

# Immunology and Cell Biology

One Click. One Shop. World of Life Science Products.

Critical tools for life  
science research

## Immunology Reagents

Primary antibodies,  
secondary antibodies,  
conjugates, control sera,  
enzymes and proteins

## Cell Biology Products

Comprehensive cell  
culture media, reagents,  
supplements and antibiotics



# Immunology and Cell Biology Research Solutions

MP Bio is a global leader in providing innovative immunological tools with the best quality, flexibility and customization to accelerate your research. Antibodies have become critical tools for many areas of life science research, primarily for their use as molecular tags for specific labeling, separation, and detection. Our antibodies and other reagents have been recommended for use in most assays including western blot, immunoprecipitation, immunostaining, and flow cytometry. In addition to primary antibodies, we also offer a wide variety of secondary antibodies, control immunoglobulins, and control sera.

We offer a full range of products to meet all of your needs in cell biology, spanning many areas of research from cell structure, organization, function and metabolism, to life cycle. Our products include reagents, kits and solutions for cell separation, detachment, signalling, proliferation, growth, apoptosis, staining, and many more areas of current topics of cell biologists. Our time-tested and high quality products can provide the right tools for all your research needs.

## Our Manufacturing Facilities



**Worldwide Headquarters**  
Santa Ana, California, USA



Eschwege, Germany



Pinoneer Place, Singapore



Auckland, New Zealand



Solon, Ohio, USA



# Blood Fractionation: Maximize Separation Efficiency of Lymphocyte and Polymorphonuclear Cells From Blood

Blood is composed of several cell types that need to be routinely isolated, such as monocytes, lymphocytes, and polymorphonuclear leukocytes. Isolation of mononuclear and polymorphonuclear cells from blood serves as the starting point for a wide spectrum of immunology studies. One pain point for many researchers is how to specifically isolate mononuclear and polymorphonuclear cells from blood with high yield and cell viability. MP Bio offers three products for the isolation of mononuclear and polymorphonuclear cells from human peripheral blood as well as bone marrow, and umbilical cord blood. The lymphocyte separation medium (LSM™), LymphoSep®, and Mono-Poly® Resolving Medium have been used for many applications by researchers worldwide.

## Mononuclear Cell Isolation for Research Use

Lymphocyte Separation Medium (LSM™) is a legendary tool to separate lymphocytes from human peripheral blood as well as bone marrow, and umbilical cord blood. As proven by more than 2,200 scientific publications, it ensures:

- Maximum yield of monocytes
- >96% cell viability of lymphocytes
- Easy and fast one-step centrifugation
- Low endotoxin
- Sterility

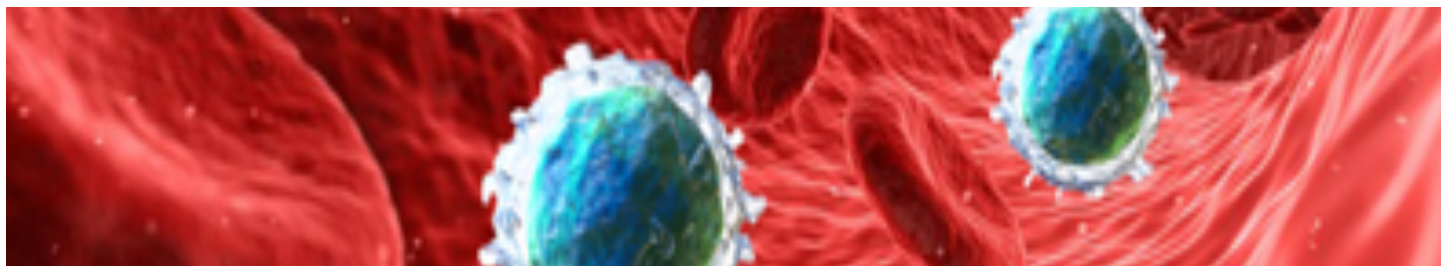
## Lymphocyte Separation for *in vitro* Diagnostics

LymphoSep® lymphocyte separation medium from MP Bio is based on the original Bøyum formulation with a density of 1.077 g/mL. It is validated for *in vitro* Diagnostic (IVD) usage and has designation as an FDA class I exempt medical device for lymphocyte separation (21 CFR 864.8500). It offers similar product features to our Lymphocyte Separation Medium (LSM™), but it is specifically designed for *in vitro* diagnostics use.

## Mononuclear and Polymorphonuclear Isolation in One Step

When it is necessary to separate both mononuclear and polymorphonuclear cells from blood, Mono-Poly™ Resolving Medium (Mono-Poly™, M-PRM) may be used. Differential migration during centrifugation allows for the resolution of both mononuclear and polymorphonuclear leukocytes into two distinct bands that are relatively free of erythrocytes. This can be done in a one-step centrifugation process.

Description	Size	Cat. No.
LSM™ - Lymphocyte Separation Medium	5 x 100 mL	0850494
LymphoSep®	500 mL	091692254
Mono-Poly® Resolving Medium	100 mL	091698049





# Comprehensive Collection of Animal Sera for Immunoassays

Normal and whole sera are non-immune serum samples prepared from the blood of healthy human, goat, mouse, rabbit, pig, or other species. They provide sufficient quantity of endogenous proteins to saturate and block nonspecific binding interactions for a wide range of immunological applications, including immunohistochemistry (IHC), ELISA, and Western blotting. MP Bio offers a wide range of high-quality, disease-free sera from a variety of species.

Advantages and Features:

- High quality from healthy animals or donors
- Versatile for blocking or saturating nonspecific interactions
- Comprehensive collection from various species
- Constant availability

Description	Size	Cat. No.
Normal Goat Serum	50 mL	08642921
Normal Mouse Serum	10 mL	08642931
Normal Sheep Serum	50 mL, 100 mL	08642951
Normal Rat Serum	10 mL	08642941
Whole Horse Serum	2 mL	0855987
Whole Swine Serum	2 mL	0855993
Whole Mouse Serum	2 mL	0855989
Whole Bovine Serum	2 mL	0855980
Whole Human Serum	2 mL	0855979
Whole Goat Serum	2 mL	0855984
Whole Hamster Serum	2 mL	0855986
Whole Chicken Serum	2 mL	0855982

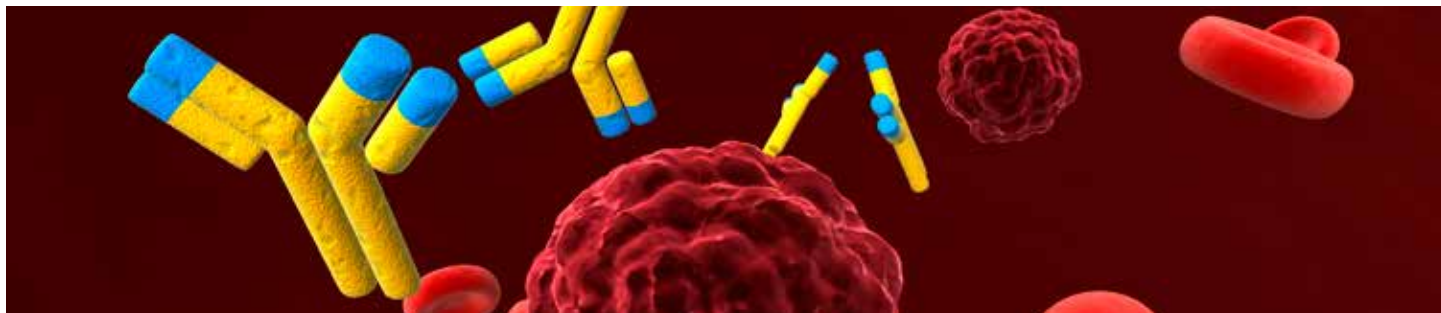


# Specialized Polyclonal Antibodies for Immunoassays

Polyclonal antibodies represent a population of antibodies that are produced by different B cell clones within the body by the immune response of an immunized animal. They are a collection of immunoglobulin molecules that react against a specific antigen, recognizing different epitopes within the antigen, and binding the antigen with varying affinities. These features of polyclonal antibodies prove to be advantageous over monoclonal antibodies in many biological assay applications, such as ELISA, immunoprecipitation, and immunochemistry, due to their strong binding capacity to multiple epitopes. However, due to large variation during production and procedures, polyclonal antibodies are not always offered with such high quality. With over 30 years of experience and expertise serving the antibody research community, MP Bio offers a large range of high quality specialized polyclonal antibodies with various host and targets, ensuring:

- Superior overall affinity to antigens
- Robust sensitivity of detection
- High tolerance to changes, such as pH or buffer
- Trusted quality - validated by thousands of scientific publications

Description	Cat. No.
Anti-Hamster IgG from Goat Antibody	0856984
Anti-Human Red Blood Cells from Rabbit IgG Fraction	0855042
Anti-Sheep Red Blood Cells from Rabbit IgG Fraction	0855806
Rabbit Antiserum to Sheep Red Blood Cells	0855800
Rabbit Antiserum to Human Red Blood Cells	0855133
Guinea Pig Complement	0855852
Rabbit IgG Fraction To $\beta$ -Galactosidase	08559761
Rabbit anti-GFP	08687361
Chicken anti-GFP	08687391
Goat IgG Fraction to Human Albumin	0855028
Rabbit IgG Fraction to Human Albumin	0855029
Anti-Glucagon Polyclonal from Rabbit	0811184
Goat IgG Fraction to Hamster IgG	0855397



## FITC-Conjugated Goat IgG Fraction to Achieve the Highest Sensitivity and Specificity

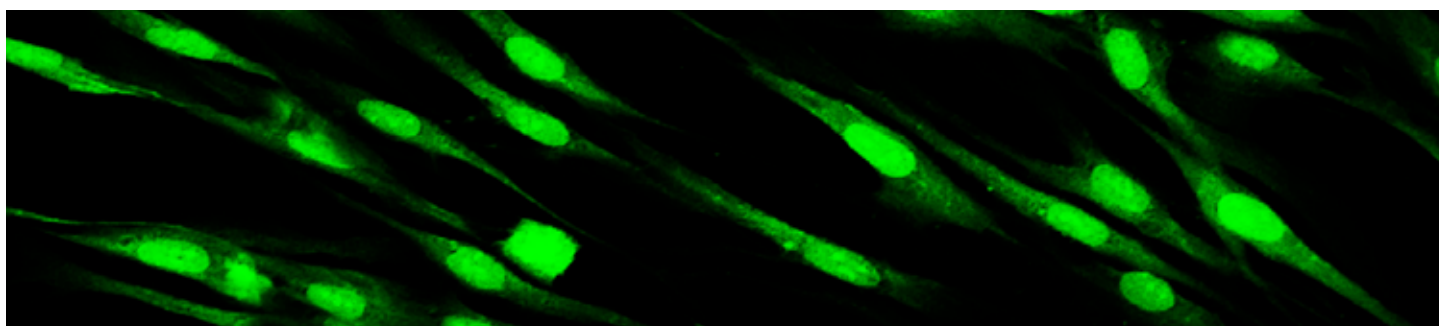
Due to its high absorptivity, excellent fluorescence quantum yield, and affordable pricing, fluorescein isothiocyanate (FITC) is among one of the most commonly used fluorescent dyes for flow cytometry, immunohistochemistry, and fluorescent immunoassays. High quality FITC-conjugated goat IgG fractions are designed to deliver optimal results, including:

- Highest affinity to the target molecule
- Lowest non-specific binding
- Outstanding fluorescence with optimal FITC conjugation
- No existence of Fc fragments

Description	Cat. No.
Fluorescein-Conjugated Goat IgG Fraction to Human Complement C1Q	0855166
Fluorescein-Conjugated Goat IgG Fraction to Human Complement C3	0855167
Fluorescein-Conjugated Goat IgG Fraction to Human Complement C4	0855168
Fluorescein-Conjugated Goat IgG Fraction to Human Fibrinogen	0855169
Fluorescein-Conjugated Goat IgG Fraction to Human IgG (Whole Molecule)	0855144
Fluorescein-Conjugated Goat IgG Fraction to Human IgM (5Fc $\mu$ )	0855153
Fluorescein-Conjugated Goat IgG Fraction to Human IgA (Alpha Chain)	0855077

Other Fluorescein-Conjugated antibody products:

Description	Cat. No.
Fluorescein-Conjugated Goat Affinity Purified Antibody to Mouse Immunoglobulins (IgG, IgA, IgM)	0855521
Fluorescein-Conjugated Goat Affinity Purified F(ab') <sub>2</sub> Fragment to Mouse Immunoglobulins (IgG, IgA, IgM)	0855526
Fluorescein-Conjugated Goat Affinity Purified F(ab') <sub>2</sub> Fragment to Rabbit IgG (Whole Molecule)	0855665
Fluorescein-Conjugated Goat Affinity Purified Antibody to Human IgG (Whole Molecule)	0855197
Fluorescein-Conjugated Goat Affinity Purified Antibody to Rat IgG (No Cross to Human)	0856407

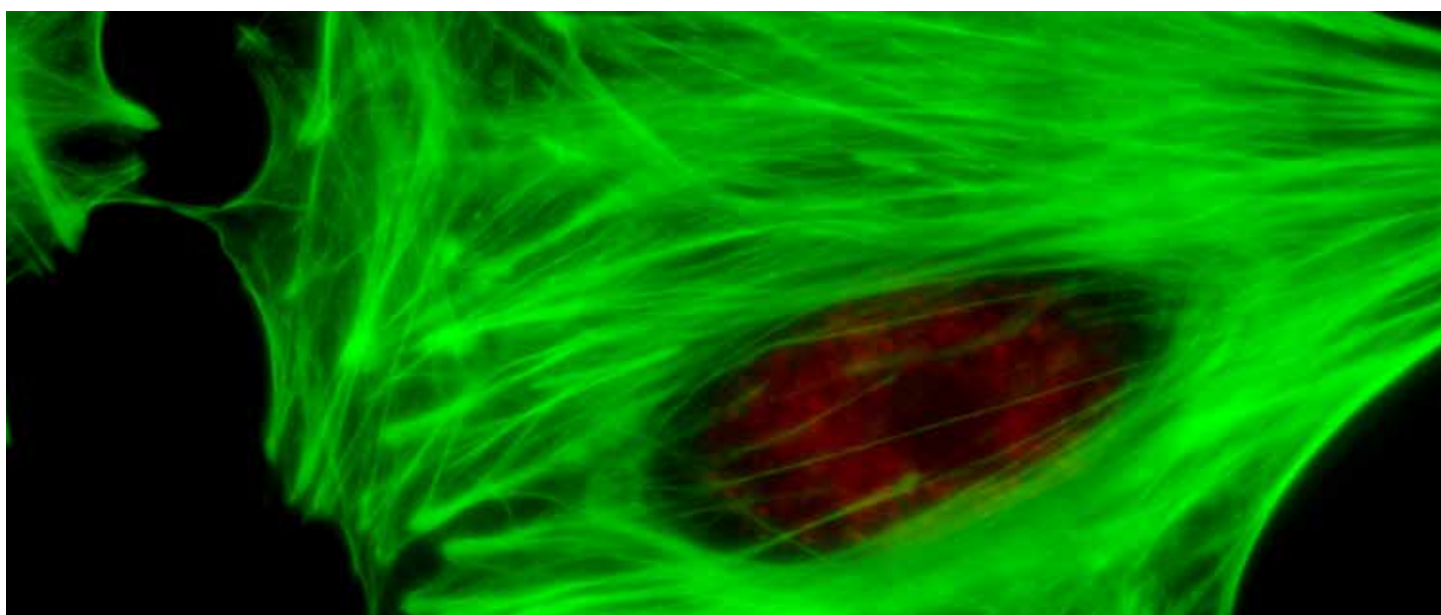


# Monoclonal Antibodies to Actin and Tubulin

Antibodies to cytoskeletal proteins are widely used for protein loading controls or specific studies such as apoptosis. MP Bio's antibodies to actin have demonstrated specificity directed towards all six known vertebrate isoactins. Our anti-tubulin monoclonal antibodies enable researchers to visualize microtubules in fixed cells and in fixed or frozen tissue sections from various species.

