Structure and Function of Connective Tissue and Bone

Readiness Assessment Quiz

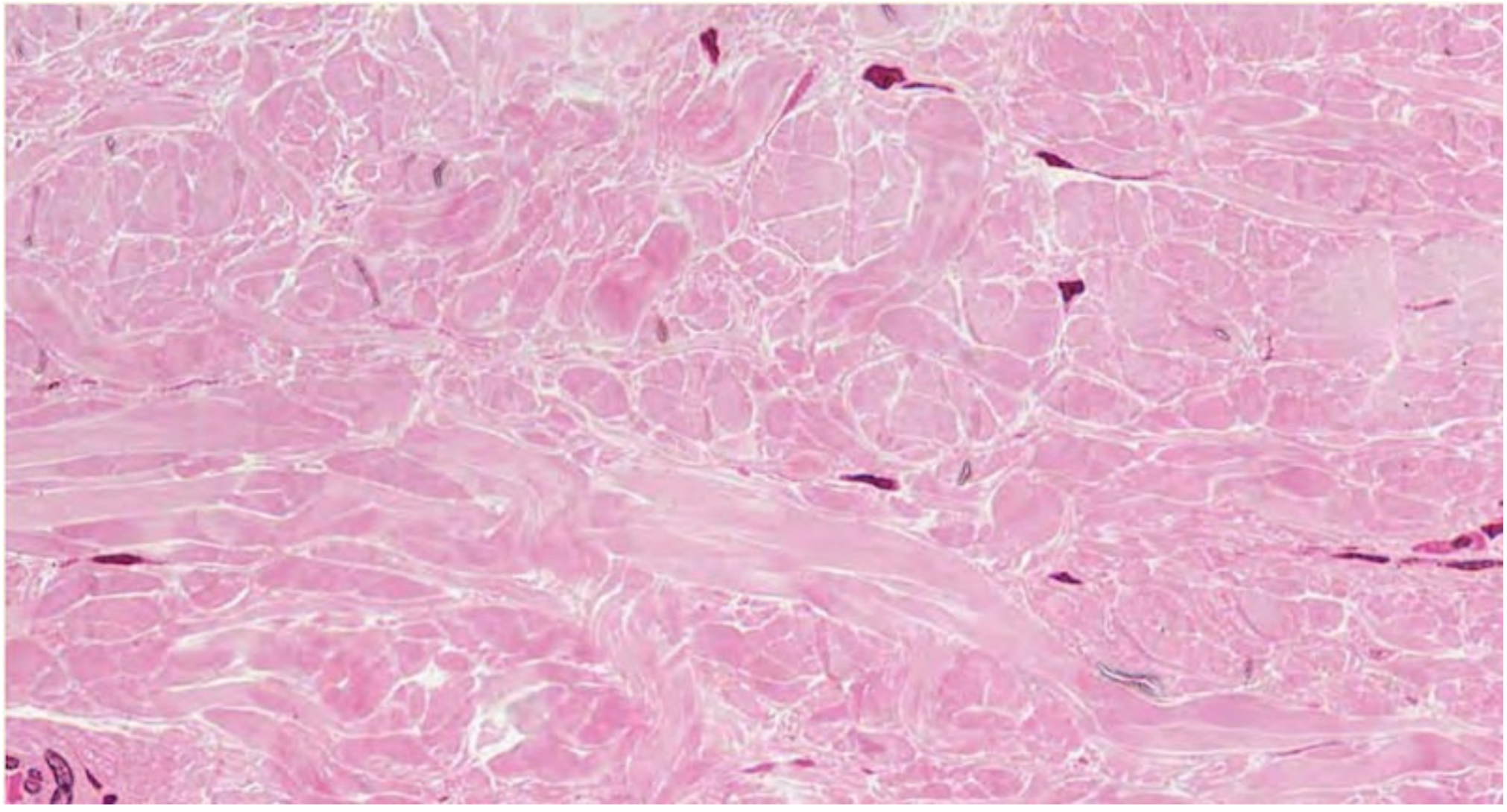
1. What is the primary function of this type of connective tissue?

   A. Resist compression

   B. Resist stretching in multiple directions

   C. Resist stretching in one direction

   D. Resist stretching and provide recoil



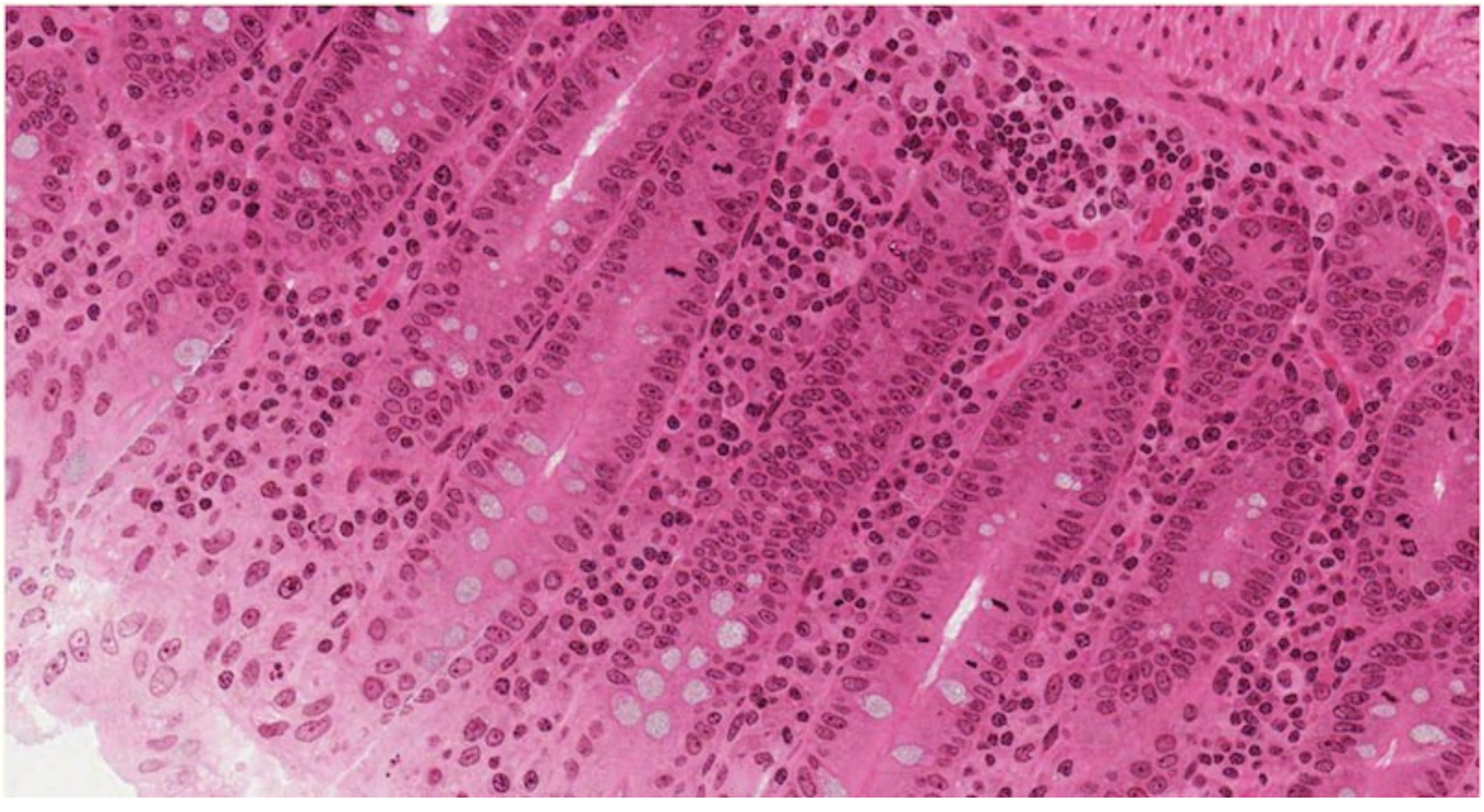
2. Classify the connective tissue in this image.

