

Data Dictionary

Field Name	Field Contents
AA	Arachidonic acid, a polyunsaturated fatty acid and a precursor in the biosynthesis of prostaglandins and leukotrienes
Acebilustat	A specific inhibitor of leukotriene A4 hydrolase and a small molecule to decrease inflammation by reducing the production of leukotriene B4 (dose at 1 or 5 μ M)
ALOX5	Arachidonate 5-lipoxygenase, a macrophage marker and an enzyme involved in the conversion of arachidonate to lipid mediators
ALOX5AP	Arachidonate 5-lipoxygenase activating protein, an M1 macrophage marker and an activating protein for ALOX5
ALOX15	Arachidonate 15-lipoxygenase, an M2 macrophage marker and an enzyme involved in the production of pro-resolving lipid mediators
ATRA	All-trans retinoic acid, a reagent to induce differentiation of immature neutrophils to mature cells
Beta-actin	A intracellular protein that is used in Western blotting as a loading control, to normalize total protein amounts and check for eventual protein degradation in the samples
BAL	Bronchoalveolar lavage, used to collect a sample from the lungs for testing
Basal media	Cell culture media containing amino acids, glucose, and ions essential for cell survival and growth <i>in vitro</i>
Carbon black	Amorphous, carbonaceous particulates. Used as a non-fiber, carbon-based particle control for MWCNTs. Used at 2.5, 10, or 30 μ g/ml
CD68	Cluster of Differentiation 68, a protein highly expressed in circulating and tissue macrophages. An M1 macrophage marker
Control media	Dulbecco's Modified Eagle Medium + 1% Fetal bovine serum, used to prepare MWCNTs for cell treatment and used to induce negative response
COX	Cyclooxygenase, an enzyme to catalyze formation of prostaglandins from arachidonic acid
Culture supernatant	The media in which the cells are growing, meaning the supernatant portion without any cell after centrifugate to eliminate any debris or floating cells
dHL-60	Differentiated HL-60 cells from HL-60 cells with ATRA exposure
DMEM	Dulbecco's Modified Eagle Medium, culture medium to grow macrophages
ELISA	Enzyme-linked immunosorbent assay, a method to quantitatively measure the secreted proinflammatory cytokines and LMs from macrophages
Ex/Em	Fluorescence excitation/emission wavelengths of standard substances and the subsequent characteristic peaks of the reference components.

FBS	Fetal bovine serum. A most widely-used growth supplement for cell culture media
HL-60	A human leukemia cell line. Used as immature neutrophils to differentiate into mature cells with ATRA incubation <i>in vitro</i>
IFN-gamma	Interferon-gamma, a proinflammatory cytokine, measured using ELISA. Units are pg/ml. Also, used as a component of M1 inducer (dose at 20 ng/ml)
IL-1beta	Interleukin-1beta, a proinflammatory cytokine, measured using ELISA. Units are pg/ml
IL-4	Interleukin-4, an anti-inflammatory cytokine, measured using ELISA. Units are pg/ml. Also, used as M2 inducer (dose at 20 ng/ml)
J774A.1	A murine monocyte/macrophage cell line that is ideal for macrophage-dependent effects <i>in vitro</i>
Gene knockdown	An experimental technique by which the expression of one or more of an organism's genes is reduced with use of genetic modification or by treatment with a reagent such as a short RNA oligonucleotide (shRNA)
LM	Lipid mediator that is involved in inflammation
LPS	Lipopolysaccharide, used as a component of M1 inducer (dose at 100 ng/ml)
LT	Leukotrienes, biologically active lipid mediators that involved in allergic inflammation
LTB4	Leukotriene B4, a proinflammatory lipid mediator, measured using ELISA. Units are pg/ml
LY293111	A potent antagonist of the LTB4 receptor, BLT 1, that inhibits the specific binding of LTB4 to isolated neutrophils (dose at 5 or 25 nM)
Macrophages	A large phagocytic cell found in stationary form in the tissues or as a mobile white blood cell, especially at sites of infection, and involved in the detection, phagocytosis and destruction of bacteria and other harmful organisms
M1 inducer	Inducer of M1 macrophage polarization
M2 inducer	Inducer of M2 macrophage polarization
MWCNTs	Multi-walled carbon nanotubes. Used at 2.5 or 10 µg/ml
Nos2	Nitric oxide synthase 2, inducible Nitric oxide synthase in mouse, an intracellular enzyme that is a specific marker for M1 macrophage
NS-398	A specific inhibitor of COX-2, an experimental agent used primarily for inhibition of prostaglandin generation (dose at 2 or 10 µM)
PBS	Phosphate buffered saline
Percentage of control (% of control)	Percentage change compared to control that is set as 100
PGE2	Prostaglandin E2, a proinflammatory lipid mediator, measured using ELISA. Units are pg/ml
pg/ml	A unit measuring the amount of secreted cytokines and lipid mediators

RFU	Relative fluorescent unit, a unit of measurement used in electrophoreses methods employing fluorescence detection
RPMI 1640	Culture medium to grow HL-60 cells
RT-PCR	Reverse transcription polymerase chain reaction, a laboratory technique combining reverse transcription of RNA into DNA and amplification of specific DNA targets using polymerase chain reaction (PCR)
SDS-PAGE	Sodium dodecyl sulfate–polyacrylamide gel electrophoresis, a discontinuous electrophoretic system to separate protein samples by size
shRNA	Short hairpin or small hairpin RNA, an artificial RNA molecule that can be used to silence target gene expression via RNA interference
Th cells	T helper cells, a type of T cell that play an important role in the immune system
TNF-alpha	Tumor necrosis factor-alpha, a proinflammatory cytokine, measured using multiplex immunoassay and ELISA. Units are pg/ml or pg/mg
Treatment (days)	Time course of treatment in days (d)
Untreated	Not treated with any biological reagents, keep cells in the normal culture media, used as a negative control group
2.5, 10, or 30	MWCNT or CB dose used to treat macrophages at $\mu\text{g/ml}$