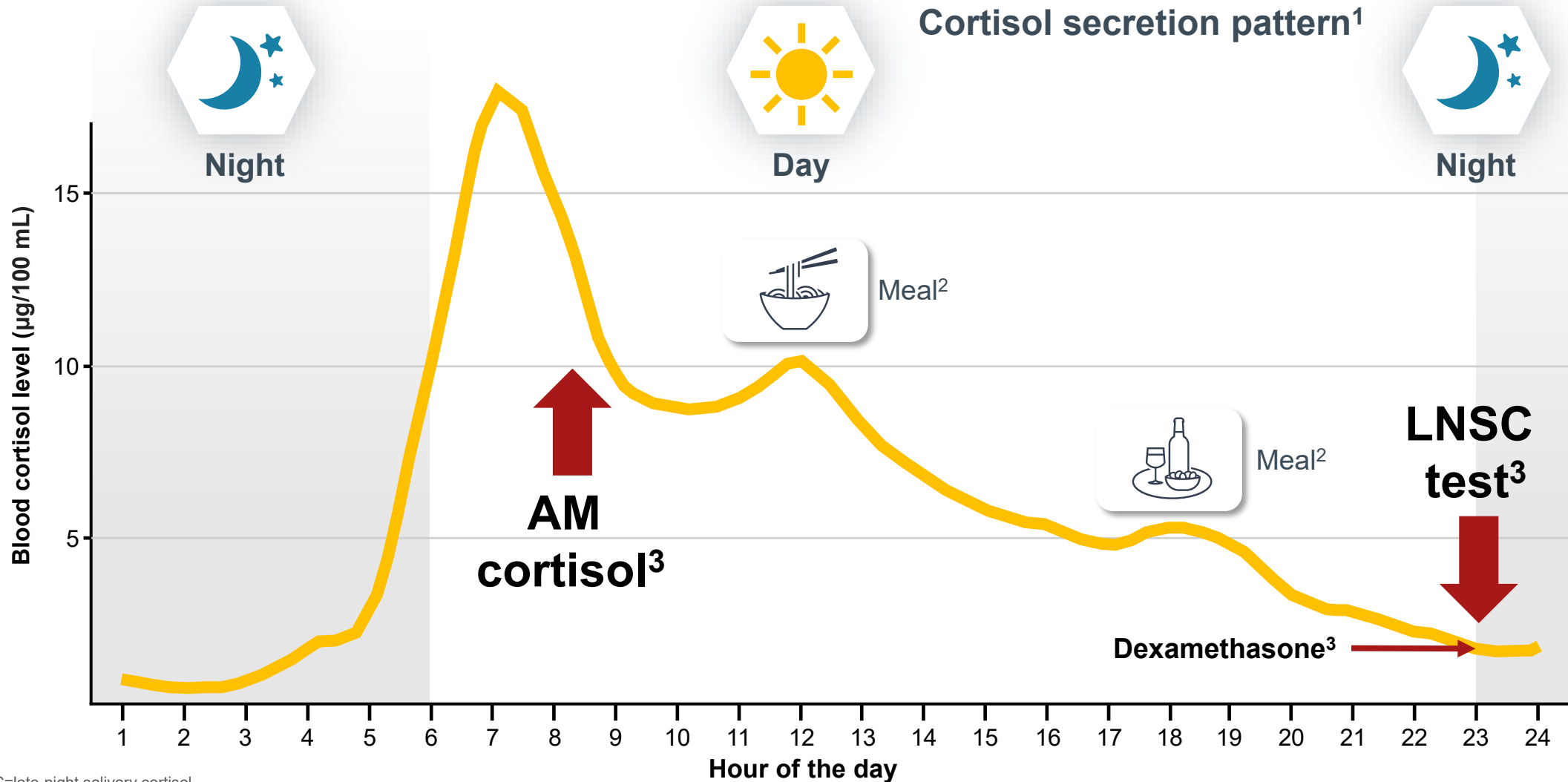


What Is Cortisol?