A. Dense Irregular

B. Dense Regular

C. Mineralized

D. Loose



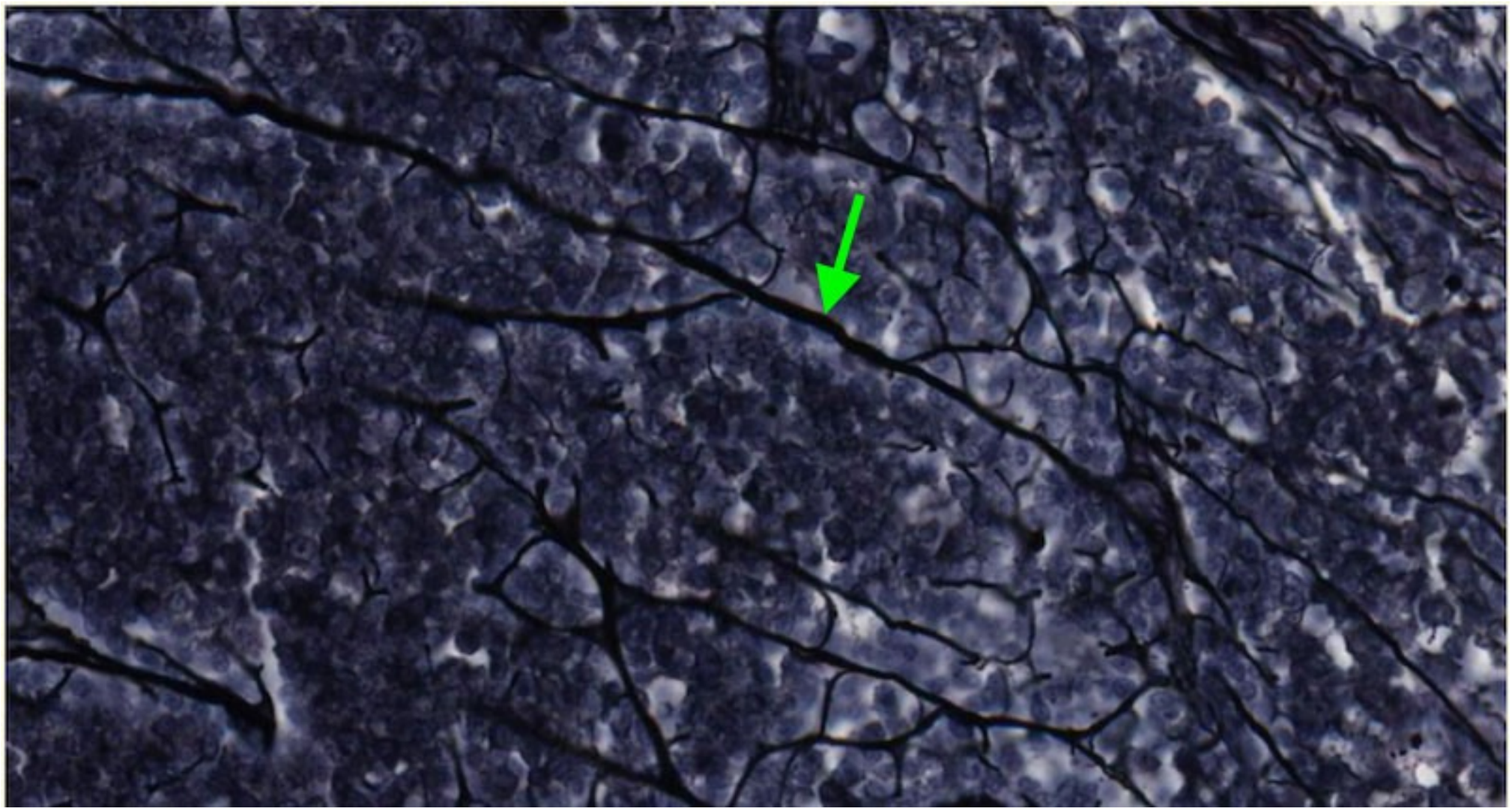
3. This darker blue structure is composed primarily of which type of protein?

