

APPLICATION NOTE:

A comparison of Arcis Novel Sample Preparation nucleic acid kits with existing conventional nucleic acid extraction methods

A complete ready to use system

- A novel 2 step sample preparation technology
- Rapid 3 minute process
- Shipped and stored at room temperature
- Requires no heating, centrifugation or specialist instrumentation
- Simple to use



How it works:

No Pre-Lysis of Samples Required

- In contrast to other nucleic acid extraction kits based on conventional resin and membrane spin column technology, Arcis Sample Prep Kits do not require the sample to be pre-treated with lysis buffers before extraction. Indeed, samples ranging from blood (whole, frozen +/- EDTA), tissue, to buccal swabs can be effectively processed just by direct reaction with the 2 kit reagents. Reagent 1 both lyses cells and protects the nucleic acids from degradation by nucleases, causing both DNA and RNA to be stable at room temperature.
- No proteinase K is required for use with the Kit, as tissues and other samples may be homogenized and broken down in Reagent 1 directly. This means that all of the components of the Arcis Sample Prep Kit can be stored at room temperature for 18 months from manufacture.
- No heating is required to degrade samples prior to use with the Arcis Sample Prep Kit as no protracted enzyme incubations are required. This makes the Arcis Sample Prep Kit ideal for use in low-resource environments and reduces the risk of fragmentation of the nucleic acids.
- Arcis nucleic acid Sample Prep Kit only requires two short pipetting steps (three minutes in total) allowing it to be accessible to a range of users (see Figure 1). This is in contrast to the multiple wash and elution and centrifugation required in conventional spin column technology. (see Figure 2).

Figure 1: Simple two step protocol

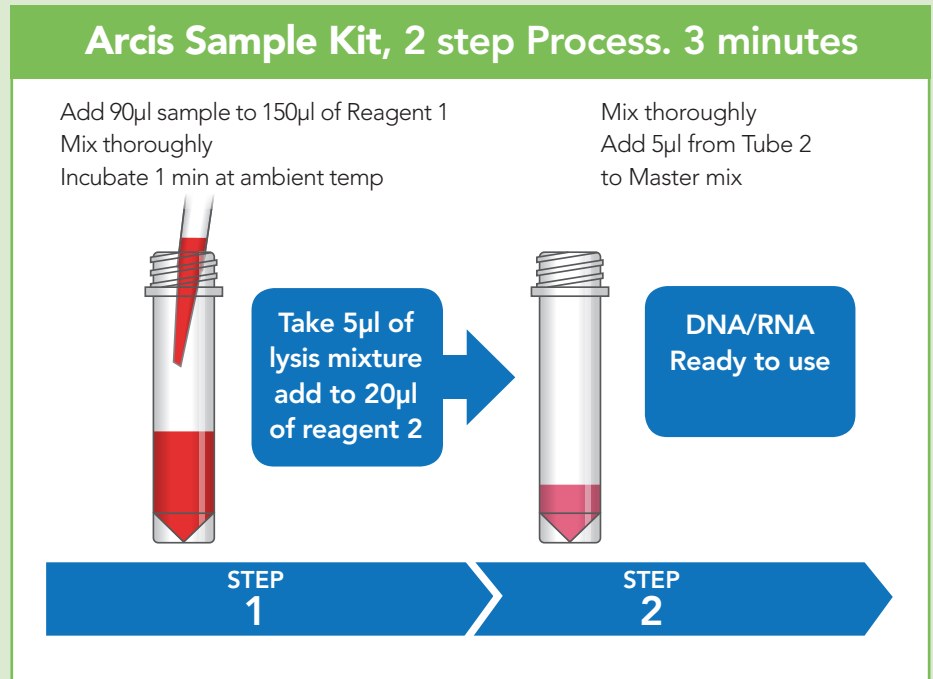
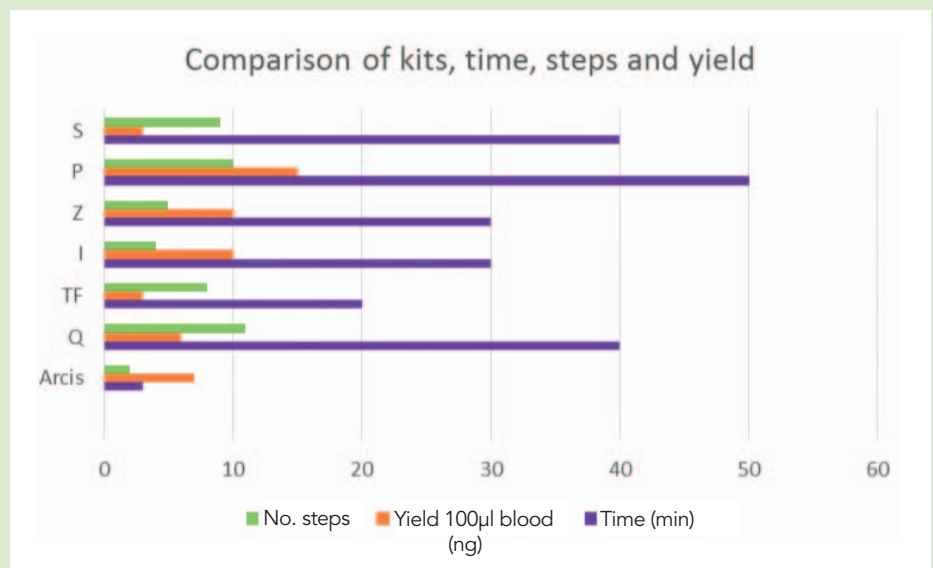


