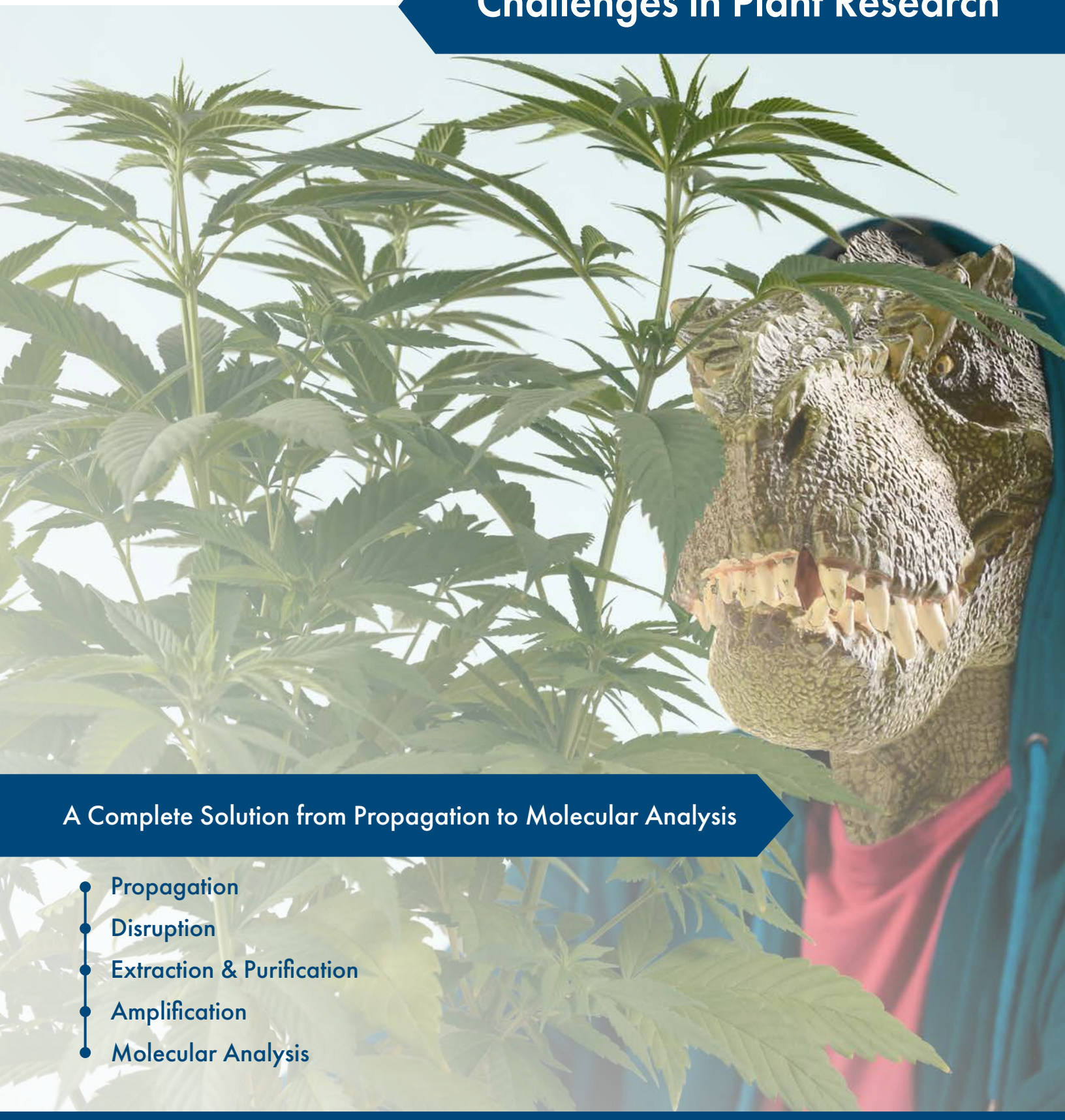
Challenges in Plant Research



A Complete Solution from Propagation to Molecular Analysis

- Propagation
- Disruption
- Extraction & Purification
- Amplification
- Molecular Analysis

MP

www.mpbio.com

- Seeds
- Roots
- Leaves
- Stems
- Buds
- Flowers
- Fruits
- Needles
- Pollen
- Bacteria
- Yeast
- Fungi
- Algae
- Woods

A Complete Solution for Plant Research

Molecular testing of plants and plant-derived samples is a proven and powerful research area for improving the productivity, quality, and disease resistance of plants. MP Biomedicals is committed to delivering the best reagents and instruments to cover all your plant research needs to create a seamless lab workflow. Discover an easy and economical workflow to help you develop innovative solutions for life.

PROPAGATION

Culture Media • Growth Regulators
Antibiotics • Gelling Agents • Labware

DISRUPTION

Mechanical Lysis • Enzymatic Lysis

EXTRACTION & PURIFICATION

DNA, RNA & Protein Extraction Kits
Automated NAP Platform

AMPLIFICATION

Polymerases • PCR Reagents

MOLECULAR ANALYSIS

Electrophoresis • Purification

A workflow solution dedicated to your plant research needs

Propagation: Grow Your Cells and Seedlings

MP Bio offers a comprehensive selection of plant culture media, plant growth regulators, antibiotics, gelling agents, and plant tissue culture containers to address all your plant culture needs.

Culture Media

We selected our most popular media available in different pack sizes to provide a wide range of media for plant applications. Choose from our Murashige and Skoog, Gamborg's B5, and Chu's N6 media options.

Murashige and Skoog Media Formulations

Murashige and Skoog Medium is based on the original 1962 formulation.

Murashige & Skoog Macronutrients (4.232720 g/L)	
Ammonium Nitrate	1.650000
Calcium Chloride Anhydrous	0.332020
Magnesium Sulfate Anhydrous	0.180700
Potassium Nitrate	1.900000
Potassium Phosphate Monobasic	0.170000
Murashige & Skoog Micronutrients (0.097890 g/L)	
Boric Acid	0.006200
Cobalt Chloride-$6H_2O$	0.000025
Cupric Sulfate Anhydrous	0.000025
Ferrous Sulfate-$7H_2O$	0.027800
Manganese Sulfate-H_2O	0.016900
Molybdic Acid Sodium Salt-$2H_2O$	0.000250
Na_2-EDTA-$2H_2O$	0.037260
Potassium Iodide	0.000830
Zinc Sulfate-$7H_2O$	0.008600
Murashige & Skoog Vitamins (0.103100 g/L)	
Glycine	0.002000
Myo-Inositol	0.100000
Nicotinic Acid	0.000500
Pyridoxine-HCl	0.000500
Thiamine-HCl	0.000100
Murashige & Skoog Complete Medium w/Agar (g/L)	
Sucrose	30
Agarose	8

Product Name	Size	Cat. No.
Murashige and Skoog Medium	10 x 1 L	092610020
	1 x 10 L	092610022
	1 x 50 L	092610024
Murashige and Skoog Basal Medium	10 x 1 L	092623120
	1 x 10 L	092623122
	10 x 1 L	092623220
Murashige and Skoog Basal Salt Mixture	10 x 1 L	092623020
	1 x 10 L	092623022
Murashige and Skoog Plant Salt Mixture (without agar)	10 x 1 L	092633020
	1 x 10 L	092633022
	1 x 50 L	092633024
Murashige and Skoog Modified Vitamin Solution (1000x)	100 mL	092625149

Gamborg's B5 Media Formulations

Gamborg's B5 Medium is based on the original 1968 formulation. Complete Gamborg's B5 media and Gamborg's Basal Salt Mixtures are ready-to-use and available in liquid form.

