

Identification of Na⁺-dependent phosphate transporter in the bone
: Na⁺-dependent phosphate transporter in osteoclast

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Osteoclasts are polarized cells involved in bone resorption. They are exposed to high ambient concentrations of inorganic phosphate (Pi) during the active process of bone resorption. We developed the purification of osteoblasts using RANL and M-CSF and isolated osteoclast-specific mRNA from rat and rabbit. In Northern blot analysis, the type I-III Na/Pi cotransporter transcripts were not detected in osteoclast mRNA of rat and rabbit. The specific primer for the type II Na/Pi cotransporter NaPi-2 amplified the 538 bp of the DNA fragment which is partially identical to rabbit type II transporter. Similar results were obtained from rat osteoclast mRNA. The DNA fragment contained the third intron of the type II transporter NaPi-2 gene, suggesting the presence of NaPi-2 isoforms in the osteoclast mRNA. The transcripts of this isoform was not detected in the mRNA of pre-osteoclast cells. These results indicate that the isoform for type II Na/Pi cotransporters may function as phosphate transporter in the plasma membrane of mature osteoclast.