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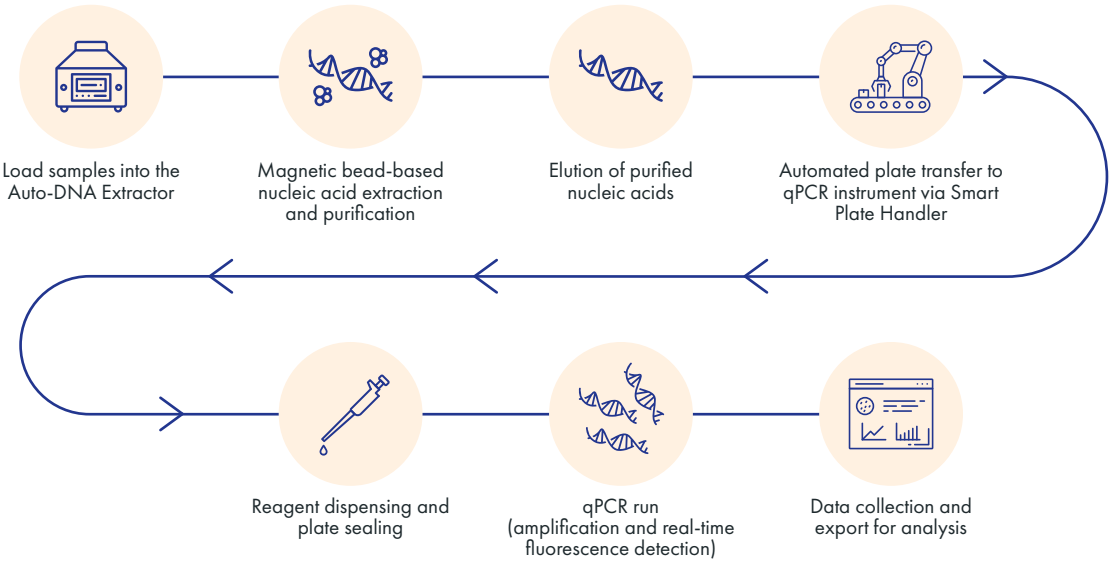
Automated Nucleic Acid Extraction & qPCR Workflow

INTRODUCTION

DNA extraction coupled with qPCR forms a fast, sensitive, specific, and quantitative workflow - the standard method for identifying and measuring specific genetic sequences. As throughput demands grow, integrated automation has become essential for reducing hands-on time, minimizing human error, and scaling molecular research workflows.

Galatek's DNA extraction and qPCR systems bring automation to this workflow. Our modular, open-system liquid handling workstations allow you to introduce automation tailored to your lab's specific needs.

The Workflow



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SYSTEMS OFFERED

Auto-DNA Extractor

An automated benchtop system for nucleic acid purification, the **Auto-DNA Extractor** utilizes a four-station magnetic bead-based separation to process up to 96 samples per run, eliminating manual liquid handling steps and delivering consistent, reproducible results across a wide range of sample types.

Automated qPCR Platform

The **Automated qPCR Platform**, part of Galatek's Smart Plate Handler series, replaces manual plate handling and data consolidation steps. It integrates a four-axis collaborative robot and consumable stacker to automate the sample transfer and quantification workflow from start to finish.

SYSTEM PARAMETERS

Auto-DNA Extractor

Parameter	Detail
Magnetic Bead Collection Efficiency	≥ 98%
Compatible Bead Size	0.1–1.0 µm
Sample Volume Range	30–1,000 µL
Contamination Control	UV decontamination lamp with timed shut-off

Automated qPCR Platform

Parameter	Detail
Configuration	2–3 fixed stacks (expandable with additional stacks or carousels)
Compatible Plates	96- & 384-well PCR plates
Plate Handling	4-position transfer station; 1D/2D barcode scanning
Maximum Arm Reach	433 mm (17 inches)

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SYSTEM SPECIFICATIONS

Device	Dimensions [W x D x H (mm)]	Dimensions [W x D x H (inches)]	Weight
Automated qPCR Platform			
• Smart Plate Handler	500 × 700 × 1,212	19.7 × 27.6 × 47.7	65 kg (143 lb)
• qPCR Instrument	335 × 473 × 330	13.2 × 18.6 × 13.0	26 kg (57 lb)
Auto-DNA Extractor	600 × 620 × 420	23.6 × 24.4 × 16.5	45 kg (99 lb)
Combined System*	1435 × 700 × 1,212	56.5 × 27.6 × 47.7	136 kg (299 lb)

*Arranged side by side, the integrated system occupies a compact footprint of approximately 57″ W × 28″ D (about the size of a standard lab bench). For safe operating clearance, ensure 6-10 inches of space in front of the instrument.

INTELLIGENT SOFTWARE

- **Real-time data visualization:** monitor device status, run progress, and error reports across the full workflow
- **Automated parallel scheduling:** run multiple extraction and qPCR batches simultaneously, as device capacity allows
- **Seamless data export:** drag-and-drop workflow editing with direct extraction to your preferred analysis system

All applications described are intended for research use only. Not cleared or approved for clinical diagnostic use.

OPEN-SYSTEM REAGENTS AND DETECTION KITS

Galatek's **Respiratory Nucleic Acid Detection Kits** come complete with DNA polymerase, UNG (Uracil-N-glycosylase) for carryover prevention, and pathogen-specific primers and probes to deliver reliable detection across five respiratory pathogens, including **SARS-CoV-2** and **Influenza A & B**.

For labs with more specific or evolving testing needs, Galatek also offers custom multiplex configurations, allowing you to combine only the target pathogens relevant to your research. This flexible approach helps minimize wasted reagents and cost compared to rigid, pre-configured panels.

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