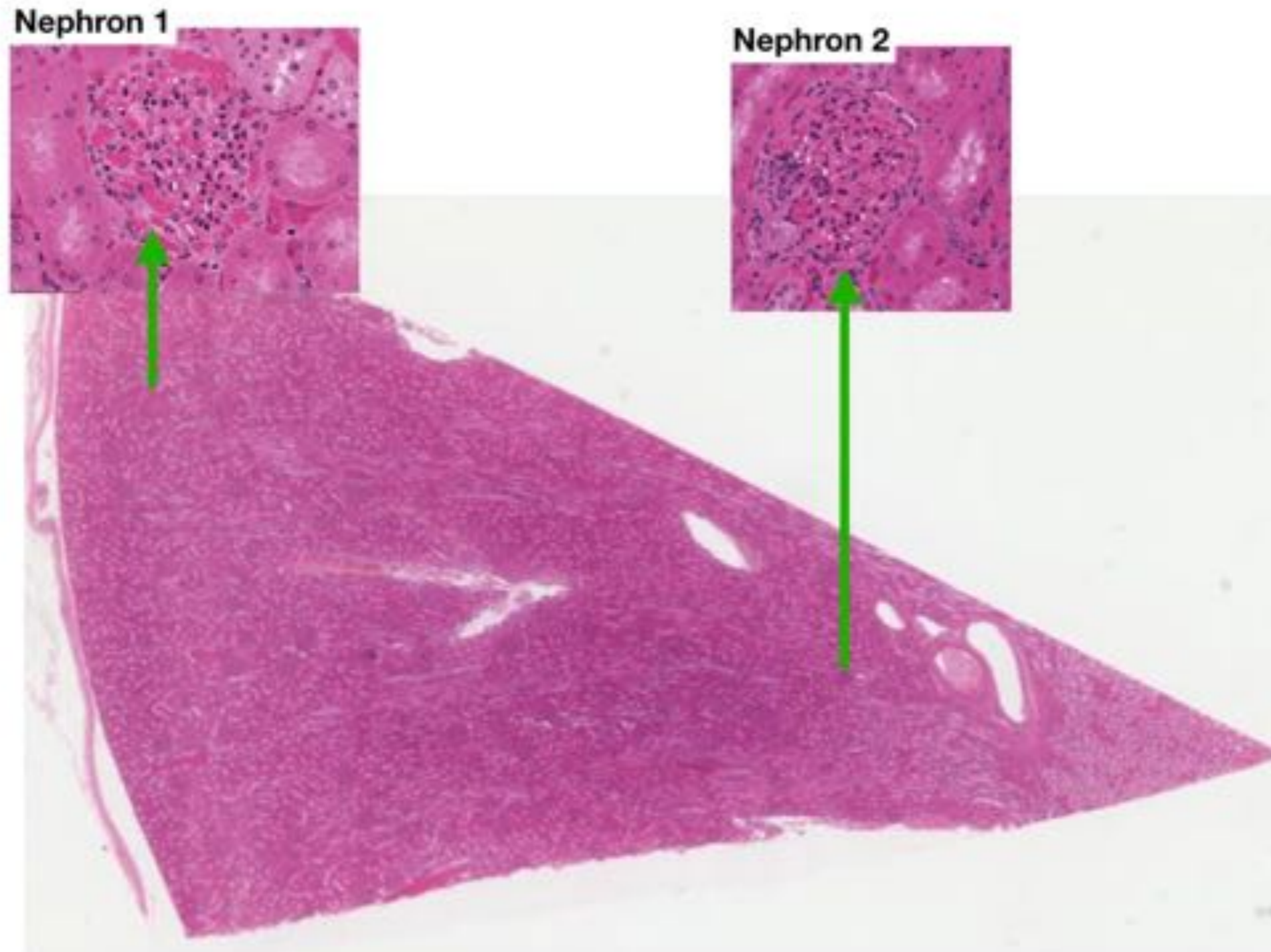


1. What is the primary difference between the nephrons whose renal corpuscles are show in the insets?

- Nephron 1 has a significantly higher GFR than Nephron 2.
- Nephron 2 has a significantly higher GFR than Nephron 1
- Nephron 1 increases osmolality of the interstitium in the medullary
- Nephron 2 increases osmolality of the interstitium in the medullary