Gamborg's B5 Macronutrients (2.86933 g/L)	
Ammonium Sulfate	0.13400
Calcium Chloride Anhydrous	0.113240
Magnesium Sulfate Anhydrous	0.122090
Potassium Nitrate	2.500000
Gamborg's B5 Micronutrients (0.081150 g/L)	
Boric Acid	0.003000
Cobalt Chloride-6H_2O	0.000025
Cupric Sulfate Anhydrous	0.000025
Ferrous Sulfate-7H_2O	0.027800
Manganese Sulfate-H_2O	0.010000
Molybdic Acid Sodium Salt-2H_2O	0.000250
Na_2-EDTA-2H_2O	0.037300
Potassium Iodide	0.000750
Zinc Sulfate-7H_2O	0.002000
Gamborg's B5 Vitamins (0.112000 g/L)	
Myo-Inositol	0.100000
Nicotinic Acid	0.001000
Pyridoxine-HCl	0.001000
Thiamine-HCl	0.010000
Gamborg's Complete Medium w/Agar	
Sucrose	20
Agar	8

Product Name	Size	Cat. No.
Gamborg's B5 Complete Medium	1 x 1 L	115101125
Gamborg's Basal Salt Mixture	1 x 10 L	092621622

Chu's N6 Media Formulations

Chu's N6 media is based on the original 1975 formulation. Complete Chu's N6 media is a ready-to-use solution available in liquid form. A complete formulation with agar is also available as a powder.

Chu's N6 Macronutrients (3.908700 g/L)	
Ammonium Sulfate	0.463000
Calcium Chloride Anhydrous	0.125330
Magnesium Sulfate Anhydrous	0.090370
Potassium Nitrate	2.830000
Potassium Phosphate monobasic	0.400000
Chu's N6 Micronutrients (0.072330 g/L)	
Boric Acid	0.001600
Ferrous Sulfate-7H_2O	0.027850
Manganese Sulfate-H_2O	0.003330
Na_2-EDTA-2H_2O	0.037250
Potassium Iodide	0.000800
Zinc Sulfate-7H_2O	0.001500
Chu's N6 Vitamins (0.004 g/L)	
Glycine	0.002000
Nicotinic Acid	0.000500
Pyridoxine-HCl	0.000500
Thiamine-HCl	0.001000
Chu's N6 Complete Medium w/Agar (g/L)	
Sucrose	20
Agar	8

Product Name	Size	Cat. No.
Chu's N6 Complete Medium	1 x 1 L	115102125
Chu's N6 Complete Agar	1 L Pouch	115102225

Specialty Media

MP Bio also provides a variety of specialty media for various plant culture applications, including Hoagland's Modified Basal Salt Mixture, Agrobacterium Media and Agar, and HL5 Medium to support the growth of *Dictyostelium discoideum* strains capable of growing axenically.

Product Name	Pack Size	Cat. No.
Hoagland's Modified Basal Salt Mixture	10 x 1 L	092621820
Agrobacterium Medium	227 g	092621820
Agrobacterium Medium Agar	227 g	113301212
HL5 Medium	454 g	113090222
HL5 Medium w/ Glucose	454 g	113090322

Growth Regulation

In our continuing efforts to cultivate the widest showcase of biochemicals and reagents for research and development, MP Bio is pleased to offer our exclusive line of PhytoPure™ brand plant science biochemicals. Our portfolio of PhytoPure reagents includes a variety of plant growth regulators used in agriculture, horticulture and viticulture. These plant growth regulators include auxins, cytokinins, gibberellins, absicic acids, and ethylene. PhytoPure reagents are specifically selected to be suitable for sensitive roots and shoots propagation, plant health, growth and viability in all plant-based applications.

While purity is important, it alone may not be the only factor in selecting the best reagent, so we also consider criteria such as specific activity, salt form, concentration, appearance, intended use and reproducibility in specific applications. PhytoPure reagents provide you the flexibility and convenience of choosing the exact product to achieve the precise results you desire in all your plant science research and development projects. Don't stunt the growth of your plant research, let PhytoPure reagents help yield the results you desire.

PhytoPure™ Auxins

Auxins are compounds containing an aromatic ring and a carboxylic acid moiety. They are a class of phytohormones that play an integral role in many growth and behavior processes in the life cycle of plants. At the molecular level, auxins regulate gene expression, while on the cellular level, they are essential for plant cell growth and differentiation. This in turn contributes to the plant's overall size. MP Bio is now offering a selection of our new and existing auxin products to enhance your plant research.

Product Name	Cat. No.
4-Bromophenoxyacetic Acid, PhytoPure™	02183949
4-Chloroindole-3-Acetic Acid, PhytoPure™	02183950
(4-Chloro-2-Methylphenoxy) Acetic Acid, PhytoPure™	02183952
4-Chlorophenoxyacetic Acid, PhytoPure™	02183953
3,6-Dichloro-2-Methoxybenzoic Acid, PhytoPure™	02183951
2,4-Dichlorophenoxyacetic Acid, PhytoPure™	02101553
2,4-Dichlorophenoxyacetic Acid Sodium Salt, PhytoPure™	02183954
2-(2,4-Dichlorophenoxy)-Propionic Acid, PhytoPure™	02183955
Indole-3-Acetic Acid, PhytoPure™	02102037
Indole-3-Acetonitrile, PhytoPure™	02102039
Indole-3-Butyric Acid, PhytoPure™	02102042
Indole-3-Buytric Acid Potassium Salt, PhytoPure™	02102043
Indole-3-Propionic Acid, PhytoPure™	02102048
Melatonin, PhytoPure™	02183956
1-Naphthaleneacetamide, PhytoPure™	02104937
1-Naphthaleneacetic Acid, PhytoPure™	02183957
1-Naphthaleneacetic Acid Sodium Salt, PhytoPure™	02183958
β-Naphthoxyacetic Acid, PhytoPure™	02183959
Phenylacetic Acid, PhytoPure™	02183960
Phloroglucinol, PhytoPure™	02183961
Picloram, PhytoPure™	02183962
2,4,5-Trichlorophenoxyacetic Acid Potassium Salt, PhytoPure™	02183963
2,3,5-Triiodobenzoic Acid, PhytoPure™	02183964

PhytoPure™ Cytokinins

Cytokinins are a class of plant growth hormones that help promote cell division, i.e. cytokinesis, in plant roots and shoots. They are primarily involved in cell growth and differentiation but may also affect axillary bud growth and leaf senescence. Unlike auxins, which migrate down from the growing tip, cytokinins work from the roots up to promote lateral growth.

Many plant growth processes depend upon cytokinins, including cell division, differentiation, and shoot and root morphogenesis. Cytokinins also regulate axillary bud growth and apical dominance. They have been shown to slow aging in plants by preventing protein breakdown and activating protein synthesis.

Product Name	Cat. No.
Adenine, PhytoPure™	02194606
Adenine Hydrochloride, PhytoPure™	02194608
Adenine Hemisulfate, PhytoPure™	02194607
N6-Benzoyladenine, PhytoPure™	02100926
6-Benzylaminopurine, PhytoPure™	02100912
Carbanilide – *see 1,3-Diphenylurea, PhytoPure™*	
6-(γ,γ-Dimethylallylamino)purine, PhytoPure™	02195144
1,3-Diphenylurea, PhytoPure™	02157869
N-Isopentenyladenine - *see 6-(γ,γ-Dimethylallylamino)purine, PhytoPure™*	
Kinetin, PhytoPure™	02151404
Thidiazuron, PhytoPure™	02183965
m-Topolin, PhytoPure™	02183966
trans-Zeatin, PhytoPure™	02153854
trans-Zeatin riboside, PhytoPure™	02193903

PhytoPure™ Giberellins

Gibberellins are plant hormones that stimulate stem elongation, initiate seed germination, and flowering. Gibberellins are known to break plant dormancy, delay fruit ripening, and also delay leaf and fruit senescence. Where auxins promote the growth of the shoot system and apical dominance, gibberellins promote stem elongation and play no role in apical dominance.

