Supporting Information

Tanshinol Alleviates Osteoporosis and Myopathy in Glucocorticoid-Treated Rats

Guanghua Chen¹*, Xinle Zhang²*, Han Lin³*, Guizhi Huang¹*, Yahui Chen², Liao Cui², ⁴

*These authors contributed equally to this work.

Affiliations

¹Department of Orthopedics, Affiliated Hospital of Guangdong Medical University, Zhanjiang, Guangdong, China

²Department of Pharmacology, School of Pharmacy, Guangdong Medical University, Zhanjiang, Guangdong, China

³Department of Orthopedics, Affiliated Hospital of Guizhou Medical University, Guian, Guizhou, China

⁴Guangdong Key Laboratory for Research and Development of Natural Drugs, Guangdong Medical University, Zhanjiang, Guangdong, China

Correspondence
Liao Cui, Ph.D., Professor

Department of Pharmacology, School of Pharmacy and Guangdong Key Laboratory for Research and Development of Natural Drugs

Guangdong Medical University

No. 2, Wenming Donglu, Xiashan District

Zhanjiang, Guangdong Province, 524023

China

Phone: +86-759-2388305

dr.cuiliao@gmail.com
Fig. 1S (A) The experimental scheme utilized in this study. (B) Surgical procedures used to create a bone defect at the right tibia: (i) cleansing and disinfection of the surgical area, (ii) an incision made over the right tibial diaphysis, (iii) exposure of the tibia, (iv)-(vi) a 2-mm hole created at 1-1.5 mm distal to the tibial epiphysis by orthopedic drill. GC, glucocorticoid; Tan, tanshinol.
Fig. 2S Dynamic histomorphometric analysis of the effects of tanshinol on bone histomorphology of PTM. (A) Representative fluorescent images from the five experimental groups (100 x). (B) Measurement results of dynamic histomorphometric parameters. Data are expressed as means ± SD. *P < 0.05 compared with the control group; #p < 0.05 compared with the GC group. %L.Pm, percent of labeled perimeter; MAR, mineral apposition rate; BFR/BS, bone formation rate per unit of bone surface; BFR/BV, bone formation rate per unit of bone volume; BFR/TV, bone formation rate per unit of tissue volume; GC, glucocorticoid; Tan-L, tanshinol 25 mg/kg; Tan-H, tanshinol 50 mg/kg.
Fig. 3S Static and dynamic histomorphometric analyses of the effects of Tanshinol on bone histomorphology of TX. (A) Representative microscopic images from the five experimental groups. Bar = 500 μm. (B) Measurement results of static histomorphometric parameters. (C) Representative fluorescent images from all groups. Bar = 200 μm. (D) Measurement results of dynamic histomorphometric
parameters. Data are expressed as means ± SD. *P < 0.05 compared with the control group; #p < 0.05 compared with the GC group. Ct.Ar, cortical bone area; %Ct.Ar, percent cortical bone area; %Ma.Ar, percent marrow cavity area; %E-L.Pm, endocortical percent of labeled perimeter; %P-L.Pm, periosteal percent of labeled perimeter; P-MAR, periosteal mineral apposition rate; P-BFR/BS, periosteal bone formation rate per unit of bone surface; GC, glucocorticoid; Tan-L, tanshinol 25 mg/kg; Tan-H, tanshinol 50 mg/kg.
Fig. 4S Static and dynamic histomorphometric analyses of the effects of Tanshinol on bone histomorphology of LV5. (A) Measurement results of static histomorphometric parameters from the five experimental groups (100 x). (B) Representative microscopic images from all groups. (C) Measurement results of dynamic histomorphometric parameters. Data are expressed as means ± SD. *P < 0.05
compared with the control group; \(^p < 0.05\) compared with the GC group. \(\%\text{Tb.Ar}\), percent of the trabecular bone area; \(\text{Tb.Th}\), trabecular thickness; \(\text{Tb.N}\), trabecular number; \(\text{Tb.Sp}\), trabecular space. \(\%\text{P-L.Pm}\), periosteal percent of labeled perimeter; \(\text{MAR}\), mineral apposition rate; \(\text{BFR/BS}\), bone formation rate per unit of bone surface; \(\text{BFR/BV}\), bone formation rate per unit of bone volume; \(\text{BFR/TV}\), bone formation rate per unit of tissue volume; \(\text{GC}\), glucocorticoid; \(\text{Tan-L}\), tanshinol 25 mg/kg; \(\text{Tan-H}\), tanshinol 50 mg/kg. \(N = 24\) in the control and GC groups; \(n = 16\) in the other groups.