



6-Tubular secretion

1- H^+ ion is secreted in the distal tubules by which mechanism:

- A. K^+ H^+ antiport
- B. Na^+ H^+ cotransport
- C. H^+ ATPase

2- Which one of the following is permeable to water:

- A. Thin descending limb of (loop of Henle)
- B. Thick ascending limb of (loop of Henle)
- C. The whole loop of Henle

3- 8-15% of water reabsorbed in the distal convoluted tubule needs:

- A. Aldosterone
- B. Antidiuretic hormone (ADH)
- C. Angiotensin II
- D. B&C

4- Which of the following tends to decrease potassium secretion by the cortical collecting tubule:

- A. Increased plasma potassium concentration
- B. A diuretic that decrease proximal tubule sodium reabsorption
- C. A diuretic that inhibit the action of aldosterone (eg. spironolactone)
- D. Acute alkalosis

5- Principal cells are responsible for reabsorption of:

- A. Sodium
- B. Phosphate
- C. Ca
- D. Hydrogen

6- What is the function of intercalated cells:

- A. Secrete H^+
- B. Reabsorb K^+
- C. A+B
- D. Secrete Na^+

7- What is the most abundant cation in the body (intracellular) :

- A. *Sodium Na*
- B. *Potassium K*
- C. *Magnesium Mg*

8- In a person on a high (200 mmol/day) potassium diet, which part of the nephron would be expected to secrete the most potassium:

- A. *Proximal tubule*
- B. *Descending loop of Henle*
- C. *Collecting tubules*
- D. *Early distal tubule*

9- Which of the following diuretics inhibits $\text{Na}^+ - 2\text{Cl}^- - \text{K}^+$ cotransport in the loop of Henle as its primary action:

- A. *Thiazide diuretics*
- B. *Spironolactone*
- C. *Osmotic diuretic*
- D. *Furosemide*

10- Renal K^+ excretion regulates:

- A. *Total body potassium*
- B. *Extracellular potassium*
- C. *A+B*
- D. *Total body sodium*

Answers:

Q1: C

Q2: A

Q3: B

Q4: C Aldosterone stimulates potassium secretion by the principal cells of the collecting tubules. Therefore, blockade of the action of aldosterone with spironolactone would inhibit potassium secretion. Other factors that stimulate potassium secretion by the cortical collecting tubule include increased potassium concentration, increased cortical collecting tubule flow rate (as would occur with high sodium intake or a diuretic that reduces proximal tubular sodium reabsorption), and acute alkalosis.

Q5: A

Q6: C

Q7: B

Q8: C Most of the potassium secretion occurs in the collecting tubules. A high potassium diet stimulates potassium secretion by the collecting tubules through multiple mechanisms, including small increases in extracellular potassium concentration as well as increased levels of aldosterone.

Q9: D Furosemide is a powerful inhibitor of the $\text{Na}^+ - 2\text{Cl}^- - \text{K}^+$ co-transporter in the loop of Henle. Thiazide diuretics primarily inhibit sodium chloride reabsorption into the distal tubule, whereas carbonic anhydrase inhibitors decrease bicarbonate reabsorption in the tubules. Amiloride inhibits sodium channel activity whereas spironolactone inhibits the action of mineralocorticoids in the renal tubules. Osmotic diuretics inhibit water and solute reabsorption by increasing osmolarity of the tubular fluid

Q10: A