Product Name	Cat. No.
Gibberellic Acid, PhytoPure™	02151180
Gibberellic Acid Potassium Salt 10%, PhytoPure™	02100282
Gibberellin A3, PhytoPure™ – *see Gibberellic Acid, PhytoPure™*	
Gibberellin A4 + A7, PhytoPure™	02183967

PhytoPure™ Abscisic Acid

Abscisic acid is a plant hormone that is used to promote developmental pathways such as somatic embryogenesis. It functions in developmental processes such as seed and bud dormancy, stomatal closure, inhibition of cell division, and organ size. It is important in plants facing environmental stresses such as drought, cold tolerance, soil salinity and heat stress. Abscisic acid-mediated signaling also plays a role in response to plant pathogens.

Product Name	Cat. No.
(+/-)-Abscisic Acid, PhytoPure™	02190673
(+)-Abscisic Acid, PhytoPure™	02183968

PhytoPure™ Ethylene

As ethylene is a gas, it is difficult to handle, store and administer to plants, yet it is one of the important growth regulators available. Ethylene is commonly used to control fruit ripening, abscission and flower induction, especially for crops like cotton, pineapples, and many other fruits and vegetables.

Ethephon is actually 2-chloroethylphosphonic acid, which is a stable, moderately toxic molecule. When administered to plants, it is metabolized and converted into ethylene, and then functions as a plant growth regulator. Ethephon is an excellent option for improving plant structure, preventing early flowering and controlling excessive plant growth. We offer Ethephon as a dry powder reagent and a premixed solution.

Product Name	Cat. No.
Ethephon, PhytoPure™	02183969
Ethephon Solution 21.7%	02183970

Additional Plant Growth Regulator Reagents

In addition to the five main types of plant growth regulators, there are numerous additional reagents that have varying effects on plant growth. Listed below are some additional reagents from our extensive showcase that have found application in many areas of plant science research.

Product Name	Cat. No.
Benzoic acid	02100908
Cadaverine	02101181
Choline Chloride	02101386
Colchicine	02101406
Maleic Hydrazide	02102229
Niacinamide	02102447
Nicotinic Acid	02102446
Phloroglucinol	02183961
Putrescine	02100441
Spermidine HCl	02100472

Antibiotics

Antibiotics may be used in plant cell culture for two different purposes. First, they can be added to the culture media to maintain sterility. Microorganisms that may infect plant cell cultures can rapidly deplete the medium of nutrients required by the plant cells for rooting and growth. Inclusion of antibiotics in the culture media can prevent and treat microbial contamination. It is recommended to use the minimum inhibitory concentration (MIC) of antibiotics that are effective for controlling bacteria, as the antibiotics themselves may be phytotoxic, restrict rooting and multiplication, and retard general growth in some plant cultures.

Another use for antibiotics in plant culture is to select cells that have been stably transformed by an antibiotic-resistance gene. By including antibiotic-resistance in the construct, only successfully transformed cells can grow in media containing that antibiotic. Our PhytoPure™ brand of MP antibiotics provides the finest quality antibiotics, specifically for plant cell culture applications, among more than 200 antibiotics in our product showcase.

Product Name	Cat. No.
Amikacin, PhytoPure™	02150342
Bacitracin, PhytoPure™	02180934
Blasticidin S Hydrochloride, PhytoPure™	02150477
Carbenicillin Disodium Salt, PhytoPure™	02195092
Cefotaxime Sodium Salt, PhytoPure™	02154947
Chloramphenicol, PhytoPure™	02190321
Ciprofloxacin Hydrochloride, PhytoPure™	02180935
Fosmidomycin Sodium Salt, PhytoPure™	02180936
G418 Disulfate, PhytoPure™	02180937
Gentamycin Sulfate, PhytoPure™	02194530
Hygromycin B, PhytoPure™	02194170
Kanamycin Monosulfate, PhytoPure™	02194531
Neomycin Sulfate, PhytoPure™	02194533
Nystatin, PhytoPure™	02194534
Oxacillin Sodium Salt, PhytoPure™	02180940
Paromomycin Sulfate, PhytoPure™	02194535
Penicillin G Sodium Salt, U.S.P., PhytoPure™	02194537
Puromycin Dihydrochloride, PhytoPure™	02194539
Rifampin, PhytoPure™	02195490
Sisomicin Sulfate, PhytoPure™	02156626
Spectinomycin Dihydrochloride Pentahydrate, PhytoPure™	02194540
Streptomycin Sulfate, PhytoPure™	02194541
Vancomycin Hydrochloride, PhytoPure™	02195540

Gelling Agents

Plant tissue culture media can be used in either liquid or 'solid' forms, depending on the type of culture being grown. Agar, produced from seaweed, is the most common type of gelling agent and is ideal for routine applications. For more demanding applications, a range of purer gelling agents are available.

Product Name	Pack Size	Cat. No.
Agar (Bacteriological Grade)	250 g	0215017883
	500 g	0215017890
Alginic Acid Sodium Salts	250 g	0215472483
	500 g	0215472490
Gellan Gum Powder	100 g	02180106.1

Labware

PlantCon™ Starter Kits - Ready-to-use for Plant Cultures

Plant researchers often have a need for growing new plants in a controlled environment. PlantCon™ containers from MP Bio can reduce the time spent preparing an in vitro growth environment for plant cultures and can help minimize the risk of contamination. No glass tubes, jars or other glass breakages.

The design of the cover and base ensures optimal light transmission and a perfect fit to prevent contamination during plant cultures. Moreover, the vented cover can be snapped on tight for long-term culture, or loosely fitted during acclimation to external conditions prior to transplantation.

- Specifically designed for plant cell culture
- Scientifically engineered for optimal growth
- Exceptional light transmission
- Clear, unbreakable PVC plastic
- Sterilized by ethylene oxide gas treatment
- Convenient and stackable to save on space
- Tops and bottoms are available separately
- Used with liquid or agar-solidified media

Product Name	Pack Size	Cat. No.
PlantCon™ System, sterile	10 per case	092672202
	50 per case	092672204
	200 per case	092672206
PlantCon™ Base, sterile	10 per pack	092672002
PlantCon™ Cover, sterile	10 per pack	092672102

PlantCon™ containers can be used in the following applications:

- Aseptic germination of seeds or spores.
- Stage I - production of clean explant for multiplication of callus formation
- Stage II - multiplication of plants through enhanced axillary branching, adventitious buds, embryoids or callus
- Stage III - pre-transplant rooting and hardening of plantlets for transfer to soil
- As a shipping container for pre-transplant plantlets

7X™ Ready-to-use Detergent

Does your detergent leave 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, ensuring that high degree of cleanliness necessary in any lab.

- Effective, water-soluble and eco-friendly cleaning solutions
- Does not etch to glass or plastic labware
- Nontoxic for tissue and cell cultures
- Eliminates interfering fluorescence residues for flow cytometry
- No need for pH adjustment
- Easy and safe to use, no gloves required
- Concentrated – 1 gallon can make up to 100 gallons of cleaning solution

Product Name	Pack 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

Kits and Tools

Plant Surface Sterilization Kit

The Plant Surface Sterilization Kit is designed to sterilize seeds for germination and plant tissues for callus induction. Based on classical bleach/ethanol washing, the two solutions in this kit preserve plant tissue characteristics for successful growth while providing surface sterilization to remove contaminating mircoorganisms prior to in vitro incubation using sterile growth medium.

Product Name	Pack Size	Cat. No.
Plant Surface Sterilization Kit	50 preps	115100200

Agrobacterium Transformation Kit - Transform DNA into Agrobacterium with minimal hands-on-time

The Agrobacterium Transformation Kit provides a single transformation solution with which *A. rhizogenes* or *A. tumefaciens* can be transformed with plasmid DNA using either a freeze/thaw or electroporation method.