A. Elastic Fibers

B. Type I Collagen

C. Type II Collagen

D. Type III Collagen



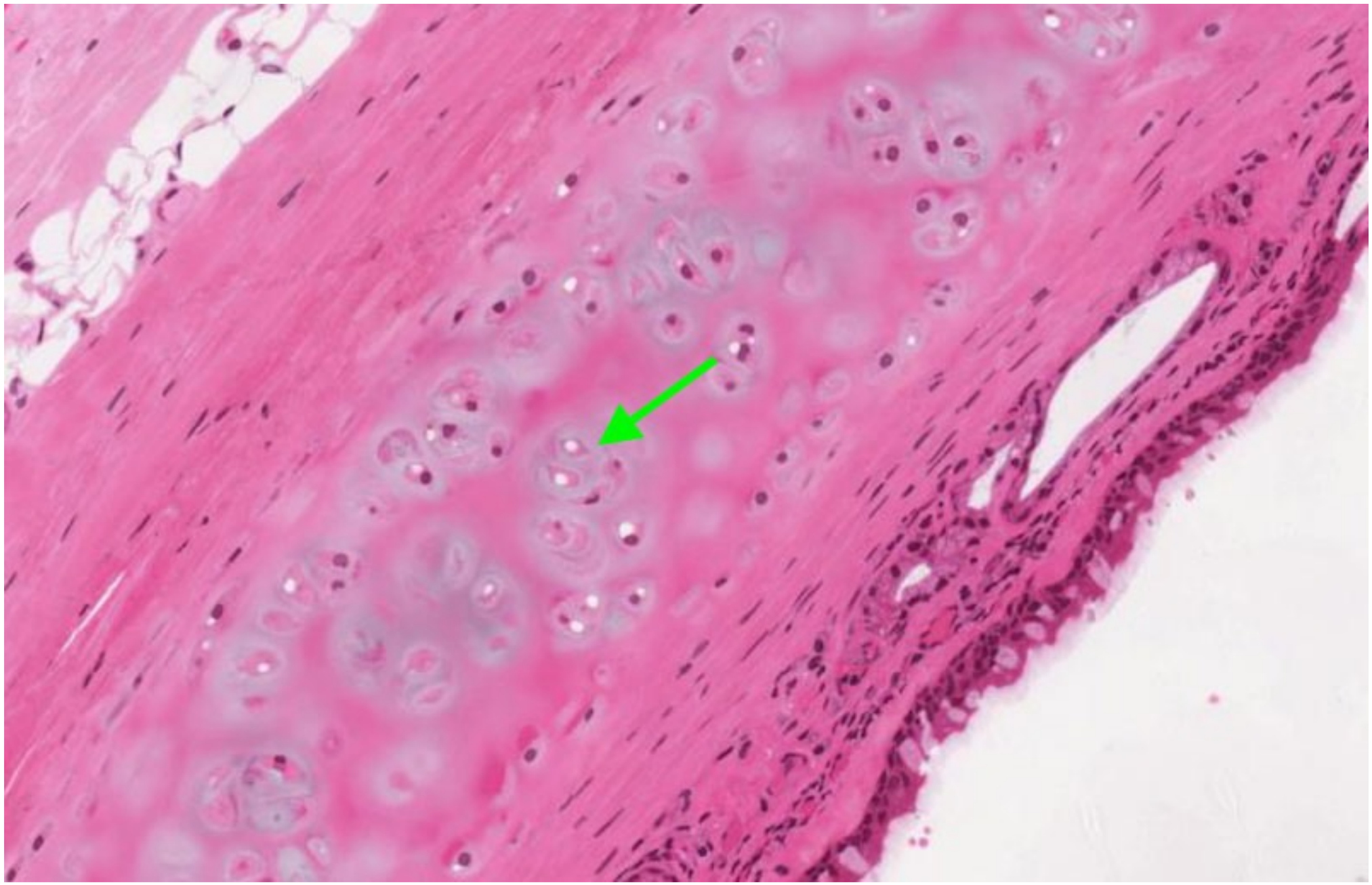
4. These cells are producing which of the following proteins?

