> TruTip™

Breaking the speed limit

on ultra-rapid nucleic acid extraction

Akonni Biosystems

> *Faster than all other methods*

TruTip redefines DNA/RNA extraction by using a nucleic acid binding matrix imbedded in a pipette tip. There are no hazardous chemicals. No expensive equipment. No time-consuming protocols. Just true extractions, purified and concentrated 5 to 10-fold as each sample is processed.

This revolutionary technology integrates seamlessly into your work environment, ensuring ease-of-use without sacrificing reliability and yield. It greatly reduces hands-on time by providing ready-to-use, load-and-run reagents and tips.

TruTip redefines DNA/RNA extraction by using a nucleic acid binding matrix imbedded in a pipette tip.

ULTRAFAST

- 4 minutes per sample on-demand
- 2 minutes per sample by automation

COST EFFECTIVE

- Low cost per extraction
- No major equipment required for on-demand

SNAP ON & GO

- Easy setup
- Become an expert in one run
- Large volume samples

HIGH YIELD & PURITY

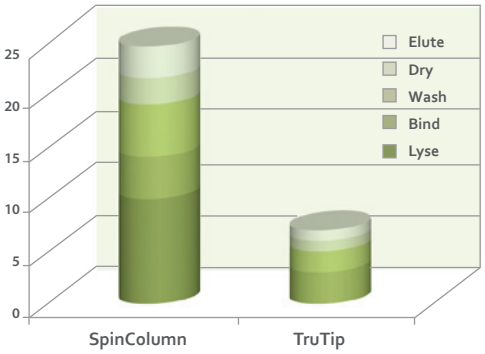
- Concentrate nucleic acids by 5 to 10-fold
- Removes inhibitors that interfere with PCR
- Superior or comparable to "gold standard" methods

PCR-ready nucleic acids in minutes

Among the first steps in many laboratory tests are the isolation and purification of nucleic acid, fundamental to a wide variety of biotech, research, forensic, and clinical applications. These procedures consume considerable time, labor and costly materials. Until now, slow isolation and purification protocols delayed access to testing results by hours, or sometimes even days. TruTip changes the paradigm with an ultra-rapid, robust, simple extraction method that provides results in minutes with a yield superior or comparable to industry-standard kits.

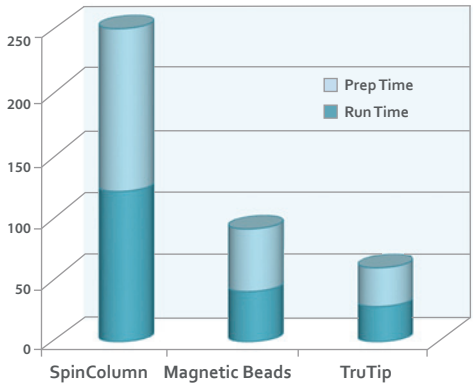
TruTip's flexible protocol addresses the variety of specimens seen in labs today, including larger volume samples up to 2mL. Samples volumes can range from 100µL to 2mL, with extracted nucleic acid concentrated 5 to 10-fold.

Get results in minutes with a yield comparable to industry-standard kits.



Comparison of On-Demand Extraction Methods

Time it takes (in minutes) to perform an extraction with TruTip and Spin Column methods. Does not include set-up time. Based on protocols for extracting genomic DNA from saliva.



Comparison of Automated Extraction Methods

Time it takes (in minutes) to run 24 extractions with TruTip on the epMotion® Automated Pipetting System, Spin Column and Magnetic Bead methods. Based on protocol for extraction of viral RNA from nasopharyngeal swab samples. Data taken from trials at a prominent U.S. Public Health Lab.

On-Demand Solutions > Ready when you are

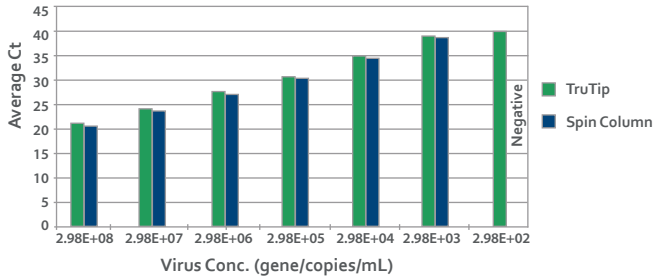
TruTip's speed makes it ideal for a variety of challenging environments. TruTip can be used to purify a single sample and get results fast—without spending time setting up for a lengthy spin column extraction. In the field, capitalize on TruTip's portability to run anywhere from one to twelve samples at a time by using a Rainin EDP®3-Plus single or multi-channel pipette. In the lab, use TruTip to extract nucleic acids as they come in, 24 hours a day, seven days a week, taking advantage of the power of true on-demand sample preparation.

