Molzym

Depletion of Host DNA

MolYsis™

Enrichment of Bacterial & Fungal DNA
Manual and Automated Solutions

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MolYsis™ - Depletion of Host DNA

MolYsis™ is a tool for the depletion of human/animal DNA and enrichment of bacteria and fungi from body fluids, swabs and tissue samples. Technically, in a short series of steps, MolYsis™ includes the selective lysis of host cells and the quantitative degradation (up to 99%) of released host DNA. After the enrichment step, microorganisms are lysed with a reagent degrading cell walls of Grampositive and Gram-negative bacteria and fungi. The broad-range lysis potential has been shown in clinical evaluations, including over 200 genera of bacteria (86 Grampositives, 120 Gram-negatives) and 65 genera of fungi. The MolYsis™ protocol is validated for the following samples:

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

Host DNA Limits the PCR Detection of Bacteria and Fungi

In many samples from humans and animals host DNA greatly outnumbers microbial DNA. The choice of DNA preparation takes strong influence on the 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 depletion of human/ animal DNA thus enabling the analysis of bacteria and fungi in specimens at utmost sensitivity and accuracy (Fig. 1).

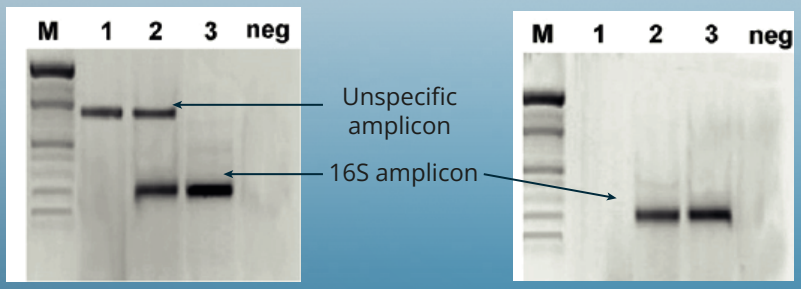


Fig. 1. 16S PCR amplification products from [A] total DNA (Qiagen) and [B] enriched bacterial DNA (MolYsis™). M: marker; 1: whole blood; 2: whole blood spiked with E. coli; 3: E. coli in saline (Comp Immun Microbiol Infect Dis 32:207-219, 2009; modified)

Product Features

- Depletion of human and animal DNA
- Selective enrichment of bacterial and fungal DNA
- Broad-range lysis of bacteria and fungi
- Higher PCR sensitivity
- DNA-free reagents and plastics
- Basic and Complete kits for utmost flexibility
- Manual and automated kits available
- For PCR/Real-Time PCR and NGS applications
- Protocols for body fluids,swabs and tissue samples

MolYsis™ Basic5

The pre-treatment kit MolYsis™ Basic5 includes reagents for host DNA depletion and can be combined with any DNA isolation kit or in-house method, including manual and automated systems. MolYsis™ Basic5 is the flexible solution for sample pre-treatment, encompassing body fluids with sample volumes of ≤1ml and 5ml.

MolYsis™ Complete5

MolYsis™ Complete5 includes reagents and materials for the whole process of host DNA depletion, bacteria and fungi enrichment and microbial DNA isolation. MolYsis™ Complete5 enables small and medium size preparations of body fluids from ≤1ml and 5ml volumes.

Ultra-Deep Microbiome Prep Kits

The MolYsis™ technology is also applicable for tissue and swab samples. With the Ultra-Deep Microbiome Prep kit ≤1ml liquid and tissue specimens can be used. Highest flexibility is given with the Ultra-Deep Microbiome Prep10 kit for volumes from 1 – 10ml and tissues.