A. Elastin

B. Type I Collagen

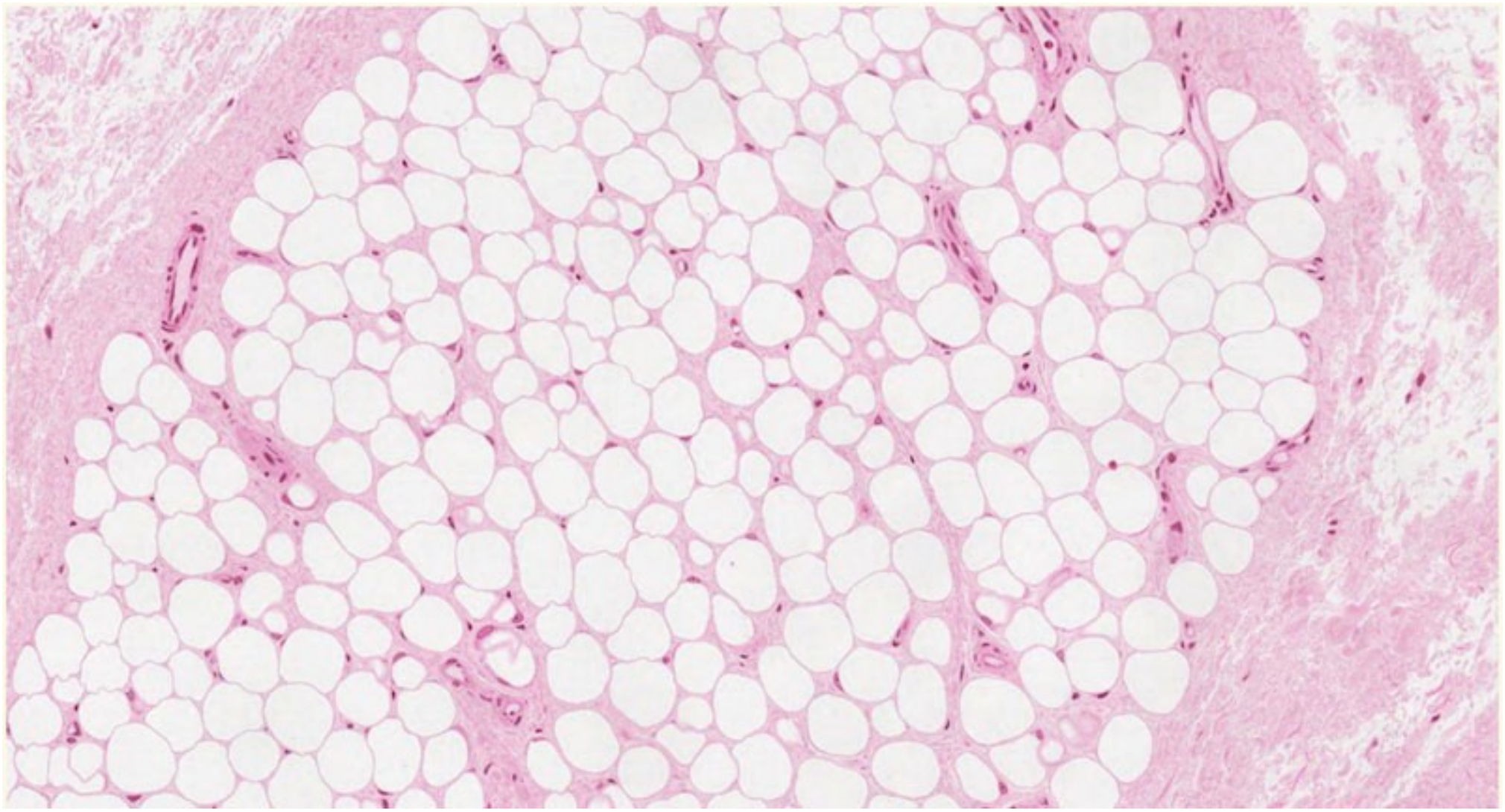
C. Type II Collagen

D. Type III Collagen



5. Which of the following is the primary function provided by this type of connective tissue?

A. Resistance to tension
B. Resistance to compression
C. Generation of heat
D. Storage of energy



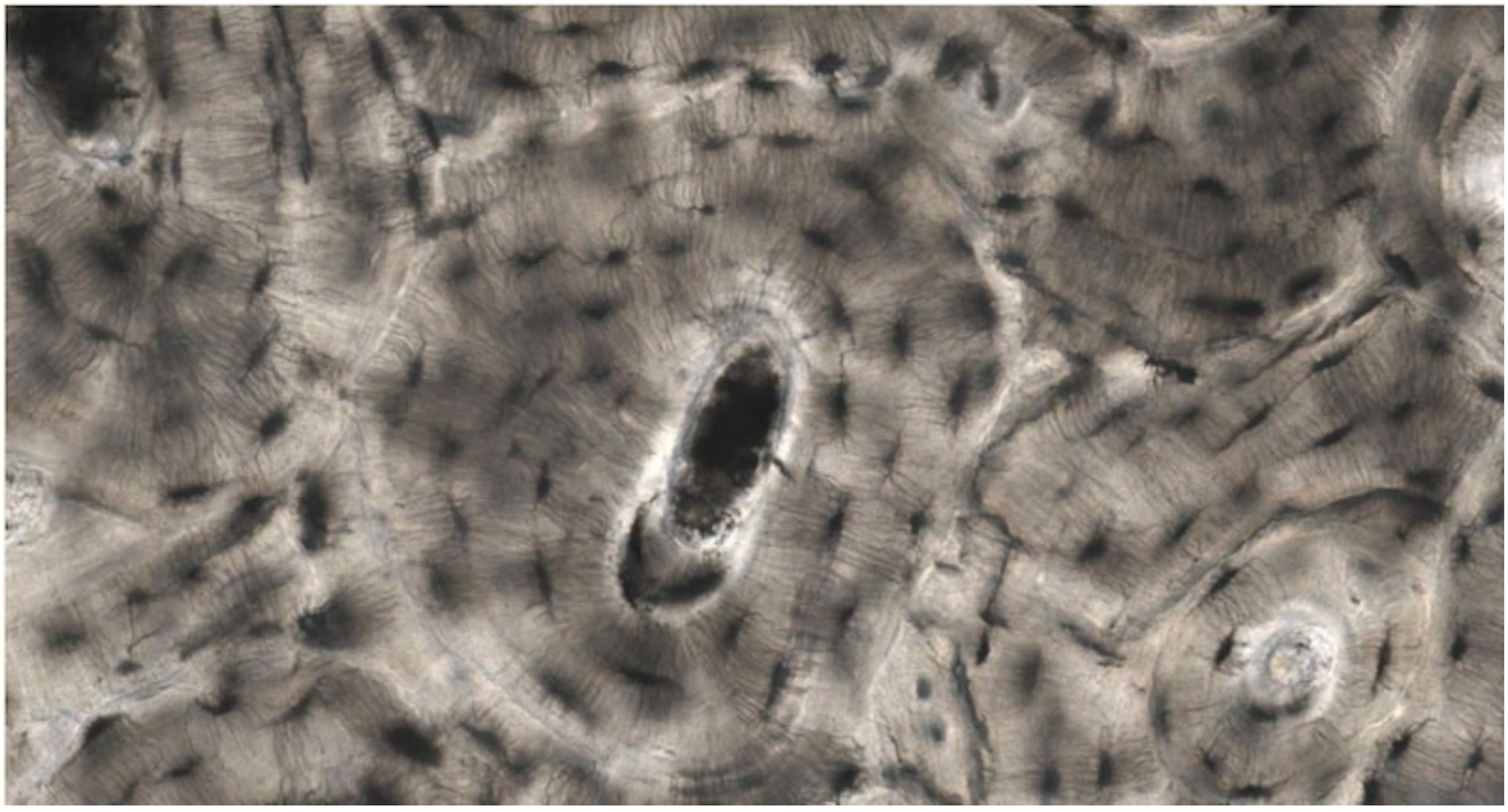
6. These cells communicate with adjacent cells via with of the following?

A. Cadherins

B. Integrins

C. Gap Junctions

D. Osteoprotegerin



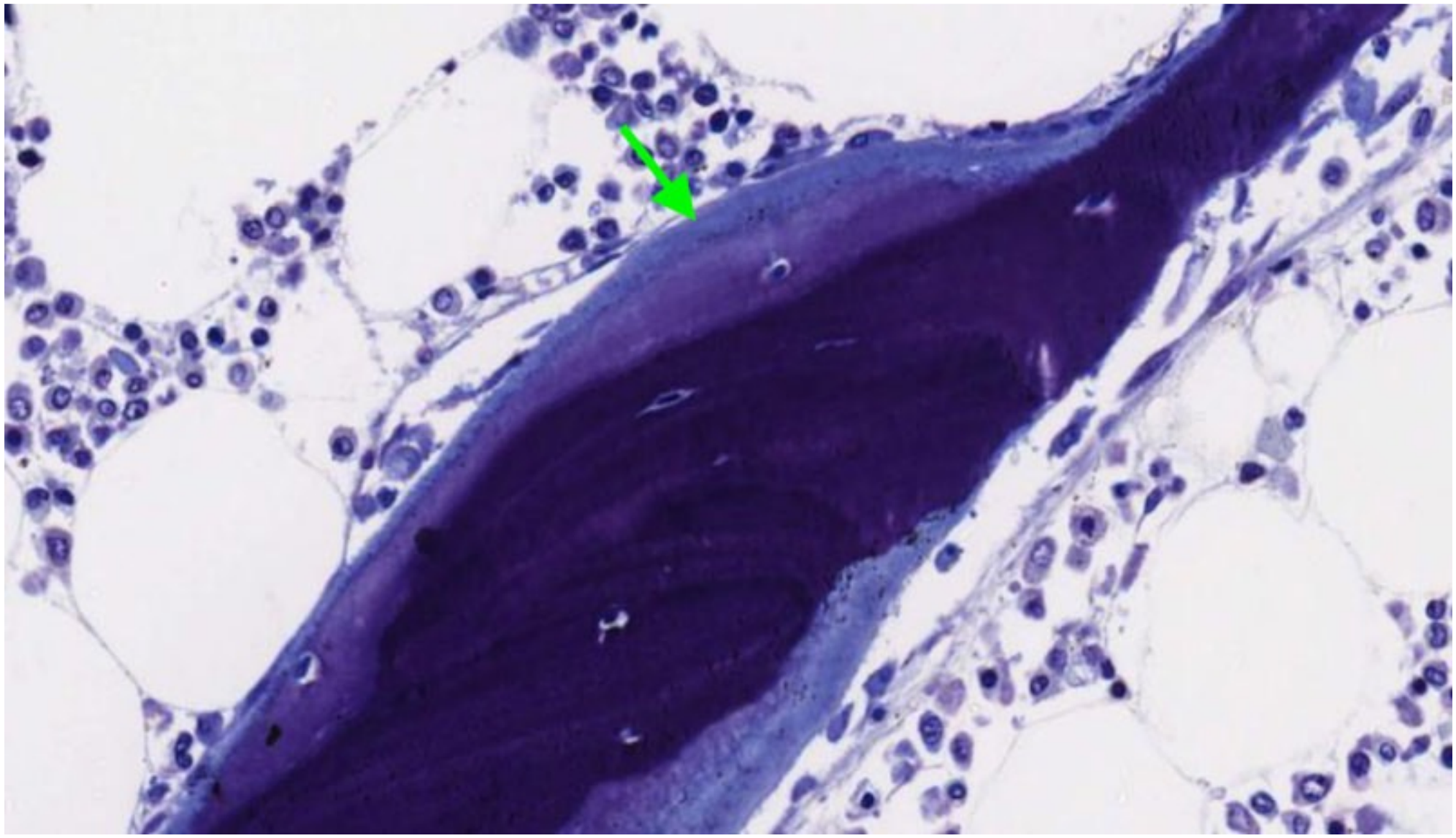
7. The arrow is pointing to what structure?

