
# Delta Total Nucleic Acid Extraction Kits

DELTA

# Content Page



## Product Types

| | Catalog No. | Sample Types | Nucleic Acid Source/ Pathogen Type | Type of Extracted Nucleic Acid | Processing | Downstream applications |
|---|---|---|---|---|---|---|
| **TNA Extraction Kit for Nasal Swab**  | • 840101024 (24-prep)<br>• 840101096 (96-prep) | • Wet swab in UTM/VTM/MTM<br>• Dry swab | • Host<br>• Viruses (DNA and RNA)<br>• Bacteria (gram-negative and gram-positive e.g. *mycobacterium fortuitum*) | DNA and RNA | Manual or Automated | qPCR, RT-qPCR, isothermal amplification (LAMP and RT-LAMP) |
| **TNA Extraction Kit for Blood**  | • 840102024 (24-prep)<br>• 840102096 (96-prep) | • Whole Blood | • Host<br>• Viruses (DNA and RNA)<br>• Bacteria (gram-negative and gram-positive e.g. *mycobacterium fortuitum*)<br>• Fungi | | | |
| **TNA Extraction Kit for STD (Swab)**  | • 840103024 (24-prep)<br>• 840103096 (96-prep) | • Wet swab in UTM/VTM/MTM<br>• Dry swab | • Host<br>• *Chlamydia trachomatis*<br>• *Neisseria gonorrhoeae*<br>• *Mycoplasma genitalium*<br>• *Trichomonas vaginalis*<br>• Herpes simplex viruses 1 and 2<br>• *Candida albicans* | | | |
| **TNA Extraction Kit for Serum/Plasma**  | • 840104024 (24-prep)<br>• 840104096 (96-prep) | • Serum/Plasma | • Viruses (DNA and RNA) | | | |
| **DNA Extraction Kit for Nasal Swab***<br>*Kits for more sample types and RNA extraction kits are in development. | • 840105024 (24-prep)<br>• 840105096 (96-prep) | • Wet swab in UTM/VTM/MTM<br>• Dry swab | • Host<br>• Viruses<br>• Bacteria (gram-negative and gram-positive e.g. *mycobacterium fortuitum*) | DNA | | |

## Key Features

### Alcohol free
- Hassle-free transportation and storage
- Consistent buffer composition
- No risk of volatile chemical evaporation
- Reduce risk of downstream inhibition

### Enzyme free
- No Proteinase K & lysozyme treatment
- No sample pretreatment needed

### Beads drying free
- Fast turnaround time
- No risk of downstream inhibition due to alcohol residue

### Centrifugation free
- Minimizing carryover residue
- No sample loss due to dead volume from spin column

### Safe & Easy storage
- Alcohol- and enzyme-free, thus minimizing storage requirements

### Carrier RNA free
- Unique technology prevent degradation of target nucleic acid
- Specialized binding bead for effective recovery with low nucleic acid input

# TNA Extraction Kit for Nasal Swab

Total Nucleic Acid (TNA) Extraction Kit for Nasal Swab provides a unique and rapid method to extract and purify both DNA and RNA in 10 mins from nasal swab samples. It extracts nucleic acid effectively from a variety of microorganisms, including viruses and bacteria (gram-positive and gram-negative). This kit, which utilizes magnetic beads-based technology, is compatible with automated platforms to enable high throughput extraction in extremely short processing time. Reagents are specially formulated to be enzyme-free, alcohol-free, and stable when stored at room temperature, thus eliminating any special storage and handling requirements.

