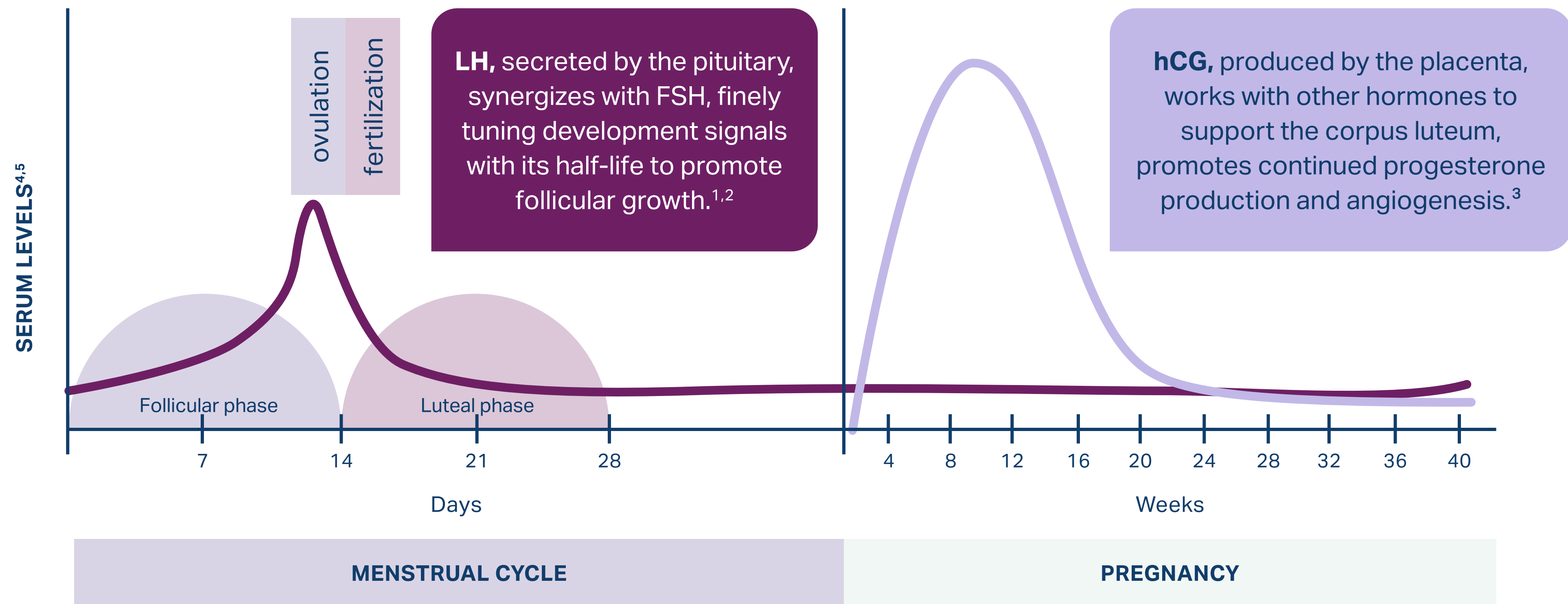


Different physiological function and source

LH and hCG originate from distinct sources, serve unique physiological roles, and are secreted at different stages of reproductive life¹

