



**WORLD ODISSEY**

# Molecular Biology Products



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# Molecular Biology



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- Nucleic Acid Purification & Isolation
- Nucleic Acid Electrophoresis
- PCR, RT-PCR & qPCR
- Direct-PCR
- Universal Primers
- Cloning & Ligation
- Plasmids & Vectors
- siRNA & miRNA



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# Plasmid / DNA Extraction & PCR Purification



Product	Catalog No.	Pack Size
Plasmid DNA Extraction	110001	50 preps
Endo-free Plasmid DNA Extraction	110003	50 preps
Yeast Plasmid DNA Extraction	110005	50 preps
Gel-DNA Extraction	120002	50 preps
PCR Purification	120001	50 preps

# Genomic DNA Extraction



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Product	Catalog No.	Pack Size
Bacterial DNA Extraction kit	130001	50 preps
Blood DNA Extraction kit	130002	50 preps
Gram-Positive DNA Extraction kit	130003	50 preps
Fungi DNA Extraction kit	130004	50 preps
Plant DNA Extraction kit	130005	50 preps
Soil DNA Extraction kit	130006	50 preps
Stool (Fecal) DNA Extraction kit	130007	50 preps
Cell & Tissue DNA Extraction kit	130008	50 preps
Yeast DNA Extraction kit	130009	50 preps
Universal DNA Extraction kit	130010	50 preps
Viral DNA Extraction kit	130011	50 preps
Plant DNA Extraction reagent	131001	500mL
Phenol:Chloroform:Isoamyl alcohol [25:24:1]	122001	100mL / 500mL
Chloroform:Isoamyl alcohol [24:1]	122002	100mL / 500mL

# RNA Extraction



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Product	Catalog No.	Pack Size
RNazol (Trizol)	140001	100mL
Total RNA Extraction kit	140002	50 preps
Viral RNA Extraction kit	140003	50 preps
RNase Inhibitor	140011	1000U
RNawait [RNA stabilizer]	140010	250mL
RNase Away (spray bottle)	140012	250mL

# Reagents for Nucleic Acid Purification

Product	Catalog No.	Pack Size
DNase I (with CaCl <sub>2</sub> )	50048070	15kU
DNase I (w/o CaCl <sub>2</sub> )	50048071	25mg
Lysozyme (100mg/ml)	50128120	3mL
Lysozyme (100mg/ml)	50121080	3mL
Proteinase K	50169460	100mg
Proteinase K (10mg/ml)	50161120	1mL
RNase A	50188021	25mg
RNase A (10mg/ml)	50181030	1mL
RNase H	50187900	600U

# Nucleic Acid Electrophoresis



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Product	Catalog No.	Pack Size
100bp PLUS DNA Ladder	530021	100 Loads
1kb PLUS DNA Ladder	530022	100 Loads
6x DNA Loading Buffer	530001	5mL
6x DNA Loading Buffer	530002	5mL
Red Fluorescence Stain [10,000x]	530003	5mL
SafeView Stain [10,000x]	530004	1mL
2x RNA Loading Buffer (Denatured)	530011	1mL
5x RNA Loading Buffer (Native)	530012	1mL
10x TAE Running Buffer	530101	500mL
50x TAE Running Buffer	530013	500mL
10x TBE Running Buffer	530102	500mL
Ethidium Bromide	56906752	1g
Ethidium Bromide solution	56906753	50mL

# Polymer Chain Reaction (PCR)



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Product	Catalog No.	Pack Size
Taq DNA Polymerase [5U/ $\mu$ L]	510000	1000U
Taq DNA Polymerase [10U/ $\mu$ L]	510001	1000U
2x Taq Polymerase MasterMix	510011	1mL
2x Taq Polymerase MasterMix [with blue dye]	510021	1mL
2x Taq Polymerase MasterMix [with red dye]	510031	1mL
Taq PLUS DNA Polymerase	510002	250U
2x Taq PLUS DNA MasterMix	510012	1mL
Pfu DNA Polymerase	510003	250U
2x Pfu DNA Polymerase	510013	1mL
Hot-Start DNA Polymerase	510006	100U
2x Hot-Start DNA Polymerase	510016	1mL
2x Hot-Start DNA Polymerase [with dye]	510026	1mL
dNTP Mix [10mM]	510004	1mL
dNTP Mix [100mM]	510005	4 x 250 $\mu$ L



## Direct-PCR

- Quick - DNA ready in 15 minutes
- Specificity - little or no background
- Sensitivity - work with small amount of DNA
- Convenient - pre-optimized 2x PCR master-mix
- Cost Effective - 30-40% economical than spin column kit

Product	Catalog No.	Pack Size
<b>Bacterial</b> Direct-PCR	500001	100 preps
<b>Blood</b> Direct-PCR	500002	100 preps
<b>Cell</b> Direct-PCR	500003	100 preps
<b>Plant</b> Direct-PCR	500004	100 preps
<b>Seed</b> Direct-PCR	500005	100 preps
<b>Tissue</b> Direct-PCR	500006	100 preps

