

## Elevate cultured Meat Research

Through reliable and consistent laboratory solutions

We recognize the need for sustainable solutions in the meat industry. That's why we're thrilled to support the growth of cultured meat and seafood, a more sustainable and environmentally friendly alternative to traditional farming.

Our expertise in cell culture media and development, analytical instrumentation, and bioprocessing will be invaluable to this industry. We're working closely with companies producing cultured meat and seafood to help them optimize their R&D and production processes, to ensure the safety and quality of their final products.

By producing meat in a clean, sterile environment, cultured meat and seafood are less prone to contamination by viruses and bacteria. Companies are now focusing on producing not only common meats such as beef, pork, and chicken but also high-end and exotic meats such as elk, bison, lamb, and even the prized Wagyu beef. Some are even developing cultured fish species and seafood!

Together, we're revolutionizing meat production, offering a more ethical, sustainable, and delicious alternative. At every stage, safety is key, which is why we are dedicated to partnering with companies to ensure the highest standards are met.

### Find our Animal Component Free products

#### Growth Factors

Our highly pure, low endotoxin, animal component-free human, mouse, and rat growth factors and cytokines help increase consistency and safety in cell culturing. These recombinant proteins are expressed in *E. coli* or in HEK systems under Animal Component-Free (ACF) conditions. Growth factors produced in **HEK293** cells offer the added advantage of authentic human glycosylation and post-translational modification patterns. Our ACF growth factors and cytokines are ideal for your critical inflammation, cancer, stem cell, and antibody development research applications.

#### Applications

- Supplement cell culture media for serum replacement
- Promote growth of finicky/fastidious cells
- Promote cellular differentiation
- Stem and immunotherapy cell culture supplements
- Monoclonal antibody production

#### Features

- ≥98% pure and animal component-free – no risk of introducing pathogenic agents through animal sources
- Low endotoxins, cell culture-tested – no effect on cell viability
- Recombinant – lot-to-lot variability is minimum
- No human or animal-derived components at any point in manufacturing process – easy to import without restrictions

\*Image of cultured meat burger provided by Mosa Meat



## Ordering Information

Product Description	Expression System	Cat. No.
Activin-A	HEK	H4666
BMP-2 (human)	HEK	H4791
EGF (human)	<i>E. coli</i>	SRP3027
EGF (human)	<i>E. coli</i>	E5036
IFN- $\gamma$ (human)	<i>E. coli</i>	SRP3058
IGF-I (human)	<i>E. coli</i>	SRP3069

Product Description	Expression System	Cat. No.
IL-1 $\beta$ (human)	<i>E. coli</i>	SRP3083
IL-2 (human)	<i>E. coli</i>	SRP3085
TNF- $\alpha$ (human)	HEK	H8916
TNF- $\alpha$ (human)	<i>E. coli</i>	SRP3177
Transforming Growth Factor- $\beta$ 1 human	HEK	H8541

## Supplements

Cell culture supplements provide nutrients that promote healthy growth of mammalian, insect, and plant cell cultures. Supplements such as hormones and albumins are most commonly added to cell culture media.

### Applications

- Additives to cell culture media
- Improves cell viability, growth, and proliferation

### Features

- Animal component-free
- High purity, superior solubility
- Available in powder and solution format
- Lot-to-lot consistency
- Custom specifications and testing available
- Reduces the incidence of performance variability
- Eliminates safety risks due to adventitious agents associated with animal components

## Ordering Information

Product Description	Expression System	Size	Cat. No.
Fibronectin	HEK		ECM001
AOF ITS Supplement (100X) (contains human recombinant insulin and transferrin with sodium selenite)	Oryza sativa (rice)	10 mL	SCM054
		100 mL	SCM055
Demecolcine solution (10 $\mu$ g/mL)	Synthetic	20 mL	D1925-20ML
		100 mL	D1925-100ML
Hydrocortisone solution (50 $\mu$ M)	Synthetic	10 mL	H6909
SyntheChol <sup>®</sup> NS0 Supplement (500X)	Synthetic	2 mL	S5442-2ML
		10 mL	S5442-10ML
Albumin (human)	Rice	1 g	A9731-1G
		5 g	A9731-5G
		10 g	A9731-10G

## Cell Dissociation Reagents

Cell dissociation reagents are used for cell detachment and tissue dissociation in cell culture. Our dissociation enzymes, when used with serum-free or (or serum-containing) media, help maximize the yield of functionally viable cells. These ready-to-use solutions enable dissociation of cells, tissues, and tumors with increased plating efficiency.