For samples with water-like viscosity, select TruTip SPT tips; for more viscous samples, select TruTip LPT tips. All starter kits include an electronic single channel pipette.

	TruTip			Spin Column		
Extraction Time (after 10 minute incubation)	6-7 min.			15 min.		
Input/Elution Volume	Tip Type	Avg. Conc. (ng/µL)	Avg. Yield (µg)	Type	Avg. Conc. (ng/µL)	Avg. Yield (µg)
400 µL/100 µL	LPT 2 mL	134 ±13	13.36	Spin Col.	128 ±13	12.83
200 µL/100 µL	SPT 2 mL	89.8 ±6.0	9.75	Spin Col.	82.4 ±4.9	8.24
100 µL/100 µL	SPT 2 mL	34.4±4.9	3.44	Spin Col.	30.5 ±5.9	3.05

TruTip vs. Spin Colum Extraction Times and Results (n=5)

TruTip gDNA Blood Kit vs. "gold standard." Comparing different input volumes of whole blood. Results show higher yield and higher concentrations on same samples for TruTip.



TruTip Correlation to Spin Column

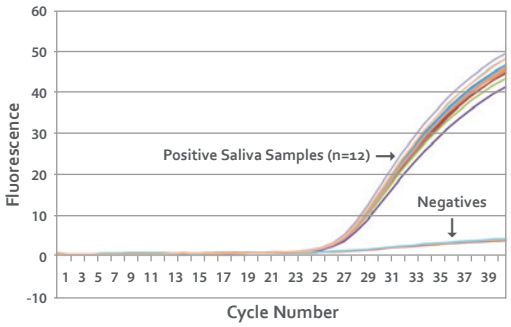
Ct value comparison for dilution study extractions of FluA shows equivalent recovery from TruTip and Spin Column extraction methods.

Custom Solutions > As flexible as your requirements

TruTip technology can be customized to work with virtually any pipette size or extraction protocol. Custom formats include small and large sized tips to accommodate a range of sample input volumes while maximizing purity and yield. TruTips may also be adapted to work with tips used by most high-throughput pipetting stations, including those from Tecan, Hamilton, and Qiagen. We can also work with you to adapt TruTip technology to most MDX platforms.

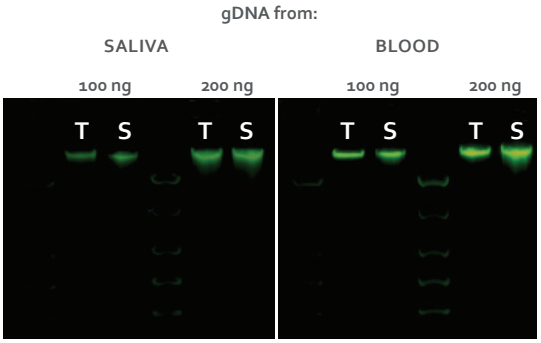
Automated Solutions > True fit for a busy lab

Automating the TruTip extraction process provides an ultra-rapid method for traditional labs with a moderate level of throughput. TruTip lets you process eight to 384 samples per day on the epMotion automated pipetting system from Eppendorf with the press of a button. The simple workflow and user-friendly interface means little training is required and set-up time is minimal.



Cross Contamination & Reproducibility Study (n=12)

Alternating samples of saliva and water on a single automated run. Results show no cross contamination and high reproducibility using TruTip on the epMotion.



Genomic DNA by Gel Electrophoresis: TruTip vs. Spin Column

Gel Electrophoresis results of extracted gDNA from Blood or Saliva for TruTip (T) or Spin Column (S) methods showing high molecular weight, pure extracted DNA.