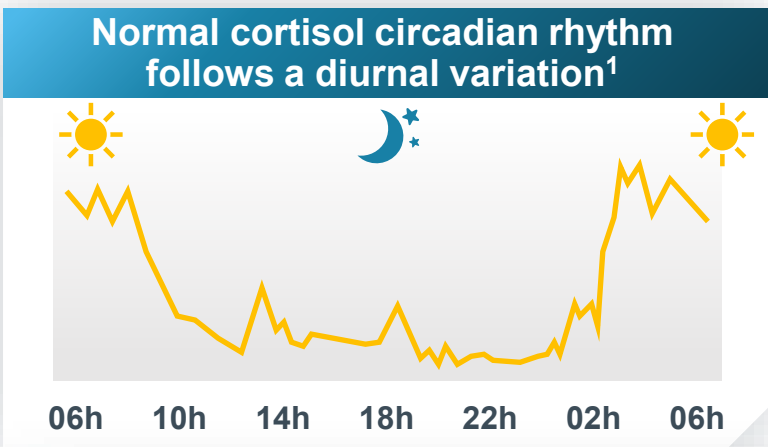
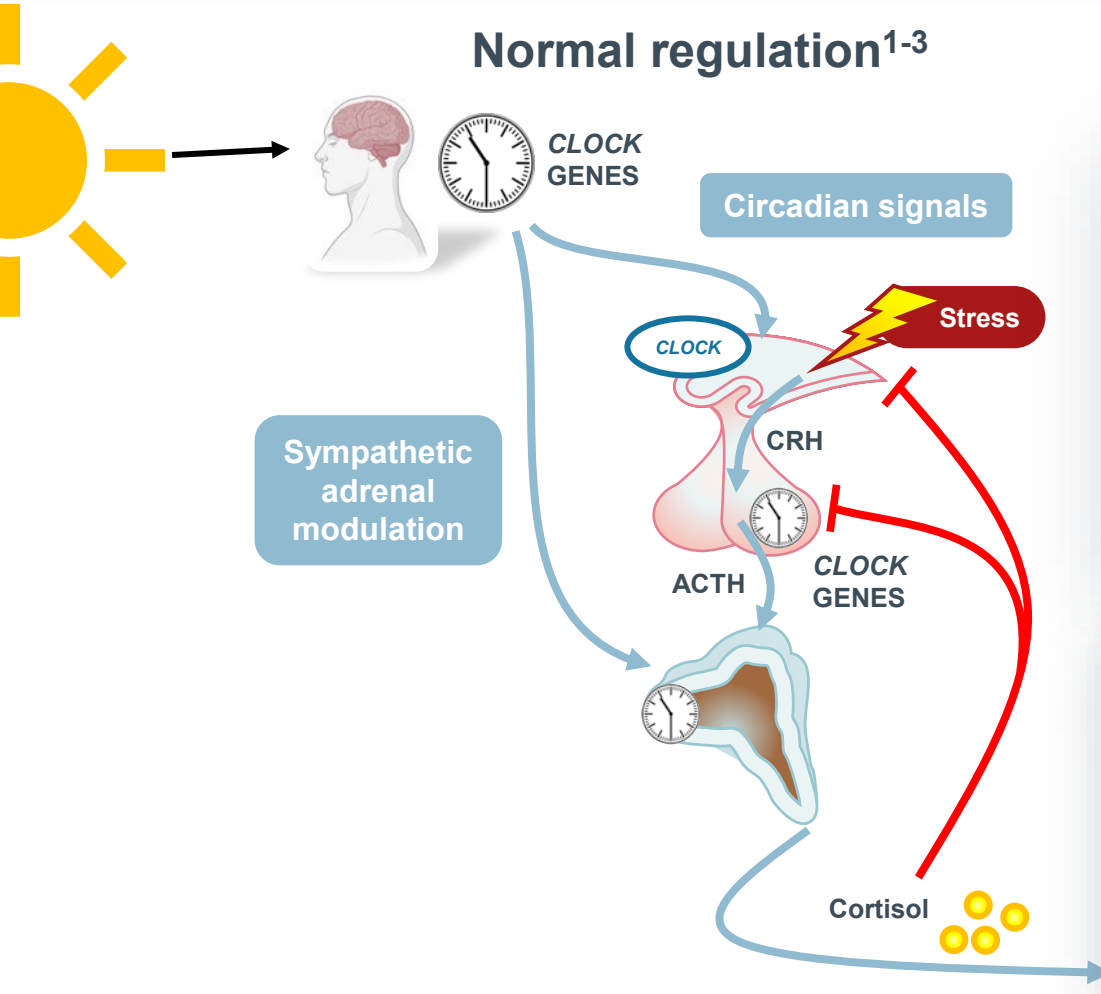
Physiological cortisol release: Preparing for activity