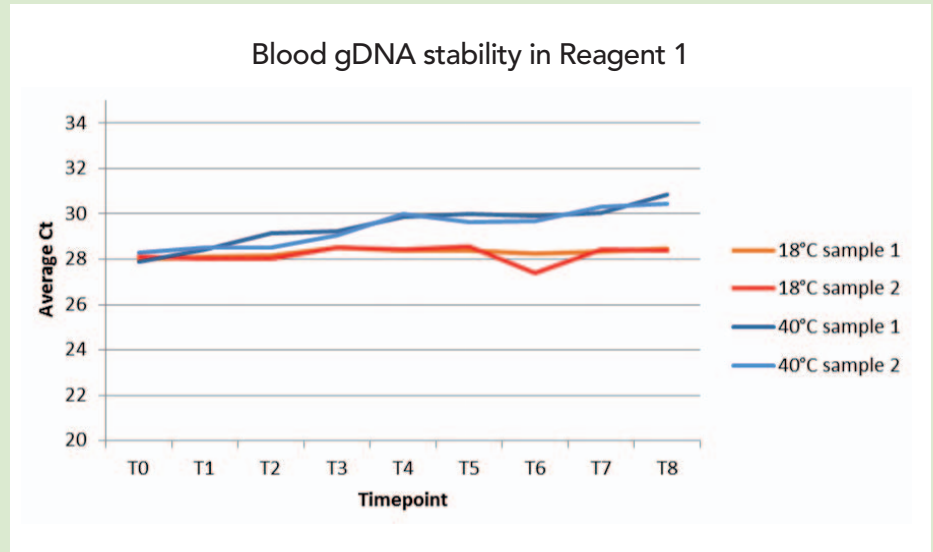
Figure 2: The comparator kits all require a pre-lysis step involving centrifugation and heating. This adds further time to processes which already range from 20 minutes to 1 hour. Arcis Sample Prep Kit requires no instrumentation and takes three minutes from start to finish.



Stabilises nucleic acids at room temperature

After reaction with Reagent 1, nucleic acids are stabilised within one minute for storage at room temperature. Data shows DNA to be stabilised at ambient temperatures for 90 plus days, while RNA is stabilised for one week at ambient temperatures. Following reaction with Reagent 2 nucleic acids should be used directly in downstream processes or frozen at -20°C. This makes the Arcis Sample Prep Kit ideal for use in low-resource environments, where samples may be collected directly into Reagent 1 then shipped to a central testing laboratory for downstream testing.

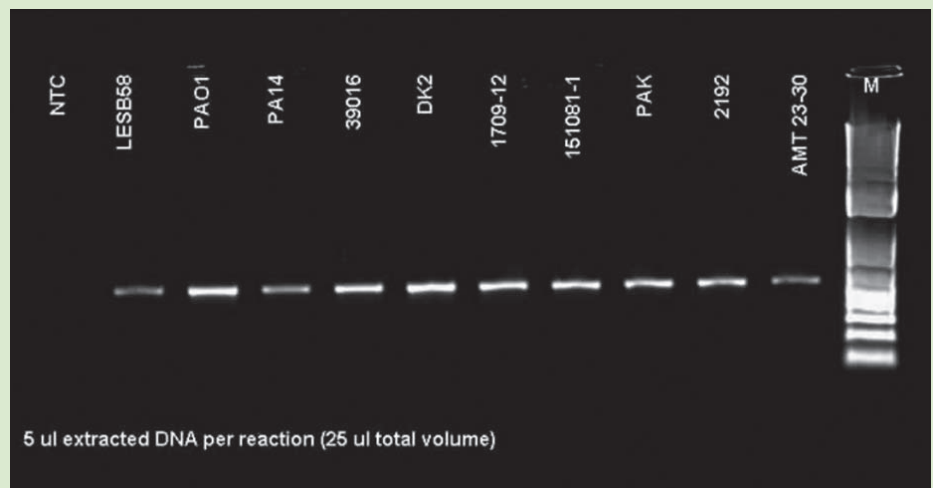
Figure 3: Showing the stability of human genomic DNA extracted from blood after reaction with Reagent 1 over 30 days.



No clean-up step required

Arcis Sample Prep produces nucleic acids which are capable of going directly into techniques such as PCR, qPCR, RT-qPCR, Sanger sequencing, Pyro-sequencing, NGS, LAMP, and NASBA without further clean-up/ purification steps. Shown is end-point PCR of *Pseudomonas aeruginosa* run on an agarose gel showing clear amplification, see Figure 4.

Figure 4: Rapid DNA extraction for bacterial cultures of *Pseudomonas aeruginosa*





To order the Arcis
Novel Sample Preparation
nucleic acid kit
please contact us today



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The Arcis Novel Sample Preparation nucleic acid kit is manufactured
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