- Easy transformation procedure taking less than 45 minutes
- Transform DNA into Agrobacterium cells in three basic steps:
    1. Culture of agrobacteria in liquid medium
    2. Transformation using a freeze/thaw method or via electroporation
    3. Plating of transformed cells onto selective agar plates
- Optimized agrobacterium medium and medium with agar included in the kit for maximum convenience

Product Name	Pack Size	Cat. No.
Agrobacterium Transformation Kit	25 preps	113301100

Disruption: Prepare Your Material for Extraction

Because plant samples can be very fibrous and contain high levels of polyphenolic compounds, polysaccharides and RNases, a dedicated sample preparation method is required to obtain high quality DNA, RNA and protein. The FastPrep® System ensures a thorough disruption of plant cell membranes and refractive cellulose cell walls in seconds.

Mechanical lysis

FastPrep® Systems

A critical step during your plant research study is the disruption phase, as samples need to be homogenized in the most effective way for your downstream applications.

- Thorough disruption of plant cell membranes and refractive cellulose cell walls in seconds
- Ready-to-use DNA and RNA for PCR, real-time PCR and RT-PCR as well as RFLP, RAPD and AFLP analysis
- Total removal of polysaccharides, polyphenols and other metabolites that can inhibit downstream applications
- Excellent reproducibility for optimum assay-to-assay consistency
- Multiple instrument options available for low to high-throughput applications

FastPrep-24™ 5G
Often imitated. Never duplicated.

FastPrep-24™ Classic
Thorough disruption in seconds

FastPrep-96™
High throughput sample grinding

Super FastPrep-2™
Portable field testing

REQUEST A DEMO
www.mpbio.com

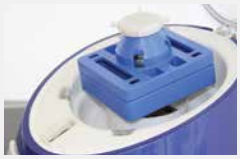
FastPrep® Sample Holders and Adapters

Need more flexibility? Jump easily from one adapter to another! We know that your samples may require specific lysis conditions and that workloads and sample types can vary. Therefore, we have developed several interchangeable adapters to be used with FastPrep® instruments. Our sample holders allow for sample sizes ranging from 2 to 250 mL tube sizes and are built for durability in ambient and cryogenic conditions.

Ambient Temperature Sample Holders for FastPrep-24 and FastPrep-24 5G Instruments

QuickPrep™ Sample Holder
24 x 2 mL tubes
(included with FastPrep-24™ instrument)
Cat. No. 116002512

QuickPrep™ 3 Sample Holder
24 x 2 mL tubes
(included with FastPrep-24™ 5G instrument)
Cat. No. 116005512



BigPrep™ Sample Holder
2 x 50 mL tubes

Cat. No. 116002525

TeenPrep™ Sample Holder
12 x 15 mL tubes

Cat. No. 116002526

HiPrep™ Sample Holder
48 x 2 mL tubes

Cat. No. 116002527

TallPrep™ Sample Holder
24 x 4.5 mL tubes

Cat. No. 116002540

Cryogenic Temperature Sample Holders for FastPrep-24 and FastPrep-24 5G Instruments

During mechanical lysis, the temperature within the tube can increase and can cause damage to the molecules in your sample. Cryogenic sample holders can be used to overcome these limitations.

- **Protects thermosensitive molecules from heat degradation due to an innovative design encompassing a cooling chamber.**
- **Prevents the increase of sample temperature during the homogenization process by maintaining sample temperature at 4°C.**
- **Ensures a highly effective grinding process of any sample, even the most elastic, by making them brittle.**

CoolPrep™ Sample Holder
24 x 2 mL tubes

Cat. No. 116002528

CoolTeenPrep™ Sample Holder
6 x 15 mL tubes

Cat. No. 116002530

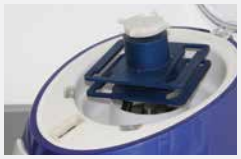
CoolBigPrep™ Sample Holder
2 x 50 mL tubes

Cat. No. 116002531

Disruption: Prepare Your Material for Extraction

Metal Sample Holders for FastPrep-24 and FastPrep-24 5G Instruments

All-Metal sample holders are ideally suited for work with highly infectious, pathogenic, or other biologically hazardous samples. They withstand temperatures up to 450°C, allowing for sterilization by pyrolysis or autoclaving. Pathogens, including bacteria, viruses, fungi, parasites, viroids, and prions, can be effectively eliminated. All-Metal sample holders are also safe to use with most laboratory detergents and sterilization solutions, ensuring easy care and maintenance.

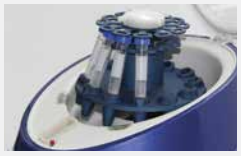


Metal BigPrep™ Sample Holder
2 x 50 mL tubes

Cat. No. 116002547

Metal QuickPrep™ Sample Holder
24 x 2 mL tubes

Cat. No. 116002545



Metal TeenPrep™ Sample Holder
12 x 15 mL tubes

Cat. No. 116002546

FastPrep-96 Sample Holders

FastPrep-96 offers the widest variety of sample holders (2 x 96 deep well plates, 96 x 2 mL, 48 x 4.5 mL, 24 x 15 mL, 8 x 50 mL and 2 x 250 mL flasks) and a simple, accurate, closed loop control of lysing power and speed. All this and more make the FastPrep-96 the perfect solution for all of your high volume sample preparation needs.

BigFlex™ Sample Holder
8 x 50 mL tubes

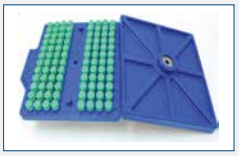
Cat. No. 116010550

TeenFlex™ Sample Holder
24 x 15 mL tubes

Cat. No. 116010560

TallFlex™ Sample Holder
48 x 4.5 mL tubes

Cat. No. 116010580



QuickFlex™ Sample Holder
96 x 2 mL tubes

Cat. No. 116010570

LargeFlex™ Sample Holder
2 x 250 mL tube

Cat. No. 116010590

Well Plate Adapter
2 x 96 deep well plates
(included with FastPrep-96™ instrument)
Cat. No. 119696168

ConeFlex™ Legacy Sample Holder

ConeFlex™ Legacy Sample Holder allows any existing FastPrep-24 Sample Holders to be used on the FastPrep-96 instrument.

ConeFlex™ Sample Holder
Adapter

Cat. No. 116010595

FastPrep® Lysing Matrix

Experience unmatched versatility for any plant sample. To get the best out of the usage of FastPrep® instruments for your plant disruption step, we identified 4 different Lysing Matrix tubes that will deliver the best results.

Lysing Matrix	Bead Content	Sample Type	Extraction
A	Garnet matrix and 1/4 inch (6.35 mm) ceramic spheres	Bacteria, yeast, fungi, plant	DNA, Proteins
D	1.4 mm ceramic sphere	Plant	DNA, RNA, Proteins
M	1/4 inch (6.35 mm) ceramic spheres	Plant	Virus isolation from tissue, organelle, mitochondria
SS	1/4 inch (6.35 mm) stainless-steel grinding balls	Tough tissues: seeds, spores	DNA, RNA, Proteins

Lysing Matrix tubes are available in 2 mL, 4.5 mL, 15 mL and 50 mL as well as 96 well plates.

Metal Lysing Matrix

MP Bio's Stainless Steel Lysing Matrix tubes are ideal for grinding, lysing and homogenizing your most resistant samples. Metal Lysing Matrix are well suited for grinding environmental and agricultural samples such as seeds (dried corn, soybeans, wheat, tomato, chile, etc.), wood, bark and roots.

Our tubes are machined from premium grade billet and deliver superior strength over less expensive production methods. An oblique angle conical bottom provides a better impact surface than the rounded bottoms of deep-drawn tubes. The stainless steel threaded cap provides a leak-proof closure without the energy-robbing alternatives like plastic flange screw caps or rubber stoppers, while a Teflon O-ring prevents leakage. Two different impactors are available: a single Stainless Steel Ball, ¼" diameter; a Stainless Steel Cylinder, ¼" diameter x ½" length.

