

siTOOLS
BIOTECH

Biozym®

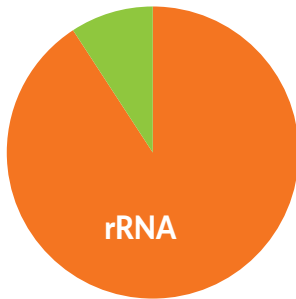
SCIENCE IS OUR BUSINESS

riboPOOL™

Efficient Ribosomal RNA Depletion
For Any Species

Why **riboPOOL**?

mRNA
and other ncRNA

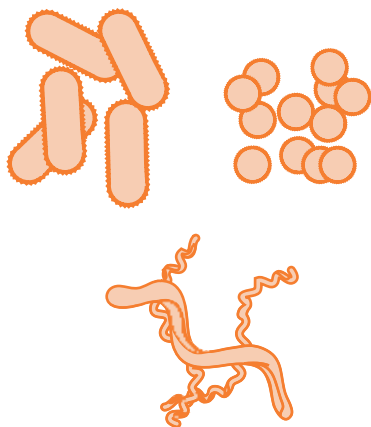
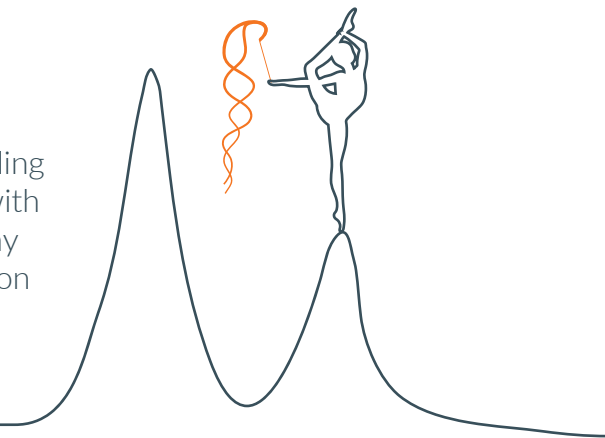


Ribosomal RNAs occupy up to 90% of RNA-Seq reads.

Ribosomal RNAs (rRNA) are highly abundant and limit detection of relevant coding and non-coding RNAs by Next Generation RNA Sequencing (RNA-Seq), microarray and other analysis. Their removal greatly improves and economizes RNA-Seq experiments.

riboPOOL™ for efficient and flexible ribosomal RNA depletion

riboPOOL uses siTOOLS' technology of high complexity pooling of optimally designed biotinylated oligos to deplete rRNAs with high efficiency and specificity. Available for any species or any RNA sequence, riboPOOLS provide a superbly flexible solution for scientists with demanding sequencing applications.



Great for metatranscriptomics and microbial sequencing

For microbial sequencing, the Pan-Prokaryote riboPOOL can be broadly applied across many microbial species. Combination riboPOOLS containing up to four existing riboPOOLS enable rRNA depletion from samples containing multiple species such as pathogen infected tissue or metagenomic samples (e.g. soil, sludge).



riboPOOL Key Benefits

Any Species

Deplete rRNAs from any species.
Diverse species in-stock with
Custom riboPOOLS on-demand.

Affordable

riboPOOLS are priced
competitively and suitable for
high-throughput sequencing.

Highly Efficient and Specific

Human and mouse riboPOOLS
depleted > 95% cytoplasmic and
mitochondrial rRNAs.

HPLC Purified

Low risk of contaminants.

Applicable for Non-polyadenylated RNA

Detects non-polyadenylated RNA
(e.g. snoRNA, lncRNA, histones)
with uniform transcript coverage.

Suitable for Metatranscriptomics

Pan-prokaryote and Combination
riboPOOLS available for samples
containing multiple species.