- Reacts with all known actins or tubulins
- Excellent positive control for western blots
- No known spurious reactivities

Description	Cat. No.
Monoclonal Antibody to Actin C4	08691001
	08691002
Monoclonal Anti-Alpha-Smooth Muscle Actin (Mouse Ascites Fluid), Clone 1A4	08637931
Mouse Anti-Actin Mab Clone B4	08691331
Actin, Purified from Rabbit (as antigen positive control)	08771012
$\alpha$ -Tubulin Monoclonal Antibody	08691251
$\beta$ -Tubulin Monoclonal Antibody	08691261



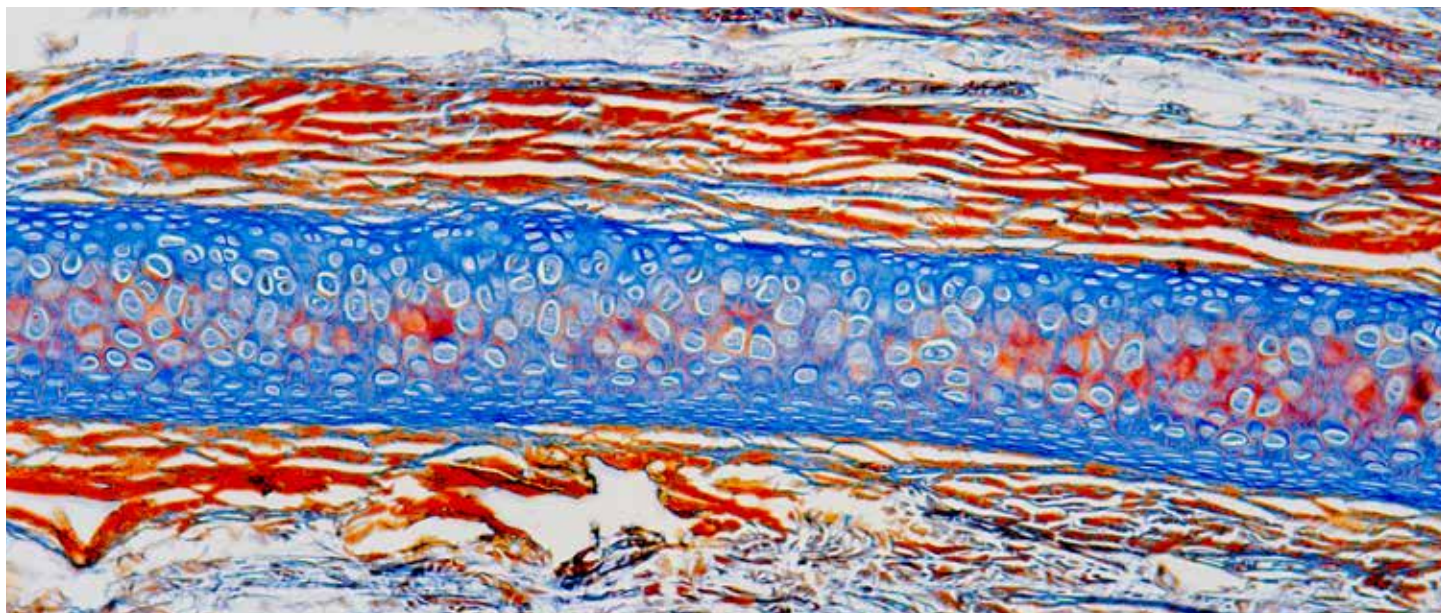


# Anti-Human Collagen Monoclonal Antibody

Human collagen is the main structural protein of the extracellular space in various connective tissues. These tissues make up the skin, bones, and tendons of the human body. It is the most abundant protein in our bodies, making about 30% of the whole-body protein content. Collagen consists of amino acids wound together to form triple-helices of elongated fibrils. Due to these uninterrupted "Glycine-X-Y" triplet repeats in the collagen structure, it is often extremely difficult to generate specific antibodies to collagens. However, MP Bio offers a series of anti-human collagen monoclonal antibodies from mice to specifically and sensitively target a single type of human collagen without cross-reactivity with other collagen types. With quality validated by hundreds of journal citations, our anti-human collagen monoclonal antibodies have been widely used for various applications, including ELISA, immunoprecipitation, PAGE and western blotting.

- Specific binding to a single type of collagen
- No cross-reactivity with other collagen types
- Various immunochemical assay applications
- Validated by hundreds of journal citations

Description	Cat. No.
Anti-Human Collagen Type I, Mouse Monoclonal Antibody Purified	08631702
Anti-Human Collagen Type II, Mouse (Clone II-4CII), Purified IgG	08631711
Anti-Human Collagen Type III, Mouse Monoclonal Antibody Purified	08631721
Anti-Human Collagen Type IV, Mouse Monoclonal Antibody, (Clone IV-4H12) Purified IgG	08631731
Anti-Human Collagen Type V, Mouse Monoclonal Antibody Purified	08631741
Anti-Human Collagen Type VI, Mouse Monoclonal Antibody Purified	08631751
Anti-Human Collagen Type IX, Mouse Monoclonal Antibody Purified	08631761



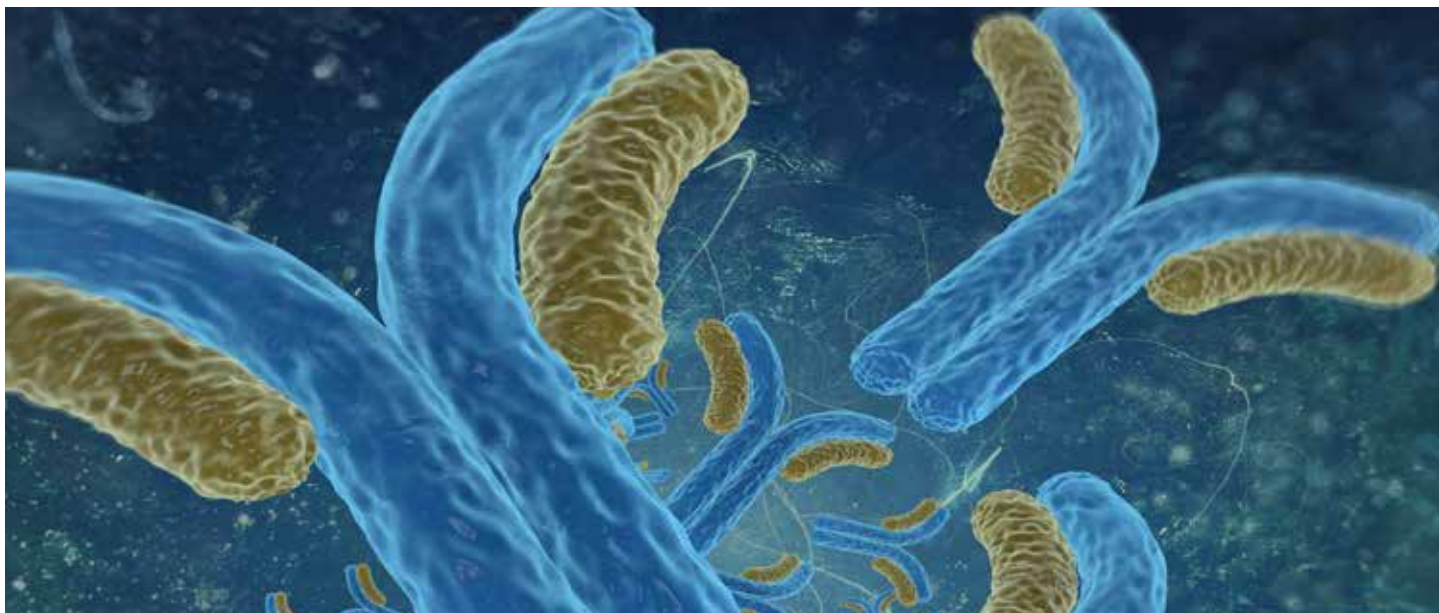


## Other Popular Monoclonal Antibodies

MP Bio offers highly validated recombinant monoclonal antibodies against biomarkers and other popular targets for biomedical research and bioprocessing.

