



# DNA-Free PCR Reagents

40 PCR Cycles

## Mastermix 16S/18S

Ultra-sensitive Assaying of  
Bacterial and Fungal DNA





## Product Features

- ✓ Highly active Taq polymerase
- ✓ Microbial DNA-free
- ✓ High amplification activity for 40 cycles
- ✓ Ultra-sensitive detection of bacterial DNA
- ✓ Ultra-sensitive detection of fungal DNA
- ✓ Suitable for PCR and Real-Time PCR

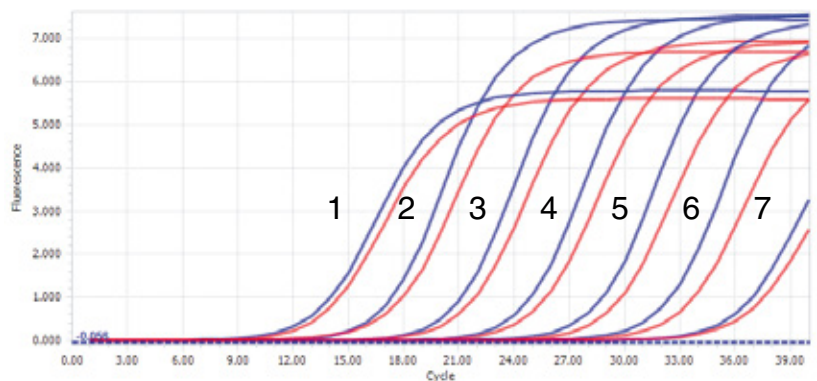
## Mastermix 16S/18S: Avoidance of False-Positive Results

A common drawback of PCR assays for bacterial and fungal sequences is the contamination of amplification reagents by microbial DNA. As a consequence, false-positive results may arise often also associated with a loss of analytical sensitivity.

Molzym's Mastermix 16S/18S products are guaranteed free of contaminating bacterial and fungal DNA. This provides accurate results also at low target loads.

## Ultra-Sensitive Detection of Bacterial and Fungal Sequences

Mastermix 16S/18S products assure strong amplification activity and accuracy, and thereby guarantee high sensitivity of bacterial and fungal DNA detection. Mastermix 16S/18S products can be used with commercial PCR and Real-Time PCR systems including thermocyclers from e.g. ABI, Bio-Rad, Eppendorf, Qiagen, Roche and Stratagene.



SYBR® Green 1 Real-Time PCR of purified *Bacillus subtilis* DNA (red) with Mastermix 16S Complete and of *Saccharomyces cerevisiae* DNA (blue) with Mastermix 18S Complete. Sensitivity of detection for *B. subtilis*/*S. cerevisiae* at quantities of 100/10 ng (1), 10/1 ng (2), 1/0.1 ng (3), 100/10 pg (4), 10/1 pg (5), 1/0.1 pg (6), and 100/10 fg (7).

A series of high quality products are available for the ultra-sensitive detection of bacterial and fungal DNA down to the femtogram range using PCR or Real-Time PCR. Products include assays for part of the 16S and 18S rRNA gene, respectively, as well as master mixes for the use with custom primers. Molzym's proprietary manufacturing technology and QM management supply ultra-pure reagents. Thereby, false-positive results by reagent contamination are excluded and high sensitivity of the assay is guaranteed.

# DNA-Free and Highly Active PCR/Real-Time PCR Reagents

## DNA-free Taq polymerases

DNA-free **MolTaq 16S/18S** is a highly active Taq DNA polymerase for ultra-sensitive PCR/Real-Time PCR analysis of femtogram amounts of bacterial and fungal DNA.

The newly developed DNA-free **Hot MolTaq 16S/18S** reduces unspecific amplification and allows the convenient PCR setup at ambient temperature.

## DNA-free master mix products

| Application                   | Custom primers    |     | Eubacterial assays |          | Panfungal assay |
|-------------------------------|-------------------|-----|--------------------|----------|-----------------|
| Product                       | Mastermix 16S/18S |     | Mastermix 16S      |          | Mastermix 18S   |
|                               | Basic             | Dye | Primer             | Complete | Complete        |
| Taq polymerase, buffer, water | +                 | +   | +                  | +        | +               |
| dNTPs                         | +                 | +   | +                  | +        | +               |
| Fluorescing dye               | -                 | +   | -                  | +        | +               |
| Universal 16S primers         | -                 | -   | +                  | +        | -               |
| Universal 18S primers         | -                 | -   | -                  | -        | +               |

Molzylm's master mix products constitute of optimised reagent formulations and **MolTaq 16S/18S**. High amplification activity is pertained for at least 40 cycles.

## Master mix products for custom assays

Two master mix products are available for PCR or Real-Time PCR assays including your custom primer sets. **Mastermix 16S/18S Basic** is ready for use with your specified primers with or without probes. SYBR Green Real-Time PCR and melt curve assaying is possible employing **Mastermix 16S/18S Dye** by adding custom primers.

