

10b

PTH TREATMENT INDUCES WNT10b EXPRESSION IN HUMANS LYMPHOID CELLS



P. D'Amelio^{1*}, F. Sassi¹, I. Buondonno¹, E. Spertino¹, L. D'Amico², I. Roato², G.C. Isaia¹

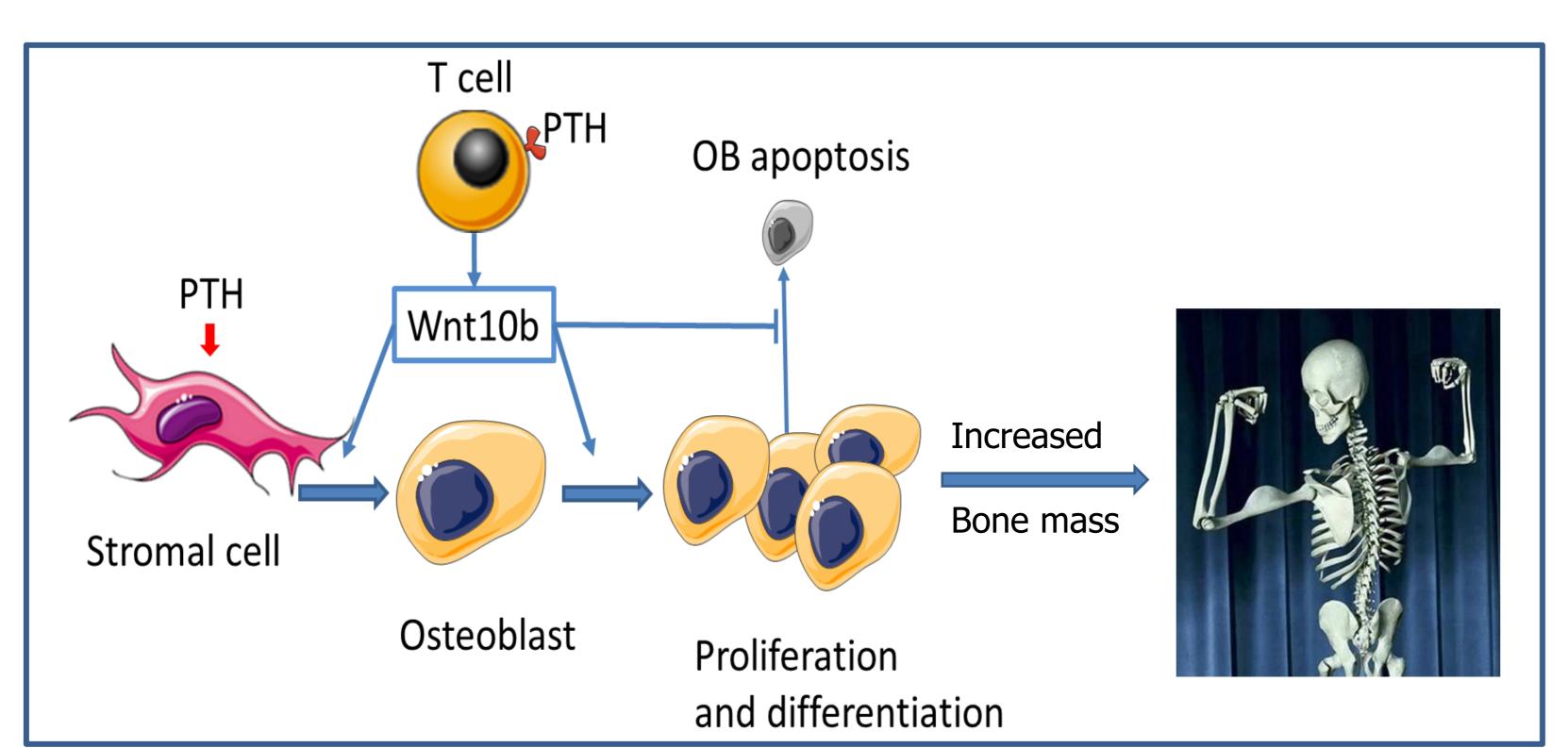
¹Dept. of Medical Science, University of Torino, Italy; ²Center for Research in Experimental Medicine (CeRMS), Hospital City of Health and Science of Turin, Italy

*patrizia.damelio@unito.it

INTRODUCTION

Intermittent PTH (iPTH) has bone anabolic effect and reduces vertebral fractures risk in osteoporotic patients.

