

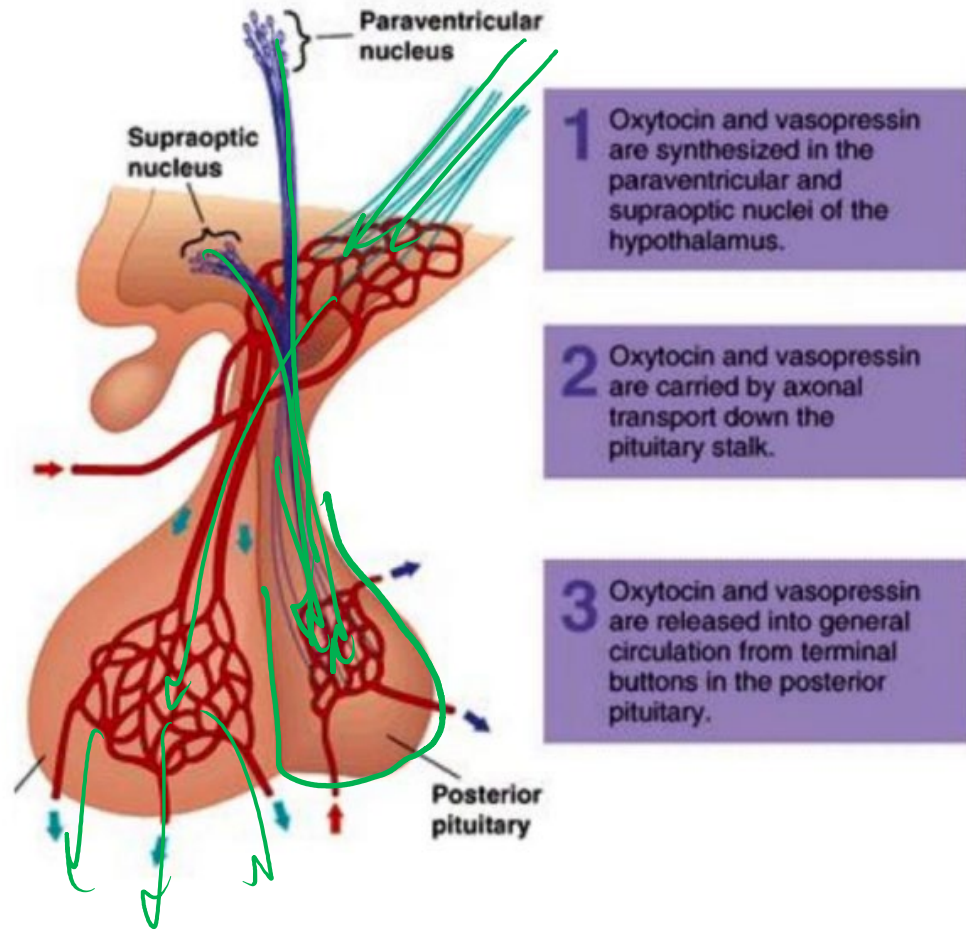
Ask Weber

Session 2

Topic 5

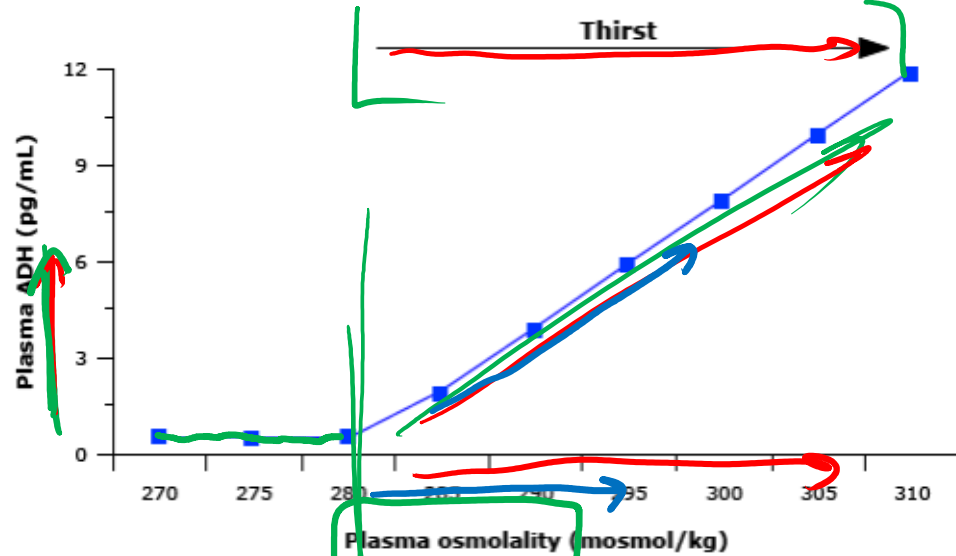
<https://askweber.github.io/>

Lecture 5 – Feedback loops



1. Identify the hormones released by the anterior pituitary and the posterior pituitary
2. Which hormone(s) are synthesized by the neurons whose cell bodies are located within the supraoptic nucleus of the hypothalamus?