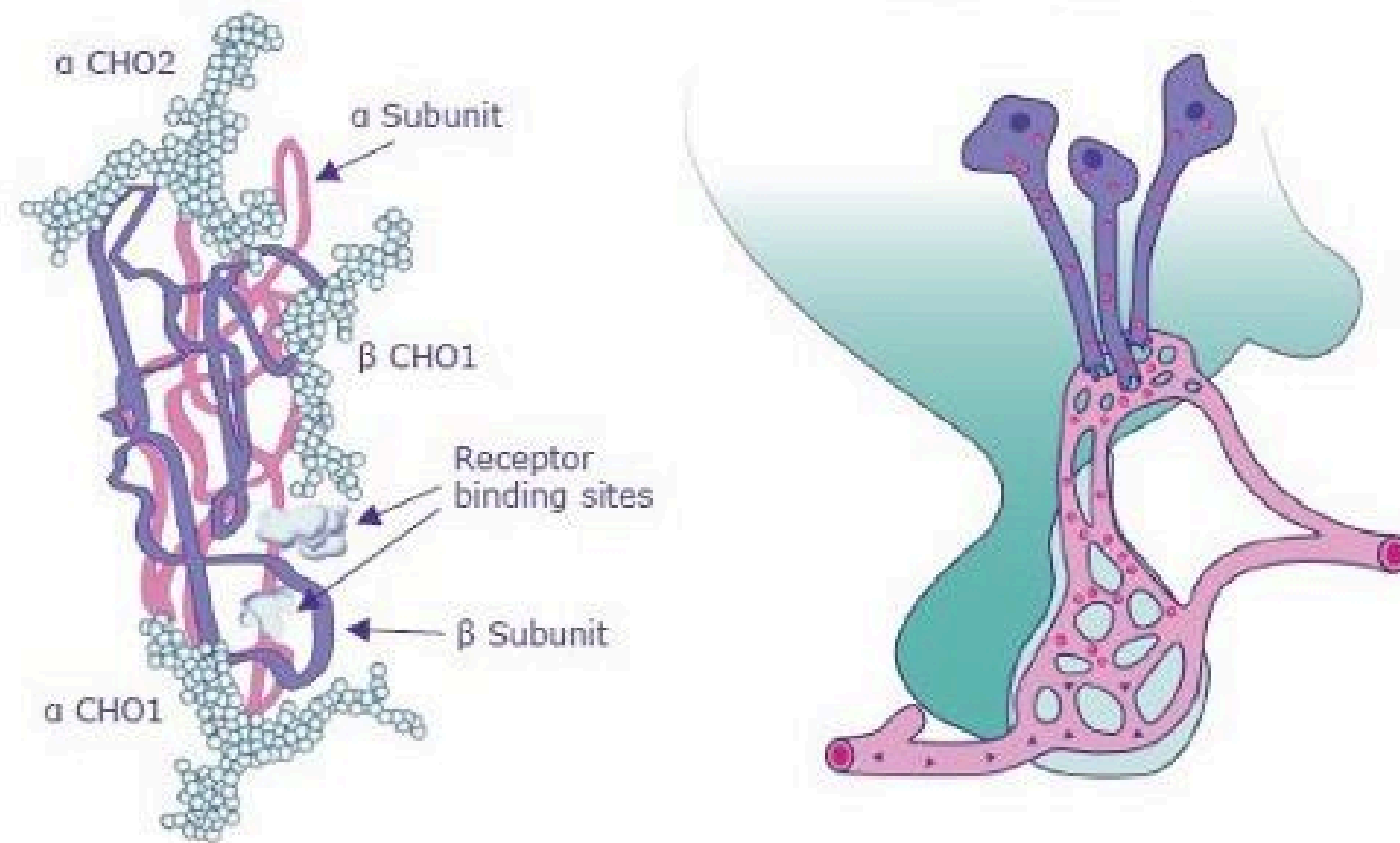


hCG=human chorionic gonadotropin; LH=luteinizing hormone; FSH=follicle stimulating hormone.

References: 1. Casarini L et al. *PLoS One*. 2012; 7(10):e46682. 2. Bosch E et al. *Hum Repro*. 2021;36(6):1469-1480. 3. Cole LA. *Reprod Biol Endocrinol*. 2010;8:102. 4. Reed BG et al. The normal menstrual cycle and the control of ovulation. *NCBI Bookshelf*. Updated 2018. 5. Korevaar TIM et al. *Eur J Epidemiol*. ;30(9):1057-1066.