- High specificity and sensitivity to targets
- High reproducibility
- Minimal lot-to-lot variations
- Bulk quantity

Description	Cat. No.
Mouse, Anti-GFP, Monoclonal Antibody	08687371
Mouse, Anti-Beta-Galactosidase, Purified Monoclonal Antibody	08633651
Monoclonal Mouse Anti-Chondroitin-4-Sulfate Antibody	08636511
Monoclonal Mouse Anti-Chondroitin-6-Sulfate Antibody	08636521
Mouse Anti-Synaptophysin IgG1 Monoclonal (Clone: SY38)	08697301
Mouse Anti-Glial Fibrillary Acidic Protein (GFAP) Monoclonal	08691101
Anti-Human Hemoglobin Monoclonal Antibody from Mouse	08634801
Anti-Human IgG Monoclonal Antibody from Mouse	08634811



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[www.mpbio.com](http://www.mpbio.com)  
[www.mgp.cz](http://www.mgp.cz)

# High Quality Secondary Antibodies from Cappel™

Secondary antibodies are usually designed to bind to the primary antibody to amplify signals for detection, separation and quantification of the target antigen. To maximize signals, the secondary antibody must have specificity to interact with the primary antibody species and isotype. In addition, a secondary antibody usually has conjugation with a reporter molecule such as an enzyme or fluorophore. MP Bio offers a wide variety of secondary antibodies without conjugation or with enzyme/fluorescence dye conjugation from multiple immunoglobulins, including human, rabbit and mouse. Enzyme (alkaline phosphatase (AP) or horseradish peroxidase (HRP)) conjugated antibodies are suitable for EIA, ELISA, blot immunostaining and cell/tissue staining, and fluorochrome conjugated antibodies are used for immunofluorescence assays, cell/tissue staining, blot immunostaining and fluorescence-activated cell sorting.

- High specificity for primary antibody species and isotypes
- Multiple pre-conjugations for sensitive detection
- Various fragments
- High purity
- Validated by thousands of publications since 1960's

## Antibodies to Human Immunoglobulins

Conjugate	Host	Fraction	Size	Cat. No.
FITC	Goat	IgG	2 mL	0855077
HRP	Goat	IgG	2 mL	0855215
None	Goat	F(ab') <sub>2</sub>	2 mL	0855049
None	Goat	Affinity Purified	2 mg	0855070
FITC	Rabbit	IgG	2 mL	0855145
FITC	Goat	F(ab') <sub>2</sub>	2 mL	0855180
HRP	Goat	IgG	2 mL	0855220
AP	Goat	Affinity Purified	1 mL	0859289
None	Goat	F(ab') <sub>2</sub>	2 mL	0855053
None	Goat	Affinity Purified	1 mg	0855071
None	Goat	Affinity Purified F(ab') <sub>2</sub>	2 mg	0856961
HRP	Goat	F(ab') <sub>2</sub>	2 mL	0855246
None	Goat	Affinity Purified F(ab') <sub>2</sub>	2 mg	08670181
FITC	Goat	IgG	2 mL	0855148
HRP	Goat	IgG	2 mL	0855224
None	Goat	IgG	5 mL	0855017
None	Goat	Affinity Purified F(ab') <sub>2</sub>	1 mg	0856960
FITC	Goat	IgG	2 mL	0855153
FITC	Goat	Affinity Purified	2 mg	0855199
None	Goat	Affinity Purified	2 mg	0855074
FITC	Goat	IgG	2 mL	0855156
FITC	Goat	F(ab') <sub>2</sub>	2 mL	0855186
AP	Goat	Affinity Purified	1 mL	0859284
FITC	Goat	IgG	2 mL	0855158
FITC	Goat	F(ab') <sub>2</sub>	2 mL	0855188
HRP	Goat	IgG	2 mL	0855233
FITC	Goat	IgG	2 mL	0855159

### Antibodies to Rabbit Immunoglobulins

Conjugate	Host	Fraction	Size	Cat. No.
None	Goat	IgG	5 mL	0855622
FITC	Goat	IgG	2 mL	0855676
HRP	Sheep	IgG	2 mL	0855677
HRP	Goat	Affinity Purified	2 mL	0855689
AP	Goat	Affinity Purified	1 mL	0859298
None	Goat	Affinity Purified	2 mg	0855642
FITC	Goat	F(ab') <sub>2</sub>	10 mg	0855658
None	Goat	Affinity Purified F(ab') <sub>2</sub>	2 mg	08670391
HRP	Goat	Affinity Purified	2 mL	0855691

### Antibodies to Mouse Immunoglobulins

Conjugate	Host	Fraction	Size	Cat. No.
None	Goat	Antiserum	2 mL	0855435
None	Rabbit	Antiserum	2 mL	0855436
None	Goat	Affinity Purified	2 mg	0855479
None	Goat	Affinity Purified	2 mg	08670281
None	Goat	Affinity Purified F(ab') <sub>2</sub>	2 mg	0855487
FITC	Goat	IgG	2 mL	0855493
FITC	Sheep	IgG	2 mL	0855495
FITC	Goat	Affinity Purified	2 mg	08672281
HRP	Goat	IgG	2 mL	0855550
HRP	Goat	Affinity Purified	2 mL	0855563
AP	Sheep	Affinity Purified	1 mL	0859293
Biotin	Goat	Affinity Purified	2 mL	0855587
None	Goat	Affinity Purified	2 mg	0855482
HRP	Goat	Affinity Purified	2 mL	0855566
AP	Goat	Affinity Purified	1 mL	0859297
FITC	Goat	IgG	2 mL	0855499
FITC	Goat	Affinity Purified F(ab') <sub>2</sub>	2 mg	0855526
Rhod	Goat	Affinity Purified	2 mg	0855540
HRP	Goat	IgG	2 mL	0855556
HRP	Goat	Affinity Purified F(ab') <sub>2</sub>	2 mL	0855576