## Highlights:

- **Room temperature storage**
  - No refrigeration needed
- **Ready to use and convenient**
  - No addition of alcohols required
- **Simplified protocol**
  - No enzymatic pretreatment (even for gram-positive bacteria)
- **Rapid and easy procedure**
  - No centrifugation, and automation-compatible
- **Time-saving**
  - No beads drying time
- **Universal protocol**
  - Simultaneous detection of different microorganism types from single sample
- **High quality total DNA and RNA for molecular applications**

## Specifications:

| | |
|---|---|
| **Technology** | **Magnetic beads** |
| **Packaging Size** | **24-prep or 96-prep** |
| **Storage Condition** | **Room temperature** |
| **Sample Types** | • **Wet swab in UTM/VTM/MTM**<br>• **Dry swab** |
| **Sample Volume** | **300 µL** (wet swab) |
| **Nucleic Acid Source/ Pathogen Type** | • **Host**<br>• **Viruses** (DNA and RNA)<br>• **Bacteria** (gram-negative and gram-positive) |

| | |
|---|---|
| **Processing** | **Manual** (magnetic rack) **or automated** (automated extraction instrument)* |
| **Elution Volume** | **80 µL** |
| **Type of Extracted Nucleic Acid** | **DNA and RNA** |
| **Downstream Applications** | **qPCR, RT-qPCR, isothermal amplification** (LAMP and RT-LAMP) |
| **Time (per prep)** | **10 mins** |

*Compatible with automated nucleic acid extraction systems, including Katsura M32 Nucleic Acid Extractor and Thermo Fisher Scientific KingFisher Apex System

## Comparison with Leading Commercial Kits:

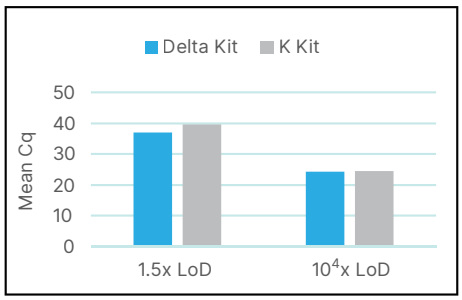
| Features | | Delta Kit | M Kit | Q Kit | R Kit | K Kit |
|---|---|---|---|---|---|---|
| Reagent simplicity | Alcohol-free | ✓ | ✗ | ✗ | ✗ | ✗ |
| | Enzyme-free (e.g. Proteinase K) | ✓ | ✗ | ✗ | ✓ | ✓ |
| | Storage | Room Temperature | RT, -20°C | RT, -20°C | RT, -20°C | RT |
| Protocol simplicity | Pretreatment required? | No | Yes | Yes | No | No |
| | Operational temperature | RT, 80°C | RT, 56°C | RT, 37°C, 56°C, 95°C | RT | RT, 80°C |
| | No centrifugation | ✓ | ✓ | ✗ | ✓ | ✓ |
| | No beads drying step | ✓ | ✗ | ✓ | ✓ | ✗ |
| | No. of steps | 10 | 18 | 11 | 12 | 10 |
| Targets | Viral RNA | ✓ | ✓ | ✗ | ✓ | ✓ |
| | Viral DNA | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Bacterial DNA | ✓ | ✓ | ✓ | ✗ | ✗ |
| Time taken | Total protocol time (minutes) | <10 | 60 | 95 | 23 | 27 |

## Performance:

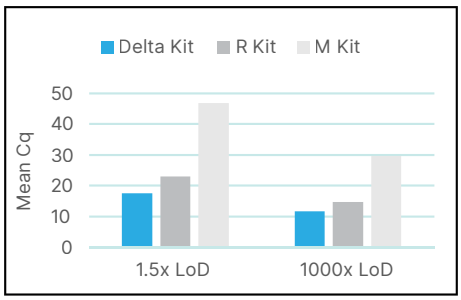
### Better or comparable performance compared with other commercial kits

Nucleic acid extractions from *S. aureus* (gram-positive bacteria) and influenza A (RNA virus) at indicated concentrations with Delta kit and leading commercial kits. Protocols were followed according to manufacturers' instructions. Both LAMP and qPCR performances were evaluated, and Delta kit is better or comparable to other commercial kits. (For LAMP/RT-LAMP, Cq refers to threshold time and each cycle is 30 sec)

