

# Application: Staining and identification of bone-generating and bone-resorbing cells

## TRACP & ALP Double-Stain Kit (Cat.# MK300)

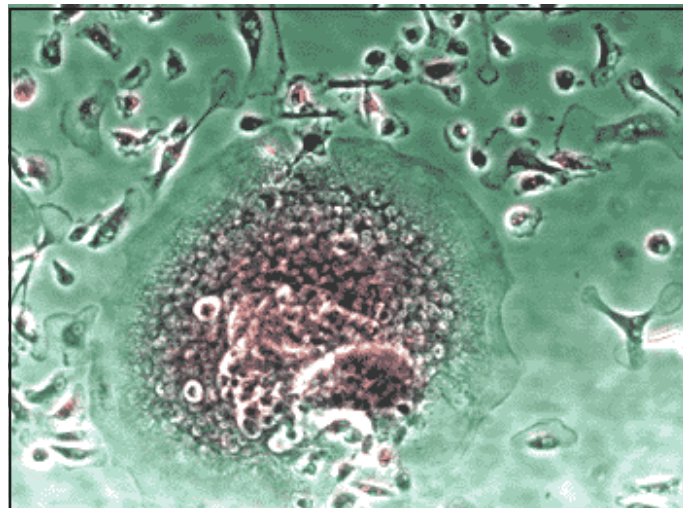
The TRACP & ALP Double-Stain Kit simplifies the staining and identification of bone-generating and bone-resorbing cells.

Chromogenic substrates for alkaline phosphatase (ALP, an enzyme marker of osteoblasts) and tartrate-resistant acid phosphatase (TRACP, an enzyme marker of osteoclasts) are combined with a reagent for nuclear staining that enables multinucleated osteoclasts to be visualized clearly and directly. Bone metabolism involves a balance between bone formation by osteoblasts and bone absorption by osteoclasts. Simultaneous detection of these two cell-specific enzyme markers is accomplished with ease using these premixed reagents and greatly simplifies the study of bone-related cell differentiation.

### Application Examples

#### Example 1:

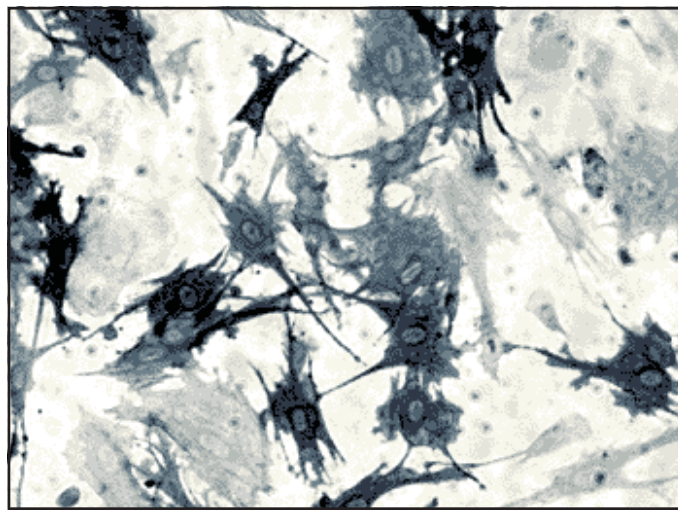
Bone marrow cells collected from a 16-week-old JW rabbit (male) were cultured in the presence of M-CSF and active vitamin D<sub>3</sub> for six days prior to being stained for TRACP activity (Fig. 1).



**Figure 1.** TRACP activity staining in cultured rabbit bone marrow cells.

#### Example 2:

Bone marrow cells collected from 24-day-old female SD rats were cultured in the presence of M-CSF and active vitamin D<sub>3</sub> for ten days prior to being stained for ALP activity (Fig. 2).



**Figure 2.** ALP activity staining in cultured rat bone marrow cells.

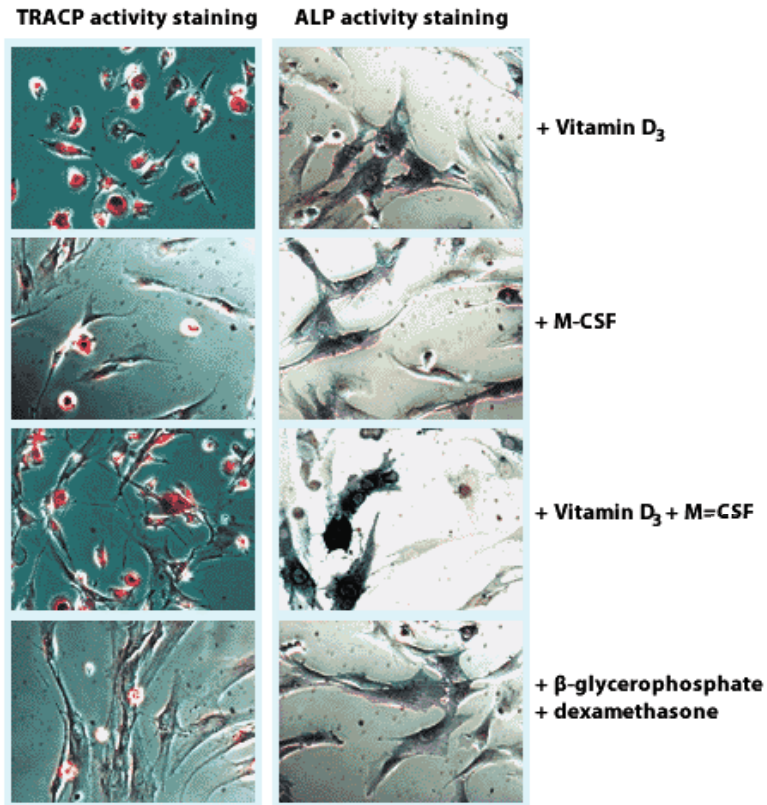
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### Example 3:

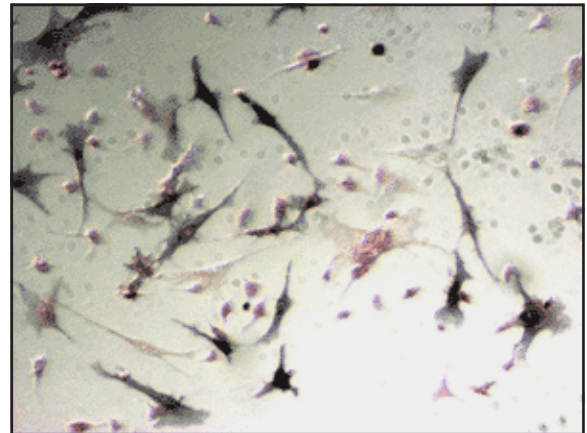
Human bone marrow mononuclear cells (Cambrex) were cultured in the presence of differentiation agents for nine days prior to being stained for TRACP and ALP activities (Fig. 3).



**Figure 3.** Human bone marrow cells stained for TRACP and ALP activities.

### Example 4:

Rat bone marrow cells were allowed to differentiate for 12 days in the presence of M-CSF and active vitamin D<sub>3</sub> prior to being double-stained for TRACP and ALP activities (Fig. 4).



**Figure 4.** Rat bone marrow cells double-stained for TRACP and ALP activities.