### Applications

- Cell detachment and tissue dissociation
- Suitable for both serum-free and serum-containing culture conditions

### Features

- Animal component-free
- Ready-to-use solution
- Gentle cell disaggregation
- High cell viability

## Ordering Information

Product Description	Expression System	Cat. No.
Animal Free Collagenase, Type A	<i>Clostridium histolyticum</i>	SCR136
Animal Free Collagenase, Type B	<i>Clostridium histolyticum</i>	SCR137
Animal Free Collagenase, Type C	<i>Clostridium histolyticum</i>	SCR138
Animal Free Collagenase/ Dispase Blend I	<i>Clostridium histolyticum</i>	SCR139

Product Description	Expression System	Cat. No.
Animal Free Collagenase/ Dispase Blend II	<i>Clostridium histolyticum</i>	SCR140
Collagenase type I	<i>Clostridium histolyticum</i>	SCR103
Trypsin Inhibitor, Defined (1X) Solution	Soybean	T7659

## Why you should always look for a ZooMAB® antibody?

ZooMAB® antibodies represent an entirely new generation of recombinant monoclonal antibodies.

There is never any guessing with ZooMAB® antibodies. Our ZooMAB® recombinant antibodies platform represents an entirely new generation of recombinant monoclonal antibodies engineered for greater specificity, higher consistency, and maximum stability. With ZooMAB® antibodies you can be sure to get the same feature-loaded product, for every single target, every single lot, stable, pure, and packaged for maximum shelf life stability.

	Rabbit Polyclonal	Mouse Monoclonal	ZooMAB® Recombinant Monoclonal
Reproducibility	•	••	•••
Specificity	•	••	•••
Precision	•	••	•••
Storage/Stability	•	•	•••
Affinity for IHC	•	•	•••
Host Sacrifice	Required	Required	Not required
Stable DNA Clone	No	No	Yes
Format	Liquid	Liquid	Lyophilized powder
Preservatives/Additives	Yes	Yes	No
Pack Size	Single	Single	Multiple
Shipping	Ice	Ice	Ambient/room temperature

### Ordering Information

Cat.No.	Description
ZRB374	Anti-GAPDH, clone 10b13
ZRB1140	Anti-β-Tubulin III, clone 5h16
ZMS1004	Anti-Actin, clone c4 ZooMab®
ZRB1316	Anti-AC-α-Tubulin (lys40), clone 1i10
ZRB1416	Anti-β Tubulin, clonal 10g11
ZRB1624	Anti-Histone h2b, clone 4o11
ZRB1442	Anti-PCNA, clone 3b22
ZRB1315	Anti-VDAC1, clone 3m22
ZRB1145	Anti-HSP60, clone 1N3
ZRB1271	Anti-Laminin B2 Antibody, clone 1B9

### Ordering Information

Cat.No.	Description
ZRB1124	Anti-β-Tubulin Antibody, clone 1C9
ZRB1268	Anti-Prion Protein Antibody, clone 3D17
ZRB1759	Anti-CD4 Antibody, clone 2G19
ZRB1113	Anti-LILRB4 Antibody, clone 1H12
ZRB1182	Anti-MR-proADM Antibody, clone 2B19
ZRB1762	Anti-NLRP3 Antibody, clone 4B4
ZRB1275	Anti-CD81 Antibody, clone 1C23
ZRB1864	Anti-CD63 Antibody, clone 3H6
ZMS1021	Anti-Influenza A Nucleoprotein Antibody, clone A3

#### Revolutionary

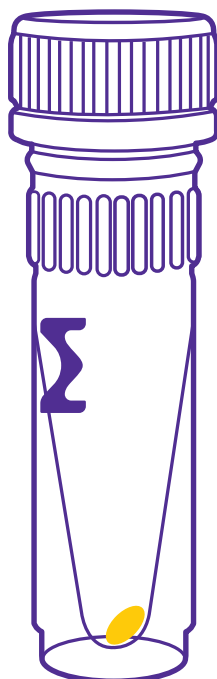
Completely reinvented feature loaded platform

#### Reproducible

Recombinantly produced for lot-to-lot consistency

#### Sustainable

Shipped ambiently for the environment and to reduce shipping costs



#### Pure

Free of animal components, BSA, biocides such as sodium azide, and preservatives

#### Visible

Transparent vials to help see product clearly

#### Stable

Lyophilized for long term stability & storage

## Biology Products for Industrial Production

Whether you are manufacturing laboratory products and kits, specialty media and culture tools, assays, or biology materials for inclusion in life science applications, we are the partner who can provide reliable, high-quality, sustainable solutions for use in your development and manufacturing processes. Choose from more than 300,000 high-quality products, many of them ready-to-use production materials available up to ton volumes.

