

MacroCargo™ Mouse Bone Marrow-derived Hematopoietic Stem/Progenitor Cells (HSPCs) with pDNA encoding IL-1β (Nanoparticle System, Magnetic cationic liposomes)

Cat. No.: MTS-1222-YF208

This product is for research use only and is not intended for diagnostic use.

Cell Properties

Product Overview	As a therapeutic tool, macrophage cell has a great capacity for delivering cargos because of their intrinsic characteristics. This product is engineered Mouse Bone Marrow-derived Hematopoietic Stem/Progenitor Cells (HSPCs) carried with pDNA encoding IL-1β by Nanoparticle System-Magnetic cationic liposomes. MacroCargo™ products aim to improve the macrophage function and delivery of specific cargos. We also provide custom macrophage delivery systems based on your specific requirements.
Cell Name	Bone Marrow-derived Hematopoietic Stem/Progenitor Cells (HSPCs)
Cell Type	Primary Cell
Cell Species	Mouse
Cell Background	High-dose chemotherapy followed by adjuvant autologous hematopoietic stem/progenitor cell (HSPC) transplantation has been tested for the treatment of hematological and solid tumors and can be regarded as a clinical option for certain types of cancer. Scientists have highlighted the important contribution of bone marrow (BM)-derived myeloid cells to tumor angiogenesis.

Cargo Properties

Cargo Type	Cytokine
Specific Cargo	pDNA encoding IL-1β
Cargo Common Name	IL1B
Cargo Alternative Names	IL-1; IL1F2; IL1beta; IL1-BETA
Cargo Full Name	Interleukin 1 beta
Introduction	The protein encoded by this gene is a member of the interleukin 1 cytokine family. This cytokine is produced by activated macrophages as a proprotein, which is proteolytically processed to its active form by caspase 1 (CASP1/ICE). This cytokine is an important mediator of the inflammatory response, and is involved in a variety of cellular activities, including cell proliferation, differentiation, and apoptosis. The induction of cyclooxygenase-2 (PTGS2/COX2) by this cytokine in the central nervous system

m (CNS) is found to contribute to inflammatory pain hypersensitivity. Similarly, IL-1B has been implicated in human osteoarthritis pathogenesis. Patients with severe Coronavirus Disease 2019 (COVID-19) present elevated levels of pro-inflammatory cytokines such as IL-1B in bronchial alveolar lavage fluid samples. The lung damage induced by the Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is to a large extent, a result of the inflammatory response promoted by cytokines such as IL-1B. This gene and eight other interleukin 1 family genes form a cytokine gene cluster on chromosome 2.

UniprotID	P01584
GeneID	3553
Cargo Delivery System Type	Nanoparticle System
Cargo Delivery Approach	Magnetic cationic liposomes
Nanoparticle Component	DOTAP, DSPC, cholesterol, iron oxide (II, III).

Product Properties

Applications	Improve the delivery of macrophages to tumors and its therapeutic efficacy against inflammatory diseases
Mycoplasma Testing	Negative
Sterility Testing	Negative
Shipping	Dry ice
Storage	Frozen cells should be stored in a liquid nitrogen tank (-150°C~-190°C) for long term.
Handling Notes	Frozen cells should be thawed immediately upon receipt and grown according to handling procedure to ensure cell viability and proper assay performance. Note: Do not freeze the cells upon receipt as it may result in irreversible damage to the cell line. Disclaimer: We cannot guarantee cell viability if the cells are not thawed immediately upon receipt and grown according to handling procedure.
Restriction	Research use only