

## ACP5 Protein, Human, Recombinant (His)

### General Information

Synonyms:	acid phosphatase 5, tartrate resistant;TRAP;SPENCDI
Protein Construction:	A DNA sequence encoding the human ACP5 (NP_001602.1) precursor (Met 1-Pro 320) was expressed with a C-terminal polyhistidine tag. Predicted N terminal: Ala 22
Species:	Human
Expression Host:	HEK293 Cells
Accession:	P13686
Molecular Weight:	35 kDa (predicted); 35 kDa (reducing conditions)

### QC Testing

Biological Activity:	Measured by its ability to cleave a substrate, pNitrophenyl phosphate (pNPP). The specific activity is >100,000 pmol/min/ $\mu$ g.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 $\mu$ m filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
Reconstituted with sterile deionized water to 0.25 mg/mL. Reconstitution conditions may vary depending on the lot.

**Stability & Storage:**

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Tartrate-resistant acid phosphatase (TRACP) or acid phosphatase 5, tartrate resistant (ACP5 or TRAP) is a glycosylated monomeric metalloenzyme expressed in mammals. TRACP is associated with osteoblast migration to bone resorption sites, and, once there, TRACP is believed to initiate osteoblast differentiation, activation, and proliferation. TRACP once considered to be just a histochemical marker of osteoclasts is now recognised to be a molecule of widespread occurrence with functions in both the skeleton and the immune system. Two forms of

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TRACP circulate in human blood, TRACP 5a derived from macrophages and dendritic cells, and TRACP-5b derived from osteoclasts. Recent data have demonstrated the utility of TRACP-5b as a marker of osteoclast number and bone resorption, and serum TRACP-5a as a marker of inflammatory conditions. TRACP is expressed by osteoclasts, macrophages, dendritic cells and a number of other cell types. It has a critical role in many biological processes including skeletal development, collagen synthesis and degradation, the mineralisation of bone, cytokine production by macrophages and dendritic cells, macrophage recruitment, dendritic cell maturation and a role in the development of Th1 responses.

### Reference

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Lamp EC, et al. (2000) Biology of tartrate-resistant acid phosphatase. *Leuk Lymphoma*. 39(5-6): 477-84.

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