A. Cartilage

B. Osteoid

C. Bone

D. Mesenchymal Tissue



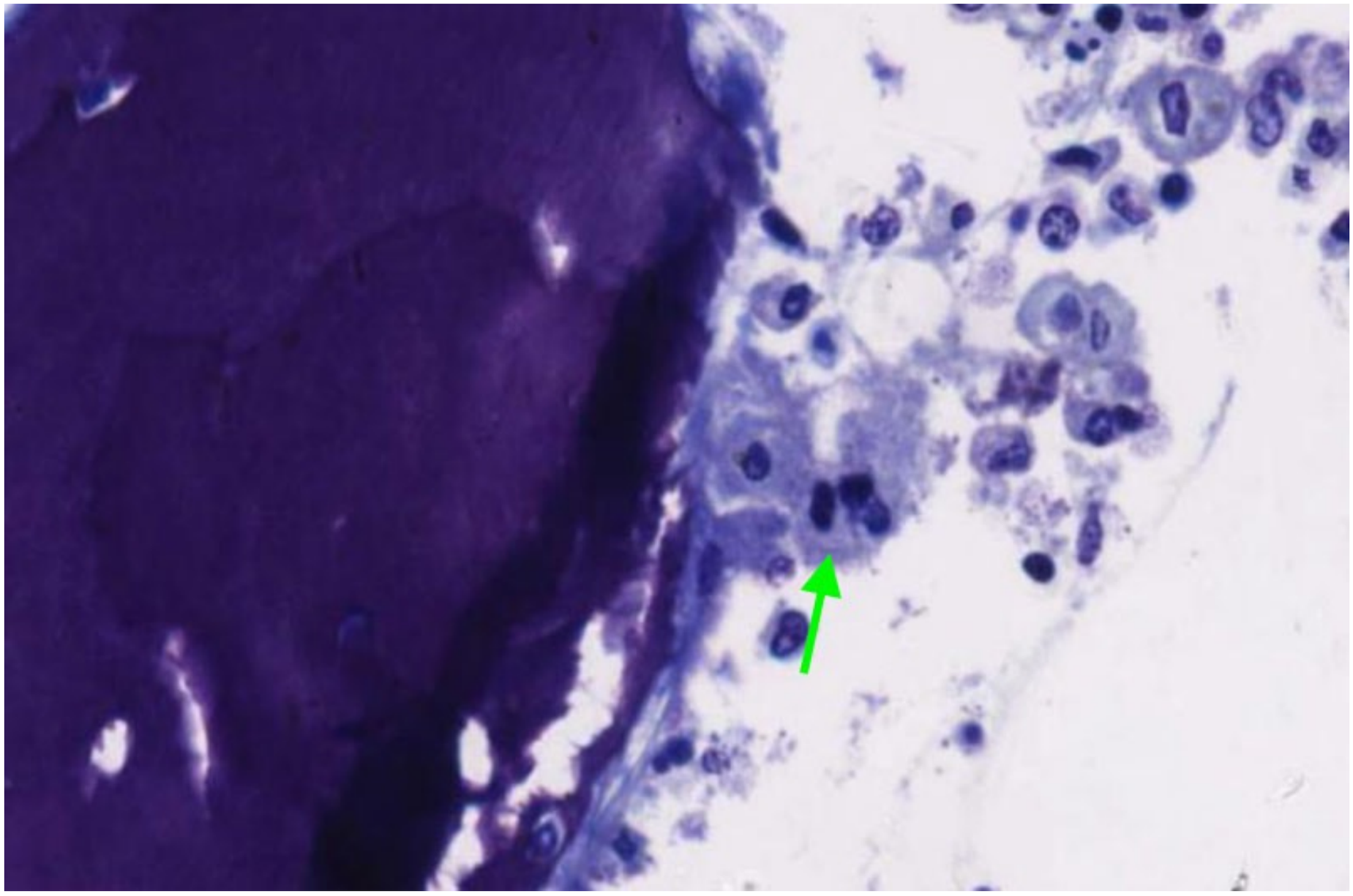
8. This cell secretes which of the following?