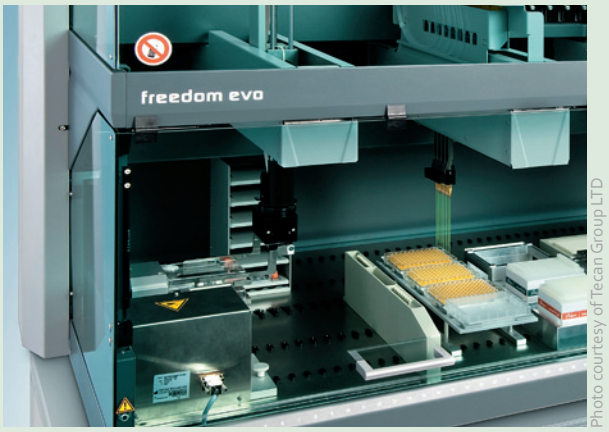
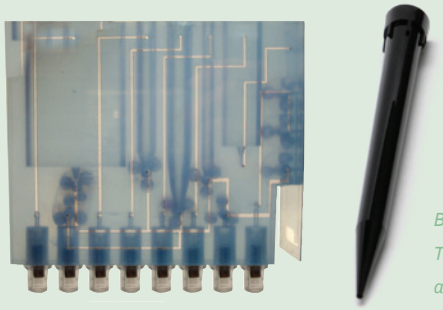
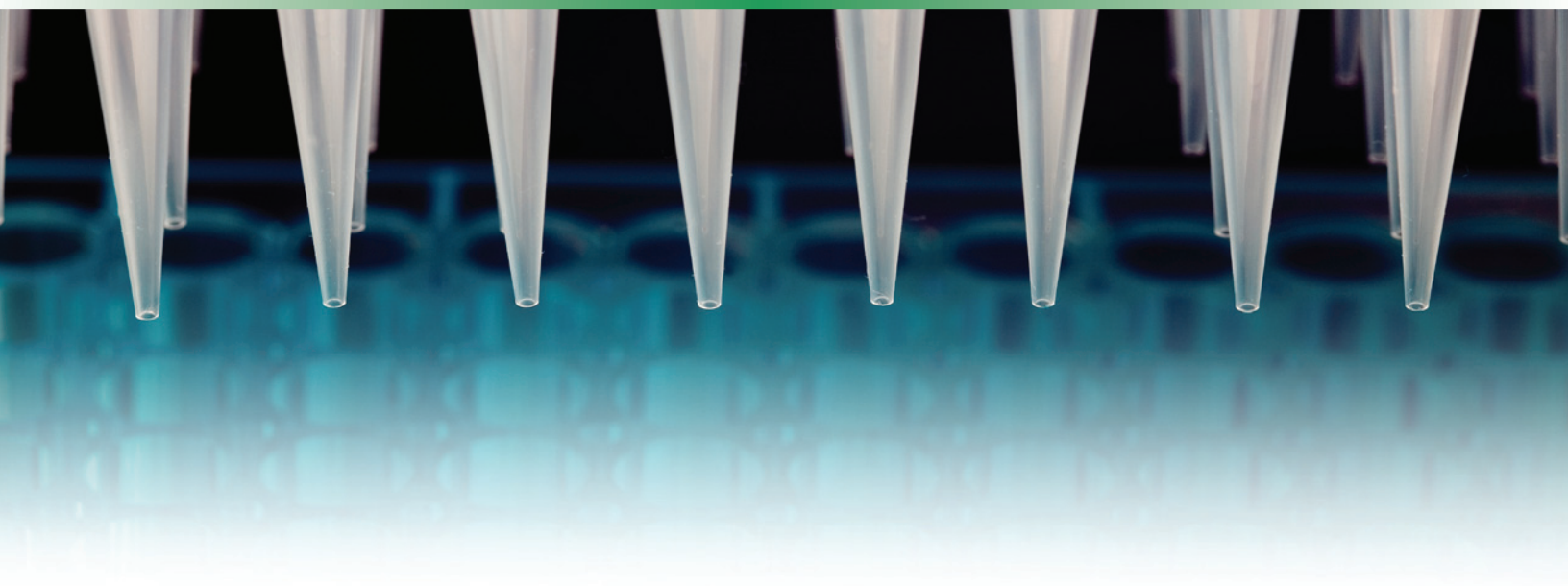


Photo courtesy of Tecan Group LTD



Bi-directional flow of liquid across the TruTip binding matrix makes it an ideal approach for custom solutions.



So effective, it's patented

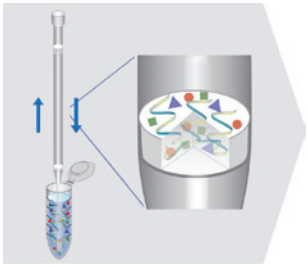
TruTip is a revolutionary technology that simplifies sample preparation by combining all of the complex protocols of DNA or RNA extraction into just a few steps. Our patented approach is based on a porous binding matrix uniquely imbedded in a single-use pipette tip.