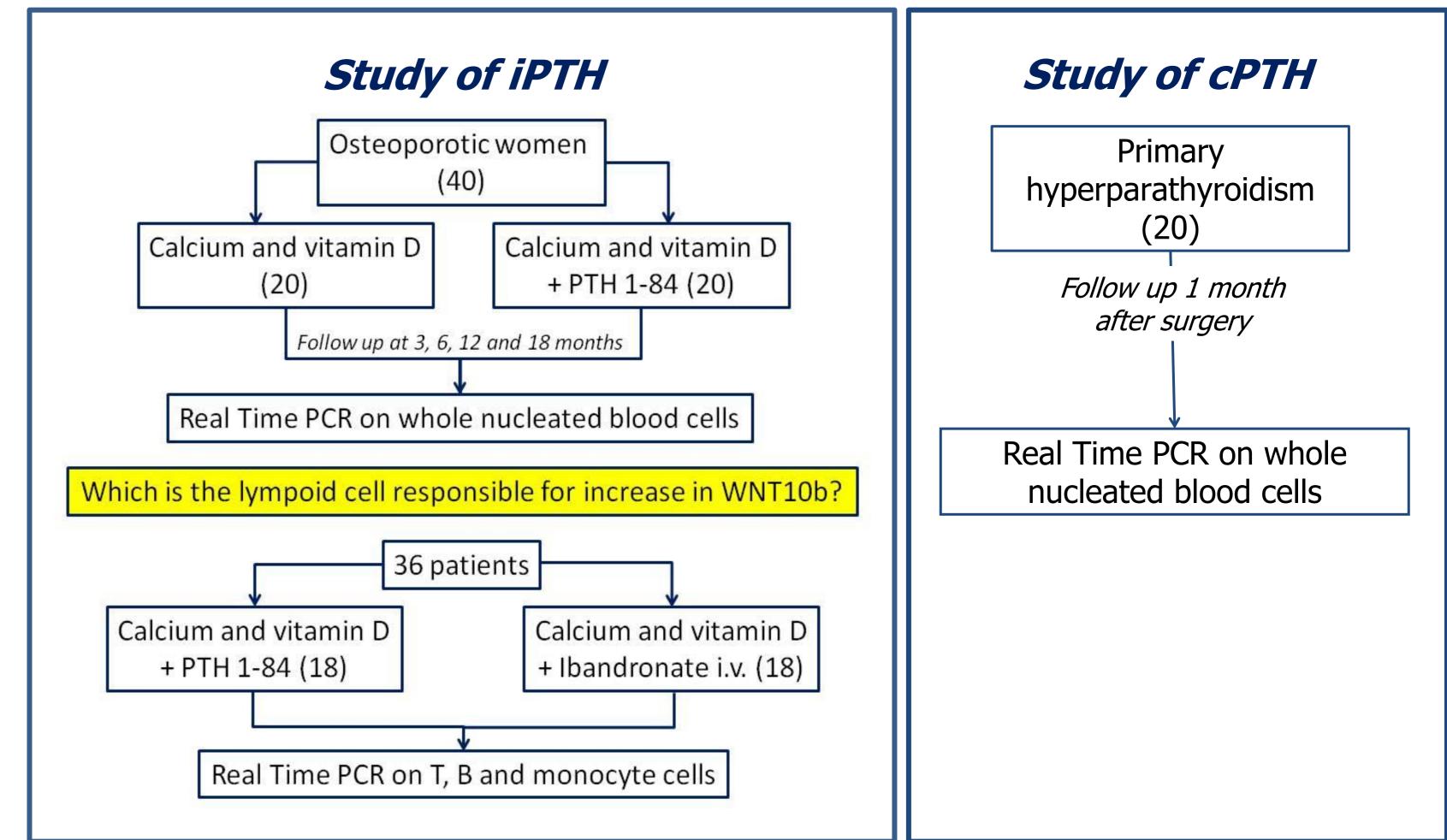
Recently increased expression of Wnt10b by T cells during iPTH, and no increase during continuous PTH (cPTH), has been demonstrated in mice.