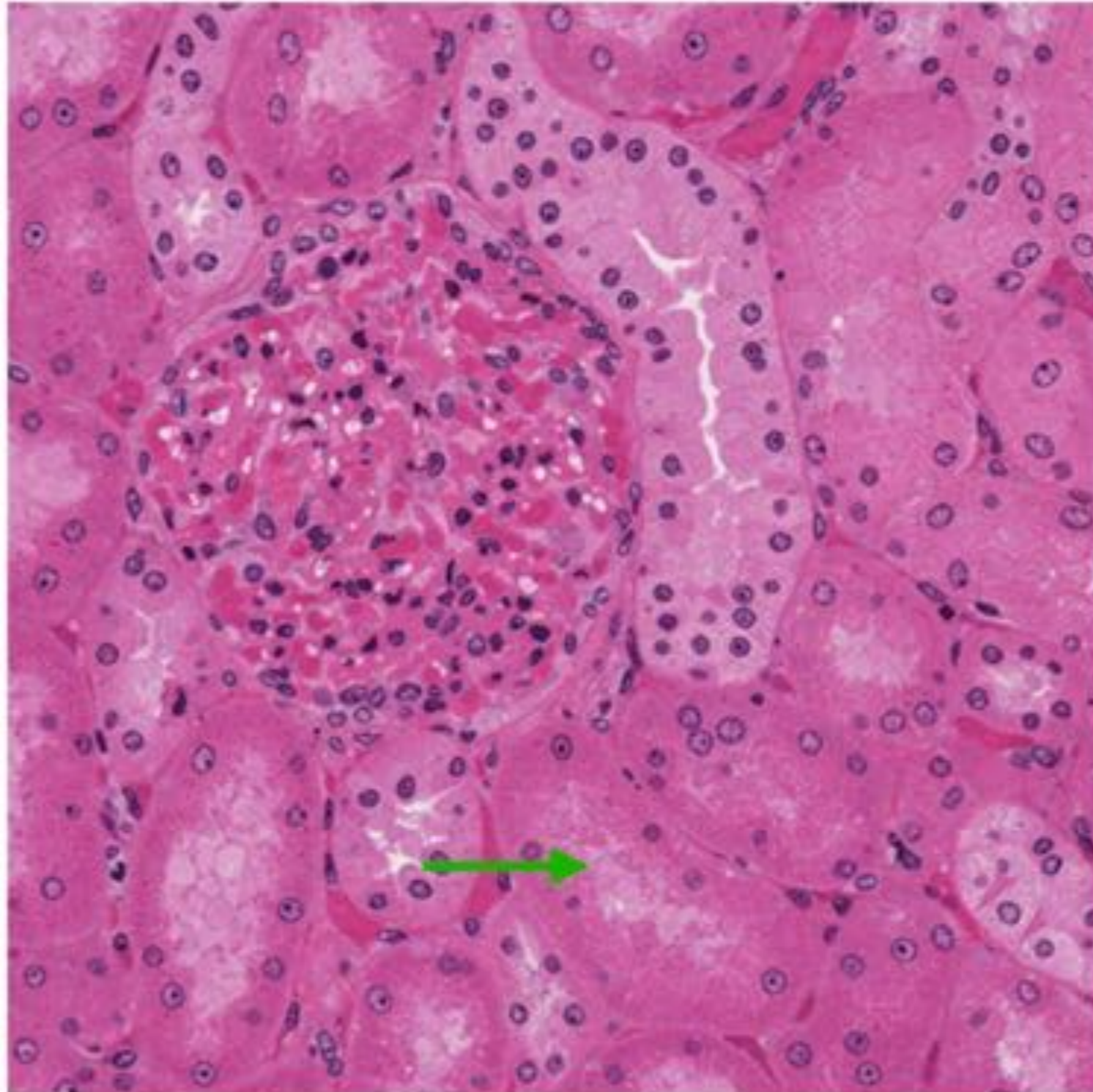
2. Which of the following most readily passes across the indicated structure?