LNSC=late-night salivary cortisol.

1. Jones C, Gwenwin C. *Physiol Rep*. 2021;8(24):e14644. doi:10.14814/phy2.14644 2. Lovallo WR, Buchanan TW. Chapter 21. Stress hormones in psychophysiological research: emotional, behavioral, and cognitive implications. In: Cacioppo JT, Tassinary LG, Berntson GC, eds. *Handbook of Psychophysiology*. 4th ed. Cambridge University Press; 2017. 3. Ceccato F, Boscaro M. *High Blood Press Cardiovasc Prev*. 2016;23(3):209-215.

Cortisol production: Circadian signaling

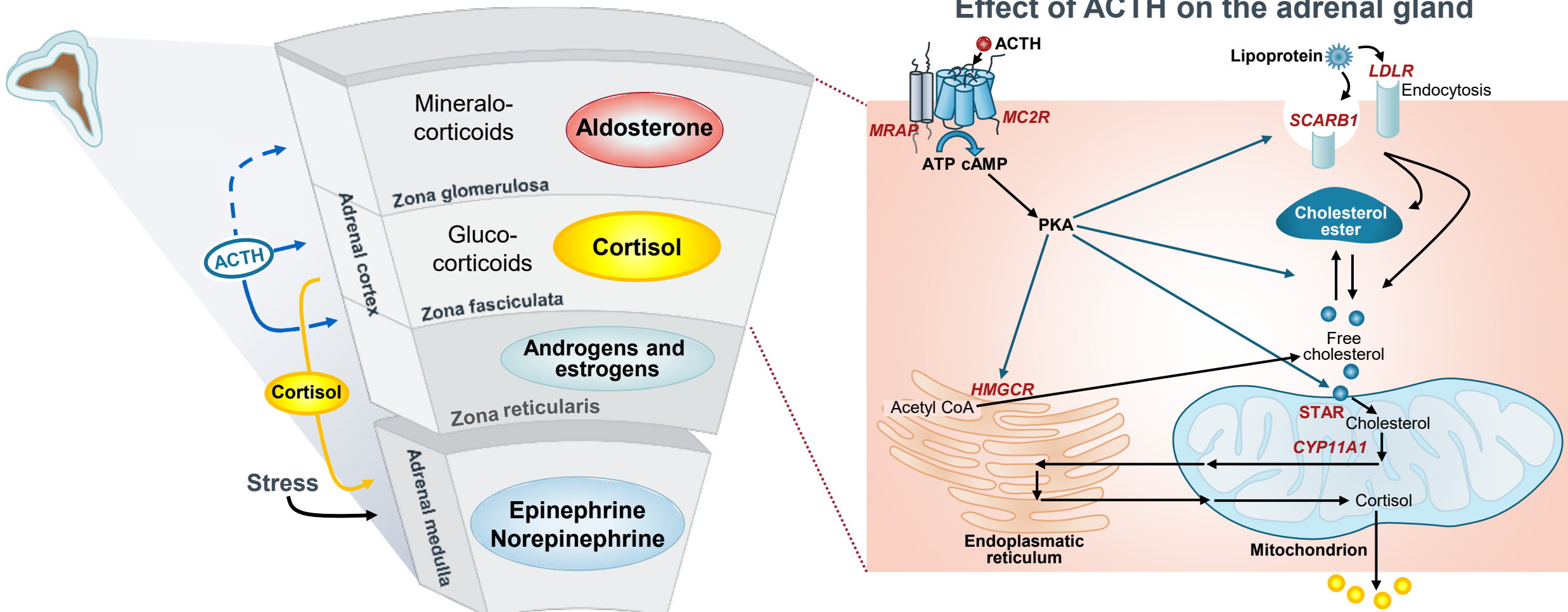


Impact on peripheral tissues/organs²⁻⁵

- Skeletal muscle
- Heart
- Liver
- Pancreas
- Adipose tissue
- Immune system

ACTH=adrenocorticotrophic hormone; CRH=corticotropin-releasing hormone.
 1. Moreira AC, et al. *Eur J Endocrinol*. 2018;179:R1-R18. 2. Fu L, Lee CC. *Nat Rev Cancer*. 2003;3(5):350-361. 3. Mohd Azmi NAS, et al. *Int J Environ Res Public Health*. 2021;18(2):676. doi:10.3390/ijerph18020676 4. Hsu CN, Tain YL. *Int J Mol Sci*. 2020;21(6):2232. doi:10.3390/ijms21062232 5. Marhefkova N, et al. *Front Endocrinol (Lausanne)*. 2024;15:1328139. doi:10.3389/fendo.2024.1328139