### Detection Enzymes and Substrates

Cat. No.	Product Description
P8375	Peroxidase from horseradish Type VI, essentially salt-free, lyophilized powder, $\geq 250$ units/mg solid (using pyrogallol)
T0440	3,3',5,5'-Tetramethylbenzidine (TMB) Liquid Substrate System for ELISA
P4978	Phosphatase, Alkaline from calf intestine buffered aqueous glycerol solution
N6125	Naphthol AS-TR phosphate disodium salt
P0114	Phosphatase, Alkaline from bovine intestinal mucosa
SRE0045	Luciferase from Photinus pyralis (firefly), recombinant, expressed in <i>E. coli.</i> , lyophilized powder, $\geq 10 \times 10^{10}$ units/mg protein
L9504	D-Luciferin
P1951	Phalloidin-Tetramethylrhodamine B isothiocyanate
N6125	Naphthol AS-TR phosphate disodium salt
G0762	$\beta$ -Glucuronidase from <i>Helix pomatia</i> , Type H-3AF, aqueous solution, $\geq 60,000$ units/mL
G8132	$\beta$ -Glucuronidase from limpets ( <i>Patella vulgata</i> ), Type L-II, lyophilized powder, 1,000,000-3,000,000 units/g solid
SRE0093	$\beta$ -Glucuronidase from limpets ( <i>Patella vulgata</i> ), aqueous solution

### Bovine Serum Albumin (BSA)

Cat. No.	Product Description
A2153	Bovine Serum Albumin lyophilized powder, $\geq 96\%$ (agarose gel electrophoresis)
A3509	Bovine Serum Albumin heat shock fraction, protease free, essentially globulin free, pH 7, $\geq 98\%$ (Heat-Shock Fractionation)
A7638	Bovine Serum Albumin solution 30% in DPBS, sterile-filtered, BioXtra, suitable for cell culture (Ethanol and Heat Shock Treated)
A1933	Bovine Serum Albumin chromatographically purified, New Zealand origin, low endotoxin, suitable for cell culture, pH 7, $\geq 98\%$
A1653	Albumin from human serum lyophilized powder, $\geq 96\%$ (agarose gel electrophoresis)
A9731	Albumin human recombinant, expressed in rice, lyophilized powder, suitable for cell culture, low endotoxin, $\geq 96\%$ (SDS-PAGE)
A5378	Albumin from chicken egg white lyophilized
G5009	$\gamma$ -Globulins from bovine blood

### Tissue Dissociation Enzymes

Cat. No.	Product Description
C5138	Collagenase from <i>Clostridium histolyticum</i>
P4762	Papain from papaya latex
4942078001	Dispase® II (neutral protease, grade II)
E1250	Elastase from porcine pancreas
T7309	Trypsin from bovine pancreas, $\geq 2,500$ USP units/mg solid, meets USP testing specifications
T8816	Trypsin 1:300 from porcine pancreas