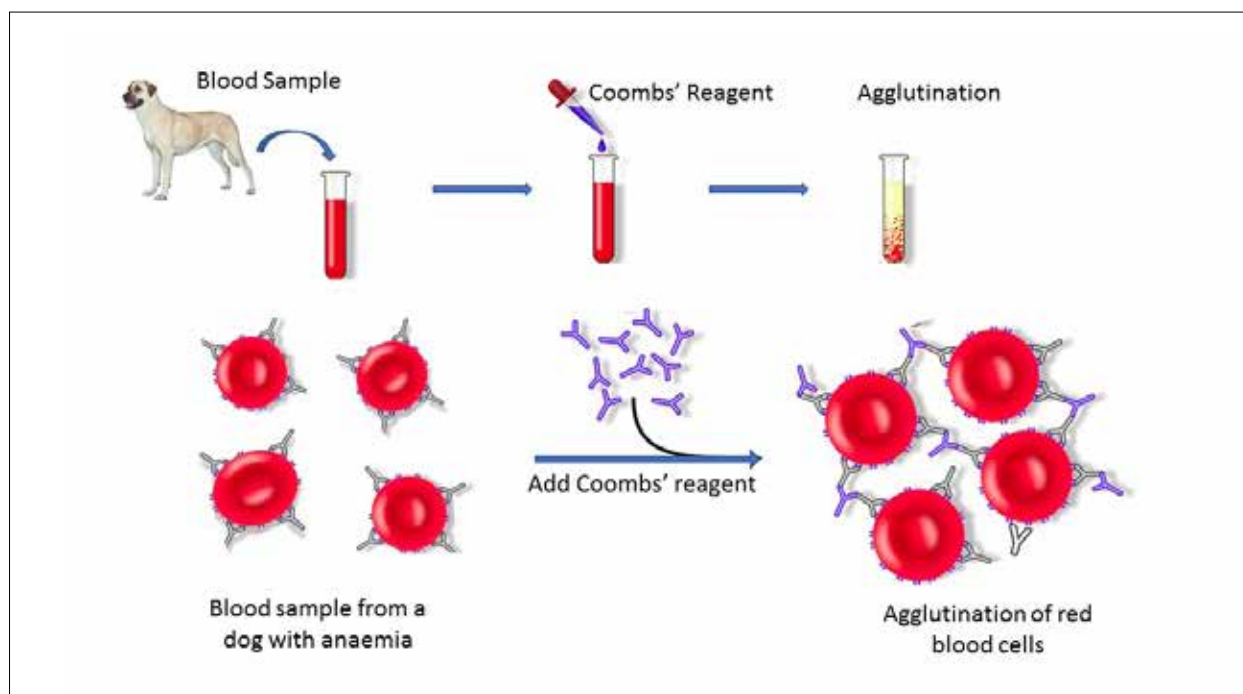


# Sensitive and Specific Coombs' Test (Anti-Globulin) for Animal Studies

Coombs' test is used in research laboratories to screen animals with autoimmune disorders and to develop models for autoimmune diseases. Blood agglutination in the test is a visual positive indication of these diseases, especially immune-mediated hemolytic anemia (IMHA).

With over 50 years industry experience, MP Bio has long been providing scientists and researchers with high quality and reliable Coombs' tests (research use only) that feature:

- Species-specific antibodies for canine, equine, and feline
- Sensitivity to immunoagglutination to IgG, IgM and C3
- Lyophilized powder for extended shelf life and more efficient storage
- Simple reconstitution - diluted with buffer
- Versatility using multiple test platforms



Description	Host	Target	Cat. No.
Canine Anti-Globulin	Rabbit	Canine	08646351
Equine Anti-Globulin	Rabbit	Equine	08646371
Feline Anti-Globulin	Rabbit	Feline	08646381
Coombs' test Positive Control	Dog	Canine & Sheep	08646451

# High Quality and Consistent Animal Sera for Optimal Cell Culture

Animal sera, whether from bovine, human or other animal source, provide all essential nutrients such as proteins, attachment factors, growth factors, amino acids, trace elements, vitamins, lipids, and hormones for the healthy cell culture growth. Additionally, animal serum plays an essential role in regulating cell osmotic pressure and membrane permeability, serving as a carrier for enzymes, micronutrients, lipids, and trace elements into the cell. Therefore, animal serum has been widely used as a nutrient boost for most cell-culture applications in the life sciences.

To meet and exceed quality control standards for high performance in cell culture, all sera at MP Bio are tested by independent third-party laboratories for the presence of endotoxin, mycoplasma, bacteria, fungi, and virus; for total protein concentration (including hemoglobin content); and for the growth of cells. A certificate of analysis for each lot is available upon request. Our animal sera ensure:

- High performance for broad cell types
- Low endotoxin level
- Free of mycoplasma contamination
- Free of disease from animal sources
- Minimized lot-to-lot variability
- Sterility
- Country origin and traceability

## Fetal Bovine Serum

Fetal bovine serum (FBS) is probably the most widely used serum-supplement for in vitro cell culture. This is because FBS contains a complex array of protein components, excellent cell growth factors, low endotoxin levels, and low hemoglobin concentration, all of which are required by many cells to survive, grow, and divide. FBS from MP Bio offers excellent value for basic cell culture, specialty research, and bioprocessing. With our quality assurance system from raw material to final product, we ensure reliable and consistent delivery of high quality FBS to our customers. MP Bio's brand of heat inactivated CELLeCt™ FBS Gold is the industry standard for FBS supplements.

## Sera from Other Animals

Although fetal bovine serum is the most commonly used serum for cell culture, many other animal sera can be used based on the cell origin, cross-reactivity, performance requirement, and costs, such as human serum, newborn calf serum, horse serum, goat serum, rabbit serum, porcine serum, and chicken serum. MP Bio offers a wide spectrum of animal sera to meet your needs of cell culture for both research and bioprocessing.

Description	Cat. No.
CELLeCt™ FBS, GOLD, Heat Inactivated	092916849
Human Serum	092930149
Human Type AB Serum from Male Donors	092930949
Human Serum, Pooled	092931149
Rabbit Serum	092941149
Goat Serum	092939149
Newborn Bovine Serum	092912149
Donor Horse Serum	092921149



# Chemically Defined FBS Replacement for Optimal Cell Culture

## Serum Replacement Promotes Long-Term Cell Culturing

Low-serum and serum-free media provide important advantages in animal cell culture, as the chemically controlled environment offers improved reproducibility and safety by removing lot-to-lot variation and biorisk inherent to animal serum. TCM™ and TCH™ are designed to eliminate the use of serum in cell culture, providing all essential components to promote cell growth and viability in most cell culture situations. Both serum replacements exhibit excellent results in long-term culturing of anchorage dependent and suspension culture.

- Chemically defined nature
- Free of biological variability
- Free of growth factors or steroid hormones
- Long-term culture with no chromosomal or morphological alterations
- Versatile to any basic cell culture media
- Low endotoxin
- Low protein content to simplify downstream processing and purification processes



TCM™ is a fortified, multipurpose serum replacement for long-term culturing of many types of anchorage dependent and suspension cultures with a variety of species, especially primary cell cultures, and TCH™ is particularly developed for long-term culturing of human cells.

Description	Cat. No.
TCM™ defined serum replacement, 50x concentrate	092010026
TCH™ defined serum replacement, 50x concentrate	092020026

## FastGro™, Fully Chemically Defined FBS Replacement for Cell Culture

Fetal bovine serum (FBS) is widely used as a serum-supplement for in vitro cell culture media, providing an undefined mixture of nutrients for healthy cell culture growth, such as proteins, attachment factors, growth factors, amino acids, trace elements, vitamins, lipids, and hormones. However, due to its undefined nature and the variation of animals, FBS can lead to unexpected and undesired stimulations of cells, not to mention the biorisk of animal protein or pathogen contamination, such as bovine spongiform encephalopathy (BSE).

To avoid these concerns, MP Bio is pleased to launch FastGro™, a fully chemically defined FBS replacement for cell culture use. This unique product allows culturing a wide range of cells in vitro without the use of serum or any animal or human derived compound. All components in FastGro™ are highly purified and identified chemical compounds, ensuring:

- Chemically defined nature without lot-to-lot variations
- No animal or human derived materials or compounds
- No interference with hormones or growth factors
- Elimination of the risk of contaminants – viruses, mycoplasma, prions, etc.
- Wide range of cell culture practices
- Storage in the refrigerator, and no need for thawing before use

Description	Cat. No.
FastGro™, Fully Chemically Defined FBS Replacement for Cell Culture	092640049



# Chemically-Defined Basal Media for Optimal Cell Culture

Since the 1950's, research scientists performing routine cell culture have been utilizing classical cell culture media in countless applications. Minimizing the risk of adventitious agents or biological contamination can be critical to providing reliable, consistent, and high-quality results. MP Bio supports researchers and scientists to enable them to reach their goals in their quest for scientific excellence. A complete range of chemically-defined basal media are available to support optimal cell growth, providing:

- Chemically-defined essential components
- Lot-to-lot consistency
- Animal-component free media
- No proteins, hormones, or other growth factors
- No biological contaminations such as viruses, mycoplasma, or prions

Selected chemically-defined basal cell culture media:

Description	Cat. No.
Basal Medium Eagle (BME) Vitamin Concentrate (100X)	091600449
Dulbecco's Modification of Eagle's Medium (1X Solution) With 4.5 g/L Dextrose, Without L-Glutamine and Inositol	091642954
Dulbecco's Modification of Eagle's Medium (1X Solution) Without L- Glutamine, Leucine, Sodium Pyruvate	091642149
Dulbecco's Modification of Eagle's Medium (DMEM) (1X Solution) Without L-Glutamine, Phenol Red	091642754
Minimum Essential Medium Eagle (Modified) (1X Solution) With Hank's Salts, 0.35 g/L Sodium Bicarbonate Without L-Glutamine	091213254
1X RPMI Without L-Glutamine, L-Cysteine, L-Cystine, and L-Methionine	091646454
1X RPMI 1640 Without L-Glutamine and Phosphate, With 0.85 g/L Sodium Bicarbonate	091629754
RPMI 1640 (1X Solution) Without L-Glutamine and L-Leucine	091629149
RPMI 1640 With 2 g/L Sodium Bicarbonate, Without L-Glutamine & Glucose	091646854
Williams Medium E, Powder, With L-Glutamine, Without Sodium Bicarbonate	091050122



