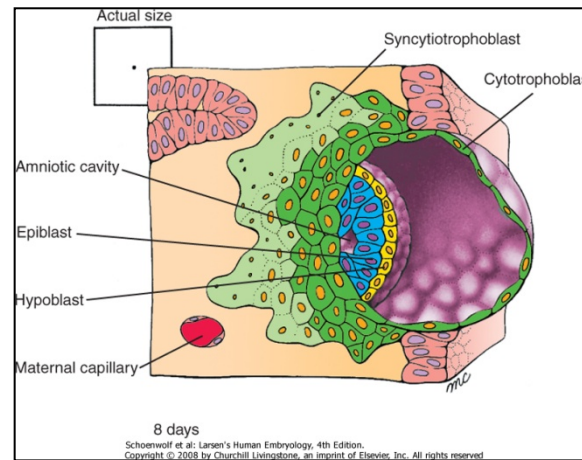
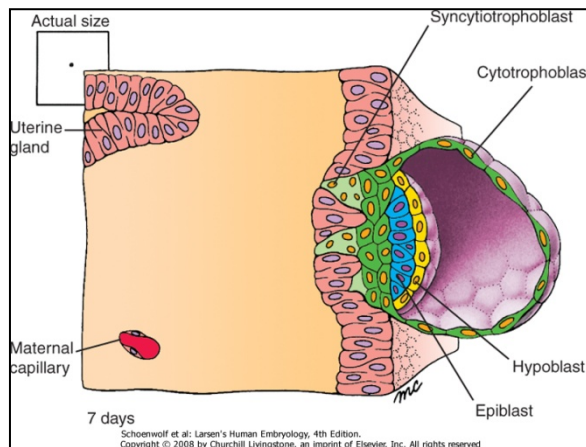
Day 7-9

