

# Calcitonin

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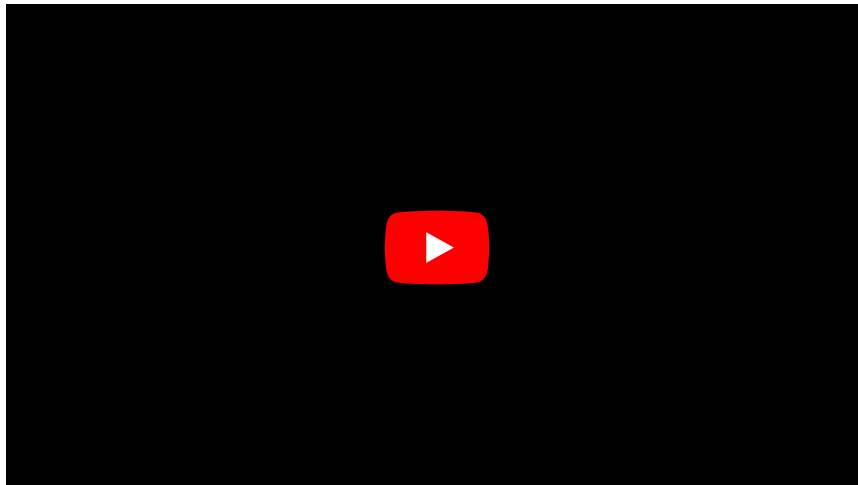
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Calcitonin, (thyrocalcitonin, CT), is a peptide hormone produced by the parafollicular (C-cells) of the thyroid gland. Its concentration increases with hypercalcemia. It lowers the level calcium ions in the blood and thus represents an antagonist to the parathormonu produced by the main cells of the parathyroid bodies. Parathormon and calcitonin stimulate reabsorption in the ascending part of the loop of Henle, where calcium is reabsorbed transcellularly and paracellularly <sup>[1]</sup> Parathormone reduces the resulting concentration of calcium in the urine, calcitonin increases it. In the distal part of the nephron, in addition to parathyroid hormone and calcitonin, calcitriol also participates in reabsorption of calcium.



The structure of calcitonin

## Calcitonin:



## Effects of calcitonin

- Bone: retains Ca + P
- kidney: reduces reabsorption of Ca + P
- intestine - no direct effect (calcitonin most likely reduces the formation of **calcitriol** in the kidneys).<sup>[2]</sup>

## Benchmarks

men, normal laboratory value: 3-26 ng/l women, normal laboratory value: 2-17 ng/l

## The regulation of calcium in the organism

	Parathormon	Calcitonine	Vitamin D <sup>[2]</sup>
<b>bone</b>	osteoclast activation, calcemia and phosphatemia rise	inhibition of osteoclasts, deposition of Ca 2+ in bones	skeletal mineralization; high levels, on the other hand, decalcify
<b>kidneyx</b>	stimulates Ca 2+ resorption, inhibits phosphate resorption, stimulates vitamin D synthesis	increases the excretion of Ca 2+ , increases the excretion of phosphates	increases the reabsorption of Ca 2+ and phosphates
<b>intestine</b>	stimulates resorption of Ca 2+ and phosphates	-	stimulates resorption of Ca 2+ and phosphates

# Links

## Related articles

- Calcium
- Calcium phosphate metabolism
- Procalcitonin

## References

1. WILHELM, Z. Co je dobré vědět o vápník. *Praktické lékařství*[online]. 2007, y. -, p. 184-189, Available from <<http://solen.cz/pdfs/lek/2007/04/09.pdf>>.
2. SILBERNAGL, Stefan – DESPOPOULOS, Agamemnon. *Atlas fyziologie člověka : 6. vydání, zcela přepracované a rozšířené*. 3. edition. Praha : Grada, 2004. pp. 290-293. ISBN 80-247-0630-X. **Cite error: Invalid <ref> tag; name "silbernagl" defined multiple times with different content**

## Other links

- Kalcitonin (česká wikipedie)
- Calcitonin (anglická wikipedie)

## References

- VÁCLAVA, Václava – VAJNER, Luděk. *Funkční histologie*. 1. edition. Jinočany : H & H, 2000. ISBN 80-86022-80-3.
- VOKURKA, Martin – HUGO, Jan. *Velký lékařský slovník*. 9. edition. Praha : Maxdorf, 2009. 1159 pp. ISBN 978-80-7345-202-5.