### Nucleases & Proteases

Cat. No.	Product Description
P2308	Proteinase K from <i>Tritirachium album</i> lyophilized powder, BioUltra, $\geq 30$ units/mg protein, for molecular biology RPROTKSOL-RO Proteinase K, recombinant, PCR Grade Solution from <i>Pichia pastoris</i>
D2821	Deoxyribonuclease I bovine, ecombinant, expressed in <i>Pichia pastoris</i> , lyophilized powder, RNase and protease, free
N8630	Nuclease P1 from <i>Penicillium citrinum</i> lyophilized powder, $\geq 200$ units/mg protein (E1%/280, 3'-5'-Phosphodiesterase)
R5125	Ribonuclease A from bovine pancreas, Type III-A, $\geq 85\%$ RNase A basis (SDS-PAGE), 85-140 Kunitz units/mg protein
P7000	Pepsin from porcine gastric mucosa powder, $\geq 250$ units/mg solid
P5147	Pronase E; Protease from <i>Streptomyces griseus</i> Type XIV, $\geq 3.5$ units/mg solid, powder RTRYP-RO Trypsin recombinant, proteomics grade
P8038	Proteinase, bacterial, Type XXIV, 7.0-14.0 units/mg solid, lyophilized powder
70748	Pellet Paint® NF Co-Precipitant, Non-fluorescent visible DNA co-precipitant for automated sequencing application
PPC2020	ReadyShield Protease and Phosphatase Inhibitor cocktail
PIC0001	ReadyShield Protease Inhibitor cocktail for fungal and tissue extracts
PIC0002	ReadyShield Protease Inhibitor cocktail for mammalian cell and tissue extracts
PIC0005	ReadyShield Protease Inhibitor cocktail for plant cell and tissue extracts
PIC0006	ReadyShield Protease Inhibitor cocktail for tissue culture media
T7309	Trypsin from bovine pancreas, $\geq 2,500$ USP units/mg solid, meets USP testing specifications
D5025	Deoxyribonuclease I from bovine pancreas, Type IV, lyophilized powder, $\geq 2,000$ Kunitz units/mg protein
R5503	Ribonuclease A from bovine pancreas, Type I-AS, 50-100 Kunitz units/mg protein
539480	Proteinase K from <i>Tritirachium album</i>
P2308	Proteinase K from <i>Tritirachium album</i> , lyophilized powder, BioUltra, $\geq 30$ units/mg protein, for molecular biology
SRE0005	Proteinase K from <i>Tritirachium album</i> , Reagents designed and manufactured under current ISO 13485 certification.
SRE0047	Proteinase K from <i>Tritirachium album</i> , Suitable for manufacturing of diagnostic kits and reagents, lyophilized powder, $\geq 30$ units/mg protein, for molecular biology
70664	Benzonase® Nuclease, Purity > 99%, Effective viscosity reduction and removal of nucleic acids from protein solutions

## Proteins & Enzymes: Inhibitors

Cat. No.	Product Description
SRE0044	Trypsin Inhibitor from Glycine max (soybean), Suitable for manufacturing of diagnostic kits and reagents, suitable for cell culture
T9003	Trypsin inhibitor
A6279	Aprotinin from bovine lung, saline solution, 3-7 TIU/mg protein
SRE0078	Aprotinin from bovine lung, lyophilized powder, $\geq 3$ TIU/mg solid, Suitable for manufacturing of diagnostic kits and reagents
A1784	Aminopterin, powder

## Buffers

Cat. No.	Product Description
M1254	MOPS $\geq 99.5\%$
P4417	Phosphate buffered saline tablet
T1375	TES $\geq 99\%$
S1804	Trisodium citrate dihydrate meets USP testing specifications
T3253	Trizma <sup>®</sup> hydrochloride, Reagent grade, $\geq 99.0\%$

## Carbohydrates

Cat. No.	Product Description
T9531	D-(+)-Trehalose dihydrate from <i>Saccharomyces cerevisiae</i> , $\geq 99\%$
D5376	Dextran from <i>Leuconostoc mesenteroides</i> average mol wt 1,500,000-2,800,000
G5882	Glutaraldehyde solution Grade I, 25% in H <sub>2</sub> O, specially purified for use as an electron microscopy fixative
H3149	Heparin sodium salt from porcine intestinal mucosa Grade I-A, $\geq 180$ USP units/mg, powder, BioReagent, suitable for cell culture
L2630	Lipopolysaccharides from <i>Escherichia coli</i> O111:B4 purified by phenol extraction
M8378	Maltotriose $\geq 90\%$
S5651	Starch from potato, suitable for electrophoresis

## Antibodies

Cat. No.	Product Description
Various	Primary monoclonal & polyclonal antibodies
Various	Secondary monoclonal & polyclonal antibodies (native & recombinant)
Custom	Custom antibodies (Buffer exchange, conjugation, concentration)
Various	ZooMab recombinant antibodies & bulk (1 mg)
Custom	Contract ZooMab rabbit recombinant antibodies development
L0663	Anti-Laminin-2 ( $\alpha$ -2 Chain) antibody, Rat monoclonal
SAB42 00686	Anti-Collagen, Type VII antibody, Mouse monoclonal
T7451	Anti-Acetylated Tubulin antibody, Mouse monoclonal
H2663	Anti-Histone Deacetylase 2 (HDAC2) antibody, Mouse monoclonal
SAB42 00670	Anti-Myosin (Skeletal, Slow) antibody, Mouse monoclonal