- 3 nm neutral dextran
- 3 nm cationic dextran
- 3 nm anionic dextran
- 4 nm neutral dextran



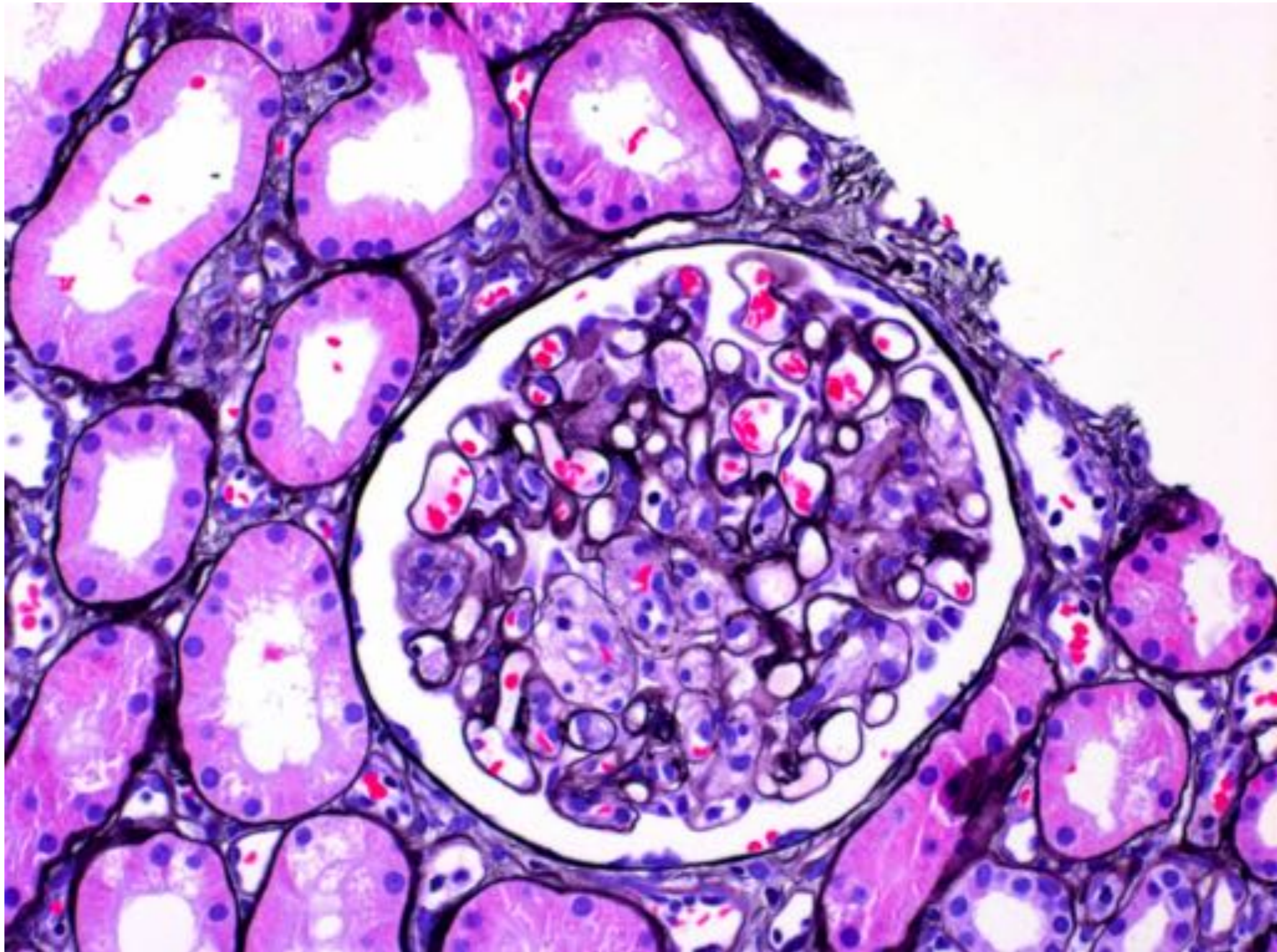
3. An antibody to which protein would most strongly label the apical surface of the cells indicate by the green arrow?

