



## FGF 23 and trabecular microarchitecture

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Dear Editor,

We were intrigued by the paper of Rupp and coworkers; they showed that fibroblast growth factor 23 (FGF23) levels are associated with impaired trabecular bone microarchitecture in patients with osteoporosis, also after adjusting for confounding variables [1].

However, looking at Fig. 2, it seems that the correlations reported are mainly driven by two subjects with very high levels of C-terminal FGF23. Indeed, the maximum value of FGF23 reported in Table 1 is 1105 kRU/L, a level far above those found in normal subjects and also sometimes difficult to encounter in specific conditions characterized by hypersecretion of FGF23 such as tumor-induced osteomalacia [2]. Firstly, we wonder which could be the possible explanation underlying such high values in patients with osteoporosis and supposedly normal phosphate values. Secondly, it would be important to know if the correlations found persisted after excluding these clearly outlier subjects. Finally, we wonder if these correlations could have been improved by utilizing more recent assays detecting only the entire molecule [2, 3].

Regardless, we appreciate the point raised by the authors' findings suggesting a putative direct role of FGF23 on biomineralization and consequently on trabecular microstructure. Some preclinical data seem in fact to suggest that the *Npt*<sup>(-/-)</sup> mice that exhibit increased urinary phosphate excretion do not develop a skeletal phenotype of comparable severity to Hyp mouse [4]. In particular, they showed delayed trabecular bone formation without huge non-mineralized bone matrix. A direct effect of FGF23 on bone mineralization process could

therefore represent an adjunctive mechanism to those already largely acknowledged (i.e., low circulating phosphate and low calcium absorption owing to downregulation of 1 alpha 25-hydroxyvitamin D) leading to impaired bone mineralization.

### Compliance with ethical standards

**Conflict of interest** None.

### References

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