Automation MolYsis-SelectNA™plus

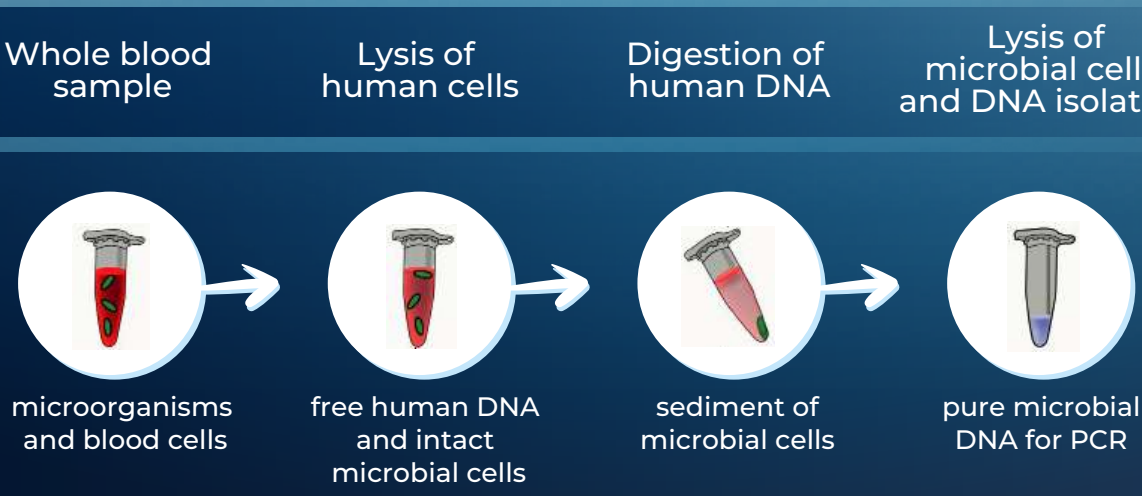
The bench-top SelectNA™plus robot is the first system for automated host DNA depletion and microbial DNA isolation from body fluids, swabs and tissue samples. MolYsis-SelectNA™plus is the solution of choice for the fully automated host DNA depletion and extraction of microbial DNA from clinical and other material on the SelectNA ™plus robotic system. One to 12 samples of up to 1ml can be processed by the instrument at a time.

Applications

All MolYsis™-based kits are specially useful for the sensitive detection of bacteria and fungi by PCR/Real-Time PCR and for the deep microbiome and metagenome analysis by Next Generation Sequencing. The efficient host DNA depletion as well as reduced background of contaminations allows the sensitive analysis of microbial target DNA even at very low loads. Molzym's unique depletion technology can be combined with leading NGS platforms. Molzym also offers highly active, DNA-free MolTaq 16S/18S polymerases and 16S/18S Mastermixes and Assays.

MolYsis™ Technology

Example displayed for human whole blood:



Order Information

Product	Volume	Content	Order No.
Manual kits			
Basic kit for host DNA depletion and enrichment of bacteria and fungi from body fluids. Compatible with any DNA isolation system			
MolYsis™ Basic5 *Body fluids*	≤1ml and 5ml	50 reactions	D-301-050
		100 reactions	D-301-100
Complete kit for host DNA depletion and isolation of enriched bacterial and fungal DNA from body fluids			
MolYsis™ Complete5 *Body fluids*	≤1ml and 5ml	50 reactions	D-321-050
		100 reactions	D-321-100
Complete kit for host DNA depletion and isolation of enriched bacterial and fungal DNA from body fluids, swabs and tissue specimens			
Ultra-Deep Microbiome Prep *Body fluids, swabs & tissues*	≤1ml	25 reactions	G-020-025
		50 reactions	G-020-050
Ultra-Deep Microbiome Prep10 *Body fluids & tissues*	1 - 10ml	25 reactions	G-030-025
		50 reactions	G-030-050
Automation			
Complete kit for fully automated host DNA depletion and isolation of enriched bacterial and fungal DNA from body fluids, swabs and tissue specimens			
SelectNA™ plus robot		Bench -top instrument	D-400-001
MolYsis-SelectNA™plus *Body fluids, swabs & tissues*	≤1ml	48 reactions	D-450-048

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