- SGLT2
- NKCC2
- ENaC
- Na/K ATPase



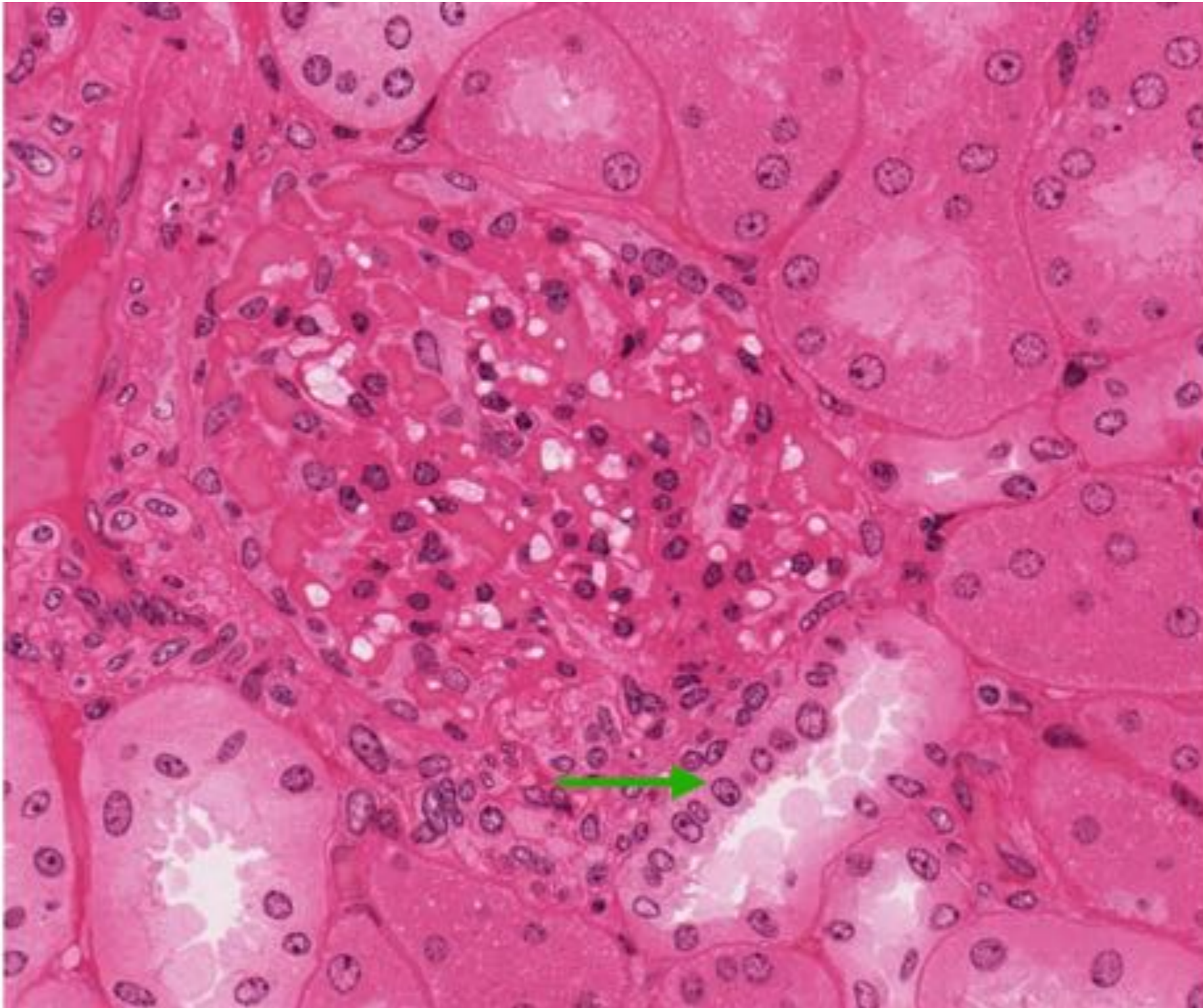
4. What is the dark material in the image below?