Deplete Custom RNA

Deplete any abundant RNA of
choice. E.g. globin from whole
blood samples

Fast Workflow

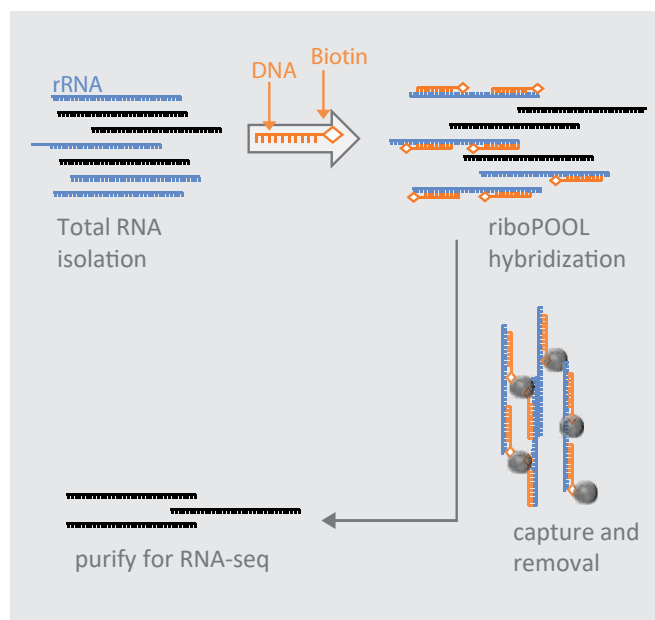
Workflow completed in ~70 min
with column-based purification.

Broad Input Range

Efficient rRNA depletion between
100 ng and 5 µg input RNA.



riboPOOL Workflow



25 min

Hybridization

riboPOOLS are resuspended and hybridized to DNA-free total RNA.

30 min

Capture & Removal

Streptavidin-coated magnetic beads separate riboPOOL-bound rRNAs.

15-90 min*

Purification

Remaining relevant RNAs are purified by ethanol, silica column or SPRI beads prior to downstream analysis.

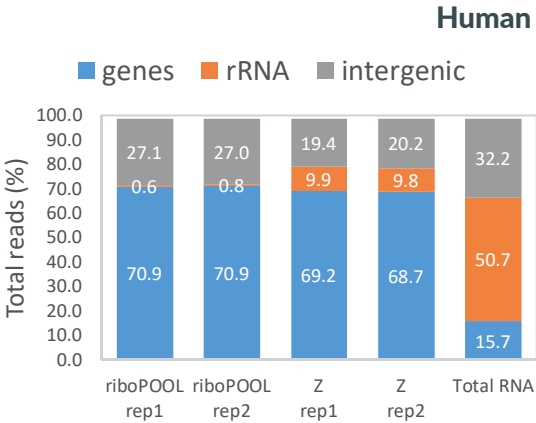
**Time required dependant on clean-up method*

Data with **riboPOOL**

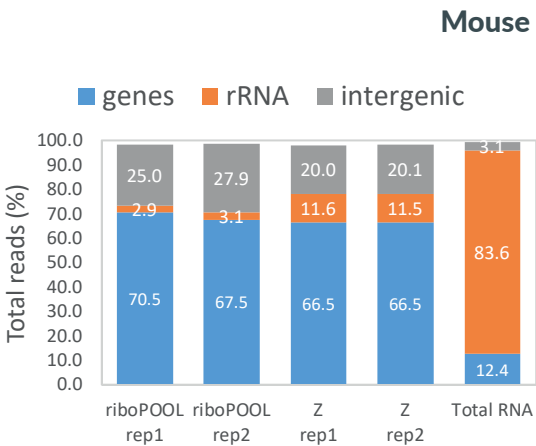
10% greater rRNA depletion efficiency with **riboPOOL**

rRNA
depletion
efficiencies:

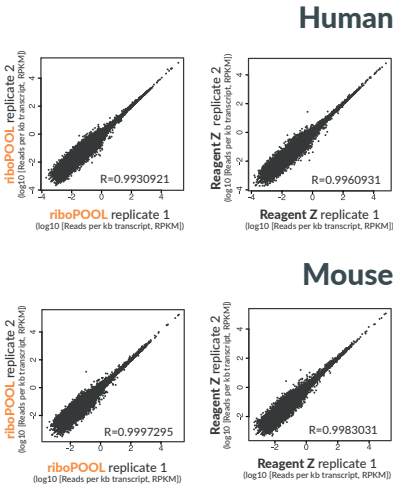
Human
riboPOOL
98.6%
Comp Z
80.6%



Mouse
riboPOOL
96.4%
Comp Z
86.1%



High reproducibility with both reagents



Study performed by Core Unit Systems Medicine (University of Würzburg) and IMGM Laboratories GmbH with protocol developed by Kim et al. (University of Bayreuth)¹. RNA (1 µg, RIN ≥ 7.5) from HeLa cells or mouse embryonic fibroblasts subject to rRNA depletion with human or mouse **riboPOOLS** vs. human/mouse/rat rRNA depletion kit from Competitor Z and sequenced with Illumina TruSeq® Stranded Total RNA technology.

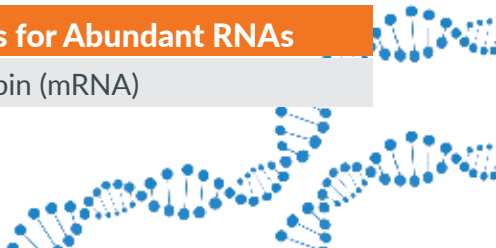
1 Kim, I et. al (2019) Efficient depletion of ribosomal RNA for RNA sequencing in planarians. *bioRxiv* ([Preprint with **riboPOOL**](#))

List of Ready-Made **riboPOOLS**

riboPOOLS for Eukaryotes
Homo sapien (human)
Mus musculus/Rattus norvegicus (mouse/rat)
Drosophila melanogaster (fruitfly)
Arabidopsis thaliana
Danio rerio (zebrafish)
Sacchromyces cerevisiae (yeast)
Pichia pastoris (yeast)
Bombyx morii (silkworm)
Ustilago maydis
Amphimedon queenslandica (sponge)
Schmidtea mediterranea (planaria)
Platia stali (brown winged green bug)
Chinchilla Laginera

riboPOOLS for Prokaryotes
Pan-Prokaryote (Universal Microbe)
Escherichia coli
Pseudomonas aeruginosa
Staphylococcus aureus
Bacillus subtilis
Salmonella enterica
Stenotrophomonas sp.
Caulobacter crescentus
Haloferax volcanii
Clostridium perfringens

riboPOOLS for Abundant RNAs
Human Globin (mRNA)



Special Applications with **riboPOOL**

Metatranscriptomics with Pan-Prokaryote riboPOOL

The Pan-Prokaryote riboPOOL, designed for universal microbial rRNA depletion, has been applied for metagenomic samples. Depletion efficiency however may vary between species and sample quality.

Depletion of abundant RNAs

Aside from rRNA, depletion of abundant tissue-specific mRNAs (e.g. globin) or other abundant RNAs found in sequencing data can be performed with riboPOOLS.

Ribosome profiling

riboPOOLS have been applied for ribosome profiling samples with depletion efficiencies of ~50-80%. Please contact us for more information.

Depletion of rRNAs from multiple species with Combination riboPOOLS

Combination riboPOOLS are mixtures of up to four riboPOOLS combined in custom ratios for use in samples containing multiple species. Please refer to **riboPOOL Application Note** on website for data on the Human/Mouse/Pan-Prokaryote Combination riboPOOL.

Product Properties

- 3'-biotinylated, single-stranded DNA
- HPLC-purified
- Provided as probes alone with nuclease-free water **OR** in kits that include buffers, streptavidin-magnetic beads and ethanol precipitation reagents. A protocol is provided for either format.
- Delivered as freeze-dried powder at room-temperature.
- Upon resuspension, riboPOOLS are stable up to 6 months when stored at or below -20°C. Store in aliquots to avoid multiple freeze-thaw cycles.

Ordering Information

Products available	Scales available
riboPOOL probes	20, 50 or 100 reactions
Combination riboPOOL probes	20, 50 or 100 reactions
Human/Mouse riboPOOL kit	6 (trial), 12, 24 or 96 reactions
Pan-Prokaryote/Globin/Other Species riboPOOL kit	6 (trial), 12, 24 or 96 reactions
Combination riboPOOL kit	12, 24 or 96 reactions
Custom riboPOOL set up service	(one-time purchase required for new species)

Biozym

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