Trophoblast: syncytiotrophoblast and cytotrophoblast

Inner cell mass: epiblast and hypoblast

Generation of bilaminar embryo

Amniotic cavity



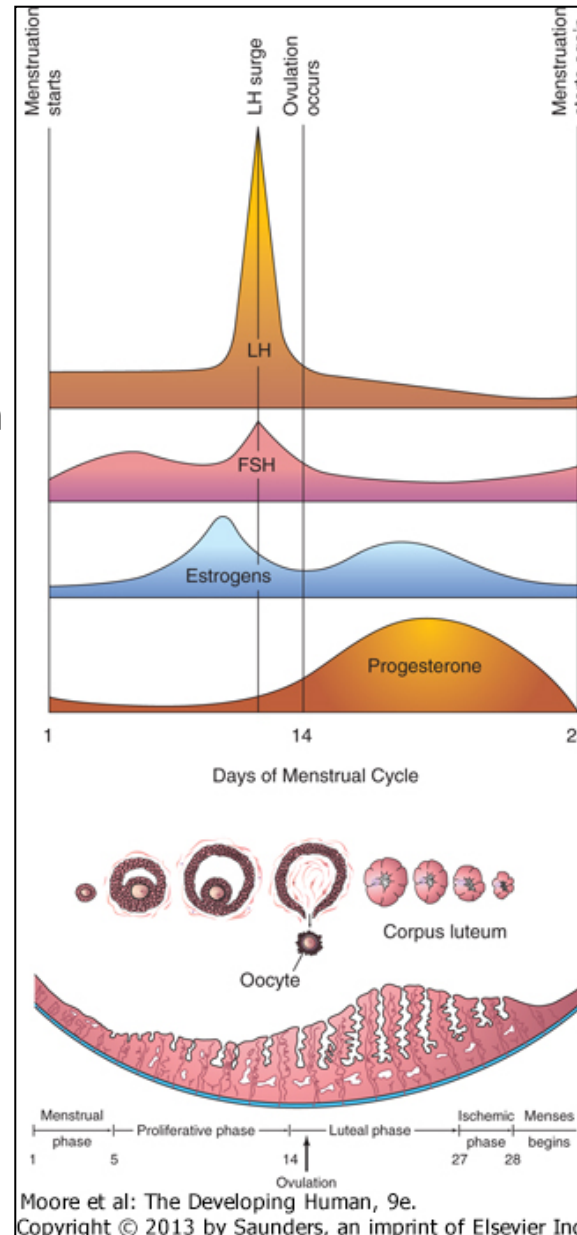
Ovarian Cycle

FSH: follicle growth,
estrogen production

Estrogen: LH surge,
growth of endometrium