Product Name	Pack Size	Cat. No.
Metal Lysing tube, 2 mL, w/ Grinding Ball	2 Each	116991002
	3 Each	116991003
	6 Each	116991006
Metal Lysing tube, 2 mL, w/ Grinding Cylinder	2 Each	116992002
	3 Each	116992003
	6 Each	116992006
Replacement O-rings for Metal Lysing Tube, 2 mL	50 Each	116990100

Enzymatic lysis

For the preparation of protoplasts

Plant protoplasts are plant cells which have had their cell wall removed, usually by digestion with enzymes like 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 subsequent 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 japonicas*, containing both endo-polygalacturonases and endo-pectin lyases in high activity in addition to a maceration stimulating factor. It has found wide use and acceptance in the scientific literature. MP Bio supplies purified pectolyase Y-23 with activity greater 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.

Product Name	Pack Size	Cat. No.
CELLULASE from *Trichoderma virde*	1 g	0215233701
	5 g	0215233705
Cellulase Y-C	10 g	08320961
PECTINASE from Rhizopus sp.	10 KU	0215180310
Pectolyase Y-23	1 g	08320971
Pectolyase Y-23	10 g	08320972

Natural Method for Allergen Identification using FastPrep-24™ 5G Technology.

Pollen

CASE STUDY

Andrea Brazdova, Oumsaad Naas, Nicolas Visez, Jean-Pierre Sutra, Hélène Sénéchal et Pascal Poncet

Hôpital d'Enfants Armand Trousseau, Laboratoire de Biochimie, Equipe «Allergie & Environnement», 26 avenue du Dr Arnold Netter, 75012 - Paris. Université de Lille, Laboratoire de Physico-chimie des

Processus de Combustion et de l'Atmosphère, Lille. Institut Pasteur, département Infection & Epidémiologie, Paris. 2015

Overview

- **Keyword:** Allergen, IgE immunoreactivity, pollen homogenization, hypersensitivity community, DNA extraction
- **Aim of the study:** Identification of a fast method for protein extraction from pollen grains
- **Application:** Western blot analysis
- **Sample name:** Birch, Nettle, Wall Pellitory pollens
- **Sample type:** Pollen
- **Material:** FastPrep-24™ 5G instrument, CoolPrep adapter, 2 mL Lysing Matrix C & E tubes
- **Buffer:** PBS

Protocol and Parameters

Incubation Method

1. Add 50 mg of pollen and 500 µL of PBS in a tube
2. Place the tube in a shaker for 18 hours in cold room
3. Centrifuge the suspension 20 mins at 18,000 x g, 4°C
4. Keep the supernatant at -20°C prior to analysis

Grinding Method

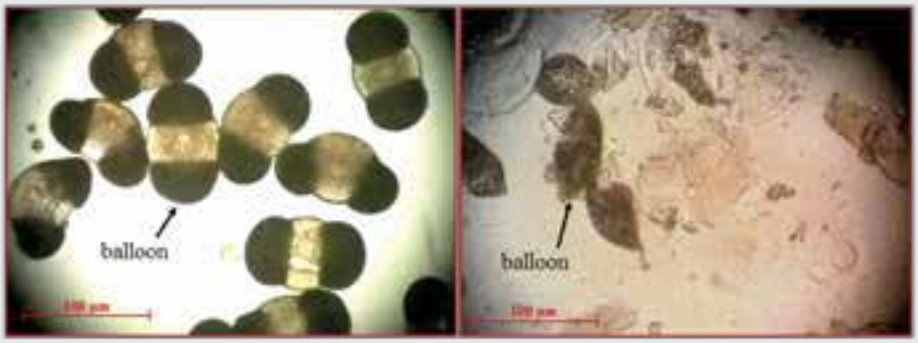
1. Add 50 mg of pollen and 500 µL of PBS to a 2 mL Lysing Matrix C or E tube.
2. Load Lysing Matrix tubes in a CoolPrep Adapter containing dry ice.
3. Process with the FastPrep-24 5G: 40 sec at a speed setting of 6.0 m/s.
4. Centrifuge the Lysing Matrix tubes 20 mins at 18,000 x g, 4°C to pellet debris.
5. Keep the supernatant at -20°C prior to analysis

CASE STUDY

Conclusion

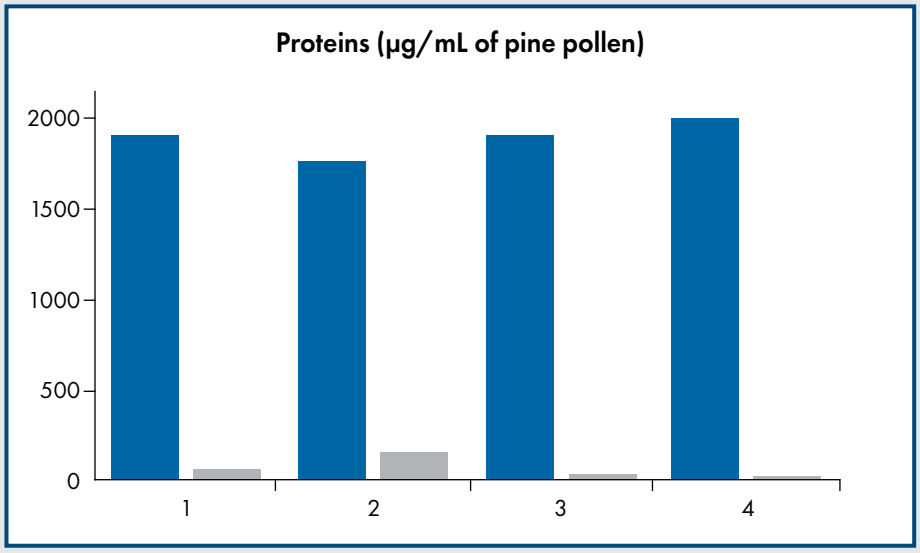
Protein extraction from pollen samples with the FastPrep-24™ 5G showed to be highly effective compared to the standard method based on overnight incubation. The effectiveness of the FastPrep method is quantitative, resulting in higher protein yields, as well as qualitative, as evidenced by a wide variety composition of protein extracts. The FastPrep system is a powerful tool to rapidly generate protein extracts with high reproducibility, ready for electrophoresis (SDS-PAGE) analysis. IgE immunoreactivity is conserved in protein extracted with the FastPrep-24™ 5G instrument.

Total destruction of the pollen grain structure with FastPrep-24™ 5G instrument and Lysing Matrix C



Optical microscope observation of pine pollen (x200) before (left) and after grinding (right) with the FastPrep-24™ 5G System.

Up to 2 mg/mL of protein extracted with FastPrep-24™ 5G System



Comparison of 8 pine pollen protein extracts obtained by standard or FastPrep method. Experimenst were repeated 4 times using 4 different pollen batches. Protein concentration was determined using Bradford assay.

FastPrep-24™

Incubation/Rotation

LEARN MORE!
www.mpbio.com

Extraction & Purification: High Quality Yields

FastDNA and FastRNA kits used in combination with the FastPrep homogenizer isolate ready-to-use DNA and RNA for PCR, real-time PCR and RT-PCR as well as RFLP, RAPD and AFLP analysis and ensure total removal of polysaccharides, polyphenols and other metabolites. Purification of glycoproteins is made easy with FastGlycoProtein kits. The MPure-12 automated platform allows rapid purification of nucleic acids from a wide variety of plant samples (seeds, roots, leaves, and many more) using magnetic bead separation technology.

DNA Extraction

FastDNA™ SPIN Kit – 116540600

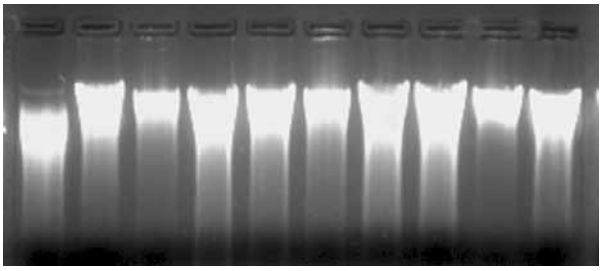
Rapid method of isolating pure genomic DNA from a wide variety of sources.

