

Accelerating Insights from Fish

Developmental biology, genome editing and drug screening in disease models, fish-pathogen interactions, and more...



Streamlined Fish Transcriptomics with RiboCop and CORALL

Sequence what matters most! RNA-Seq of ribo-depleted fish RNA affords an unbiased view of the transcriptome and allows analysis of mRNA, non-coding RNAs and insights to fish-pathogen interactions.

Fish total RNA is comprised of large amounts of **undesired ribosomal RNA (rRNA) accounting for up to ~86 % of all transcripts**. Lexogen's RiboCop rRNA Depletion Kits for Fish **remove undesired cytoplasmic (5.8S, 18S and 28S) and mitochondrial (5S, 18S and 26S) rRNA** from zebrafish (*Danio rerio*) and other fish species. Ribodepletion affords an unbiased view of the transcriptome, including non-coding and regulatory transcripts.

Preserve RNA Integrity with Fragmentation-free rRNA Removal and Library Preparation

RiboCop uses a set of affinity probes designed for specific and efficient depletion of rRNA sequences from a wide range of input RNA. No enzymatic reactions or mechanical shearing steps are involved, **preserving full-length transcripts for further processing and offering compatibility with long-read sequencing approaches**. RiboCop for Fish is ideally suited for Next Generation Sequencing (NGS) assays and seamlessly integrates into **fragmentation-free CORALL RNA-Seq library preparation with UMIs** (Fig. 1). In addition, RiboCop is compatible with all common short- and long-read RNA-Seq library preps.

Efficient Depletion across RNA Input Amounts

RiboCop enriches RNAs of interest over **various RNA input amounts** of *D. rerio* by removing all subclasses of undesired rRNA (Fig. 2). RiboCop for Fish was successfully used for depletion of *D. rerio*, as well as *Gasterosteus aculeatus*, and *Perca fluviatilis* (reduction of rRNA reads to <2 % for 100 ng input RNA, not shown).

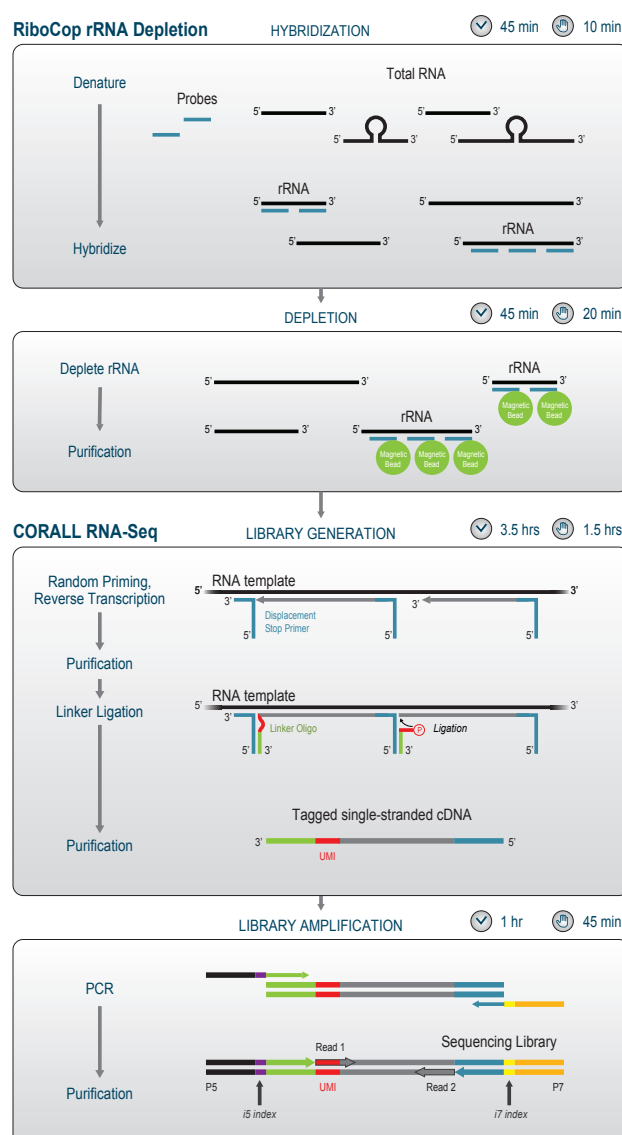


Figure 1 | RiboCop rRNA Depletion and CORALL RNA-Seq Workflow.