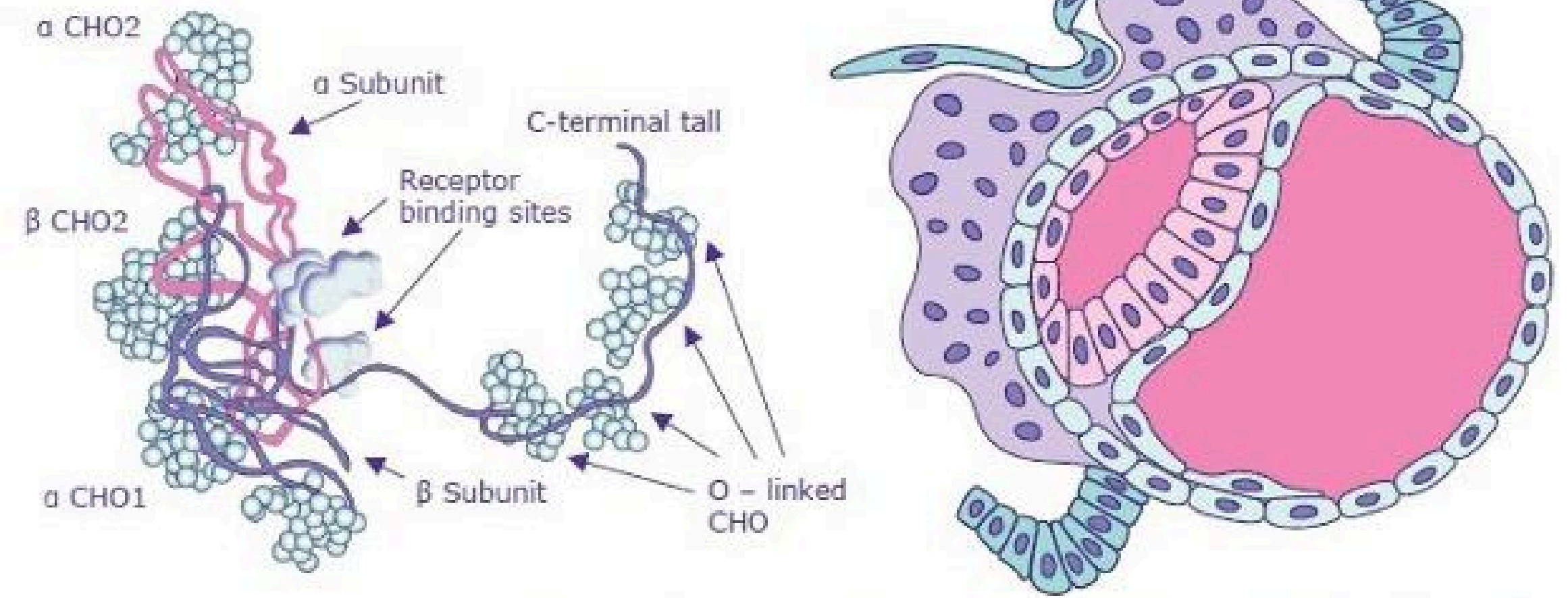
LH and hCG act through the same LH receptor¹

LH is produced in the Gonadotropic cells of **anterior pituitary gland**²



LH - α 89 aa - β 121 aa
3 Glycosylation sites - 28 kDa^{5,6}

hCG is produced in **Syncytiotrophoblast cells** (pregnant women) and pituitary (menopausal women)^{3,4}



hCG - α 92 aa - β 145 aa
8 Glycosylation sites - 37 kDa^{1,6,7}

aa=amino acids; kDa=kilodaltons.

References: **1.** Trinchard-Lugan I et al. *Reprod BioMed Online*. 2002;4(2):106-15. **2.** Clay CM et al. *Front Endo*. 2021;11:606153. **3.** Leao RdBF et al. *Clinics*. 2014;69(4):279-293. **4.** Hage LE et al. *Cleveland Clin J Med*. 2021;88(11):635-639. **5.** le Cottonec J-Y et al. *Fertil Steril*. 1998;69(2):189-194. **6.** Excurra D et al. *Reprod Biol Endo*. 2014;12:95. **7.** Camperi J et al. *Anal Bioanal Chem*. 2020;412:4423-4432.