AIM

To evaluate if iPTH increases WNT10b expression in lymphoid cells in humans.

METHODS

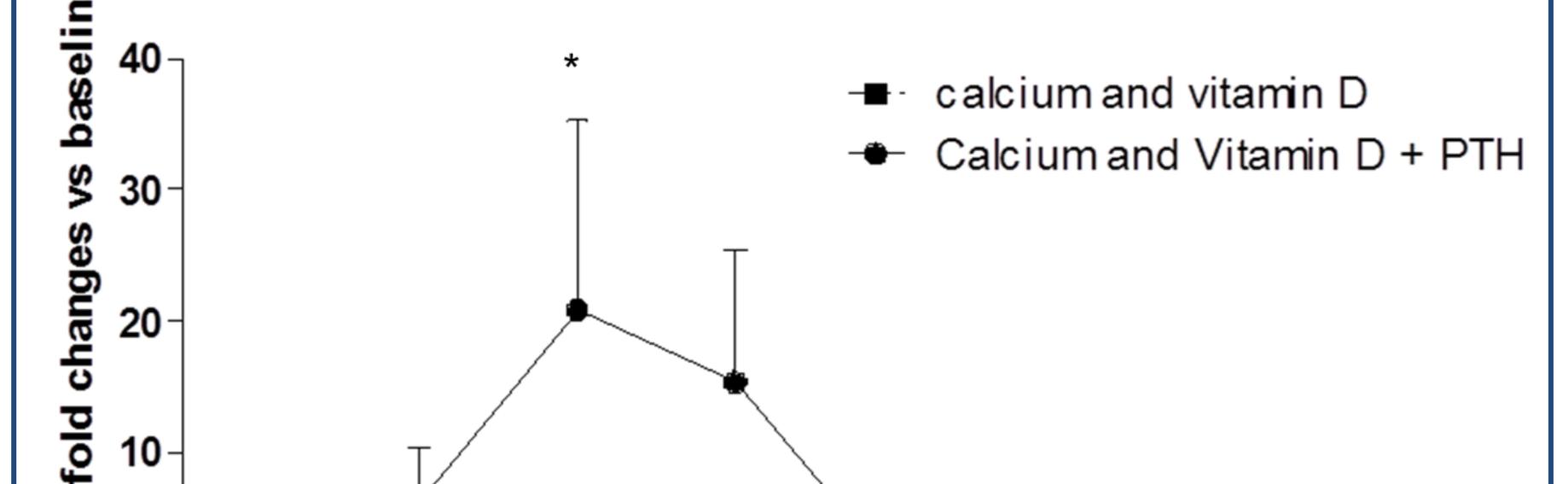


RESULTS

iPTH increases WNT10b in T cells

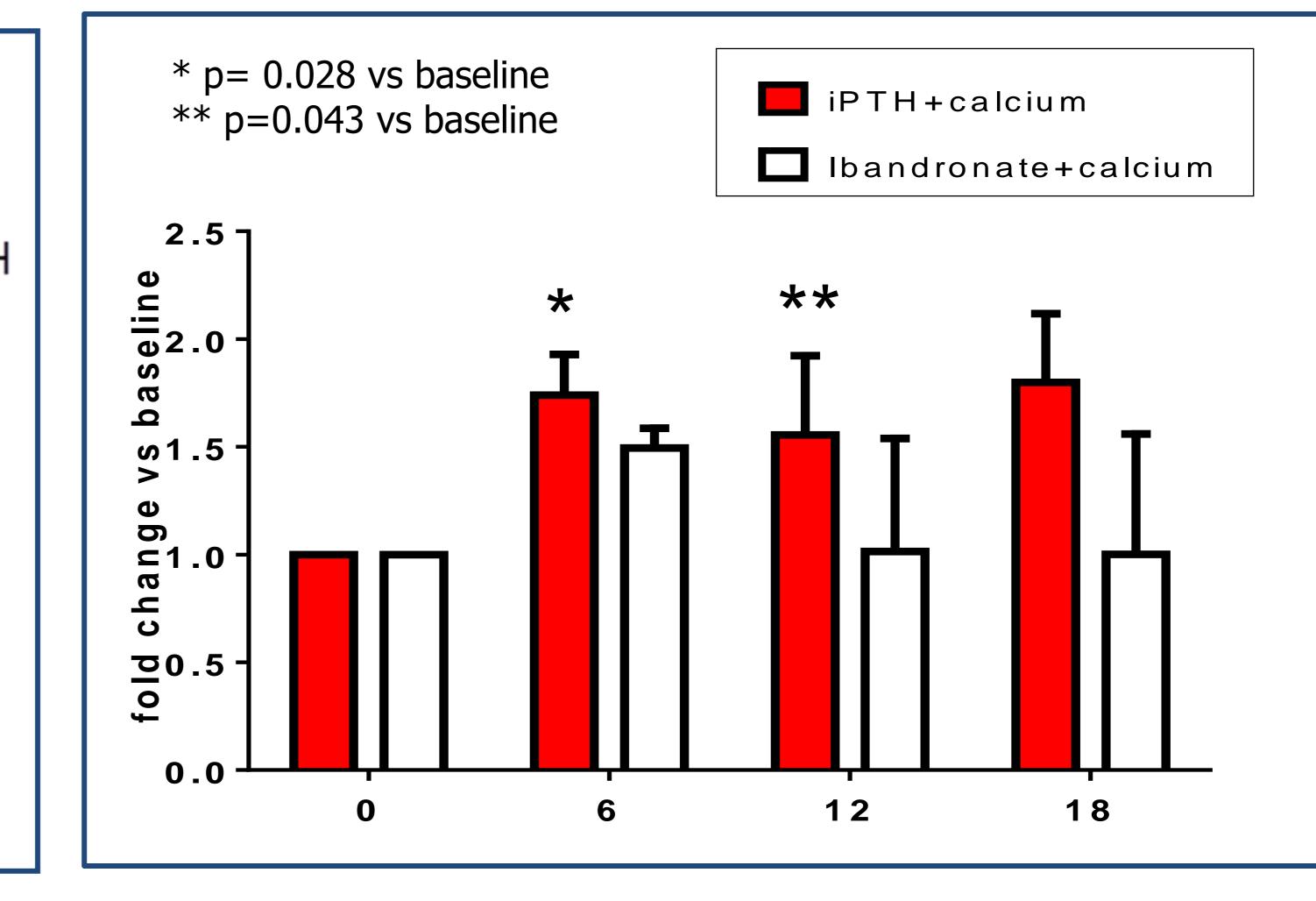
Our results show a marked increase in WNT10b expression in lymphoid cells during treatment with iPTH, whereas calcium and vitamin D alone has no effect; the increase is maximum after 6 months of treatment.