Cortisol production: Introducing the adrenal glands¹⁻⁴

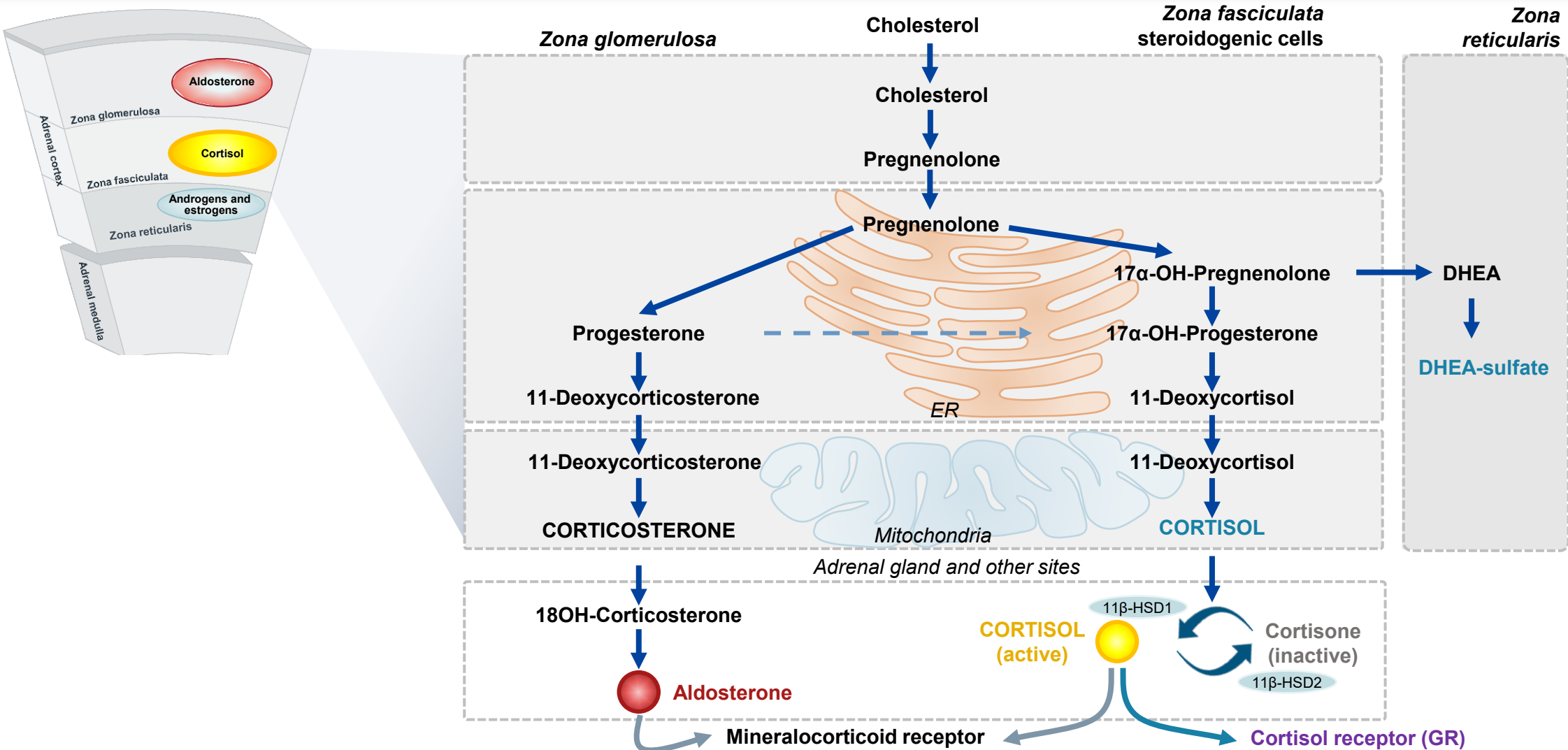


ATP=adenosine triphosphate; cAMP=cyclic adenosine monophosphate; CYP11A1=cytochrome P450 family 11 subfamily A member 1; HMGCR=3-hydroxyl-3-methyl-glutaryl-coenzyme A reductase; LDLR=low density lipoprotein receptor; MC2R=melanocortin 2 receptor; MRAP=melanocortin 2 receptor-associated protein; PKA=protein kinase A; SCARB1=scavenger receptor class B member 1; STAR=steroidogenic acute regulatory protein.

1. Ahmed A, et al. *Front Immunol.* 2019;10:1438. doi:10.3389/fimmu.2019.01438 2. Oregon State University. The adrenal glands. Accessed August 23, 2020.

<https://open.oregonstate.edu/aandp/chapter/17-6-the-adrenal-glands/> 3. Timmermans S, et al. *Front Immunol.* 2019;10:1545. doi:10.3389/fimmu.2019.01545 4. Wurtman RJ, et al. *Metabolism.* 2002;51(6 Suppl 1):11-14.

