NEW

Now also for Fungal DNA

Selective Enrichment of Bacterial and Fungal DNA

MolYsis™

Small, medium and large volumes
Removal of human DNA

Molzym

Product Features

- ✓ **Removal of human DNA**
- ✓ **Selective enrichment of bacterial and fungal DNA**
- ✓ **Removal of PCR inhibitors**
- ✓ **Broad-range lysis of bacteria and fungi**
- ✓ **Up to 40,000-fold higher PCR sensitivity**
- ✓ **DNA-free reagents**
- ✓ **0.2 - 10ml sample volume**
- ✓ **Low hands-on-time**
- ✓ **Automation available**

MolYsis™ - Removal of Human DNA

MolYsis™ is a tool for the removal of human DNA and enrichment of bacteria and fungi from liquid samples. Technically, in a short series of steps, **MolYsis™** effects the selective lysis of blood cells and the quantitative degradation (>99%) of released human DNA. After enrichment from the lysate by centrifugation, microorganisms are treated with a reagent degrading cell walls of Gram-positive and Gram-negative bacteria and fungi. The broad-range lysis potential has been shown in clinical evaluations, including over 200 genera of bacteria (86 Gram-positives, 120 Gram-negatives) and 65 genera of fungi. Kits are available for the isolation of enriched microbial DNA from the following samples:

- Whole blood
- Synovial fluid
- Pleural fluid
- Cerebrospinal fluid
- Ascites fluid
- Pus
- Bronchoalveolar lavage
- Nasal-wash fluid
- Urine
- Blood cultures

Human DNA Limits the PCR Detection of Bacteria and Fungi

PCR is a rapid and highly sensitive means of analyzing microorganisms in clinical specimens. The quality of DNA preparations takes strong influence on the PCR analysis. Among the factors negatively influencing the analysis, unspecific binding of e.g. bacteria-specific primers to human sequences is recognized to constitute an important cause of false-negative and false-positive results. **MolYsis™** solves this problem by the removal of human DNA thus enabling the analysis of bacteria and fungi in specimens at utmost sensitivity and accuracy (Fig. 1).

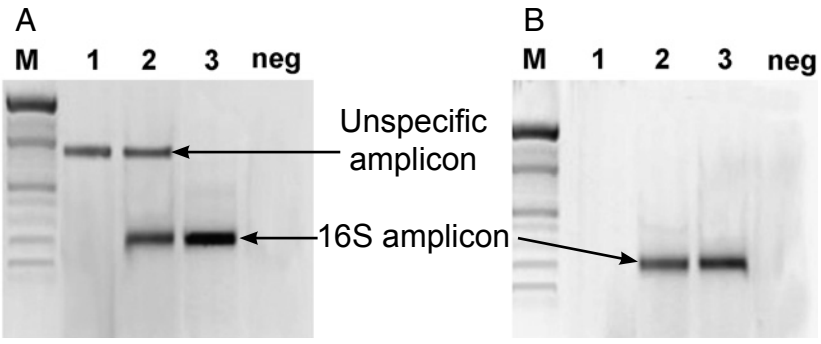


Fig. 1. 16S PCR amplification products from [A] total DNA (Qiagen) and [B] enriched bacterial DNA (MolYsis). M: marker; 1: whole blood; 2: whole blood spiked with *E. coli*; 3: *E. coli* in saline (Comp Immun Microbiol Infect Dis 32:207-219, 2009; modified)

MolYsis™ Complete Kits

MolYsis™ Complete kits provide reagents and materials for human DNA removal, bacteria and fungi enrichment and DNA isolation. **MolYsis™ Complete5** enables small and medium size preparations from ≤1ml and 5ml volumes. Maxi size isolation of enriched microbial DNA from 5 -10ml volumes is possible with **MolYsis™ Complete10**. The kits guarantee exclusion of false signals by unspecific background amplification thus constituting your standard for extremely high PCR detection sensitivity: enhancement over total DNA extraction can account for up to 40,000-fold. The PCR analytical sensitivity is greatly increased, allowing detection of only a few viable cells in the specimen. This is an effect of the removal of human DNA and the sample volume processed (Table 1).