# RT-PCR & qPCR



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Product	Catalog No.	Pack Size
2x SYBR-Green qPCR Mix [w/o Rox]	511000	100 rxns
2x Universal qPCR Mix [SYBR-Green]	511001	100 rxns
2x Universal qPCR Mix [Taqman Probe]	511002	100 rxns
M-MLV Reverse Transcriptase	512011	10kU
RT-Supermix [with gDNA Eraser]	512010	100 rxns
First Strand cDNA Synthesis Kit [with gDNA Eraser]	512012	50 rxn
One-Step RT-qPCR Mix [SYBR Green]	511003	100 rxns
One Step RT-qPCR Mix [Taqman Probe]	511004	100 rxns
One-Step RT-qPCR Kit [SYBR Green]	511013	100 rxns
One Step RT-qPCR Kit [Taqman Probe]	511014	100 rxns



# Universal Primers

- Universal primers are complementary to nucleotide sequences
- Binds to a wide variety of DNA templates
- Amplification of a very similar gene that related to a specific Genus
- During sequencing, primers are annealed to the denatured DNA template
- Provide an initiation site for the elongation of the new DNA molecule

Product	Catalog No.	Pack Size
1492R [10μM]	513001	250μL
27F [10μM]	513002	250μL
ITS1 [10μM]	513003	250μL
ITS2 [10μM]	513004	250μL
ITS4 [10μM]	513005	250μL
ITS5 [10μM]	513006	250μL
Oligo T16 [10μM]	513007	250μL
Random Hexamer [10μM]	513008	250μL
SP6 [10μM]	513009	250μL
T3 [10μM]	513010	250μL
T7 [10μM]	513011	250μL

# Cloning & Ligation

Product	Catalog No.	Pack Size
T4 DNA Ligase [5U/ $\mu$ L]	515000	60U
T4 DNA Ligase [400U/ $\mu$ L]	515010	8kU
T4 Polynucleotide Kinase [10U/ $\mu$ L]	515020	1kU
Rapid TA Cloning Kit	515001	20 rxns
Ampicillin [100mg/mL]	515011	10mL
IPTG [50mg/mL]	515012	5mL
Kanamycin [100mg/mL]	515013	5mL
X-Gal [20mg/mL]	515014	5mL

# Plasmids & Vectors

Product	Catalog No.	Pack Size
pUC18 plasmid	514001	20 $\mu$ g
pUC19 plasmid	514002	20 $\mu$ g
PBR322 plasmid	514003	20 $\mu$ g
pET-28a (+) plasmid	514004	20 $\mu$ g
pET-30a (+) plasmid	514005	20 $\mu$ g
pET-32a (+) plasmid	514006	10 $\mu$ g
pSET4S Suicide Gene Knockout	514007	20 $\mu$ g
pEGFP-N1 Mammalian Expression Vector	514013	20 $\mu$ L
pEGFP-N2 Mammalian Expression Vector	514014	20 $\mu$ L
pEGFP-N3 Mammalian Expression Vector	514015	20 $\mu$ L



# siRNA & miRNA

**siRNA** refers to small interfering or short interfering RNA. siRNA Gene Silencers are pools of three target specific 19-25 nucleotide-long double stranded RNA molecules with 2-nt 3' overhangs on each end. The siRNA Gene Silencers are provided as 3 vials of 5nmol (15nmol) in lyophilized form. Each vial contains slightly different sequences to ensure full knockout of the gene. The duplexes can be transfected individually or pooled together to achieve knockdown of the target gene, which is most commonly assessed by qPCR or western blot. Each siRNA oligo is purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex, and to ensure maximum lot-to-lot consistency. Each lot is monitored base by base through trityl analysis to ensure appropriate coupling efficiency.

**siRNA Negative Control** is a non-targeting 21 nucleotides sequence. It is designed to provide a baseline reference for target-specific knockdown and distinguish sequence-specific silencing from non-specific effects.

**miRNA Inhibitors** are chemically synthesized, complementary, antisense single-stranded oligonucleotides to their target, endogenous mature miRNA. It effectively prevents the target miRNA to bind to normal cellular binding sites. Transfection of inhibitors followed by downstream gene expression analysis or phenotypic analysis, is performed to elucidate the targets and roles of particular miRNAs. Each synthetic miRNA inhibitor is supplied in lyophilized form, based on the mature miRNA sequence; and it does not contain the full precursor miRNA stem-loop.

**miRNA Mimics** are chemically modified, double-stranded miRNA-like RNA which are designed to copy the functionality of mature endogenous miRNA upon transfection. At the 5'-end, it is synthesized with a partially complementary motif to 3'UTR end of the target gene, which allows the miRNA mimic to specifically bind to the target. Transfection of mimics followed by downstream gene expression analysis or phenotypic analysis, is performed to elucidate the targets and roles of particular miRNAs. Each synthetic miRNA mimic is supplied in lyophilized form, based on the mature miRNA sequence; and it does not contain the full precursor miRNA stem-loop.

**miRNA inhibitor & mimic Negative Control** are also available in lyophilized form.



# Pathogen Detection PCR Kits

- Fluorescence Probe based detection kits
- Available >200 viral & bacterial pathogens
- For human and other species
- Available in lyophilized format with 18 months shelf life

## Kit components:

1. Reaction mix\*
2. Sample diluent buffer
3. Positive control
4. Negative control

\*Reaction mix contains reaction enzyme; reverse transcriptase with specific primers & probes.



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