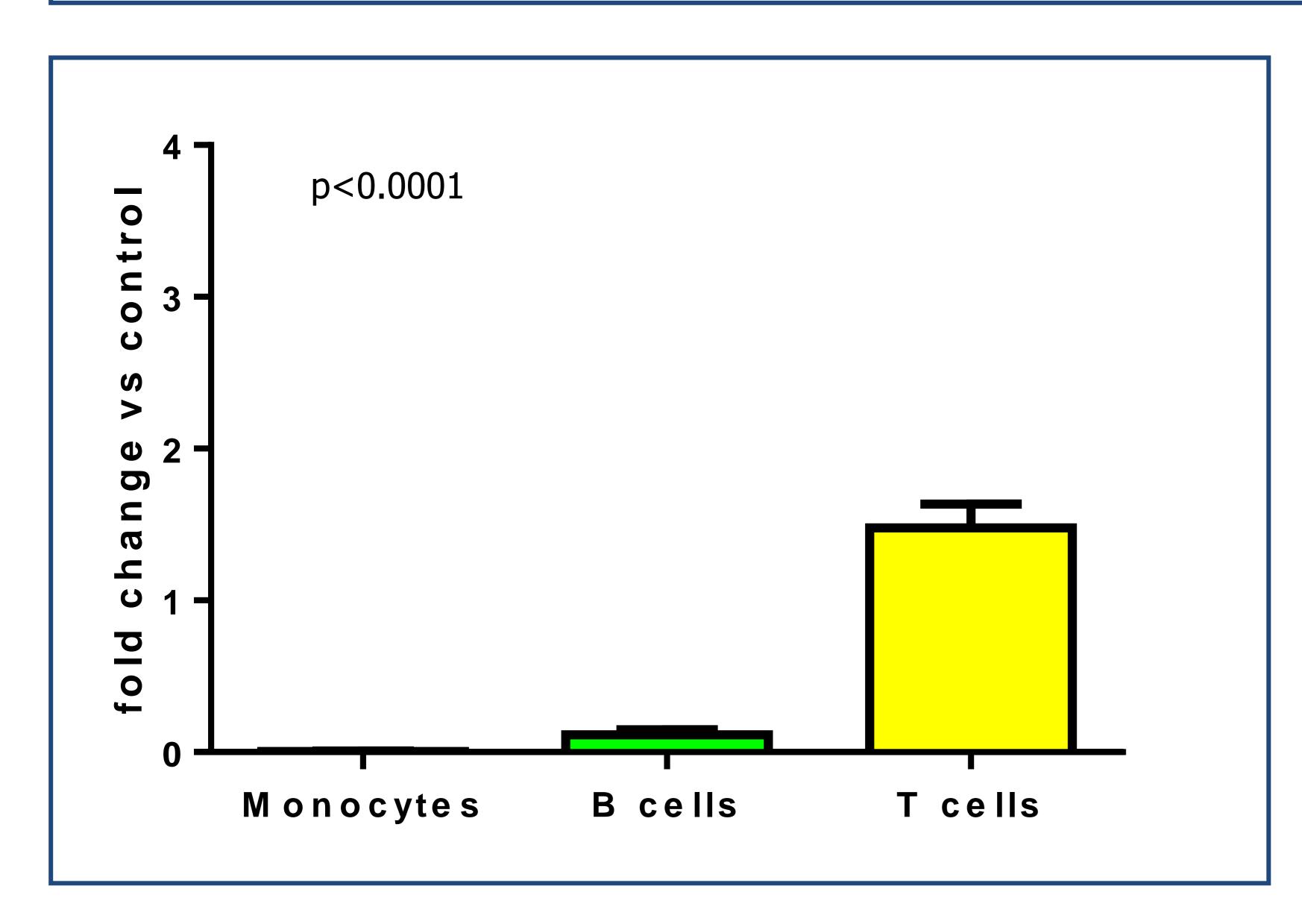
We show that iPTH increases WNT10b production mainly by T cells.



cPTH does not affect WNT10b expression

In patients affected by primary hyperparatiroidism there was no significant difference in baseline expression as respect to osteoporotic, non-treated patients and surgical intervention does not modify WNT10b expression, data not shown.





Months

CONCLUSIONS

Our data suggest an effect of intermittent, but not continuous PTH on the expression of WNT10b by T cells, this could be one of the mechanisms trough which PTH treatment increases OB formation and function in humans.

REFERENCES

- P. Chen, P.D. Miller, R. Recker, et al. "Increases in BMD correlate with improvements in bone microarchitecture with teriparatide treatment in postmenopausal women with osteoporosis". *J Bone Miner Res*, 22 (2007) 1173-80.
- H. Dobnig, R.T. Turner. "Evidence that intermittent treatment with parathyroid hormone increases bone formation in adult rats by activation of bone lining cells". *Endocrinology*, 136 (1995) 3632-8.
- M. Kato, M.S. Patel, R. Levasseur, et al. "Cbfa1-independent decrease in osteoblast proliferation, osteopenia, and persistent embryonic eye vascularization in mice deficient in Lrp5, a Wnt coreceptor". *J Cell Biol*, 157 (2002) 303-14.
- K. Sawakami, A.G. Robling, M. Ai, et al. "The Wnt co-receptor LRP5 is essential for skeletal mechanotransduction but not for the anabolic bone response to parathyroid hormone treatment". *J Biol Chem*, 281 (2006) 23698-711.
- M. Terauchi, J.Y. Li, B. Bedi, et al. "T lymphocytes amplify the anabolic activity of parathyroid hormone through Wnt10b signaling". *Cell Metab*, 10 (2009) 229-40.