

STAR BEADS

Viral DNA/RNA Extraction kit

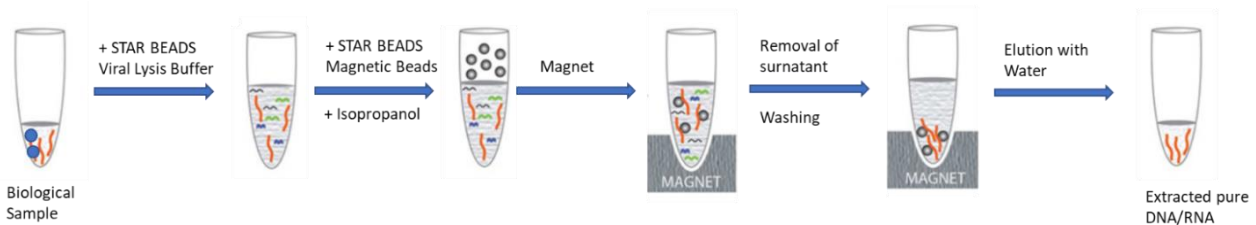
Overview

STAR BEADS Viral DNA/RNA Extraction Kit based on magnetic beads technology is designed for the rapid and efficient isolation of high-quality viral DNA and RNA from respiratory samples and other cell-free biological fluids such as serum, plasma, urine, cell culture supernatants.

The STAR BEADS magnetic beads technology enables the isolation of high-quality nucleic acids that are free of proteins, nucleases, and other impurities. The purified nucleic acids are ready for direct use in downstream applications such as RT/qPCR detection.

Features

- Consistent and reproducible results
- High yield and high extract purity
- Temperature-stable components
- Minimal hands-on time
- Direct usage of extracted nucleic acid in downstream applications
- Compatible with the most common automated systems



Description of technology

The procedure is based on the reversible adsorption of nucleic acids to the STAR BEADS magnetic beads under appropriate buffer conditions, while impurities are efficiently removed during the wash steps. The lysis of the sample is obtained by incubation with a lysis reagent (STAR BEADS Viral Lysis Buffer). A suspension of magnetic beads (STAR BEADS Magnetic Beads) is added to the lysate in a solution that facilitates the binding of nucleic acids to the beads. After magnetic separation, the magnetic beads are washed with two special washing reagents (STAR BEADS Washing Buffer 1 and STAR BEADS Washing Buffer 2) and finally with absolute ethanol to remove contaminants and salts. The viral DNA/RNA is then eluted with a DNase/RNase free water that induces the nucleic acid to detach from the magnetic beads. The resulting high quality total nucleic acid is then ready for use in downstream applications such as RT-PCR, PCR or any enzymatic reactions or it can be frozen.

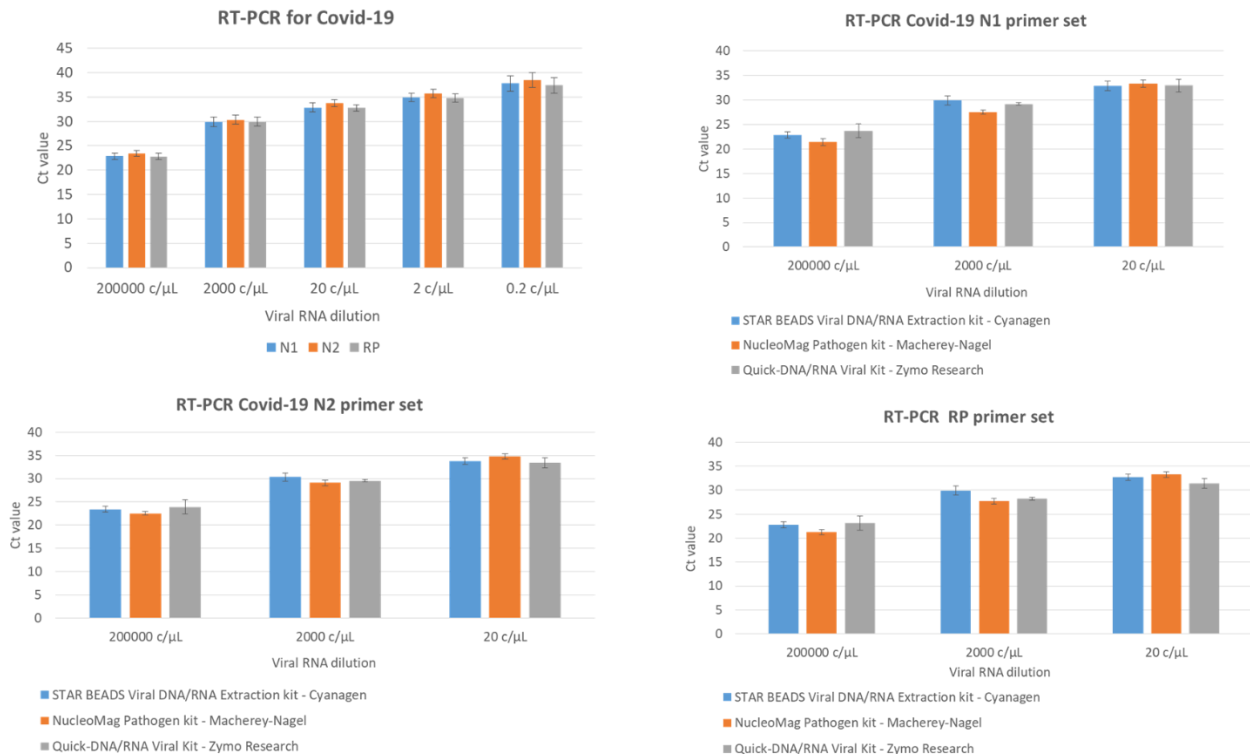
Validated for coronavirus (SARS-CoV-2) extraction in COVID-19 diagnostic workflow