# Cell Culture Antibiotics: Keep Your Cell Cultures Contamination Free

In cell culture, contamination of the culture media with microbiological organisms like bacteria, yeast, fungi, mycoplasma, and endotoxins can be extremely devastating, causing significant cell death and even catastrophic loss of the entire culture. The detrimental impact of microbiological contamination needs to be aggressively treated. Currently, the availability of antibiotics provides an excellent opportunity to combat cell culture contamination with minimal impact on the mammalian cells being cultured. Judicious selection of the antibiotic for your specific cell lines and culture conditions allows for full control of the media without altering cellular growth parameters.

Whether you require an antibiotic active against gram-positive bacteria, gram-negative bacteria, yeast, or fungi, MP Bio provides a wide range of high-quality antibiotics to treat your cell culture contamination.

- **Easy to use** – Convenient addition to liquid culture medium
- **High potency** – Keep your cell cultures contamination free
- **Broad spectrum** – Effective against a wide range of microbial contaminants

## Selected antibiotics for cell culture:

Description	Cat. No.
Amphotericin B, 250 µg/mL (Fungizone)	091672346
	091672348
Gentamicin Sulfate Solution, 10 mg/mL	091676045
	0916760J8
Gentamicin Reagent Solution, 50 mg/mL	091676245
	0916762J8
G418 Sulfate, 50 mg/mL (Geneticin)	091672546
	091672548
Kanamycin Sulfate, 5 mg/mL	091672048
Penicillin-Streptomycin (10,000 IU/mL, 10 mg/mL)	091670249
Penicillin-Streptomycin-Amphotericin B (100X)	091674049



# Detect and Eliminate Mycoplasma Contamination from Cell Culture Samples

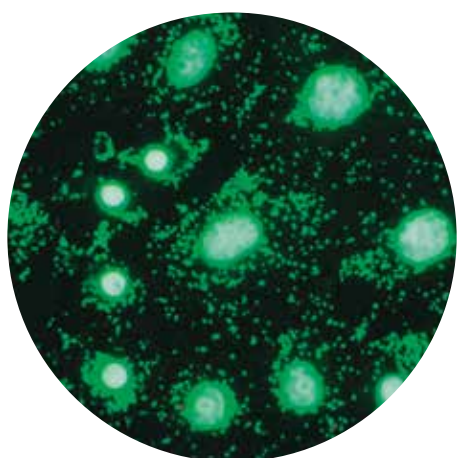
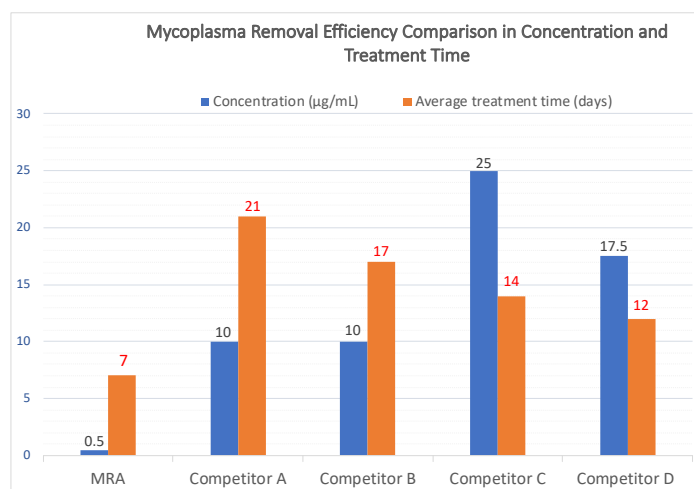
One of the major issues in mammalian cell culture is infection due to mycoplasma. These simple bacteria can infect the culture and alter a variety of cellular characteristics and functionalities (metabolism, morphology, proliferation etc.) often leading to experimental artifacts and cell loss. Therefore, it is essential to detect any presence of mycoplasma in your cell culture and effectively remove them without compromising cell viability. The unique mycoplasma detection kit and Mycoplasma Removal Agent (MRA) from MP Bio can completely manage the mycoplasma contamination in your cell culture.

Designed by the Hoechst method, our time-tested and trusted mycoplasma stain kit offers the following advantages:

- **Reliable:** Use of the Hoechst fluorescent stain method cited by the Tissue Culture Association (TCA procedure no. 75361)
- **Efficient:** It specifically and selectively binds to minor grooves of DNA
- **Versatile:** In situ detection of mycoplasma and other prokaryotic organisms
- **Rapid:** Takes less than 2 hours
- **Complete:** Stain, diluent, and mounting medium with controls included in the kit

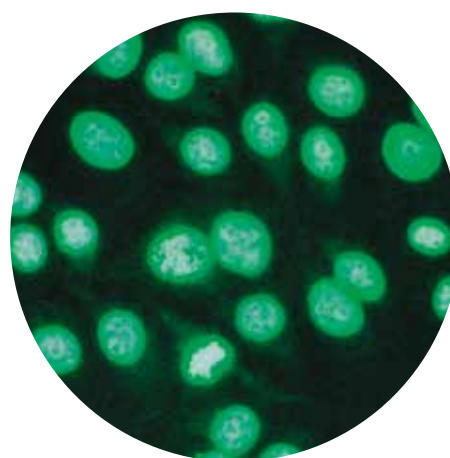
Once Mycoplasma has been detected, treat infected cell culture with Mycoplasma Removal Agent (MRA), the most reliable solution for mycoplasma removal and prevention, to ensure quality results (as shown in the following figure), including:

- Eliminate multiple mycoplasma species within one week by the lowest dosage
- Prevent recontamination of the culture at 0.1 µg/mL
- Maintain cell viability
- Compatible with most mammalian cell lines
- Sterility and low cytotoxicity
- Citation and recognition in 550+ scientific publications



Before Treatment

1 week at 0.5  
µg/mL MRA



After Treatment

Description	Size	Cat. No.
Mycoplasma Removal Agent	5 mL	093050044
Mycoplasma Stain Kit	1 kit (100 tests)	093030000
Mycoplasma Stain Kit	1 kit (20 tests)	093030001



# Obtain Superior Performance with High Purity Bovine Albumin Fraction V

Bovine Albumin Fraction V (also known as Bovine Serum Albumin) is a serum albumin protein derived from cows. It is commonly used in numerous biochemical applications including ELISA, immunohistochemistry, immunoblots, cell culture media, clinical chemistry reagents, and protein research. Our Bovine Albumin Fraction V is derived from healthy cows and ensures superior performance for these applications.