- Epithelium
- Endothelium
- Podocytes
- Basement membrane



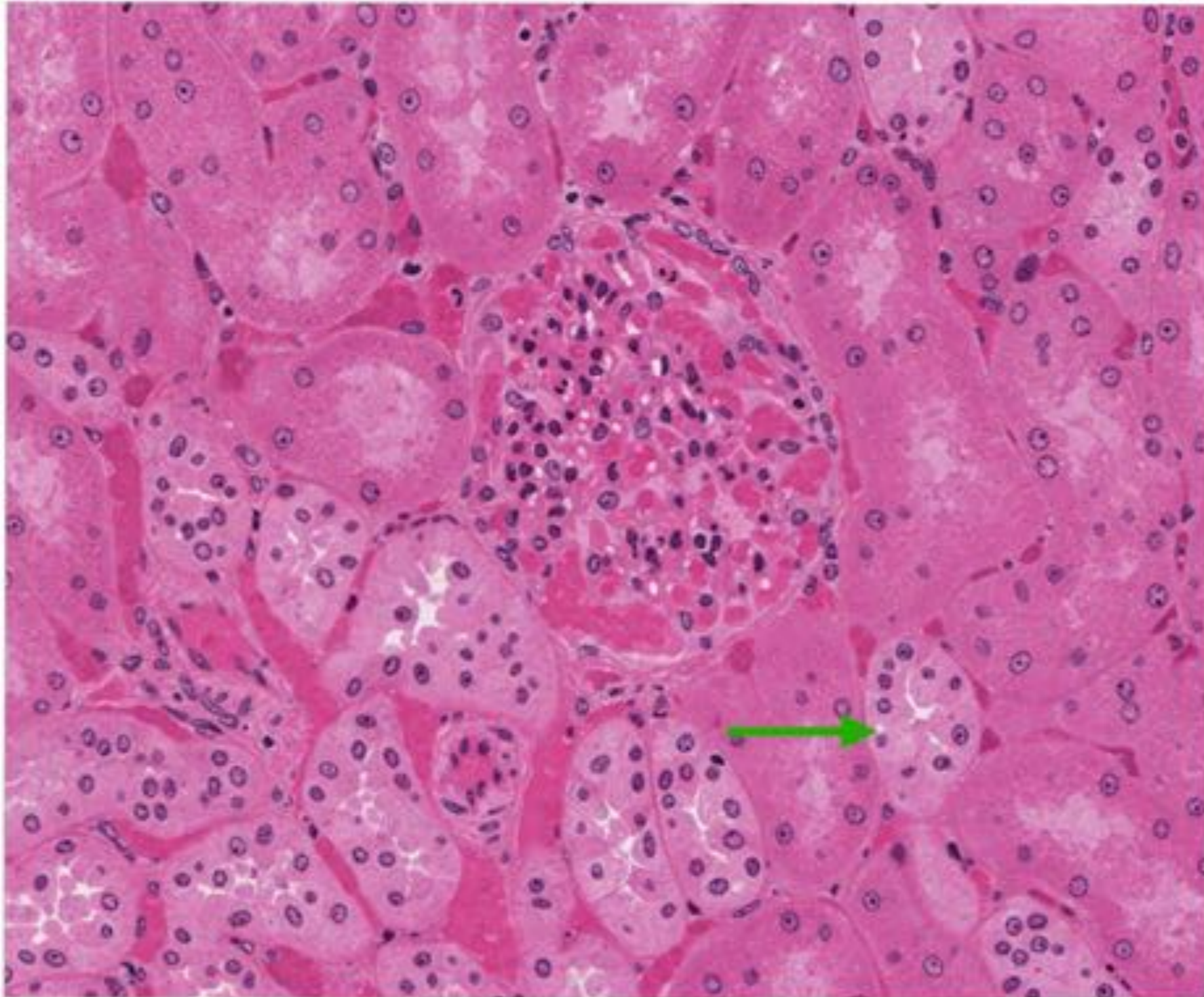
5. How do cells in the tube indicated by the arrow respond to elevated sodium?