## Eubacterial assays

Two assays are available for the detection of bacterial DNA. **Mastermix 16S Primer** is designed for PCR and **Mastermix 16S Complete** for Real-Time PCR testings. The master mixes include universal primers that bind to conserved sites flanking the V3/V4 variable region of the 16S rRNA gene.

## Panfungal assay

**Mastermix 18S Complete** amplifies the V8/V9 variable region of the fungal 18S rRNA gene. The PCR and Real-Time PCR assay, respectively, allows the extremely sensitive detection of fungal DNA in a sample.

Enhanced amplification activity of Molzym Mastermix 16S Complete using *Klebsiella pneumoniae* DNA at amounts indicated per 25µl assay

| Source         | 1 ng | 45 pg | 8.9 pg | 1.7 pg |
|----------------|------|-------|--------|--------|
| Supplier A     | +    | -     | -      | -      |
| Supplier B     | +    | +     | -      | -      |
| Supplier C     | +    | +     | -      | -      |
| <b>Molzylm</b> | +    | +     | +      | +      |

+: signal in the melt curve analysis (SYBR Green) at the temperature specific for *K. pneumoniae* 16S amplicon; -: specific signal lacking

## Analytical sensitivity of eubacterial and panfungal assays

| Strain                          | cfu/ml |
|---------------------------------|--------|
| <b>Mastermix 16S</b>            |        |
| <i>Escherichia coli</i>         | 40     |
| <i>Klebsiella pneumoniae</i>    | 50     |
| <i>Staphylococcus aureus</i>    | 20     |
| <i>Streptococcus pneumoniae</i> | 50     |
| <i>Enterococcus faecalis</i>    | 20     |
| <b>Mastermix 18S</b>            |        |
| <i>Candida albicans</i>         | 10     |
| <i>Candida glabrata</i>         | 10     |
| <i>Candida krusei</i>           | 10     |
| <i>Candida parapsilosis</i>     | 10     |
| <i>Candida tropicalis</i>       | 10     |

Minimum titre resulting in positive signals in 3 repeated extractions using Real-Time PCR (5 µl extract/assay) with melting curve analysis

## Order Information:

| Product   | Content        | Order Number |
|---|----------------|--------------|
| <b>DNA-free assays for the sensitive detection of bacterial DNA</b>                             |                |              |
| <b>Mastermix 16S Complete</b><br>Universal 16S rDNA Real-Time PCR assay                         | 100 reactions  | S-020-0100   |
|   | 250 reactions  | S-020-0250   |
|   | 1000 reactions | S-020-1000   |
| <b>Mastermix 16S Primer</b><br>Universal 16S rDNA PCR assay                                     | 100 reactions  | S-021-0100   |
|   | 250 reactions  | S-021-0250   |
|   | 1000 reactions | S-021-1000   |
| <b>Set of eubacterial sequencing primers</b>  | 100 reactions  | S-775-0100   |
| <b>DNA-free assay for the sensitive detection of fungal DNA</b>                                 |                |              |
| <b>Mastermix 18S Complete</b><br>Universal 18S rDNA Real-Time PCR assay                         | 100 reactions  | S-070-0100   |
|   | 250 reactions  | S-070-0250   |
|   | 1000 reactions | S-070-1000   |
| <b>Sequencing primer panfungal</b>  | 100 reactions  | S-785-0100   |
| <b>DNA-free master mixes for use with custom primers</b>  |                |              |
| <b>Mastermix 16S/18S Dye</b><br>Pre-mixed reagents and fluorescent dye for Real-Time PCR assays | 100 reactions  | S-030-0100   |
|   | 250 reactions  | S-030-0250   |
|   | 1000 reactions | S-030-1000   |
| <b>Mastermix 16S/18S Basic</b><br>Pre-mixed reagents for PCR assays                             | 100 reactions  | S-040-0100   |
|   | 250 reactions  | S-040-0250   |
|   | 1000 reactions | S-040-1000   |
| <b>DNA-free polymerases</b>   |                |              |
| <b>MolTaq 16S/18S</b><br>DNA-free Taq DNA polymerase  | 100 units      | P-019-0100   |
|   | 500 units      | P-019-0500   |
| <b>Hot MolTaq 16S/18S</b><br>Aptamer stabilized DNA-free Taq DNA polymerase                     | 100 units      | P-080-0100   |
|   | 500 units      | P-080-0500   |
| <b>DNA-free PCR-grade water</b>   |                |              |
| <b>DNA-Free Water</b>   | 10 x 1.7 ml    | P-020-0003   |

**Molzylm GmbH & Co. KG**  
 Mary-Astell-Str. 10  
 D-28359 Bremen, Germany  
 Tel.: +49 (0) 421 / 69 61 62 0  
 Fax: +49 (0) 421 / 69 61 62 11  
[order@molzylm.com](mailto:order@molzylm.com)