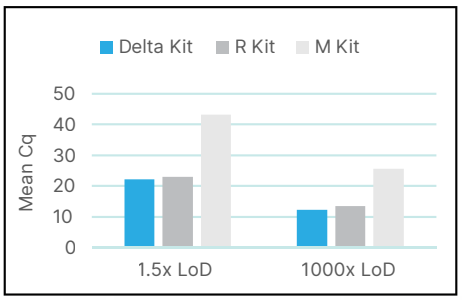
*S. aureus* qPCR




*S. aureus* LAMP



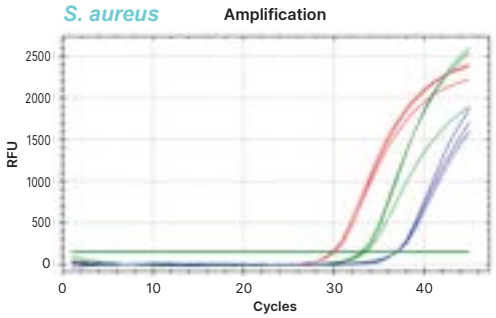

Influenza A RT-LAMP

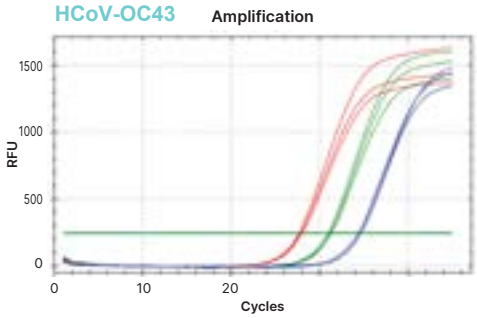


## High quality nucleic acid obtained from our kit contain no PCR inhibitors.

Nucleic acid extractions from 300 µL pathogen-spiked swab matrixes were performed with TNA Extraction Kit for Nasal Swab. qPCR/RT-qPCR performances of undiluted, 10x-diluted and 100x-diluted eluates indicate there is little or no PCR inhibition.

| Pathogen | Dilution | Mean Cq |
|---|---|---|
| ***S. aureus*** (gram-positive bacteria) | Undiluted | 30.03 |
| | 10x | 33.27 |
| | 100x | 37.00 |
| **Human coronavirus OC43** (HCoV-OC43; RNA virus) | Undiluted | 27.84 |
| | 10x | 31.16 |
| | 100x | 34.53 |

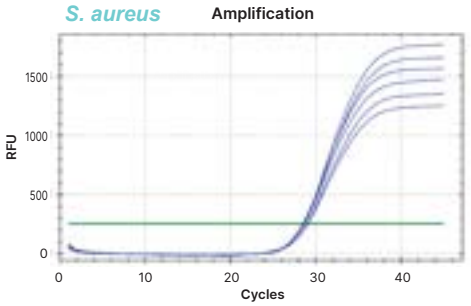


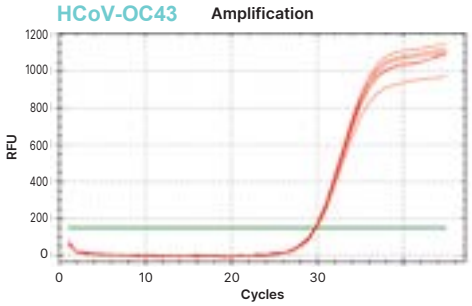



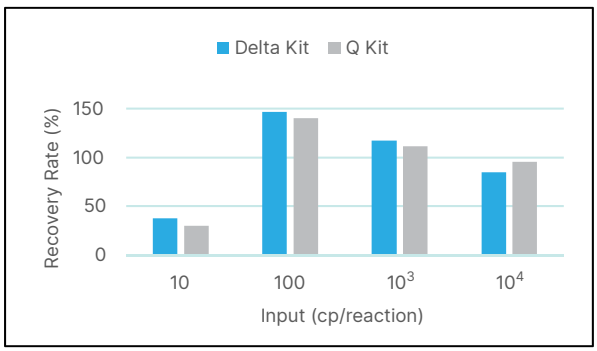

## Different nucleic acids are extracted simultaneously from TNA Extraction Kit for Nasal Swab.

Nucleic acid extraction from 300 µL swab matrix spiked with 1000x LoD each of *S. aureus* (gram-positive bacteria) and HCoV-OC43 (RNA virus) was performed with TNA Extraction Kit for Nasal Swab. A total of 3 replicates were done, and similar results were obtained amongst the replicates. Both targets showed good qPCR/RT-qPCR amplification.