The FastDNA™ SPIN kit quickly and efficiently isolates genomic DNA from almost any sample (plant and animal tissues, cultured cells, bacteria, yeast, fungi, insects, etc.). Up to 200 mg of tissue or cells are processed using our FastPrep instruments with Lysing Matrix A tubes. The kit includes 3 different chaotropic buffers for the homogenization of a wide variety of sample types. The released DNA is purified by a silica-based spin filter method. Purified DNA is ready for enzyme digestion, electrophoresis, PCR and any other desired application.

FastDNA™ SPIN Kit for Soil – 116560200

Cited in over 6,000 scientific publications, the FastDNA™ SPIN Kit for Soil delivers the highest DNA yield from any environmental sample including soil, sediments, sludge, compost, manure, rhizosphere or wastewater. Soil is processed by a FastPrep instrument and Lysing Matrix E tubes designed to efficiently lyse all microorganisms to isolate bacterial, fungal, plant, and animal genomic DNA. The released DNA is purified by a silica-based spin filter method in a process that removes humic acids and other PCR inhibitors and is suitable for PCR analysis and other downstream applications.

- **Isolate bacterial, fungal, plant, and animal genomic DNA from soil and environmental samples**
- **Lyse difficult cells such as eubacterial spores, endospores, gram (+/-) bacteria, and yeast**
- **Process up to 500 mg of soil with FastPrep instruments**
- **Lysing Matrix E tubes, buffers, and silica-based spin filters included**



DNA from various soil samples extracted with the FastDNA SPIN Kit for Soil. 20% of the DNA isolated from 500 mg soil was loaded on a 1.2% agarose gel (0.5X TAE). Soil was taken from:
Lane 1: tomato pot; Lane 2 : sludge
Lane 3 : sandy soil; Lane 4 : under pine tree
Lane 5 : under palm tree; Lane 6 : green garden
Lane 7 : Nile Lilly pot; Lane 8 : lawn grass
Lane 9 : citrus tree; Lane 10 : avocado tree.
DNA ranges from 4-20 kb.

FastDNA™ SPIN Kit for Plant and Animal Tissue – 116540800

The FastDNA™ SPIN Kit for Plant and Animal Tissues quickly and efficiently isolates high quality genomic DNA from plant and animal tissues using Lysing Matrix D (1.4 mm ceramic beads) for cell lysis and a silica-based spin filter method for the purification process.

- **Isolate genomic DNA from plant and animal tissues**
- **Lysing Matrix D, buffers, and silica-based spin filters included**

Extraction & Purification: High Quality Yields

RapidPURE™ DNA Plant Kit – 112712050

The RapidPURE™ DNA Plant Kit is designed to isolate and purify total DNA from fresh, frozen or lyophilized plant material (such as leaves, roots, fruits or seeds), as well as from a wide variety of food samples from plant origin (fresh, frozen or dried material). The RapidPURE™ DNA Plant Kit is the ideal tool for a rapid and efficient isolation of high-quality genomic DNA from up to 100 mg plant material.

- **Isolate and purify total DNA from fresh, frozen or lyophilized plant material**

FastDNA™-96 Soil Microbe DNA Kit – 119696200

The FastDNA™-96 Soil Microbe DNA Kit quickly and efficiently isolates humic-free, PCR-ready genomic DNA from soil samples in approximately 50 minutes. Gram (+/-) bacteria, fungi, plant and animal tissues, algae, spores and many other members of a soil population including clay, sandy, silty, peaty, chalky, and loamy soils, are efficiently lysed in approximately 60 seconds with the FastPrep-96™ Instrument.

- **Isolate genomic DNA from gram (+/-) bacteria, fungi, plant and animal tissue, algae, spores, and other soil components in approximately 50 minutes**

FastDNA™-96 Plant and Seed DNA Kit – 119696600

The FastDNA™-96 Plant and Seed DNA Kit is designed for the simple and rapid isolation of PCR-quality DNA from vegetative samples in approximately 50 minutes. Plant samples including stems, roots, leaves, buds, flowers, fruits and seeds are efficiently lysed in approximately 60 seconds with the FastPrep-96™ Instrument. Up to 80 mg samples are placed into each 1.2 mL tube of a FastDNA-96™ Lysing Matrix Rack (96-deep well plate) containing 2.0 mm specially stabilized Zirconium oxide lysing particles, which are designed to efficiently lyse a wide variety of plant specimens, while in the presence of a specially formulated lysis solution. Purified DNA is ready for downstream applications including digestion, electrophoresis, arrays and PCR. This procedure can be performed in minutes, and there is no need for organic denaturants or proteinases.

- **Isolate genomic DNA from stems, roots, leaves, buds, flowers, fruits, seeds and other plant samples in approximately 50 minutes**

MPure-12™ – Automated Nucleic Acid Purification Platform

The MPure-12™ allows rapid purification of nucleic acids from a wide variety of plant samples (seeds, roots, leaves, and many more) using magnetic bead separation technology. Combined with a uniquely designed magnetic bead processing chamber, the fully integrated and easy-to-use pre-packaged reagent kits offer superior yields of nucleic acids and high-quality results at an affordable price.

- **Fully automated and integrated platform that offers cost and time savings**
- **Reproducibility, lot-to-lot consistency, scalability, ease-of-use and convenience**
- **Highest quality and yield of DNA & RNA for downstream applications**
- **Platform design allows for running 1 to 12 samples without cross-contamination**
- **Integrated UV decontamination**

Product Name	Pack Size	Cat. No.
MPure-12™ Platform	1 each	117002200
MPure-12™ Plant DNA Extraction Kit	48 preps	117022150

Skim Milk Drastically Improves the Efficacy of DNA Extraction from Andisol, a Volcanic Ash Soil

Soil

CASE STUDY

Takada-Hoshino Y. ; Matsumoto N.

Skim milk drastically improves the efficacy of DNA extraction from Andisol, a volcanic ash soil.

Japan Agricultural Research Quarterly **2005**, 39, 247- 252

Introduction

The challenge with extractions from soil is isolating DNA or RNA without contamination by humic acids or other PCR inhibitors. Effective, efficient sample preparation is critical for succcessful downstream results. DNA extraction from Andisol, a volcanic ash soil, is known to be very difficult because this soil has a complex matrix, including allophane as a clay mineral. Soil properties such as high clay content contribute to high adsorption of DNA to soil particles.

Overview

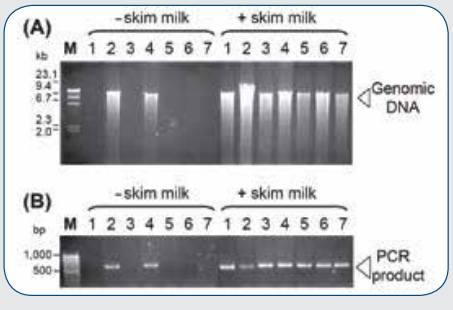
- Keyword: Environmental DNA, microbial community analysis, molecular methods, unculturable microorganisms.
- Aim of the study: Improvement of DNA extraction from volcanic ash soil
- Application: PCR
- Sample name: Andisol
- Sample type: Volcanic ash soil
- Material: FastPrep-24™ instrument, FastDNA™ SPIN Kit for Soil, skim milk (carrier minimizing adsorption of nucleic acids to soil)

Protocol and Parameters

1. Add the soil sample together with or without 40 mg skim milk per gram of soil to a Lysing Matrix E tube.
2. Add 978 µL sodium phosphate buffer to the sample in the Lysing Matrix E tube.
3. Add 122 µL MT Buffer.
4. Homogenize in a FastPrep instrument for 40 seconds at a speed setting of 6.0.
5. Centrifuge at 14,000 x g for 5-10 minutes to pellet debris.
6. Follow the FastDNA™ SPIN Kit for Soil protocol for DNA purification from the homogenate.