LH: ovulation, progesterone production

Progesterone: growth of endometrium



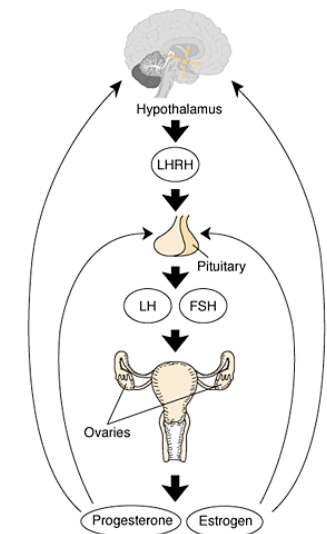
Pituitary hormones

Ovarian hormones

Corpus luteum vs Corpus albicans

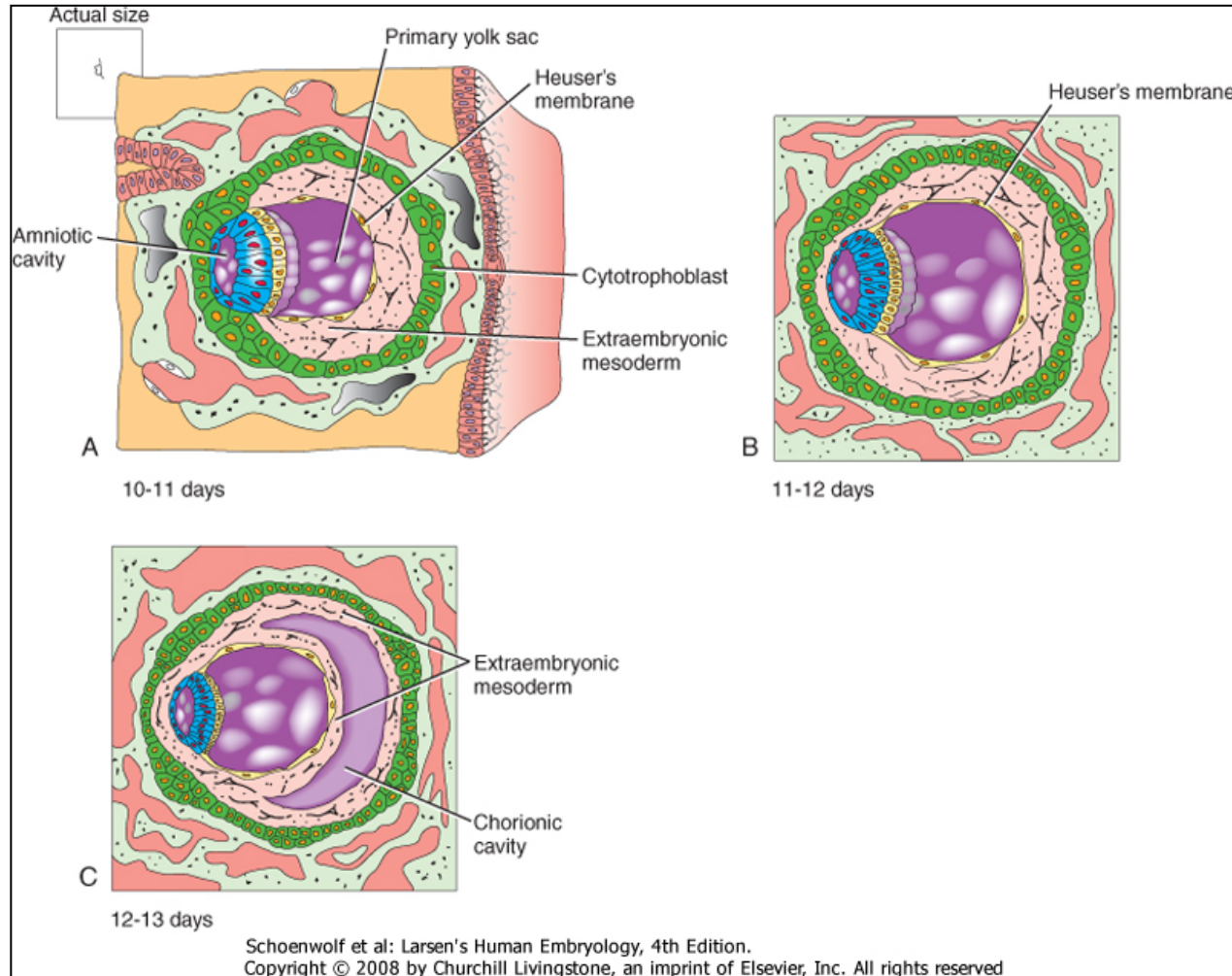


Human chorionic gonadotropin
(syncytiotrophoblast)