MolYsis™ Basic Kits

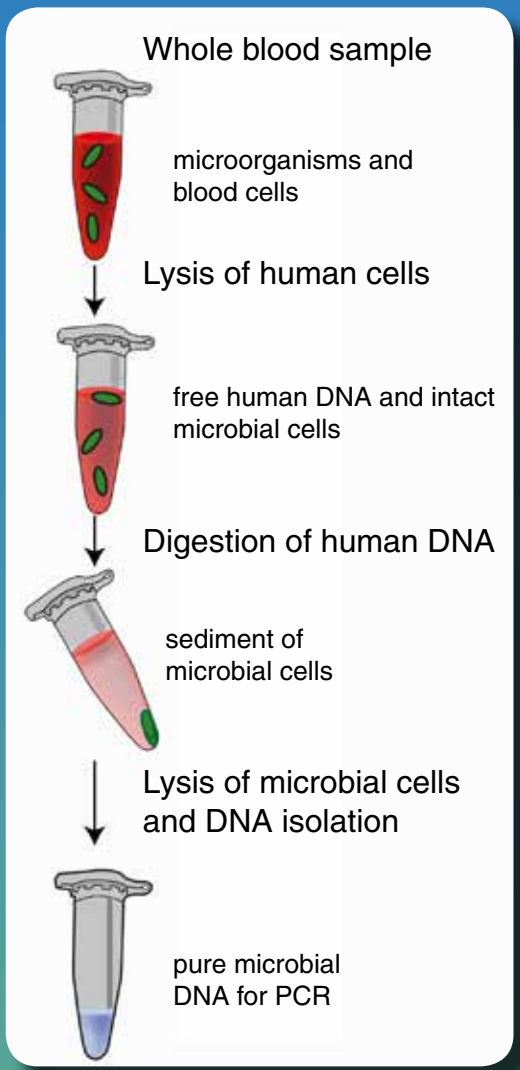
Kits of the **MolYsis™ Basic** series are combinable with any DNA isolation kit or in-house method, including manual and automated systems. **MolYsis™ Basic** is specially dedicated to the processing of small sample volumes (0.2ml). **MolYsis™ Basic5** is the flexible solution for sample pre-treatment, encompassing sample volumes of ≤1ml and 5ml. Maxi preparations are performed from 5 - 10ml sample volume using **MolYsis™ Basic10.**

MolYsis™ Plus

MolYsis™ Plus is a special solution for the extraction of pure bacterial and fungal DNA from positive blood cultures (0.2 ml). A major problem with blood culture PCR is the contamination of DNA preparations with PCR-inhibitors like polyanetholesulfonate (SPS). The removal of PCR inhibitors and human DNA allows the reliable PCR amplification of microbial DNA for identification by sequencing and other analyses.

MolYsis™ is specially useful for the detection of bacteria and fungi by PCR or Real-Time-PCR assays, including Molzym's highly active, DNA-free **MolTaq 16S** polymerase and **Mastermix 16S** products. Further information can be found on our website www.molzym.com.

Technology



Analytical Sensitivity

Organism	Blood volume (ml)	Titer (cfu/ml)	PCR result
S. aureus	1	60	+
	5	12	+
	10	6	+
E. coli	1	120	+
	5	24	+
	10	12	+
C. albicans	1	10	+
	10	1	+

Table 1: Analysis of detection limits of strains spiked into blood (1-10ml) using MolYsis™ enriched microbial DNA isolation and Molzym's universal 16S and 18S rDNA assay

Order Information:

Product	Volume	Content	Order No.
MolYsis™ Basic kits - Human DNA removal and enrichment of bacteria and fungi. Compatible with any DNA isolation system			
MolYsis™ Basic	0.2ml	50 reactions	D-300-050
		100 reactions	D-300-100
MolYsis™ Basic5	≤ 1ml and 5ml	50 reactions	D-301-050
		100 reactions	D-301-100
MolYsis™ Basic10	5 - 10ml	50 reactions	D-305-050
		100 reactions	D-305-100
MolYsis™ Complete kits - Human DNA removal and isolation of enriched bacterial and fungal DNA			
MolYsis™ Complete5	≤ 1ml and 5ml	50 reactions	D-321-050
		100 reactions	D-321-100
MolYsis™ Complete10	5 - 10ml	50 reactions	D-325-050
		100 reactions	D-325-100
MolYsis™ Plus - PCR inhibitor-free isolation of bacterial and fungal DNA from blood culture			
MolYsis™ Plus	0.2ml	50 reactions	D-310-050
		100 reactions	D-310-100

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