Cyanagen is assisting scientists, researchers, and healthcare workers around the globe in accelerating the screening and detection of the novel coronavirus disease, COVID-19. We are supporting COVID-19 testing laboratories with a validated protocol for SARS-CoV-2 RNA extraction developed in collaboration with COVID-19 accredited laboratories.

Optimized protocol for RNA extraction from respiratory samples has no need of Proteinase K and reducing agents, offering a fast and simple protocol.

Cyanagen has adjusted its production capacity to the increasing and extraordinary demand for RNA extraction reagents.

Manual RNA extraction for the detection of Synthetic SARS-CoV-2 virus control



Real-time RT-PCR detection of SARS-CoV-2 N1, N2 and human RNase P gene using STAR BEADS Viral DNA/RNA Extraction Kit and its competitors (manual procedure). 2019nCoV Positive Control (Norgen) from 200000 to 20 copies /mL was spiked in 150μL of Viral Transport Medium (Vircell). Samples were processed using STAR BEADS Viral DNA/RNA Extraction Kit, NucleoMag Pathogen Kit (Macherey-Nagel) and Quick-DNA/RNA Viral Kit (ZymoResearch) according to the manufacturer's protocol and Real-time RT-PCR was performed following the CDC protocol: 5μL of extracted samples were run using TaqPath™ 1 Step RT-qPCR Master Mix, CG (Thermo Scientific) and CDC Diagnostic panel primer sets (N1, N2 targeting two nucleocapsid genes and Rnase P primers targeting human RNase P gene). Ct values averaged from three independent experiments. Error bars represent the standard deviation.

Automated RNA Extraction for COVID-19 Detection in Clinical Swab Samples

Sensitivity: 100%
Specificity: 100%

KIT	Reference RNA Isolation Kit (U.O. Microbiologia, Pievesestina)			Total
		+	-	
STAR BEADS Viral DNA/RNA Extraction Kit	+	45	0	45
	-	0	121	121
	Total	45	121	166

Concordance between test results obtained with STAR BEADS Viral DNA/RNA Extraction Kit and the Reference RNA Isolation kit for COVID-19 diagnostics. STAR BEADS Viral DNA/RNA Extraction kit has been validated for RNA isolation from SARS-CoV-19 clinical samples on 166 samples (45 positive samples and 121 negative samples) from nasopharyngeal swabs. RNA isolation was performed in parallel using STAR BEADS Viral DNA/RNA Extraction Kit and a reference kit at U.O. Microbiologia, Pievesestina. RNA was amplified using Allplex™ 2019-nCoV Assay (Seegene) for the identification of three target genes in compliance with recommendations of both Charite Medical Center and US Centers for Disease Control and Prevention.

Excellent reproducibility of results for a viral RNA-based internal positive control within runs (intra-assay) and between runs (inter-assay)

	Reproducibility		
	Mean Ct	St. Dev.	CV %
Intra-assay variability	25,30	0,76	3,02
Inter-assay variability	25,93	0,89	3,44

Reproducibility of test results obtained with STAR BEADS Viral DNA/RNA Extraction kit for COVID-19 diagnostics. Mean Ct, Standard deviation and Coefficient of Variation (CV%) of test results obtained on a viral RNA-based internal positive control on RNA extracted with STAR BEADS Viral DNA/RNA Extraction kit from nasopharyngeal swabs clinical samples. RNA was amplified with Allplex™ 2019-nCoV Assay (Seegene). Courtesy of U.O. Microbiologia, Pievesestina.



Compatibility with automated procedures

STAR BEADS Viral DNA/RNA Extraction kit can be used on standard liquid handling instruments or automated magnetic separators. The actual procedure time depends on the configuration of the device and the magnetic separation system used. For automation scripts and dedicated technical support, please contact technical.support@cyanagen.com. For bulk or pre-filled plates or OEM sales, please contact sales@cyanagen.com.

PRODUCT	ORDER-NO.	UNIT SIZE
STAR BEADS Viral DNA/RNA Extraction kit	SBK186,1X96	1x96
	SBK186,8X96	8x96