A. Osteoprotegerin

B. Calcium

C. Collagenase

D. RANK ligand



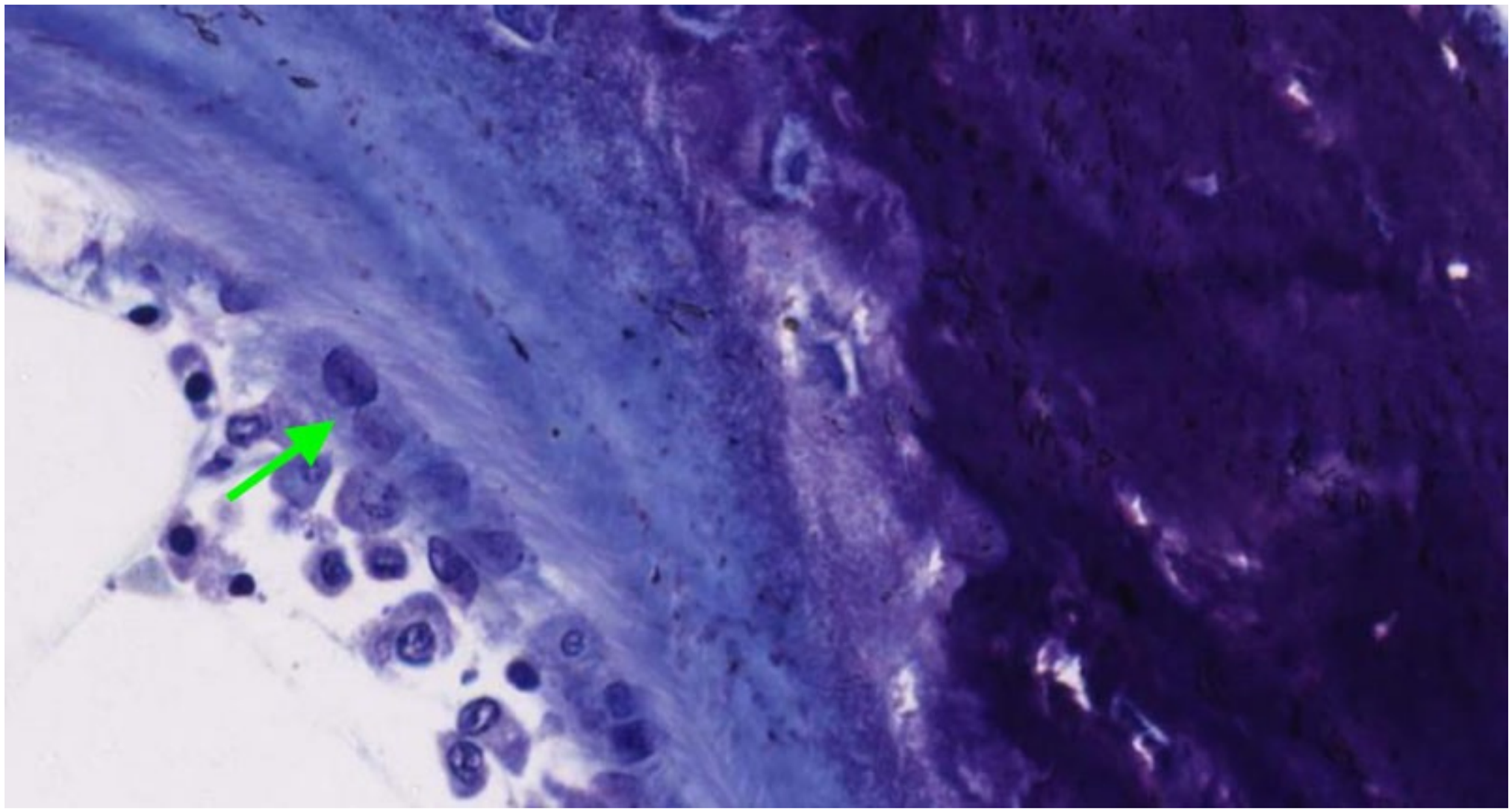
9. These cells produce which of the following?

A. Acid

B. Collagen

C. Cartilage

D. Calcium



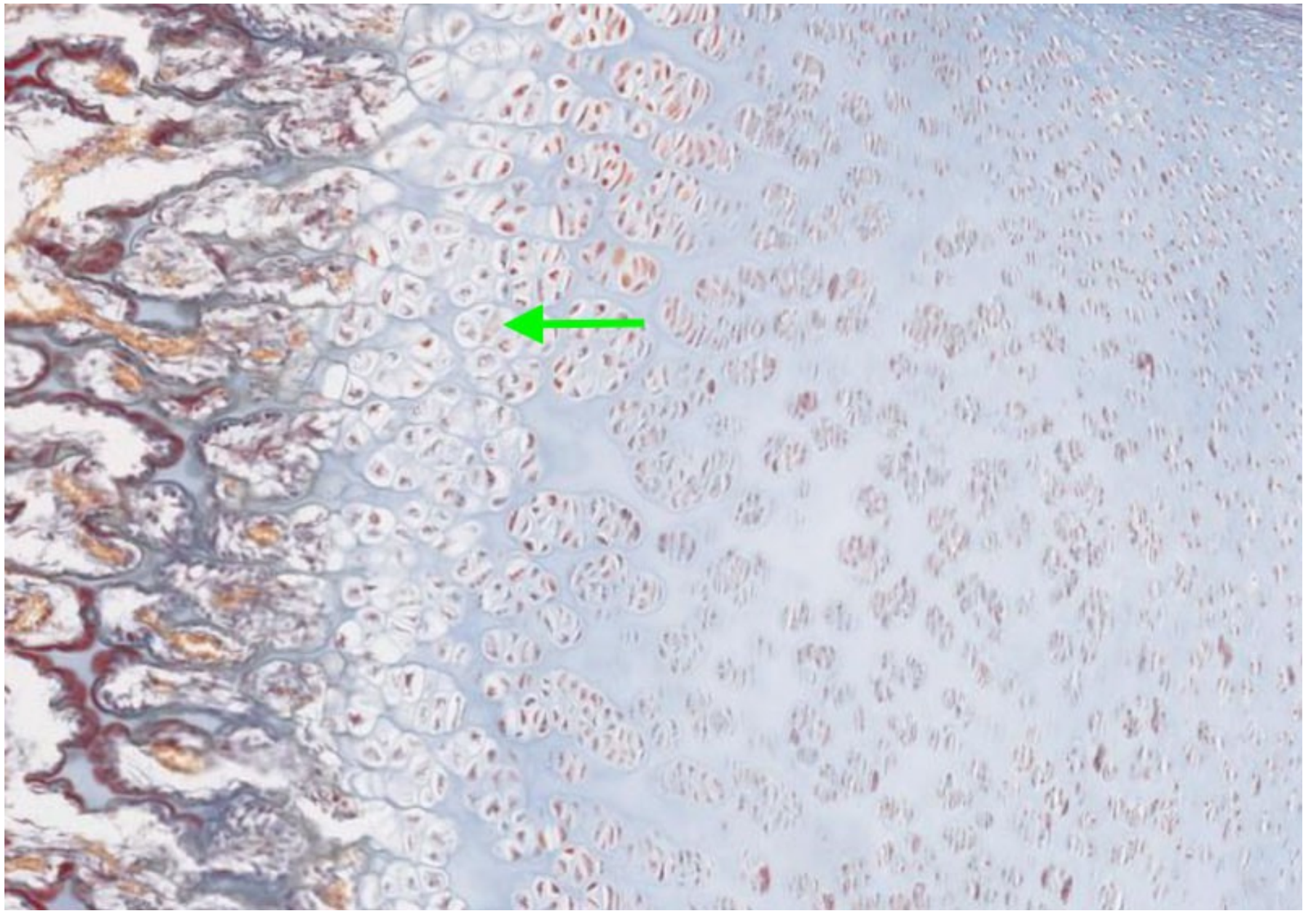
10. These cells produce which of the following?