TruTip works with chaotropic salt chemistry and is designed to handle a range of sample volumes and a variety of biological sources, eliminating the need for vacuum filtration, centrifugation, and hazardous chemicals. Concentration and purification make each sample ready for downstream PCR with yields that are superior or equal to standard methods.

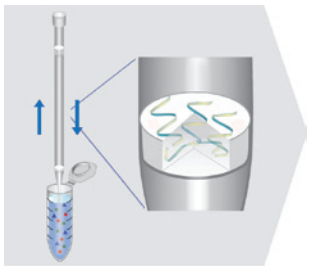
TruTip's patented technology simplifies and speeds sample preparation.

SO SIMPLE, YOU'LL BE DONE IN 4 EASY STEPS

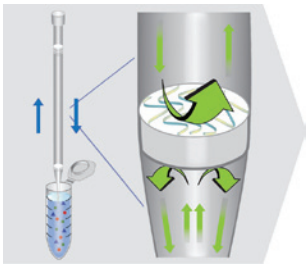
STEP 1 BIND TO MATRIX



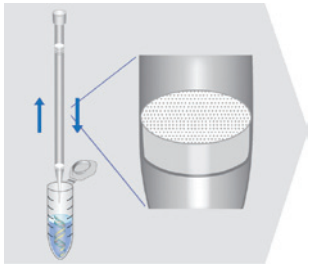
STEP 2 WASH AWAY IMPURITIES



STEP 3 AIR DRY



STEP 4 ELUTE



Addressing the specimens you work with every day

TruTip Kits accomodate a wide range of sample sources (i.e. blood, saliva, urine, sputum, and nasopharyngeal aspirate), sample viscosities, and sample types from human genomic DNA to microorganisms (bacterial or viral pathogens).

TruTips kits are available to extract:

- Microbial DNA in culture, urine and more for such microbes as *B. anthracis*, Adenovirus, and *E. coli*
- Viral RNA in culture, urine and more for Herpes Virus I, and *Chlamydia trachomatis*
- *Mycobacterium tuberculosis* (MTB) DNA in heat-killed culture, sputum and sediment
- DNA and RNA from tougher-to-lyse bacteria such as *Staphylococcus aureus* and *Streptococcus pyrogenes*
- DNA and RNA from blood-borne microbes such as *B. anthracis*, *Y. pestis*, and Venezuelan equine virus
- Influenza A and B and hRSV from nasal aspirate and respiratory swab samples in viral transport media
- Human genomic DNA from blood or semen
- Human genomic DNA from saliva

For a current list of TruTip applications, please call us at **301-698-0101**, send an email to **info@akonni.com**, or visit us online at **www.akonni.com**.

Applications for biotech, research, and forensic laboratories.

The support you need to work effectively

Time is critical in any laboratory. That's why we make our customers our top priority. We can help you determine the best kit for your specimens and guide you through our protocols. Our dedicated specialists are available by email and phone to support our products and answer all of your questions—fast. And our applications support experts can help you implement TruTip into your laboratory to streamline your workflow.

Find out more

Learn more about how TruTip sample preparation will revolutionize the way you extract nucleic acids. Please call us at **301-698-0101**, send an email to **info@akonni.com**, or visit us online at **www.akonni.com**.

About Akonni Biosystems

Akonni Biosystems was founded in 2004 and has over 20 patents issued with 13 others pending. Our core technology is based on work developed at Argonne National Laboratory and the Engelhardt Institute of Molecular Biology, and utilizes gel-drop array technologies optimized for medical applications. We have also developed core IP in the area of ultra-rapid nucleic acid extraction. Supported by a series of government grants and contracts from NIH, CDC, DOE, DOD, NIJ, and NSF, we have significantly advanced the original technology by improving the system's capabilities from sample preparation to final result. Commercial products and those in our near-term pipeline include TruTip rapid sample preparation methodologies for nucleic acid extraction, TruArray® multiplex panel assays for detecting multidrug-resistant tuberculosis (MDR-TB), upper respiratory infections, viral encephalitis, and hospital-acquired infections (MRSA), and TruDx® test readers. > TTP-PC-001 | 1111.1

Akonni Biosystems

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