Conclusion

DNA could successfully be extracted from Andisol soil samples with the FastDNA SPIN Kit for Soil and the addition of 40 mg of skim milk per gram of soil sample. PCR products of the expected size were amplified from all extracts with skim milk. Resultant extracts were suitable for PCR and no other purification procedures were needed.



RNA Extraction

FastRNA™ Pro Soil-Direct Kit – 116070050

- Extract nucleic acids from microorganisms and other biological samples, directly from soil

FastRNA™ Pro Soil-Indirect Kit – 116075050

- Prior to extraction of nucleic acids, separate microorganisms and other biological samples from the soil
- Permit soil incubation with growth media to amplify under-represented living organisms

The FastRNA™ Pro Soil-Direct and Indirect kits are designed to efficiently isolate total RNA from organic material found in soil samples or soil supernatants. The direct method consists of extracting nucleic acid from microorganisms and other biological specimens directly from soil. The indirect method utilizes an initial separation of microorganisms and other biological specimens from the soil followed by lysis of the organisms and RNA purification. This method also permits soil incubation with growth media to amplify under-represented living organisms prior to RNA isolation when specific comparisons of microbial diversity are not desired. FastRNA Pro Soil kits purify RNA in a process that removes humic substances and other inhibitors, and efficiently inactivates cellular RNases during homogenization to prevent RNA degradation. Purified RNA is thus suitable for RT-PCR analysis and other downstream applications.

FastRNA™ Pro Green Kit – 116045050

The FastRNA™ Pro Green Kit is designed to isolate total RNA from any type of plant and animal tissue or cultured cells. Using FastPrep instruments, between 50-500 mg of tissue can be homogenized by Lysing Matrix D in impact-resistant 2 mL tubes. Total RNA is released into the proprietary, protective RNApro™ Solution, followed by extraction with chloroform and precipitation. High quality RNA is ready for all downstream applications including RT-PCR, gene expression, and microarray analysis.

- Isolate total RNA from plant, animal, and cultured cells

RapidPURE™ RNA Plant Kit – 112722050

The RapidPURE™ RNA Plant Kit is designed to isolate and purify high quality total RNA from plant cells, plant tissues and filamentous fungi in a spin filter format. Special buffer conditions guarantee an efficient lysis of the starting material and a simultaneous inactivation of endogenous RNases.

- Isolate and purify high quality total RNA from plant cells, plant tissues and filamentous fungi in a spin filter format

Protein Extraction

FastGlycoProtein™ Isolation Kit ConA Resin – 116550800

- Utilize the lectin concanavalin A (ConA) immobilized on agarose

FastGlycoProtein™ Isolation Kit WGA Resin – 116550900

- Utilize the lectin wheat germ agglutinin (WGA) immobilized on agarose

FastGlycoProtein™ Isolation Kits are designed to quickly and efficiently isolate glycoproteins from complex protein mixtures, including animal and plant tissues, cultured cells, serum, microbes, and insects. The optimized Lysing Matrix A, coupled with any FastPrep instrument, quickly lyses most tissue samples in 40 seconds or less. Following lysis, samples are loaded into the SPIN filter tubes where the resin is washed and the glycoproteins are eluted with elution buffer. Eluted glycoproteins are ready for 1-D gel electrophoresis and total protein (Bradford type) assays.

NEW

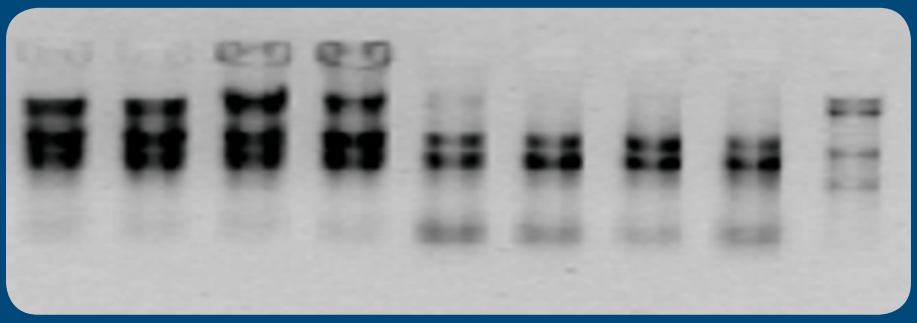
FastRNA *Win* for Plant Kit

Cat. No. 116080050
50 Preps

Easy and quick isolation of total RNA from a wide variety of plant samples

- Rapid, thorough and reproducible sample lysis with the FastPrep Instrument
- Selective removal of DNA by binding to a carrier material during the lysis step
- Highly purified RNA for better RT-PCR results
- No phenol/chloroform
- Protocol included for simultaneous isolation of proteins

The FastRNA *Win* for Plant Kit is designed to isolate and purify high quality total RNA from plant cells and tissues. The use of the FastPrep instrument combined with unique lysis buffers guarantees an efficient lysis of the starting material and a simultaneous inactivation of endogenous RNases. Genomic DNA is separated from the total RNA by binding to specially optimized mineral carrier particles included in the lysis buffer. The RNA is then mixed with ethanol and transferred to the RNA binding membrane. Total RNA then binds, contaminants are washed away, and the pure RNA is eluted.



High-quality total RNA from tomato leaves (lane1-4) and wheat leaves (lane 5-8)

Cellular total RNA was isolated from tomato and wheat leaves using the FastRNA *Win* for Plant Kit. RNA was separated on a denaturating agarose gel.

Total RNA isolated with the FastRNA *Win* for Plant Kit is highly pure and ready to use for a broad range of downstream applications:

- Northern Blot
- RNA dot blots
- In vitro translation
- RT-PCR
- ddRT-PCR
- cDNA-libraries
- TaqMan® analysis and array technologies

Fast screening of Tobacco leaves for recombinant protein expression.

Tobacco Leaves

CASE STUDY

Dr. Loïc Faye, ANGANY Genetics, France.

Overview

- **Keywords:** Protein expression, plant screening, recombinant protein
- **Aim of the study:** Selection of the best producers of a recombinant protein used for allergic patients desensitization
- **Application:** Western Blot analysis
- **Sample name:** Leaves
- **Material:** FastPrep-24™ homogenizer, 2 mL Lysing Matrix D tubes containing 1.4 mm ceramic spheres
- **Buffer:** Laemmli denaturing sample buffer containing 60 mM Tris-Cl pH 6.8, 1% SDS, 10% glycerol, 2% beta-mercaptoethanol