A. Collagenase

B. Type I Collagen

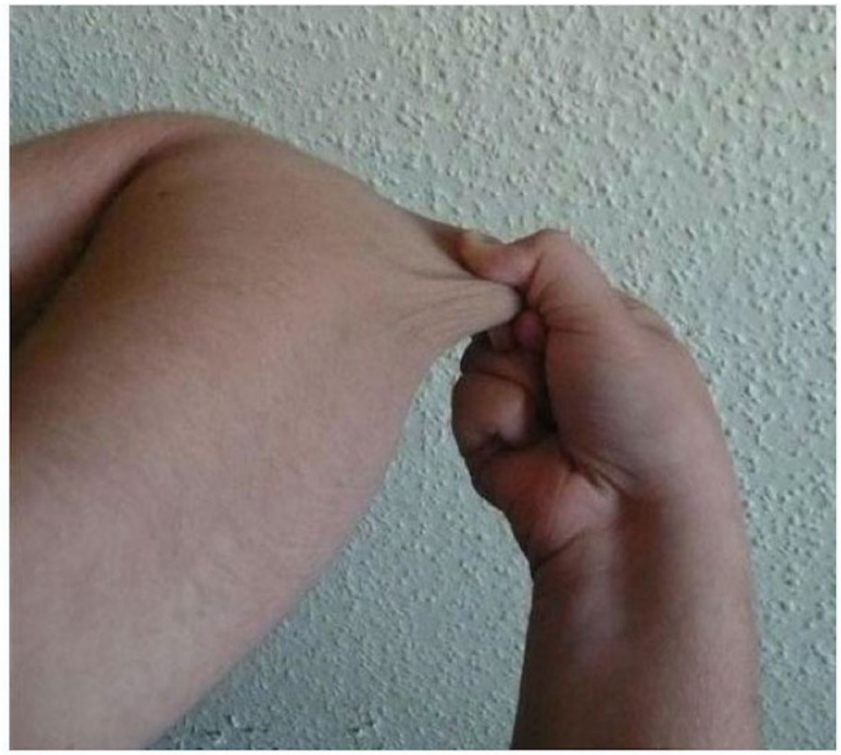
C. Type II Collagen

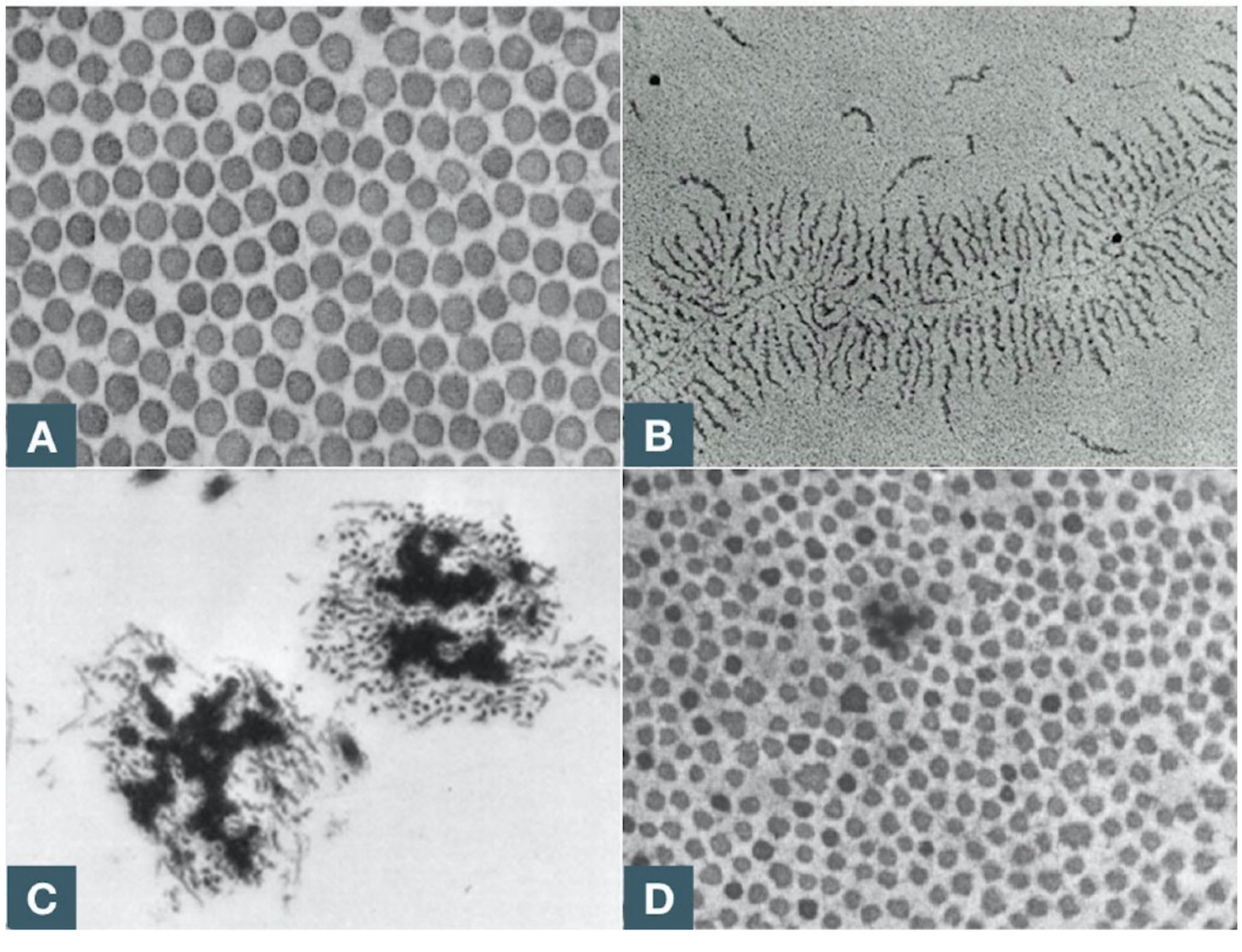
D. Elastin



Application Questions

1. At patient comes to you wondering about the excessive stretchiness of the skin in his elbow. A biopsy of the patient's skin examined by electron micrograph would most likely result in which image below.





