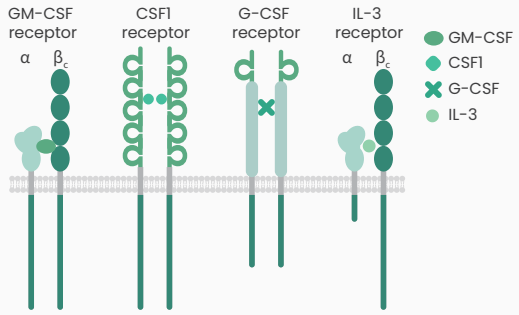
Colony-Stimulating Factors

Master Regulators of Stem Cell Development

Colony-stimulating factors (CSFs) are secreted glycoproteins that bind to receptor proteins on the surfaces of hematopoietic stem cells, thereby activating intracellular signaling pathways that can cause the cells to proliferate and differentiate into a specific kind of blood cell, usually white blood cells. CSFs are essential to allow all blood cells in the granulocyte and monocyte series to divide, including progenitor cells and their progeny.

There are four CSF family members:

- Macrophage colony-stimulating factor (M-CSF/CSF1) regulates myeloid lineage cell survival, proliferation, differentiation, and function.
- Granulocyte-macrophage colony-stimulating factor (GM-CSF/CSF2) stimulates stem cells' maturation and the differentiation of granulocytes and monocytes.
- Granulocyte colony-stimulating factor (G-CSF/CSF3) acts on proliferation, functional stimulation, and differentiation of progenitors of neutrophils.
- Multiple colony-stimulating factor or interleukin 3 (IL-3) stimulates the growth of immature progenitor cells of all myeloid lineages.

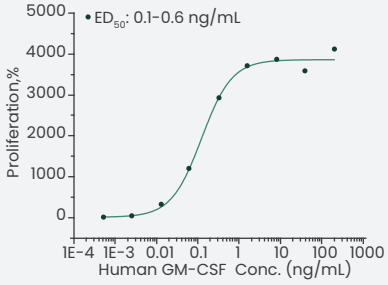


CSF Family Ligands

Sino Biological has developed high activity CSF ligands with different functional isoforms from various species to help study the biology of CSFs.

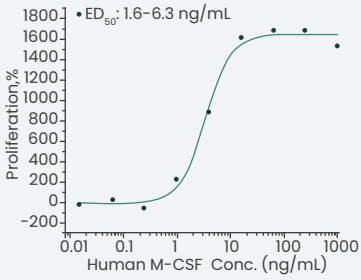
Activity Validated by Cell Proliferation Assay

Human GM-CSF Protein (Cat#: 10015-HNAH)



Cell proliferation assay using TF-1 human erythroleukemia cells.

Human M-CSF Protein (Cat#: 11792-HNAH)

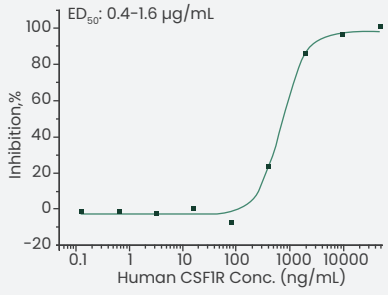


Cell proliferation assay using M-NFS-60 mouse myelogenous leukemia lymphoblast cells.

CSF Family Receptors

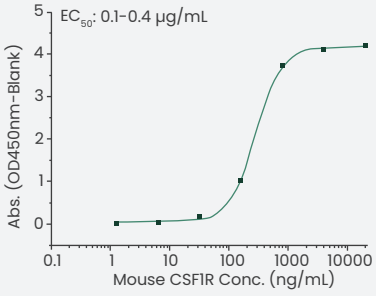
CSF family function depends on CSF family receptors. M-CSF/CSF1 and G-CSF/CSF3 bind to the homodimeric CSF1 receptor (CSF1R/CD115) and G-CSF receptor (G-CSFR/CD114), respectively. GM-CSF/CSF2 and IL-3 bind to the heterodimeric GM-CSF receptor (C-CSFR/CD114) and IL-3 receptor (IL-3R), respectively, that consist of a unique α chain (CSF2RA/CD116 or IL3RA, respectively) paired with the common β subunit (CSF2RB/CD131). Sino Biological has developed high activity CSF receptor proteins from various species.