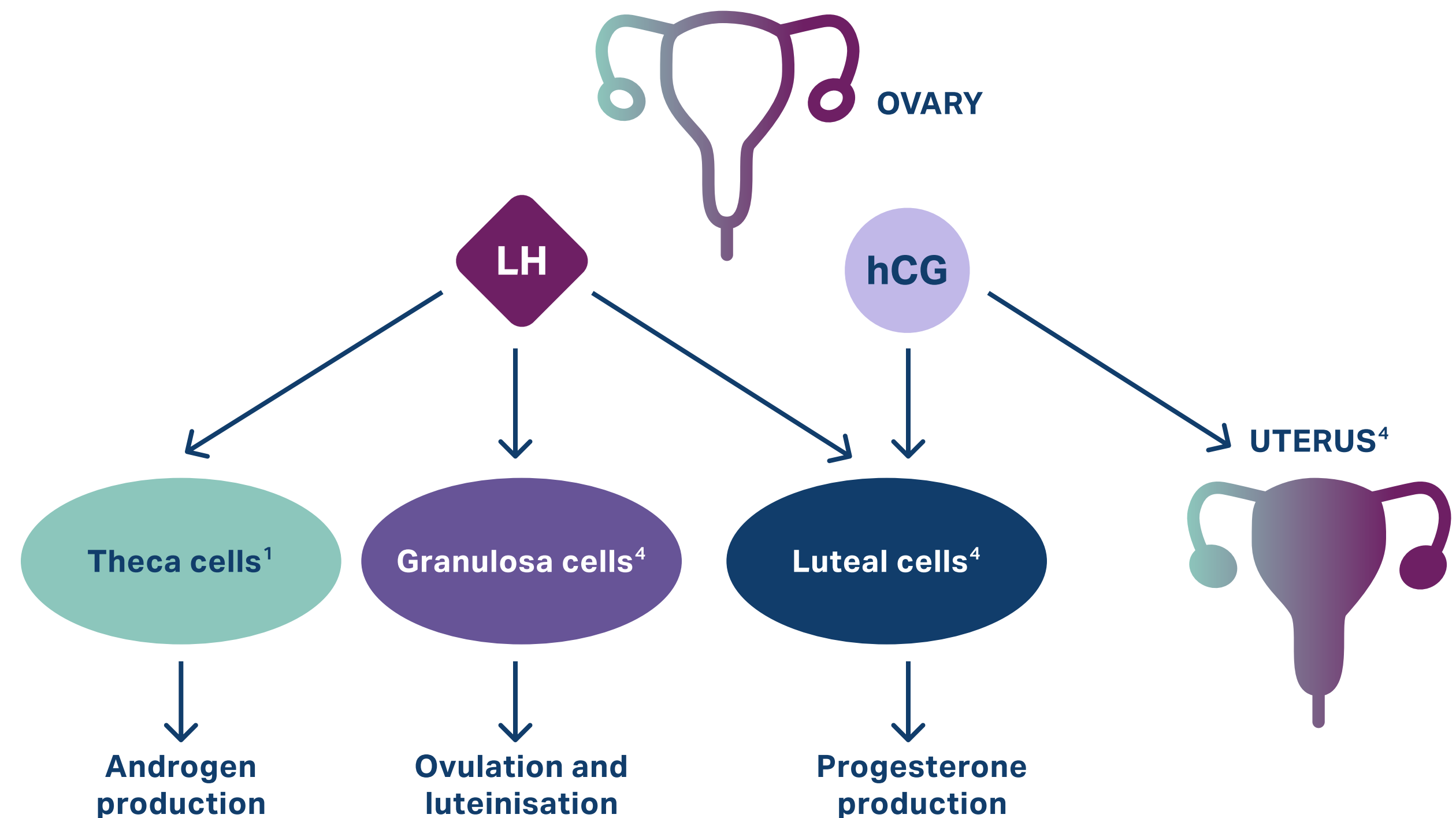
Images are for illustrative purposes only.

Diverse roles, different actions in the ovary

LHCGR plays a diverse role in the ovary with LH & hCG having different actions¹

LH is regulated in a pulsatile, finely tuned manner necessary for reproductive cycle flexibility and timely ovulation²

hCG acts as a sustained, extended activator ("on" signal) critical for maintaining the early pregnancy environment^{1,3}



LHCGR=Lutenizing hormone choriogonadotropin receptor.

References: 1. Choi J et al. *Mol Cell Endocrinol.* 2014;383(1-2):203-13. 2. Casarini L et al. *Endo Rev.* 2018;539:549-592. 3. Nwabuobi C et al. *Int J Mol Sci.* 2017;18:2037. 4. Cole LA. *Reprod Biol Endocrinol.* 2010;8:102.