Synthesis pathway for cortisol production¹⁻³



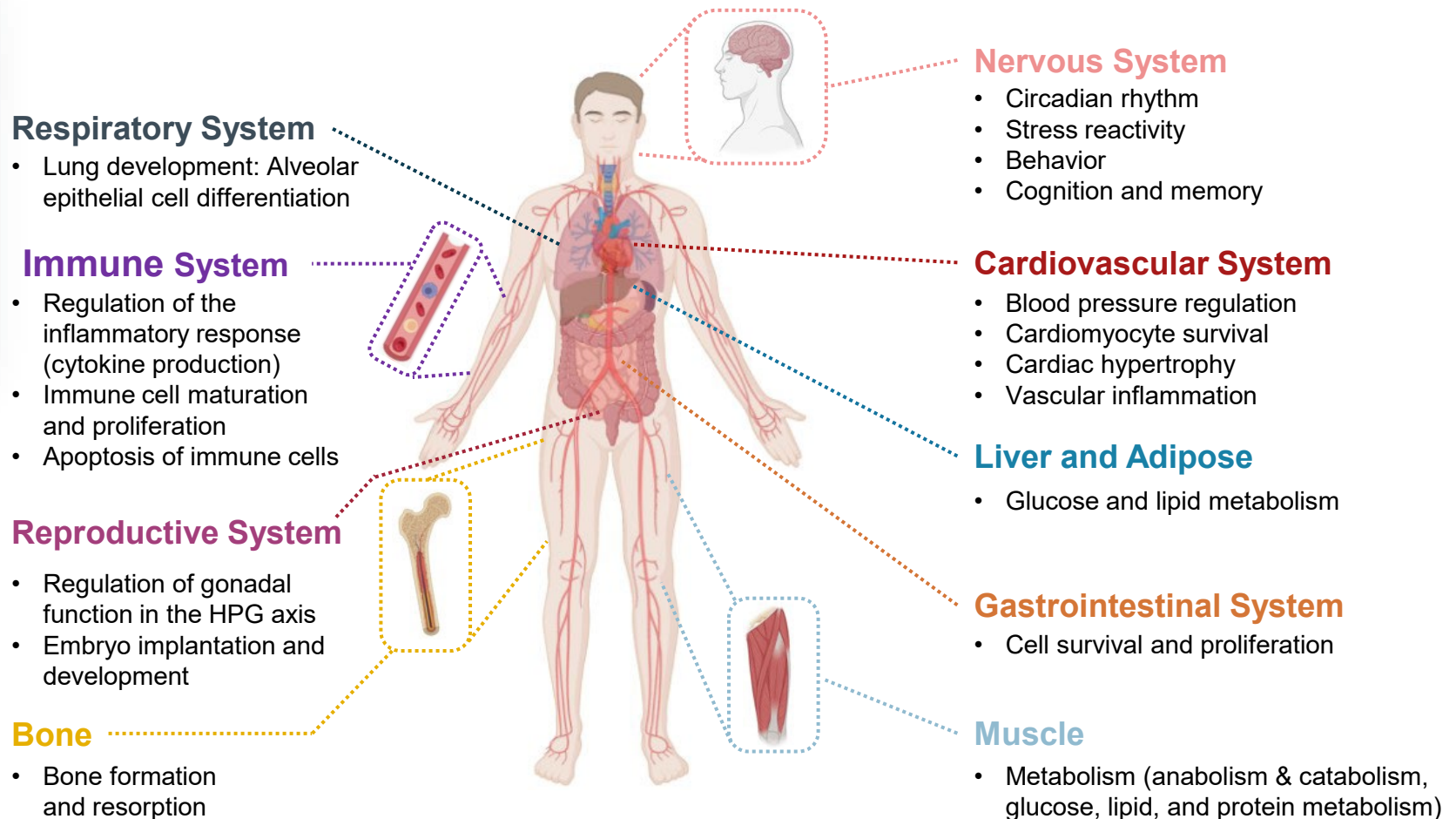
DHEA=dehydroepiandrosterone; ER=endoplasmic reticulum; GR=glucocorticoid receptor; HSD=hydroxysteroid dehydrogenase.

1. Bollag WB. *Compr Physiol*. 2014;4:1017-1055. 2. Ahmed A, et al. *Front Immunol*. 2019;10:1438. doi:10.3389/fimmu.2019.01438 3. Rainey WE, Nakamura Y. *J Steroid Biochem Mol Biol*. 2008;108:281-286.

Cortisol drives physiological development and maintains homeostasis

Nearly all cells of the body are potential cortisol targets¹

Cortisol plays important roles in many physiological processes in nearly all organs²⁻⁶



HPG=hypothalamic-pituitary-gonadal.

1. Mohd Azmi NAS, et al. *Int J Environ Res Public Health*. 2021;18(2):676. doi:10.3390/ijerph18020676 2. Timmermans S, et al. *Front Immunol*. 2019;10:1545. doi: 10.3389/fimmu.2019.01545
3. Cruz-Topete D, et al. *Front Endocrinol*. 2020;11:347. doi: 10.3389/fendo.2020.00347 4. Sulaiman RS, et al. *Steroids*. 2018;133:60-66. 5. Gerber AN. Chapter 12: Glucocorticoids and the lung. In: Wang J-C, Harris C, eds. *Glucocorticoid Signaling*. New York, NY: Springer; 2015. 6. Whirledge S, Cidlowski JA. *Minerva Endocrinol*. 2010;35:109-125.