

## HORMONE ACTION - KIDNEYS -- PROBLEM SET

### OSMOREGULATION AND VASOPRESSIN.

Vasopressin (ADH): peptide hormone released from neuroendocrine cells in the hypothalamus (into posterior pituitary).

Describe / draw the following pathways (biochemical mechanisms)...

1. Stimulation of vasopressin release.
2. Stimulation of increased water permeability by cells of collecting duct.
3. Stimulation of increased urea permeability by cells of the collecting duct.

### BLOOD PRESSURE

Renin: protein (protease) released from cells of the JGA

Angiotensinogen: pro-hormone, expressed in liver cells, under control of steroid hormones (dexamethasone and estradiol)

ANG I and ANG II: angiotensin I and II - peptide hormones produced from Angiotensinogen

Aldosterone: steroid hormone, released from Adrenal Gland

ANP (atriuretic peptide): peptide hormone released from heart cells.

Describe / draw the following pathways (biochemical mechanisms)...

1. Stimulation of renin release in response to decreased blood pressure.
2. Stimulation of arteriole constriction by ANG II (requires muscle contraction which requires calcium)
3. Stimulation of increased water recovery by ANG II on cells of the proximal tubules.
4. Stimulation of increased water recovery by Aldosterone on cells of the distal tubules.
5. Stimulation of increased water recovery by Aldosterone on cells of the collecting ducts.
6. Stimulation of ANP release in response to increased blood pressure.
7. Inhibition of renin release by ANP acting on the JGA.
8. Inhibition of Aldosterone release by ANP acting on the adrenal gland.
9. Inhibition of water recovery by ANP acting on cells of the proximal tubules.