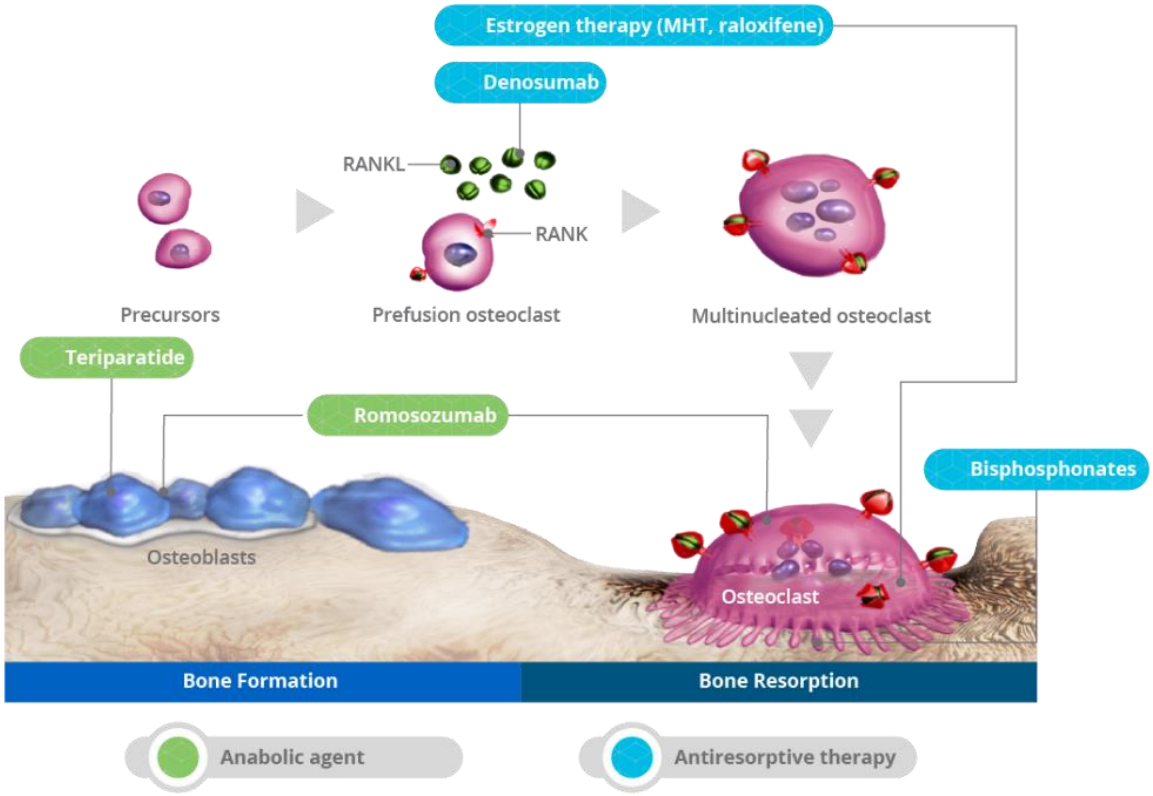
How medications impact bone remodeling

Osteoporosis medications affect the bone remodeling process in different ways to improve bone strength.

Learn more about the mechanism of action of the various osteoporosis medications.



Oestrogen Therapy

The selective oestrogen receptor modulator raloxifene and hormone replacement therapy mimic the effect of oestrogen in diminishing the activity of osteoclasts, resulting in decreased bone remodeling. They also decrease osteoclast differentiation from hematopoietic precursors without increasing cell apoptosis.(1)

Denosumab

Denosumab is a fully human monoclonal antibody that binds reversibly with high affinity to, and blocks the activity of, RANK ligand to prevent the development, activation, and survival of osteoclasts.(2,3)

Bisphosphonates

Bisphosphonates bind to bone and are internalized by mature osteoclasts at sites of active bone remodeling to inhibit their resorptive function and survival.(2) The second-generation nitrogen-containing bisphosphonates used today also inhibit a key regulatory enzyme required to promote core osteoclast cellular activities, which ultimately leads to osteoclast apoptosis.(2,3)

Romosozumab

Romosozumab is a sclerostin antibody. It promotes osteoblast differentiation and activity to increase bone formation and alters expression of osteoclast regulators to decrease bone resorption (dual effect).(4,5)

References

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