- Contract to reduce the diameter of the tube
- Increase expression of NKCC2
- Trigger constriction of the afferent arteriole
- Release renin



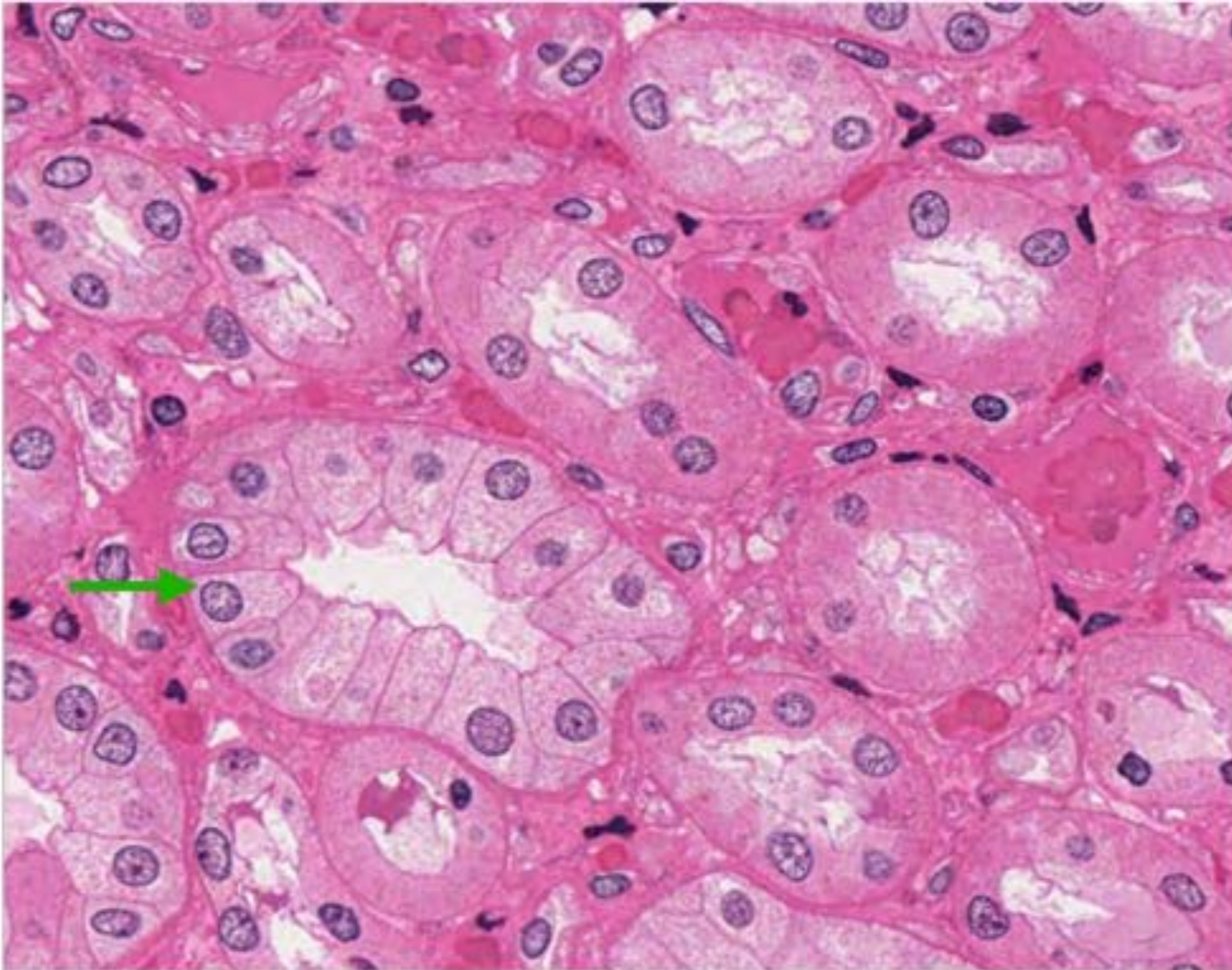
6. How do the cells indicated by the arrow respond to aldosterone to increase blood pressure?