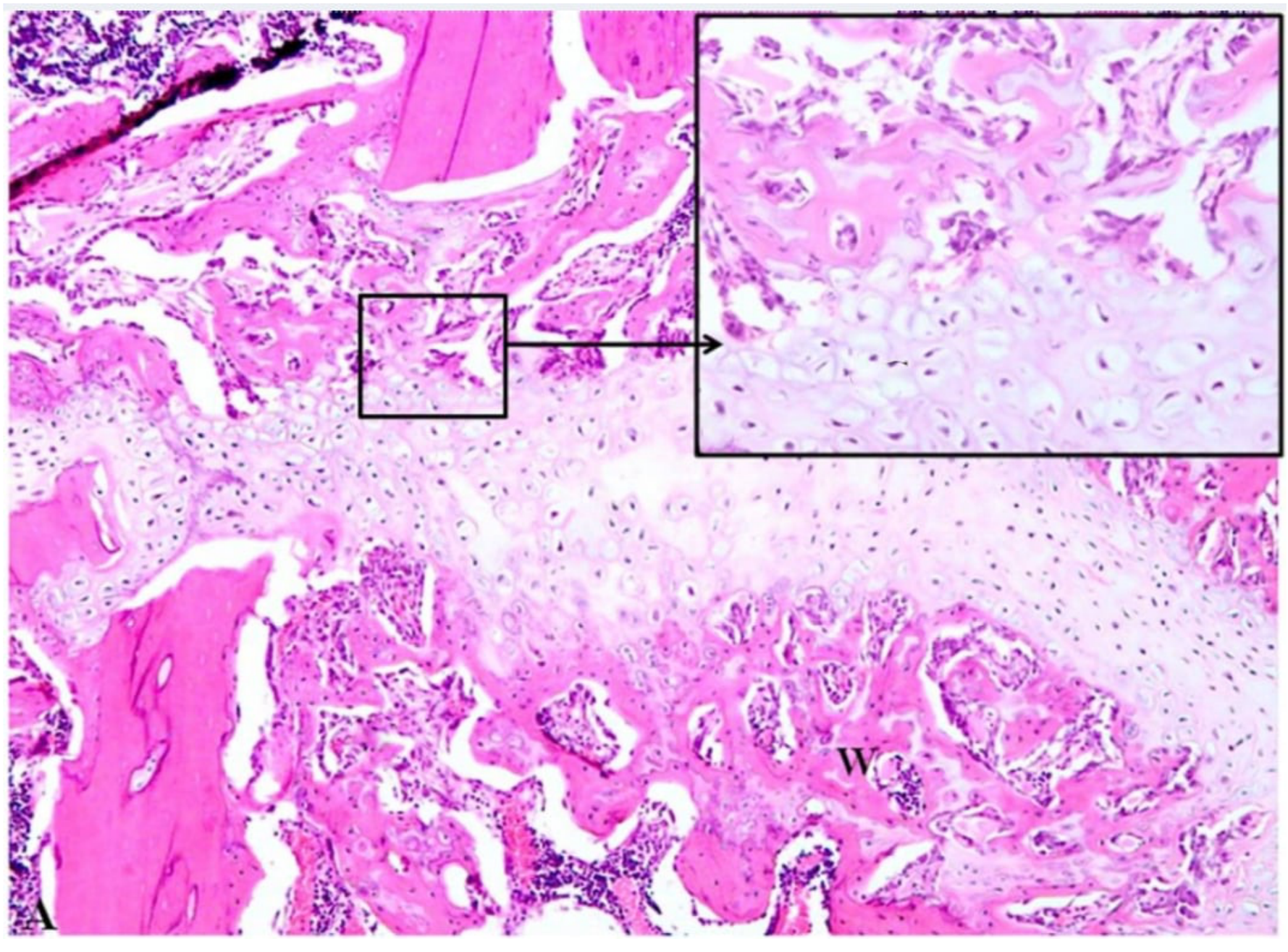
2. The image below is from a biopsy of a region of bone that was recently fractured. What process is initiating repair of the fracture?

   A. Endochondrial ossification

   B. Intramembraneous ossification

   C. Bone modeling

   D. Bone remodeling



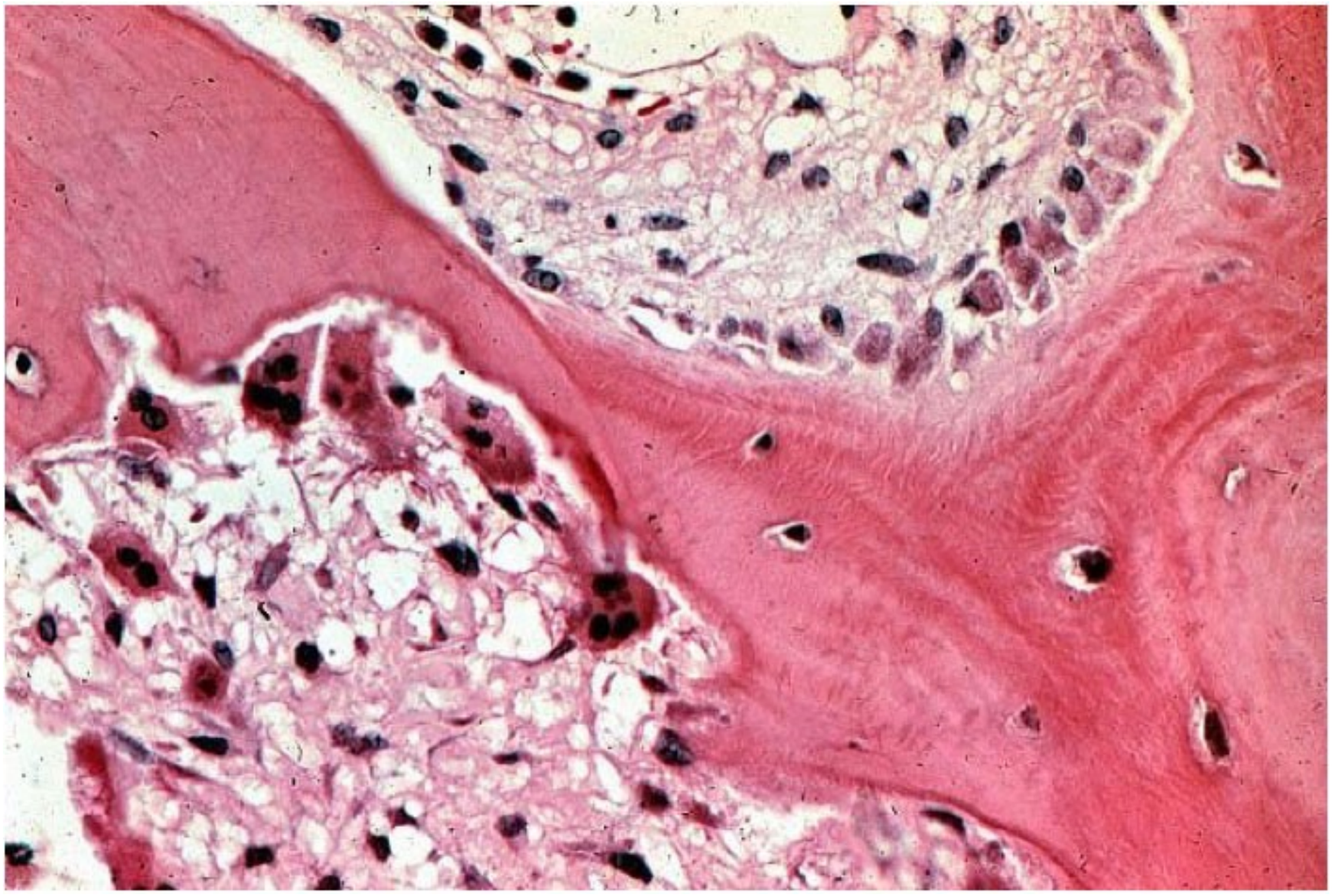
3. An elderly, female patient with no history of fracture has been diagnosed with thinning bones. A histological sample reveals the image below. Which of the following would be appropriate treatments? If more than one, rank the treatments in the order you would prescribe for the patient.

   A. Anti-RANK ligand antibody

   B. Exercise

   C. Estrogen therapy

   D. Parathyroid hormone



4. You read that the standard treatment for the patient in question 3 is exercise and administration of bisphosphonates, the structure of which is shown below. Based on its structure, how do you think bisphosphanates promote bone density?