Bilaminar Embryo

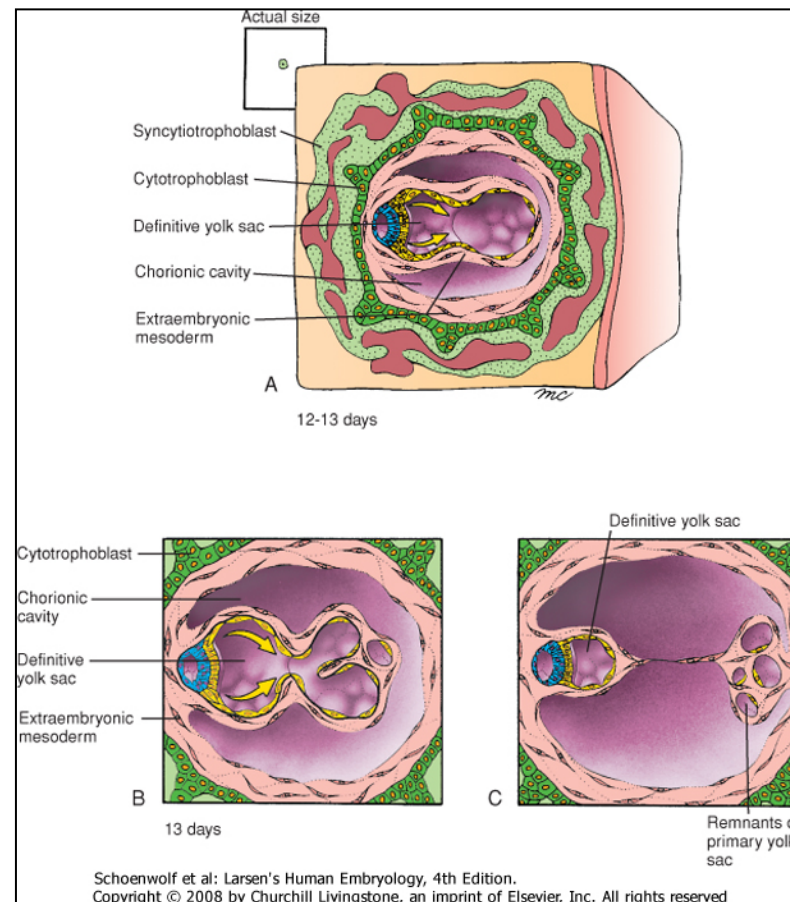
Day 10-13



Bilaminar Embryo

Day 12-13

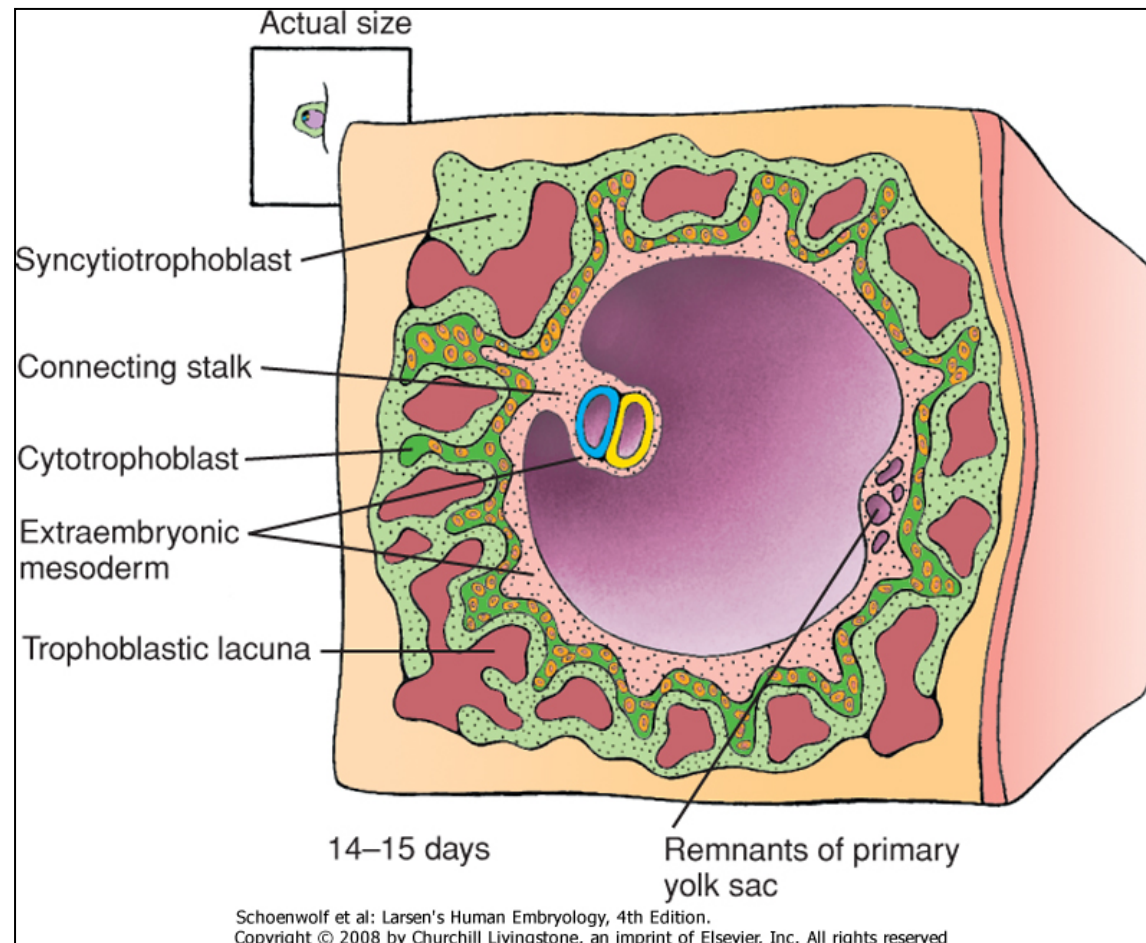
Inner cell mass forms epiblast, hypoblast
Trophoblast forms syncytiotrophoblast and cytotrophoblast



Bilaminar Embryo

Day 13-14

Inner cell mass forms epiblast, hypoblast
Trophoblast forms syncytiotrophoblast and cytotrophoblast



ANAT2341: Week 1 and 2

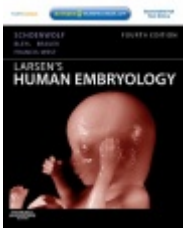
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