Uterine Natural Killer (uNK) Cells	• Identified by the presence of cell surface marker CD56. • Produce vascular endothelial growth factor C. • Their deficiency results in placental defects in mice. • Found in close proximity to uterine spiral arteries.
Menstruation	Spontaneous cyclic shedding of uterine lining due to uterus undergoing **decidualisation**.
Blastocyst apposition	• Changes in epithelial cell polarity. • Pinopodes pull the blastocyst close to the endometrium. • Differentiation of the trophoblast into two different cell masses. • Secretion of 'homing signals' by the endometrium.
Syncytiotrophoblast	• At implantation consists of multi-nucleic layer from fusion of cytotrophoblast cells. • Entirely surrounds an embryo once completely embedded in the endometrium. • Forms a syncytium. • Crosses the basal lamina & penetrates into the stroma that lies below.
Gestational Lactogenesis	• The breast is fully developed with abundant active alveoli, & **partially** functional. • Hormone-induced differentiation of secretory cells leads to production of milk-specific **lactose**. • Presence of lactose in urine is a **marker** for lactogenesis from week 10 in female pregnancy.
Pluripotency of PGCs	• PGCs escape from differentiation commitment before the formation of embryonic disc. • PGCs localise in a protected niche. • Pluripotency requires down-regulation of somatic cell genes.
Foetal role in initiation of parturition	• The release of ACTH from the foetal anterior pituitary. • Lack of oxygen leading to the foetus becoming **hypoxic**. • The production of foetal cortisol. • The production of prostaglandins by the placenta.
Synepithelialchorial, cotyledonary & non-invasive (sheep)	• Foetal **cotyledon** (along uterus) & maternal **caruncle** ('cup') come together to form a **placentome**. • Cotyledon: In-growths of chorionic villi (finger-like projections that extend into caruncle but **does not break down any maternal tissue**). • Vessels divides & ramify (=> capillary network) & come to lie under surface of the trophoblast. • Maternal arteries supply each caruncle & capillaries between terminal villi of foetal cotyledon. • Tissue between maternal & foetal blood supply (non-invasive). Distance for blood to get. • Organisation of foetal & maternal vessels: Blood can flow in opposite directions (counter-exchange) in capillary beds: **maximising opportunities for metabolic exchange**. • Mother's blood will be at a higher pressure than foetal blood & blood flows in opposite direction.
Haemochorial, discoid & invasive (human)	• Stem villi connect chorionic plate (highly vascularised) to basal plate forming a labyrinthine series of maternal blood space (break-down of tissue, amniotic cavity with embryo). • **Maternal spiral artery** at decidual base of placenta ejects its blood into maternal blood spaces (high pressure). • **Villi of chorionic syncytiotrophoblast** (mature human placenta) contains mesodermal tissue that foetal blood vessels run, penetrate deep into maternal tissue to form extensive capillary network. • A thin layer of chorionic syncytiotrophoblast separates foetal blood vessels from maternal blood. • Capillaries are dilated at tips of **terminal villi** & form tortuous loops thus foetal blood flow through tips will be **slow** => direct exchange of metabolites with maternal blood (from maternal blood spaces into foetal capillaries).
Gonadostat Hypothesis	• **Before** puberty, very **low threshold** of gonadal **steroids**, regulating the negative feedback action. • **At** puberty, hypothalamus-pituitary become **less sensitive** (**desensitised**) to gonadal steroids. • **Increased** levels of **GnRH**, gonadotrophins & gonads response: increased steroids. • **Steroid** hormones induce: **secondary sexual features** (anatomical), **maturity** (mental) & **sex drive** (behavioural).
Magnocellular Neurons	• Hypothalamic nuclei & pituitary. Makes & releases **oxytocin** (OT) & **vasopressin** (VP). • **Large** cell bodies in **paraventricular** & **supraoptic nuclei**. • Axons run down pituitary stalk & terminates in **posterior pituitary**. • Terminals release OT into **portal blood system** & connects to systemic circulation.
Parvocellular Neurons	• Hypothalamic nuclei & pituitary. Makes **GnRH** & other releasing factors. • **Small** cell bodies in **several** nuclei. **Neurosecretory/neuroendocrine** (nerves release hormones). • Cell body (nucleus), axons (hypothalamus) & terminates (capillary beds in **median eminence**). • Each produces a package of GnRH that is released into portal blood system **via capillaries**. • **GnRH** diffuses out of blood & acts on gonadotrophs (LH, FSH) & lactotrophs in **anterior pituitary** (AP) to control reproductive function; *Aka:* AP GnRH stimulates gonadotrophs to release LH & FSH • Capillaries coalesce to form hypothalamo-pituitary portal vessels that connect capillary beds in AP