Human CSF1R Protein (Cat#: 10161-H38H)



Ability to inhibit the human CSF-induced proliferation of M-NFS-60 mouse myelogenous leukemia lymphoblast cells.

Mouse CSF1R Protein (Cat#: 50059-M08H-B)



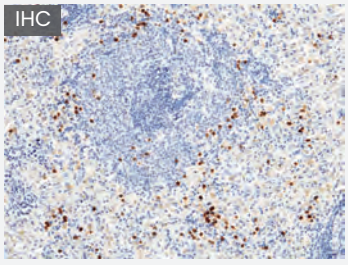
Binding ability in a functional ELISA, binds to mouse CSF1R.

Antibodies for CSF and Receptors

Sino Biological has developed a comprehensive panel of antibodies targeting CSF and its receptors, which can be used in ELISA, WB, FCM, and IHC.

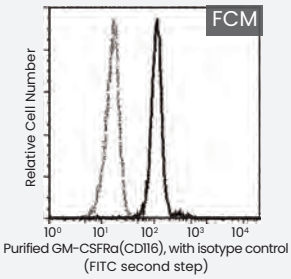
Antibodies with Various Applications

Anti-IL3 Rabbit Polyclonal Antibody (Cat#: 80235-RP02)



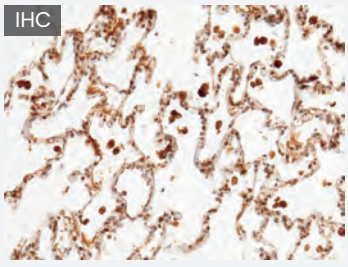
Immunochemical staining of rat IL3 in rat spleen cells with rabbit polyclonal antibody.

Anti-CSF2RA Rabbit Monoclonal Antibody (Cat#: 10701-R009)



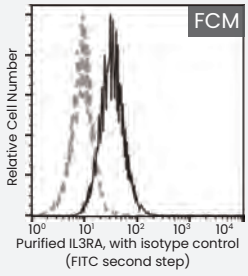
Flow cytometric analysis of human GM-CSFRa (CD116) expression on human peripheral blood monocytes.

Anti-CSF1R Rabbit Polyclonal Antibody (Cat#: 10161-RP02)



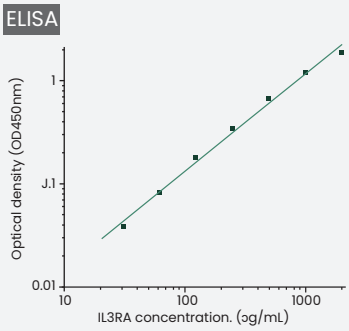
Immunochemical staining of human CSF1R in human lung cells with rabbit polyclonal antibody.

Anti-IL3RA Mouse Monoclonal Antibody (Cat#: 10518-MM58)



Flow cytometric analysis of human IL3RA expression on KG-1 cells.

IL-3R alpha/CD123 Matched ELISA Antibody Pair Set (Cat#: SEK10518)

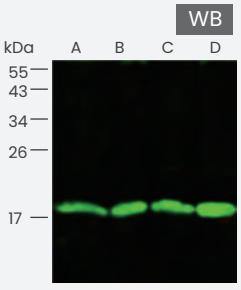


Assay type
Solid Phase Sandwich ELISA

Specificity
Quantitative determination of Human IL-3R alpha/CD123

Assay range
31.25-2000 pg/mL

Anti-CSF2 Rabbit Polyclonal Antibody (Cat#: 10015-RP02)



Anti-GM-CSF rabbit polyclonal antibody at 1:500 dilution

Lane A: U937 Whole Cell Lysate
Lane B: 293T Whole Cell Lysate
Lane C: THP-1 Whole Cell Lysate
Lane D: Jurkat Whole Cell Lysate

CSF-related products

GMP-grade cytokines

Stem Cell Therapy Growth Factors & Cytokines

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