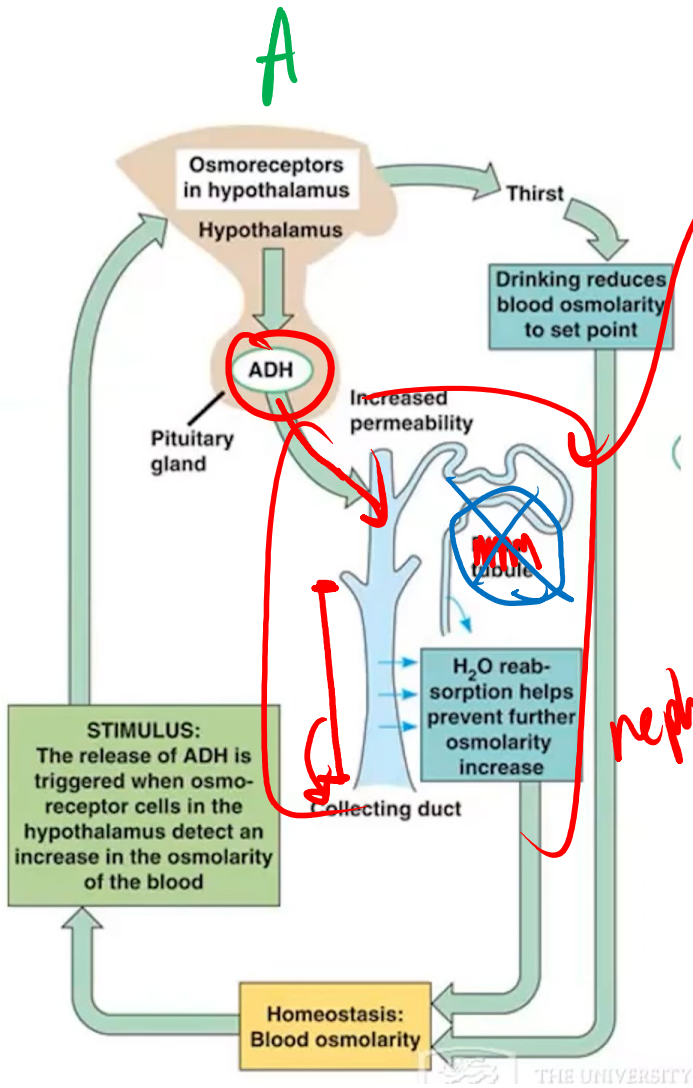
Lecture 5 – blood osmolarity feedback



- Describe the figure to the left and explain one main stimulus which will result in an increase in plasma ADH.