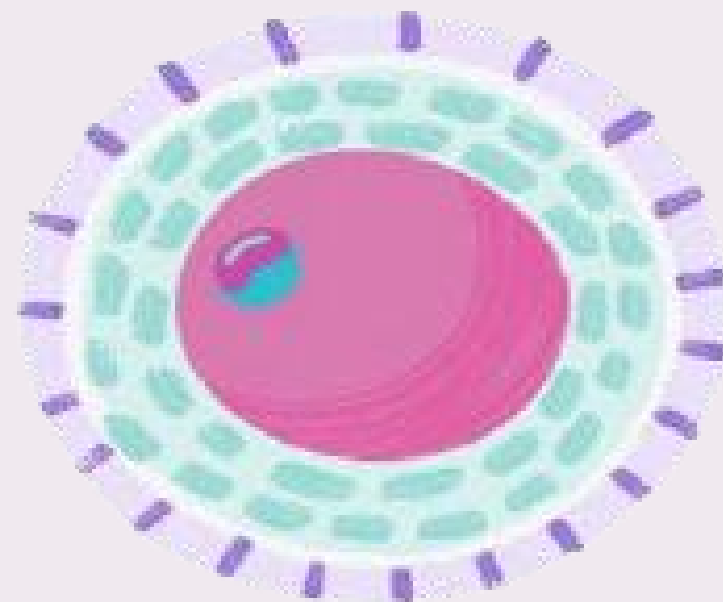
Distinct molecules with distinct actions in time and space

Although both bind to the same receptor, they activate intracellular signaling pathways in different degrees and may lead to distinct clinical effects¹

LH^{2,3}

Signals to support:

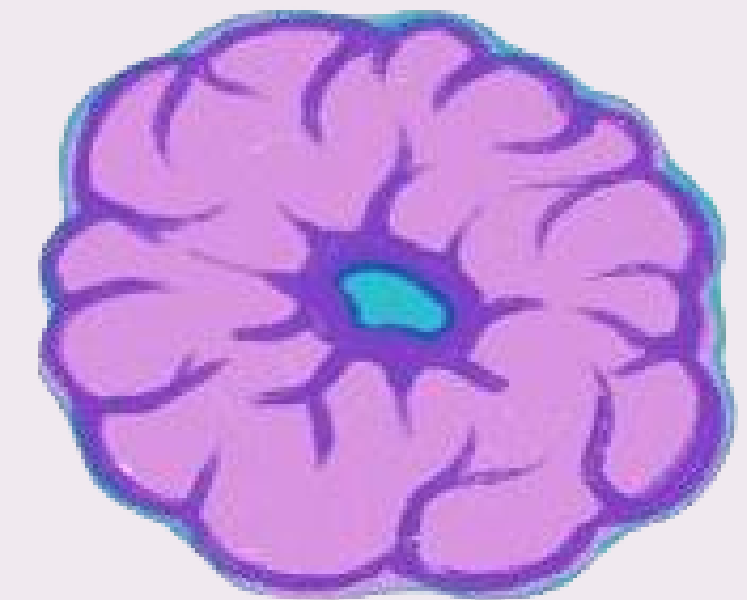
- steroidogenesis
- gametogenesis
- ovulation



hCG³

Signals to support:

- sex steroid production during early pregnancy



The effect of LH in Ovarian Stimulation

LH has a critical and beneficial role in oocyte growth and competence.^{1,2}

LH is necessary for follicular steroidogenesis and normal E2 production.^{1,3}

LH is needed for terminal follicular growth and oocyte quality.¹

Clinical IVF uses our understanding of endogenous FSH and LH action to help achieve controlled ovarian stimulation.¹

E2=Estradiol; IVF=in vitro fertilization.

References: **1.** Toner JP et al. *Fertil Steril*. 2025;123(1):31-40. **2.** The European Recombinant Human LH Study Group. *J Clin Endocr Metab*. 1998;83(5):1507-1514. **3.** Shoham Z. *Fertil Steril*. 2002;77(6):1170-1177.



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