- Versatile blocking agent for ELISA, western blotting, and immunohistochemistry
- Optimal nutrient for cell and microbial culture
- Suitable for protein and enzyme stabilization
- High purity for protein quantification
- Origin certification and traceability



A selection of Bovine Albumin Fraction V offered by MP Bio:

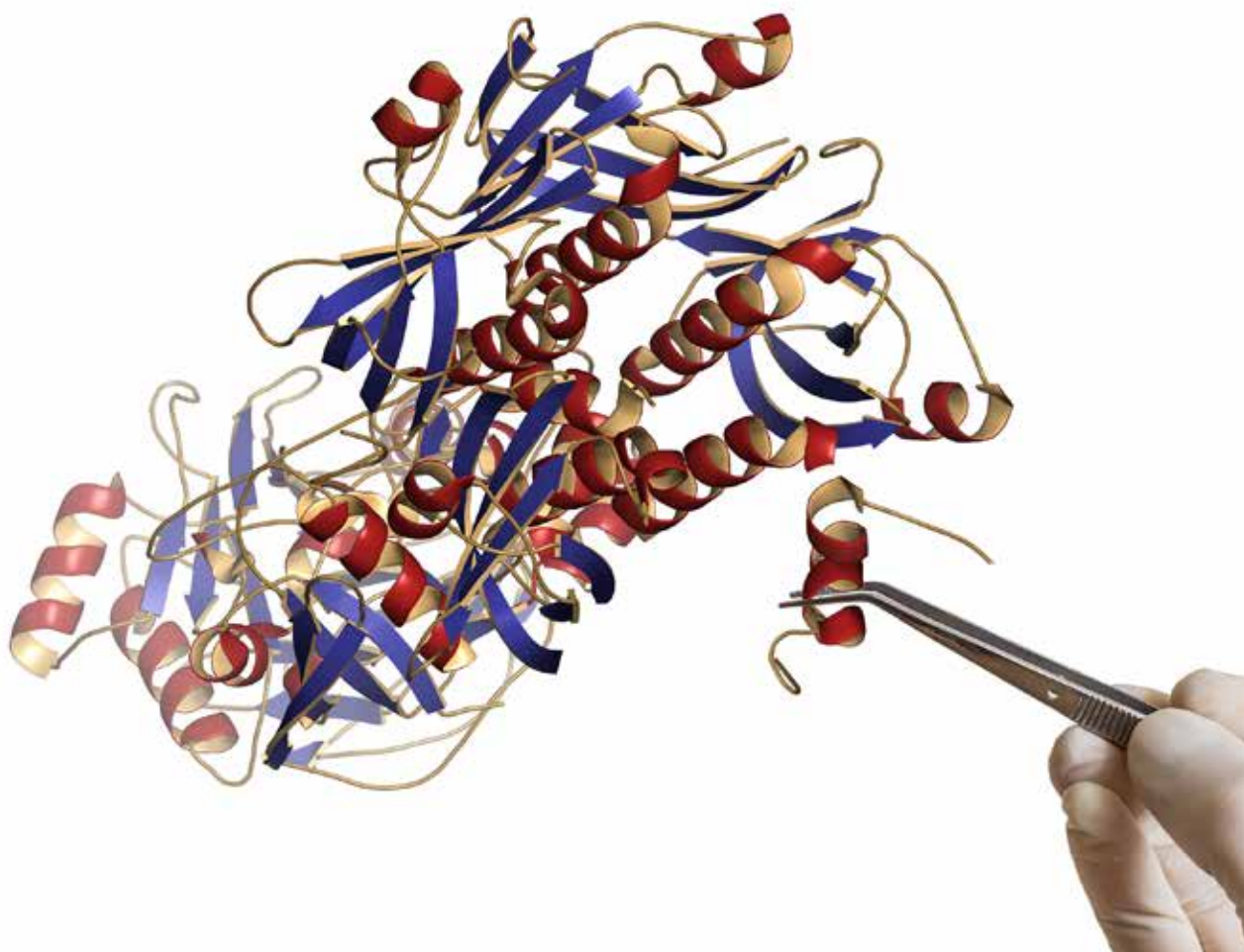
Description	Cat. No.
Bovine Albumin Fraction V, $\geq 98\%$	08810025
	08810032
Bovine Albumin Fraction V, Protease Free, $\geq 99\%$	08820451
Bovine Albumin Fraction V, Low Endotoxin, $>98\%$	08810681
Bovine Albumin Fraction V, Reagent Grade, 100%	08810661
Bovine Albumin, 35% solution	08810061
Bovine Albumin, 30% solution	08810133
Bovine Albumin, Cohn Modified, lyophilized, 100%, By Protein Electrophoresis	08840042
Albumin, Bovine, Microbiological Grade	08840052

# Improve Sequence Coverage with Protease V8 for Protein Identification

Successful peptide mapping requires selection of the right cleavage enzymes. Protease V8 (also known as endoproteinase-Glu-C) complements tryptic digestion, specifically cleaving peptide bonds on the C-terminal side of glutamic and aspartic acids. Protease V8 from MP Bio has been validated by more than 200 scientific publications, and provides:

- Robust activity with greater than 915 units/mg protein
- Specific cleavage at glutamic acid residue in ammonium bicarbonate at pH 7.8 and in ammonium acetate at pH 4, and specific digestion at both glutamic and aspartic acid residues in phosphate buffer at pH 7.8
- Complementary to tryptic digestion
- High tolerance over a broad range of buffers, pHs, and denaturing reagents
- Lyophilized format for longer stability and easier storage

Description	Size	Cat. No.
Protease V8	5 mg	08399001



# Superior Yeast Lysis Using Zymolyase

Digestion of yeast and fungal cell walls is necessary for many biological processes including protoplast preparation, cell fusion, transformation, and extraction. Generally, the yeast cell wall consists of four major components, namely branched  $\beta$ -(1,3)-glucan, substituted  $\beta$ -(1,3) glucan, glycoproteins, and mannoprotein. As a result, a single lysing enzyme is not efficient to break down yeast cell walls.

Zymolyase is a combination enzyme product with a proprietary mixture of four unique lytic enzymes, each of which attacks a different yeast cell wall component. Therefore, Zymolyase can be used at low concentrations to easily break down various yeast cell wall components at significantly higher efficiencies compared to other lysing enzymes. This helps ensure maximum yields of intact protoplasts without hindering viability or regeneration (see Figure 1).

With almost 3 decades of industry expertise and over 2,400 citations, Zymolyase from MP Bio is time proven and quality driven, offering:

- Highest efficiency to form almost 100% protoplasts
- Shortest time for yeast cell wall biodegradation
- Lot to lot consistency and high reproducibility

Description	Cat. No.
Zymolyase 100 T	08320931
Zymolyase 20 T	08320921

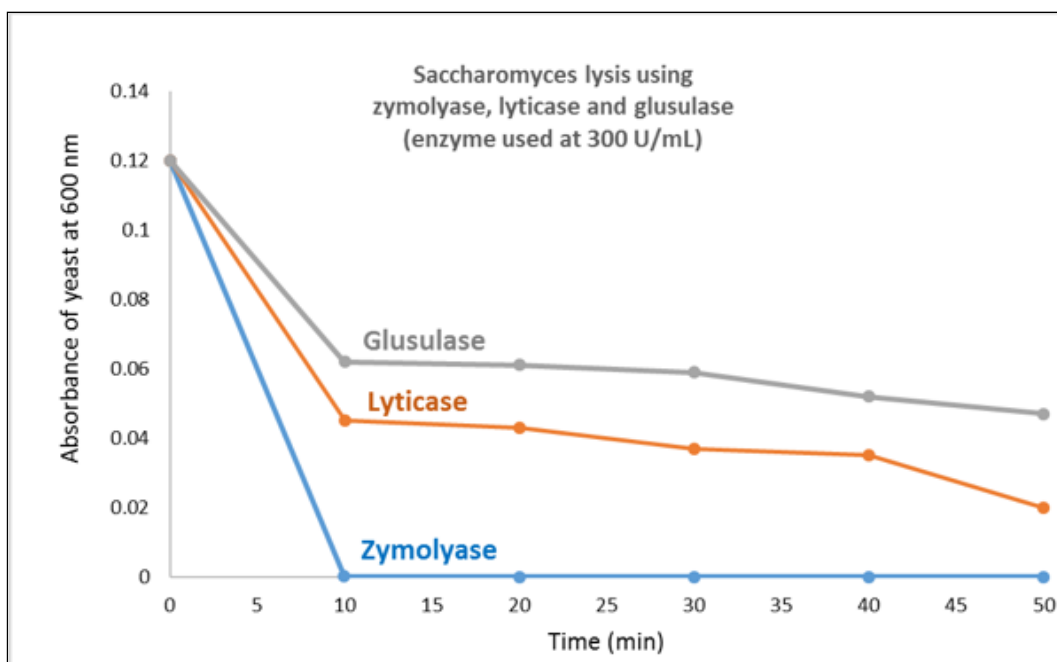


Fig 1. Comparison of *Saccharomyces cerevisiae* lysis using zymolyase, lyticase and glusulase at 300 U/mL.