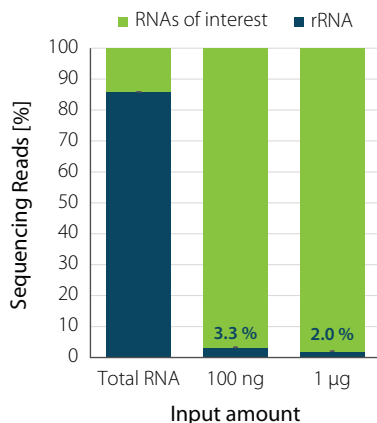


Figure 2 | RiboCop rRNA Depletion for Fish efficiently removes rRNA from various input amounts. NGS libraries were prepared from 10 ng untreated (Total RNA) and depleted *D. rerio* RNA (100 ng and 1 µg) using Lexogen's CORALL RNA-Seq V2 Library Prep Kit. Depletion was monitored by sequencing. The percentage of reads mapping to rRNA is plotted in blue.

Increased Gene Detection upon Ribodepletion

RiboCop for Fish **increases uniquely mapping reads** for treated *D. rerio* RNA. More informative reads are available for analysis as demonstrated by an **increase in reads mapping to protein-coding genes** and **higher gene detection at lower read depth** (Tab. 1).

Table 1 | Basic mapping stats for RNA-Seq libraries generated from untreated zebrafish RNA vs. rRNA-depleted input RNA after RiboCop for Fish.

Reads	Untreated Total RNA	RiboCop-treated RNA
Uniquely Mapped	20.6 %	82.7 %
Multimapped	76.9 %	6.8 %
rRNA	85.9 %	2.0%
Protein-coding	51.4 %	95.0 %
Detected Genes*	11,972 at ~8 M Reads	14,289 at 3 M Reads

*Detected Genes are determined at 2.6x higher read depth for untreated total RNA. A threshold of CPM>5 is applied to all samples for gene detection.

Key Benefits for Fish RNA-Seq with RiboCop



Unlock the full potential of low input and low concentrated samples - RiboCop kits support a wide input range for various species.



Enzyme-free rRNA depletion preserves full-length RNA and is ideally suited for subsequent short- and long-read NGS library preparation.



Simultaneous one-step depletion of host and pathogen with convenient combinations of RiboCop for Fish and Bacteria kits.



Get your results faster! Lexogen's CORALL RNA-Seq library preparation kits include codes for data analysis on our plug-and-play platform [Kangooroo](https://www.lexogen.com/kangooroo).

Full NGS Services Available!



Lexogen NGS Services offers a variety of workflow options for fish transcriptomics, including expression profiling, non-coding RNA analysis, sRNA sequencing, and DNA-Seq. Simply send your samples and let our experts extract the best data possible for you! Contact us today at services@lexogen.com.

End-to-end Workflow Solutions for RNA-Seq from Fish Samples

	RNA Extraction	RNA Preparation	NGS Library Prep	NGS Data Analysis
Whole Transcriptome	RNA Extraction	RiboCop for Fish	CORALL RNA-Seq	Kangooroo Data Analysis
Expression Profiling	RNA Extraction	not needed!	QuantSeq 3' mRNA-Seq	Kangooroo Data Analysis
Host / Pathogen	RNA Extraction	RiboCop for Fish / RiboCop META	CORALL RNA-Seq	Custom Bioinformatics
Fish Small RNA-Seq	TraPR sRNA Isolation	not needed!	Small RNA-Seq	Custom Bioinformatics
Expression Profiling Low Input / Embryo	not needed!	not needed!	LUTHOR HD 3' mRNA-Seq	Kangooroo Data Analysis
RNA- and DNA-Seq	Lexogen NGS Services			

Ordering Information

Cat. №	Product Name
125, 126, 127	RiboCop rRNA Depletion for Mixed Bacterial Samples (META), Gram-Negative (G-), or Gram-Positive Bacteria (G+)
144 - 145	RiboCop rRNA Depletion for Human/Mouse/Rat (HMR) or Human/Mouse/Rat Plus Globin (HMR+Globin)
237	RiboCop rRNA Depletion for Plants
241	RiboCop rRNA Depletion for Fish
171, 175	CORALL RNA-Seq Library Prep Kit with UDI 12 nt Set A1 (171) or Set B1 (175) - further UDI Sets are also available!
183 - 184	same as 171 and 175, including RiboCop rRNA Depletion HMR, UDI Set A1 (183) and Set B1 (184)
185 - 186	same as 171 and 175, including RiboCop rRNA Depletion HMR+Globin, UDI Set A1 (185) and Set B1 (186)

For more information and additional resources, please visit our [website](https://www.lexogen.com).