Protocol and Parameters

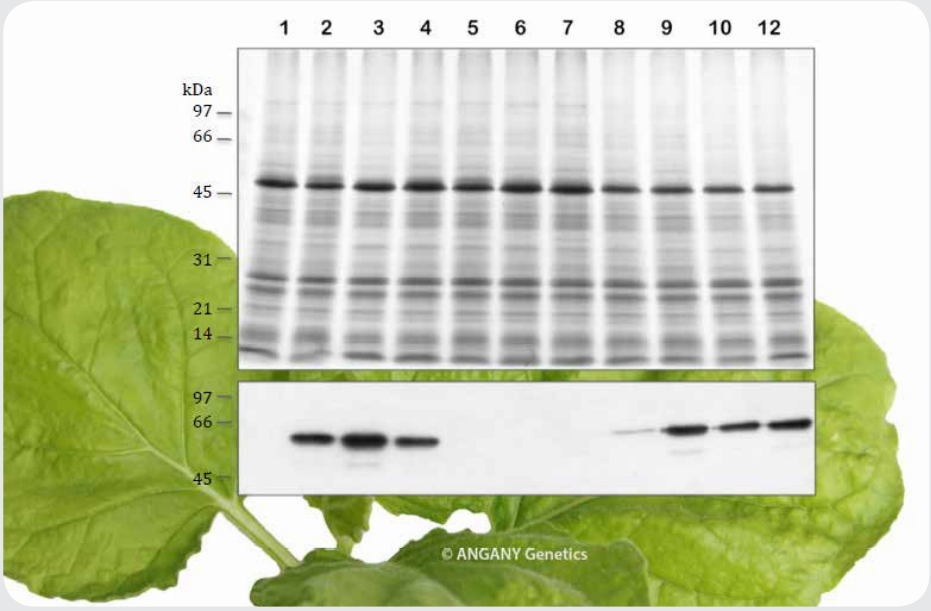
1. Snap one tobacco leaf disc (10 mg) in a Lysing Matrix D tube
2. Add 200 µL of denaturing buffer to the Lysing Matrix D tube
3. Homogenize the plant tissue with the FastPrep-24™ instrument for 60 seconds at a speed setting of 4.0 m/s
4. Transfer supernatant from the Lysing Matrix D tube into an Eppendorf tube
5. Boil each sample for 5 min and then centrifuge 1 min at 12,000 rpm to pellet the cellular debris
6. Load 15 µL of each supernatant in a 15% polyacrylamide gel for protein separation by electrophoresis

After SDS-PAGE proteins are either stained in the gel or transferred on a membrane for Western Blot analysis.

CASE STUDY

Results

Screening for expression of a recombinant allergen from house dust mite in tobacco plants using the FastPrep® instrument for sample preparation.



Each lane in the upper panel shows the protein pattern (SDS-PAGE) obtained for one leaf disc cut out from 12 different tobacco plants used for transient expression of the recombinant allergen. The lower panel is a Western Blot used for identification of the best allergen producers.

The same samples were used in the upper and lower panels. This procedure is part of the Allergo- Pur™ production platform developed in ANGANY Genetics, France.

Conclusion

- The FastPrep® system is a powerful tool to rapidly obtain protein extracts with high reproducibility, ready for electrophoresis (SDS-PAGE) and Western Blot analysis.
- The FastPrep-24™ has also been successfully used for protein extraction from other plants (Arabidopsis, lettuce etc...) in the same conditions using less than 15 mg of plant material for sample preparation.
- Similar experiments have been performed for protein extraction in non-denaturing conditions using ice cold buffer (100 mM Tris buffer, pH 7.4 containing 10% sucrose, 5 mM EDTA, 0.28% b-mercaptoethanol, 5 mL PMSF and 0.3 mL aprotinin) and plant samples stored at -70°C in Lysing Matrix D tubes before extraction.
- The process is then scaled-up by using the BigPrep™ adapter for homogenization in 2 x 50 mL tubes. Two large protein samples are prepared simultaneously from 1-2 g of plant tissues in 50 mL Lysing Matrix D tubes.

Amplification: Achieve Consistent PCR Results

PCR Enzymes and Mastermixes

MP Bio is an established manufacturer of PCR polymerases for over 20 years. Obtain reproducible and consistent PCR results with thermostable and high-quality PCR enzymes and mastermixes covering requirements for general PCR, hot-start, high-fidelity, multiplex PCR and real-time PCR. For superior RT-PCR results, MP Bio offers the cDNA Synthesis & Go kit engineered to provide high performance even with challenging RNA samples. Our complete line of real-time PCR reagents are developed for fast, highly sensitive, and reproducible amplification on all qPCR platforms.

Category	Product Name	Cat. No.
Routine PCR	Taq DNA Pol (5 U/µL)	11EPTQA025
	Taq & GO Mastermix	11EPTAG100
	Taq & LOAD Mastermix	11EPTAL100
High-Fidelity PCR	ISIS DNA Polymerase	11EPSIS100
Hot-Start PCR	SurePRIME DNA Polymerase	11EPHSP025
Multiplex PCR	Q-Bio Taq Pol (5 U/µL)	11EPQBT010
qPCR	qPCR & Go SYBR® High-ROX Kit	11EBI01050
	qPCR & Go SYBR® Low-ROX Kit	11EBI02050
	qPCR & Go SYBR® No-ROX Kit	11EBI03050
	qPCR & Go Probe High-ROX Kit	11EBI04050
	qPCR & Go Probe Low-ROX Kit	11EBI05050
	qPCR & Go Probe No-ROX Kit	11EBI06050
cDNA Synthesis	cDNA Synthesis & Go Kit	11EBI00005
Reagents	dNTP mix (25 mM each)	11NTPMX250
	dNTP mix (10 mM each)	11NTPMX100
	dNTP mix (5 mM each)	11NTPMX050
	Buffer with $MgCl_2$	11EPTQBUF1

Molecular Analysis: Visualize and Qualify

Electrophoresis

MP Bio is your source for quick, economical electrophoresis products. In addition to molecular biology grade buffers and reagents, we also supply high quality agaroses for routine and rapid separation of DNA and RNA fragments. Why use MP Bio's agaroses?

- **Highest quality and purity**
- **Certified molecular biology grade**
- **High resolution gels**
- **Lack of inhibitors to restrict enzymes**
- **Efficient Southern and Northern transfers**

Product Name	Pack Size	Cat. No.
Basic Agarose Premier	500 g	11AGAF0500
Agarose Standard Low EEO	500 g	11AGAH0500
Agarose Low Melting Point	50 g	11AGAL0050
Agarose, High Resolution	50 g	11AGAR0050

DNA Purification from PCR Reactions and Agarose Gels

GENECLEAN® kits are a proven technology for DNA purification from PCR reactions and agarose gels. Patented GENECLEAN® technology simplifies the process of purifying DNA into three easy steps: BIND, WASH and ELUTE. Ethanol precipitation is never required.

GENECLEAN® Turbo Kits

GENECLEAN® Turbo Kits use a GENECLEAN® Turbo Cartridge system designed to simplify the purification process. This system contains a special silica embedded membrane and buffer system optimized for the purification of DNA. Benefit from the many advantages offered by these kits:

- **High column capacity** – binds up to 10 µg of DNA
- **High yields** – DNA recovery is up to 95%
- **Fast** – 12 samples are processed in 15 minutes
- **Effective** – purified DNA performs well in downstream applications
- **Complete** – kits contain all columns and solutions required

Product Name	Pack Size	Cat. No.
GENECLEAN® Turbo for PCR Kit For purification of PCR products ranging from 100 bp to 10 kb	50 preps	111103200
	100 preps	111103400
	300 preps	111103600
GENECLEAN® Turbo Kit For purification of DNA fragments from 100 bp to 300 kb from TAE or TBE buffered agarose gels or solutions	50 preps	111102200
	100 preps	111102400
	300 preps	111102600

GENECLEAN® SPIN Kit

The GENECLEAN® SPIN Kit includes a bulk slurry form of the patented silica matrix that allows for customization and flexibility with respect to the scale of purification required and spin filters whose usage prevents silica particle carry-over into cleaned DNA.

Product Name	Pack Size	Cat. No.
GENECLEAN® SPIN Kit For purification of DNA fragments from 200 bp to 300 kb from TAE or TBE buffered gels or solutions.	50 preps	111101200
	100 preps	111101400
	300 preps	111101600

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- Apoptosis
- Cell Biology
- Culture Growth Media
- FastPrep® Sample Prep
- Immunology
- Molecular Biology
- Adsorbents
- Biochemicals
- Fine Chemicals
- Labware
- Radiochemicals
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- Diagnostics
- Drugs of Abuse
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South Korea: 82.2.425.5991 | info.korea@mpbio.com
Australia: 61.2.8824.2100 | aus.cs@mpbio.com
China: 86.4000.150.0680 | mpchina@mpbio.com
India: 91.22.27636921/22/24 | info.india@mpbio.com
New Zealand: 64.9.912.2460 | nzsales@mpbio.com