$P_{osm} \sim$

Blood.
 $\downarrow H_2O \rightarrow \downarrow \text{drink}$
 Sweat



ADH

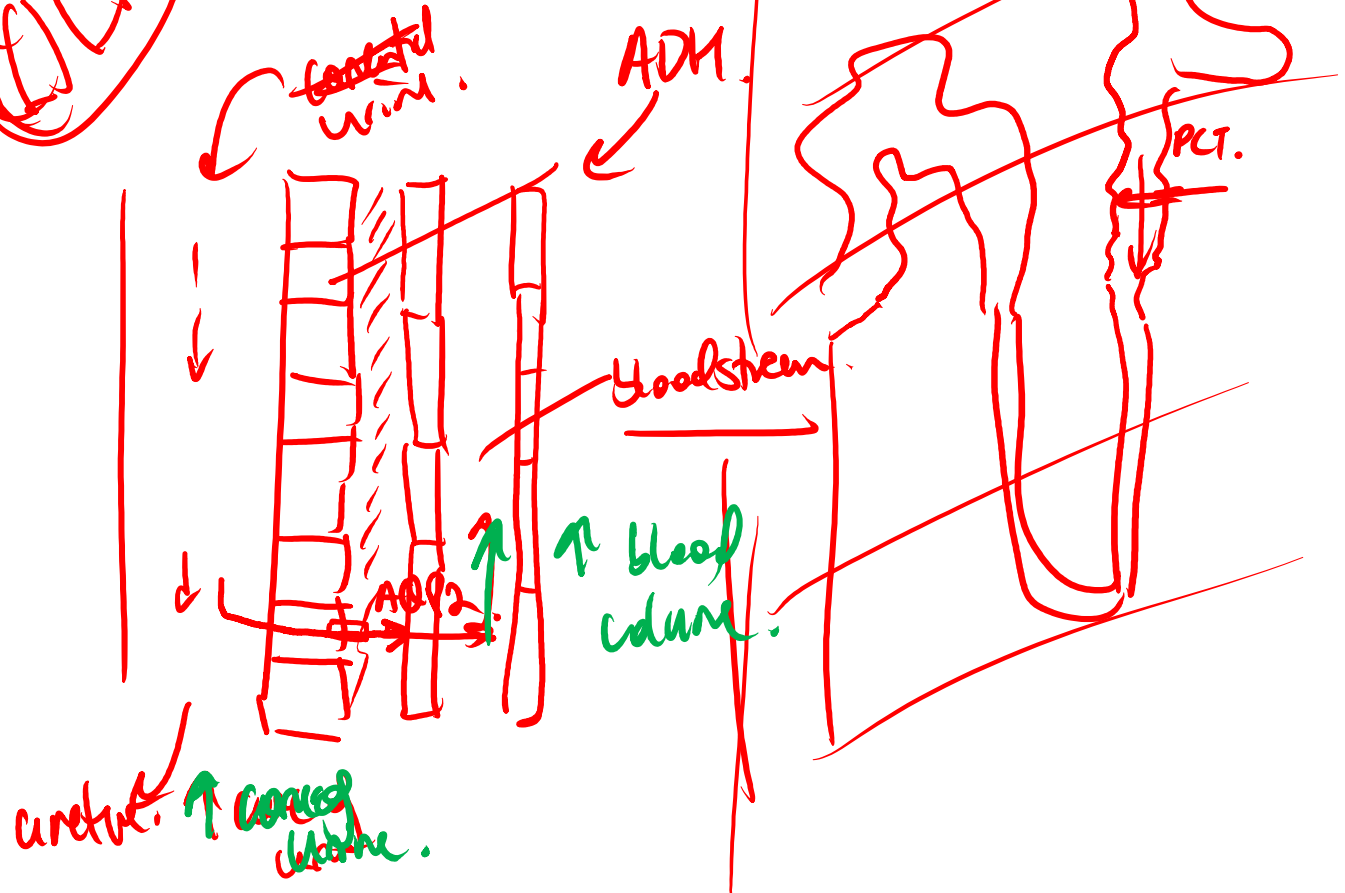
ADP2 channels in collect duct of the nephron (in the kidney).

↑ urine concentration
↑ blood volume



leading

nephron



NEURO-ENDOCRINE CELL

ANTIDIURETIC HORMONE (ADH)