- Increase expression of ENaC
- Increase expression of aquaporin
- Decrease expression of Na/K ATPase
- Release renin



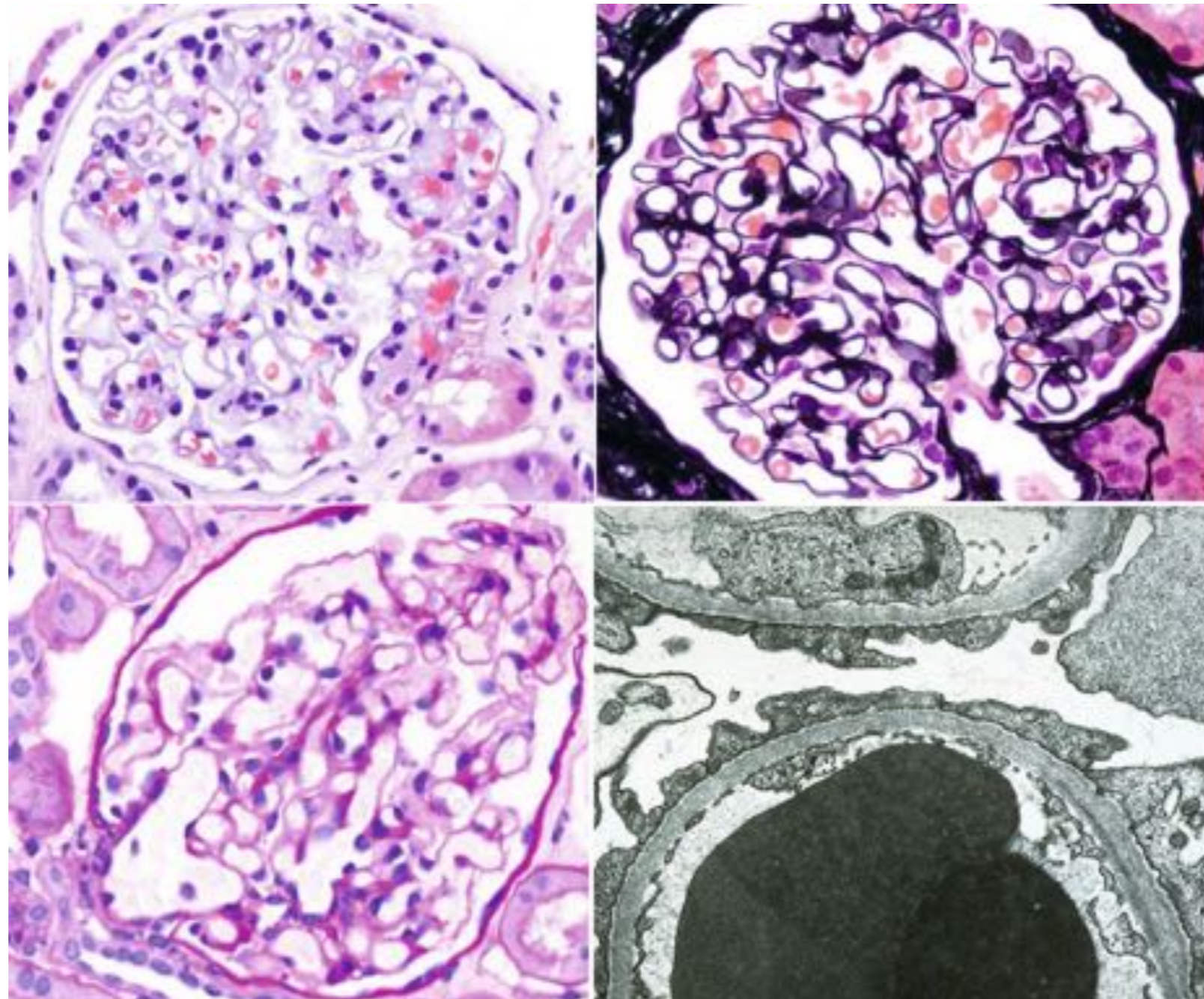
7. ADH increases the amount of which protein in the apical membranes of the cells indicated by the arrow?

- ENaC
- Aquaporin
- Na/K ATPase
- ROMK



A child presents with facial edema and a urinalysis indicates proteinuria. A kidney biopsy reveals the images below from four different types of histological methods. Which component of the renal corpuscle shows the most significant structural change? How does this change explain the clinical symptoms?

- Mesangium
- Endothelium
- Basement membrane
- Podocytes





An adult presents with edema and proteinuria. A kidney biopsy generates the images below from four different types of histological methods. A structural change in which component is causing the proteinuria? What might cause the structural change?

- Mesangium
- Endothelium
- Basement membrane
- Podocytes