# Plant Cell Culture Media for Optimal Results

Successful plant cell culture requires high quality and dependable culture media. MP Bio offers a large range of products designed to support optimal plant cell growth, ensuring reproducible and consistent results. Out of all standard plant cell media, Murashige and Skoog media is the most popular choice for plant growth due to its optimized balanced composition. These components of macronutrients, micronutrients, carbon sources, and vitamins are highly suitable for most plant species.

For the last 30 years, MP Bio has been a trusted plant cell culture medium resource for plant research, ensuring:

- **Balanced macronutrients**
- **Essential micronutrients and vitamins**
- **Optimal plant cell growth**
- **Lot-to-lot consistency**



**Selected plant cell/tissue media:**

Description	Cat. No.
Murashige and Skoog Medium	092610020
Hoagland's Modified Basal Salt Medium	092621820
Murashige and Skoog Basal Salt Mixture	092623020
Murashige and Skoog Basal Medium	092623120
Murashige and Skoog Basal Medium with Gamborg's Vitamins	092623220
Murashige & Skoog Modified Vitamin Solution (1000×)	092625149
Murashige & Skoog Plant Salt Mix, without Agar	092633020

## PlantCon™, Unique design for plant cell and tissue culture

Plant cell culture needs to be kept in a contamination-free container with optimal light transparency, controlled atmospheric gas exchange, and managed moisture system for reliable and reproducible results. PlantCon™, a sterilized, plastic and disposable container, is specifically and scientifically designed for this purpose, as it ensures:

- **Broad spectrum light transparency for efficient photosynthesis**
- **Controlled atmospheric gas exchange**
- **EtO sterilized, ready to use and contamination free**
- **Stackable and scalable design for space-saving and automation**
- **Lightweight, affordable, and disposable**



Description	Cat. No.
PlantCon™ System, sterile	092672202
PlantCon™ System, sterile	092672206

# Enzymes for Plant Cell Lysis and Protoplast Formation

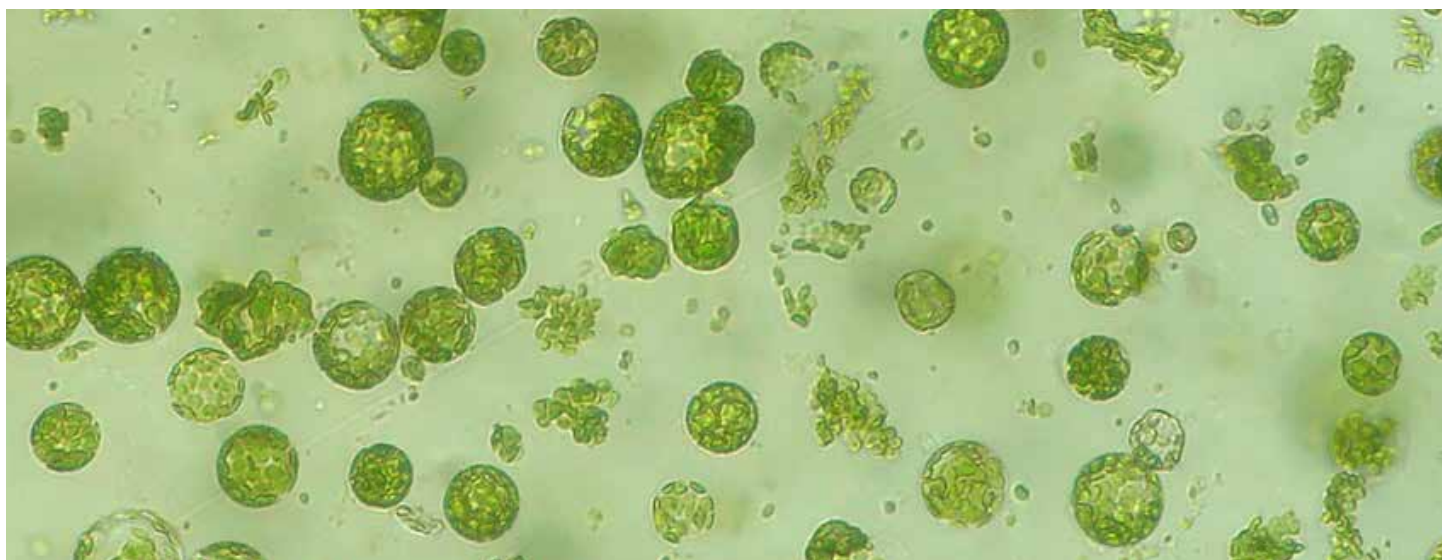
Plant protoplasts are plant cells which have had their cell wall removed, usually by digestion with enzymes of pectinases and cellulases. Protoplasts can be isolated from various plant tissues, such as leaves, flowers, stems, roots, and anthers. Due to the various sample sources and structure differences, it is challenging to effectively prepare plant protoplasts with high efficiency and satisfying quality for sequent applications such as DNA transformation, plant breeding, and other uses. MP Bio has long provided high quality pectinases and cellulases to support plant protoplasts. These products offer:

- High efficiency to remove cell walls
- High yield of viable protoplasts
- Robust enzymatic activities
- Optimized enzymatic components

During maceration, the breakdown of pectins leads to a loss of cohesion and cell separations. Both endo-polygalacturonase or endo-pectate lyases have been reported to macerate specific tissues. Pectolyase Y-23 is a specific preparation from *Aspergillus japonicus*, containing both endo-polygalacturonases and endo-pectin lyases in high activity in addition to a maceration simulating factor. It has found wide use and acceptance in the scientific literature. MP Bio supplies purified pectolyase Y-23 with activity larger than 1000 U/g.

Similar to pectinases, cellulases are comprised of a broad array of enzymes that hydrolyze the 1,4-beta-D-glycosidic linkages in cellulose, hemicellulose, lichenin, and other substrates. Cellulase Y-C from MP Bio is produced from *Trichoderma viride* and has very high filter paper decomposing activity as well as appreciable additional xylanase and hemicellulase activity. It is an effective enzyme for use with pectolyase Y-23 for plant cell wall removal.

Description	Cat. No.
Pectolyase Y-23	08320951
Pectolyase Y-23	08320952
Cellulase Y-C	08320961



# 7X: Detergent for Cell Culture, Instrument and Glassware Cleaning

Does your detergent leave behind residue like bacteria, microbial debris and fluorescence? Cited in over 8,000 scientific publications, 7X detergent from MP Bio has been highly recommended for use in a variety of applications, ranging from lab maintenance to industrial cell culture. Scientists, lab technicians, and biotechnologists around the world have been using this product for over 65 years to ensure that high degree of cleanliness necessary in any lab.

- Effective, water-soluble and eco-friendly cleaning solutions with no etch to glass or plastic labware in any concentration
- ES 7X is a completely eco-friendly solution
- Nontoxic for tissue and cell cultures
- Eliminate interfering fluorescence residues for flow cytometry
- No need for pH adjustment at any concentration
- Easy and safe to use, no gloves needed, gentle to skin
- Easy to store 1 gallon of 7X concentrate can make up to 100 gallons cleaning solution

Description	Size	Cat. No.
7X Cleaning Solution	1 gal	097667093
7X Cleaning Solution	4 x 1 gal	097667094
7X-O-Matic Solution, Machine Wash	4 x 1 gal	097667494
ES 7X Cleaning Solution, Environment-Safe	4 x 1 gal	097667194
ES 7X Cleaning Solution, Environment-Safe	1 gal	097667193





## Our Products. Your Answers.

- Apoptosis
- Cell Biology
- Culture Growth Media
- FastPrep® Sample Prep
- Immunology
- Molecular Biology
- Adsorbents
- Biochemicals
- Fine Chemicals
- Labware
- Radiochemicals
- Research Diets
- SafTest™ Food Quality
- Diagnostics
- Drugs of Abuse
- Infectious Disease
- EIA/RIA

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