DNA → mRNA → ADH

peptide hormone

AXONAL TRANSPORT

ADH-CONTAINING GRANULES

BLOOD VESSEL IN NEUROHYPOPHYSIS

posterior pituitary

pituitary

HIGH PLASMA OSMOLALITY

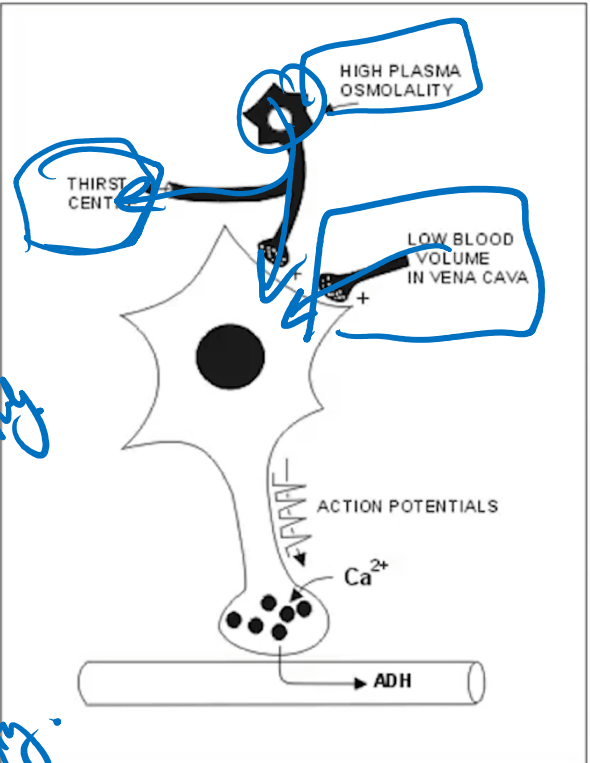
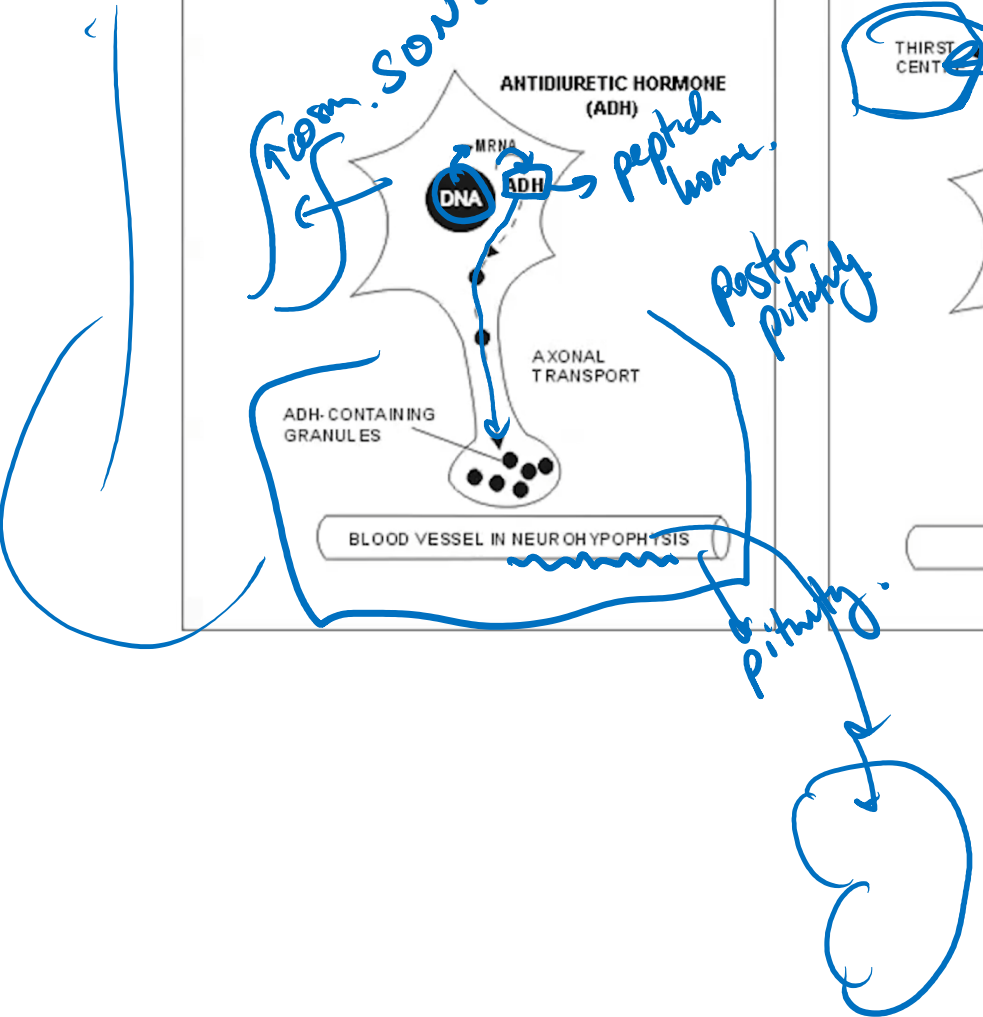
THIRST CENTRE

LOW BLOOD VOLUME IN VENA CAVA

ACTION POTENTIALS

Ca²⁺

ADH



END

- Random notes after

Cell to cell 1

- Nervous
- Endocrine
 - Bloodstream
 - Homeostasis
 - Organ
 - HPA axis, HPG axis
- Exocrine
- Hormone
 - Reproduction, growth, development – TH, GH, prolactin, LH, FSH
 - Maintenance of internal environment – PTH, Aldosterone
 - Energy production, utilization, storage- insulin, glucagon, TH, cortisol, GH

Cell to cell 2

- Insulin as an example
 - Ligand-receptor binding
 - Why do we need receptor? Transmembrane receptors – signal induction
 - Signalling cascade
 - Phosphorylation
 - JAK
 - RasRafMekErk
 - Signalling secondary messengers
 - cAMP
 - Ca
- Procedure of cAMP production
 - Ligand -> GPCR -> GTP activation of AC -> AC converts ATP to cAMP -> PKA (etc) -> response
- MOA of Ca in secondary signalling
 - Ca waves binding and activation
 - SER has high Ca concentration (also call the sarcoplasmic reticulum in muscle cells)
- Steroid receptors
 - Intracellular receptor – steroids are fatty substances which can bind; translocation into the nucleus -> transcription into mRNA