

Resource Summary Report

Generated by [RRID](#) on Sep 7, 2026

MC3T3-E1 Subclone 14

RRID:CVCL_5437

Type: Cell Line

Proper Citation

RRID:CVCL_5437

Cell Line Information

URL: https://web.expasy.org/cellosaurus/CVCL_5437

Proper Citation: RRID:CVCL_5437

Description: Cell line MC3T3-E1 Subclone 14 is a Spontaneously immortalized cell line with a species of origin *Mus musculus* (Mouse)

Sex: Sex unspecified

Defining Citation: [PMID:10352097](#)

Comments: Characteristics: Exhibits high levels of osteoblast differentiation after growth in ascorbic acid and 3 to 4 mM inorganic phosphate. Forms a well mineralized extracellular matrix (ECM) after 10 days (ATCC=CRL-2594).

Category: Spontaneously immortalized cell line

Organism: *Mus musculus* (Mouse)

Name: MC3T3-E1 Subclone 14

Synonyms: MC3T3-E1 SUBCLONE 14

Cross References: CLO:CLO_0007583, ATCC:CRL-2594, BCRJ:0285, CCRID:3101MOUGNM15, CLS:305185, KCB:KCB 200786YJ, Ubigen:YC-C026, Wikidata:Q54904202

ID: CVCL_5437

Hierarchy: cvcl_0409

Record Creation Time: 20220427T220749+0000

Record Last Update: 20260905T181111+0000

Ratings and Alerts

No rating or validation information has been found for MC3T3-E1 Subclone 14.

No alerts have been found for MC3T3-E1 Subclone 14.

Data and Source Information

Source: [CelloSaurus](#)

Usage and Citation Metrics

We found 25 mentions in open access literature.

Listed below are recent publications. The full list is available at [RRID](#) .

Gu Y, et al. (2026) Macrophage metabolic reprogramming via HIF-1 α -glycolysis drives osteoblast ferroptosis and bone loss through an IL-6-STAT3-dependent redox axis. Redox report : communications in free radical research, 31(1), 2667673.

Yu L, et al. (2026) Self-sustained biomimetic bioelectronic accelerated metabolic reprogramming of bone regeneration. Biomaterials, 325, 123572.

Ren P, et al. (2026) Sustained release PLGA microspheres loaded with a bone-affinity Bmp2 enhance fracture healing and mitigate heterotopic ossification. Bioactive materials, 61, 796.

Sun C, et al. (2026) Micro-Galvanic Coupling Programs the Therapeutic Zinc Ion Window to Reconfigure Immune Cascades for Pro-Regenerative Bone Healing. Advanced science (Weinheim, Baden-Wurttemberg, Germany), e76084.

Liu L, et al. (2026) A Dual-Responsive Versatile Nanohybrid Orchestrating Tumor Elimination and Tumor-Associated Osteolysis Restoration via Sequential Release. Advanced science (Weinheim, Baden-Wurttemberg, Germany), 13(30), e18962.

Shao X, et al. (2026) Atrophic Skeletal Muscle-Derived Extracellular Vesicles Transfer miR-125a-5p to Inhibit Bone Formation in Osteoporosis during Aging. Advanced science (Weinheim, Baden-Wurttemberg, Germany), 13(25), e15362.

Liang SN, et al. (2026) Plasma exosomal miR-181a-5p is linked to osteoporosis by mediating endothelial-osteoblast crosstalk and regulating bone remodeling. Biochemical and biophysical research communications, 814, 153661.

Wang X, et al. (2026) Leveraging piezo-augmented copper-induced bacterial death of sub-1 nm CuO-SrTiO₃-x heterojunction nanosheets for osteomyelitis eradication. Journal of nanobiotechnology, 24(1).

Huang Z, et al. (2026) Tryptophan-Enriched Lactobacillus rhamnosus GG-derived Nanovesicles Promote Alveolar Bone Regeneration through Macrophage Fatty Acid Oxidation. Biomaterials research, 30, 0370.

Ren P, et al. (2026) Engineering Bone-Targeted LNP Delivery of Anti-Sclerostin Antibody mRNA for the Treatment of Osteoporosis. *Journal of biomedical materials research. Part A*, 114(7), e70103.

Dong X, et al. (2025) USP7 inhibitor HBX41108 suppresses osteoblastic differentiation in vitro and disrupts osseointegration of dental implants in vivo. *Toxicology and applied pharmacology*, 505, 117593.

Gu Y, et al. (2025) Low-dose valproic acid ameliorates osteoporosis by restoring redox homeostasis and suppressing ferritinophagy-dependent ferroptosis via EZH2/H3K27me3 signaling. *Free radical biology & medicine*, 241, 76.

Li S, et al. (2025) Study on VEGFA mRNA delivery via GelMA hydrogel-encapsulated extracellular vesicles for enhanced bone regeneration. *Materials today. Bio*, 34, 102144.

Gao Q, et al. (2024) Advanced glycation end products mediate biomineralization disorder in diabetic bone disease. *Cell reports. Medicine*, 5(9), 101694.

Gong Y, et al. (2023) Loss of RanGAP1 drives chromosome instability and rapid tumorigenesis of osteosarcoma. *Developmental cell*, 58(3), 192.

Sautchuk R, et al. (2022) Transcriptional regulation of cyclophilin D by BMP/Smad signaling and its role in osteogenic differentiation. *eLife*, 11.

Song P, et al. (2022) Canagliflozin promotes osteoblastic MC3T3-E1 differentiation via AMPK/RUNX2 and improves bone microarchitecture in type 2 diabetic mice. *Frontiers in endocrinology*, 13, 1081039.

Gong Y, et al. (2021) Vangl2 limits chaperone-mediated autophagy to balance osteogenic differentiation in mesenchymal stem cells. *Developmental cell*, 56(14), 2103.

Zhao Y, et al. (2021) Focal adhesion regulates osteogenic differentiation of mesenchymal stem cells and osteoblasts. *Biomaterials translational*, 2(4), 312.

Xue F, et al. (2021) 7,8-Dihydroxyflavone modulates bone formation and resorption and ameliorates ovariectomy-induced osteoporosis. *eLife*, 10.