## General Biochemicals

Cat. No.	Product Description
A1296	Agar microbiology tested, plant cell culture tested, cell culture tested, powder
B4501	Biotin $\geq 99\%$ , lyophilized powder
C3416	Carbenicillin disodium salt BioReagent, plant cell culture tested
C9394	Chlorhexidine digluconate solution 20% in H <sub>2</sub> O
C7698	Cycloheximide from microbial, $\geq 94\%$
D0632	DL-Dithiothreitol $\geq 98\%$ , $\geq 99.0\%$
ED2SS	Ethylenediaminetetraacetic acid disodium salt dihydrate reagent grade, 98.5-101.5%
G2289	Glycerin meets USP testing specifications
G9012	Glycerol $\geq 99.5\%$
G7126	Glycine ReagentPlus <sup>®</sup> , $\geq 99\%$
G3126	L-Glutamine ReagentPlus <sup>®</sup> , $\geq 99\%$
G4251	L-Glutathione reduced $\geq 98.0\%$
L1376	Linoleic acid $\geq 99\%$
L9650	Lithium chloride for molecular biology, $\geq 99\%$
P5607	L-Proline from non-animal source, meets EP, USP testing specifications, suitable for cell culture
E7750	N-(3-Dimethylaminopropyl)-N'-ethylcarbodiimide hydrochloride commercial grade, powder
146072	N,N'-Methylenebis(acrylamide) 99%
O1008	Oleic acid $\geq 99\%$
P4347	Propylene Glycol meets USP testing specifications
95144	Retinol BioXtra, $\geq 97.5\%$ , $\sim 3100$ U/mg
S2002	Sodium azide ReagentPlus <sup>®</sup> , $\geq 99.5\%$
S7653	Sodium chloride BioXtra, $\geq 99.5\%$
V2002	Vancomycin hydrochloride from <i>Streptomyces orientalis</i> potency: $\geq 900$ mug per mg (as vancomycin base)

## Labware

### Corning Cell Culture & Liquid Handling

We offer a large selection of Cell Culture and Liquid handling products from highly reputed brands: Corning®, Falcon®, Costar® & Axygen® including flasks, shaker flasks, bioreactor flasks, spinner flasks, culture plates, cell culture inserts, petri dishes, culture dishes, tubes, cell lifters & spreaders and serological pipettes.

In addition, customers can request a Certificate of Quality. This certificate details lot-specific information on component materials, sterility testing, and pyrogen testing.

Find the products here: [SigmaAldrich.com/cell-culture-supplies](https://SigmaAldrich.com/cell-culture-supplies)

## Help Your Cells Thrive

Advance your research with consistent and comprehensive cell culture essentials

[SigmaAldrich.com/ccessentials](https://SigmaAldrich.com/ccessentials)



**Sigma-Aldrich** Lab & Production Materials  
**Millipore** Preparation, Separation, Filtration & Monitoring Products

## Animal Component-free

Media & Reagents for Cell Culture



**Sigma-Aldrich**

## The perfect recipe

- ✓ Cultured Meat
- ✓ Sustainability
- ✓ Your Dedication to Safety

[Find Your Scale-Up Solutions](#)



**Note:** Products manufactured by Sigma-Aldrich® and classified as Animal Component-Free (ACF) will not contain or use in the manufacturing process, any primary raw materials derived directly from bovine or other animal tissues. All manufacturing and packaging follow ACF protocols and use equipment that is either unexposed to animal materials or decontaminated. This product is for further research or manufacturing use only. It is not intended for direct use in humans or animals.

### To place an order or receive technical assistance

Order/Customer Service: [SigmaAldrich.com/order](https://SigmaAldrich.com/order)

Technical Service: [SigmaAldrich.com/techservice](https://SigmaAldrich.com/techservice)

[SigmaAldrich.com](https://SigmaAldrich.com)

© 2024 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved. Merck, the vibrant M, and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. All other trademarks are the property of their respective owners. Detailed information on trademarks is available via publicly accessible resources.

MK\_FL12874EN Ver. 2.0  
53978  
06/2024

