Akebia saponin D of Chinese herbal medicine Mu-Tong Induces Osteoclast Differentiation From Monocyte/Macrophage Lineage Precursor Cells

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Bone tissue metabolism is mainly relies on osteoblast, osteoclast resorption and reconstruction of the interaction, and maintain a dynamic balance, osteoclast differentiation via MAP kinase pathway, and activation of MAP kinase pathway mainly induced by RANKL. Osteoclasts is a huge and having a plurality of the nucleus of cells, mainly differentiated from the precursor cells by macrophages and monocytes. This traditional Chinese herbal medicine Mu-Tong (Akebia quinata Decne.) in China and other Asian countries have been widely used to treat a variety of diseases; including promotes urination, improve cardiac function, promotes lactation, antibiotic, treatment of urinary tract infection and bruises, edema and pain in the joints. In this study, we found Mu-Tong have the ability to promote osteoclast differentiation. The main components of Mu-Tong is akebia saponin D. In this study , we use tartrate-resistant acid phosphatase (TRAP) staining in a monocyte/macrophage lineage cell line-RAW264.7 to prove polarized osteoclast whether the activity as the identification of osteoclast-specific staining. Experimental results show that the Mu-Tong extract is no longer just a drug used to treat disease, the study also found Mu-Tong also promote monocyte / macrophage precursor cells differentiate into osteoclast efficacy.

Keywords: Chinese herbal medicine , akebia saponin D , osteoclast differentiation