COSMO BIO CO., LTD.
Inspiration for Life Science

For research use only. Not for clinical diagnosis.

Osteoclasts , Human

Catalog No. OSC15C

August 26, 2020

Principle

Bone metabolism is composed of balanced osteogenesis and bone resorption. Research studies have shown that bone marrow cells can be differentiated into osteoclasts using M-CSF (Macrophage Colony Stimulating Factor) and RANKL (Receptor Activator of NF kappa B Ligand). #OSC15C is useful to evaluate osteoclast formation and activation.

Warranty

Cosmo Bio warrants that product (cells) will be viable until the expiration date, and is valid only if the product is stored and cultured according to the information indicated in this product data sheet. Cosmo Bio has optimized the cell culture media formulation which is ideal for the product. While other, unspecified cell culture media may also produce satisfactory results, a change in cell culture media or the absence of an additive(s) from the recommended cell culture media may affect recovery, growth and/or function of the product. If an alternative cell culture medium formulation is used to culture the product, the Cosmo Bio warranty for cell viability is no longer valid.

Precautions

- Read the instructions carefully before beginning the culture.
- Remove the cryovial from the dry ice packaging and immediately place into liquid nitrogen storage until use.

Components

Product Name	Size	Quantity	Storage Conditions	Expiration date
Osteoclast precursor, Human, cryopreserved	2.0×10^6 cells/vial	1 vial	Liquid Nitrogen vapor phase	6 months

***Shipping: dry ice**

Optimized Medium (selling separately)

Catalog No.	Product Name	Size	Quantity	Storage Conditions	Expiration date
OSCMW	Osteoclast Wash Medium	100 mL	1	-20°C Freezer	- Written on the bottle
OSCMHB	Osteoclast Culture Medium (w/ RANKL and M-CSF)	30 mL	1	-20°C Freezer	- Written on the bottle

Culture Medium components: α-MEM, FBS, antibiotics, etc.

General Information

Organism	*Homo sapiens*, human
Tissue	Bone Marrow
Cultural Properties	Adherent
Biosafety Level	2
Virus Check	HIV-1(-), HBV (-), HCV (-)

Materials required but not provided

- ✧ Osteoclast Wash Medium (#OSCMW)
- ✧ Human Osteoclast Culture Medium (#OSCMHB)
- ✧ Variable volume pipettes
- ✧ Culture vessels
- ✧ 15 ml centrifuge tube

Protocol

A) Cultured with the 96-well culture plate

1) Carefully remove the cryovial from liquid nitrogen and thaw cells in a water bath at 37°C with gently shaking.
2) Transfer thawed cells into a 15 ml centrifuge tube containing 10 ml of Osteoclast Wash Medium (#OSCMW) and Transfer 1mL of culture medium in the same conical tube back to the cryovial and pour the contents back to 15mL conical tube.
3) Centrifuge for 5 minutes at 4°C at 200 x g for 5 minutes.
4) Remove the supernatant, and re-suspend the cell pellet in 2.5 to 5.0 ml of Human Osteoclast Culture Medium (#OSCMHB).
5) Dispense 100 μL of the cell suspension to each well of 96-well culture plate, and incubate the flask at 37°C under 5% CO_2 and 100% humidity.
6) Three days later, Replace the medium with fresh culture medium.
7) Change the medium every other day.
   ※Osteoclasts will begin to fuse and form osteoclasts after 4 or 7 days of incubation

Technical information

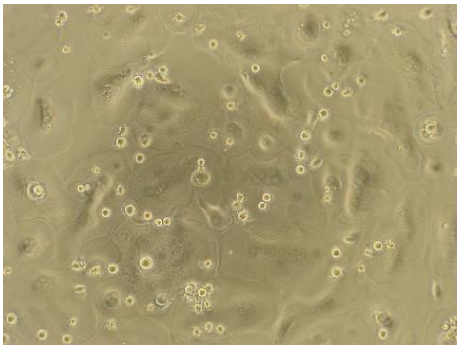

Fig.1 Osteoclast inducted of differentiation with M-CSF/RANKL

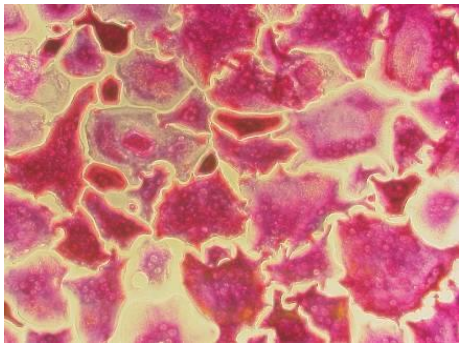

Fig. 2 TRAP staining of human osteoclast

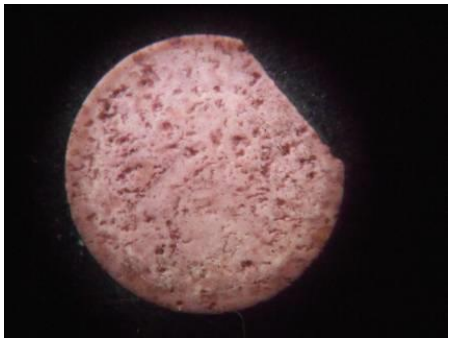

Fig.3 Pit on the slice of ivory. (HE staining)

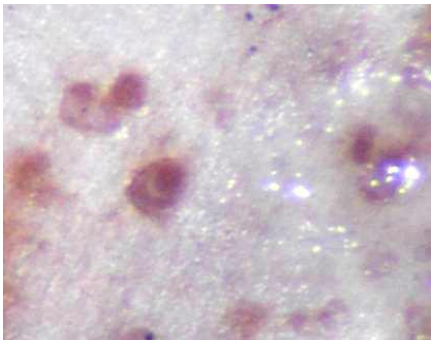

Fig.4 Pit on the slice of ivory. (HE staining)

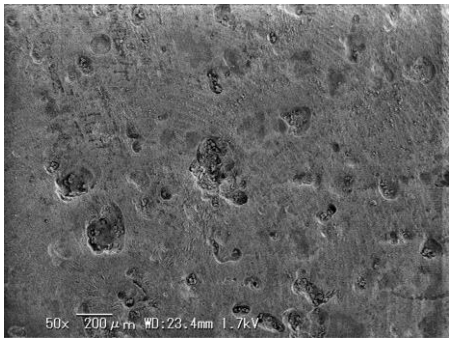

Fig.5 Pit on the slice of ivory. (SEM picture)

References

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2. Scheven et al. (1998) A sequential culture approach to study osteoclast differentiation from nonadherent porcine bone marrow cells. In Vitro Cell Dev Biol Anim 34, 568–577.
3. Martha et al. (1995) Enhanced Expression of αV Integrin Subunit and Osteopontin during Differentiation of HL-60 Cells along the Monocytic Pathway. Exp. Cell Res. 216, 335-341.
4. Itonaga et al. (1999) 1,25-Dihydroxyvitamin D3 and Prostaglandin E2 Act Directly on Circulating Human Osteoclast Precursors. Biochem. Biophys. Res. Commun. 242, 703-709.

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