| Replicate | Target | Mean Cq |
|---|---|---|
| 1 | ***S. aureus*** | 28.57 |
| | HCoV-OC43 | 29.88 |
| 2 | ***S. aureus*** | 29.06 |
| | HCoV-OC43 | 29.80 |
| 3 | ***S. aureus*** | 28.60 |
| | HCoV-OC43 | 29.67 |

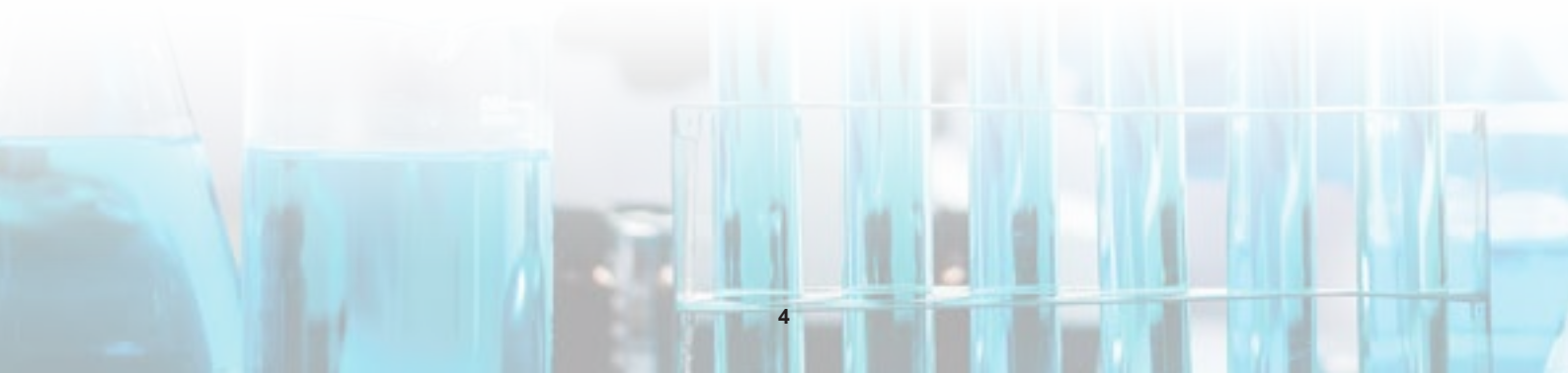



## Delta kit is automation-compatible with recovery rates better or comparable to that of manual extraction with leading commercial kit.

Nucleic acid extraction of varying amounts of SARS-CoV-2 (RNA virus) was done with both Delta and leading commercial kit. Delta kit extraction was performed with Katsura M32 Nucleic Acid Extractor, while manual extraction was performed for Q kit. Based on standard curve generated from SARS-CoV-2 RNA spiked directly into RT-qPCR reactions, the RNA yield from each kit was quantitated, and recovery rates were tabulated. Delta kit has better or comparable recovery rates to that of Q kit.



# TNA Extraction Kit for Blood

TNA Extraction Kit for Blood provides a unique and rapid method to extract and purify both DNA and RNA in around 13 mins, from hosts as well as a variety of microorganisms, including viruses, bacteria (gram-negative and gram-positive) and fungi, from whole blood samples. This kit, which utilizes magnetic beads-based technology, is compatible with automated platforms to enable high throughput extraction in extremely short processing time. Reagents are specially formulated to be enzyme-free, alcohol-free and stable when stored at room temperature, thus eliminating any special storage and handling requirements.

## Highlights:

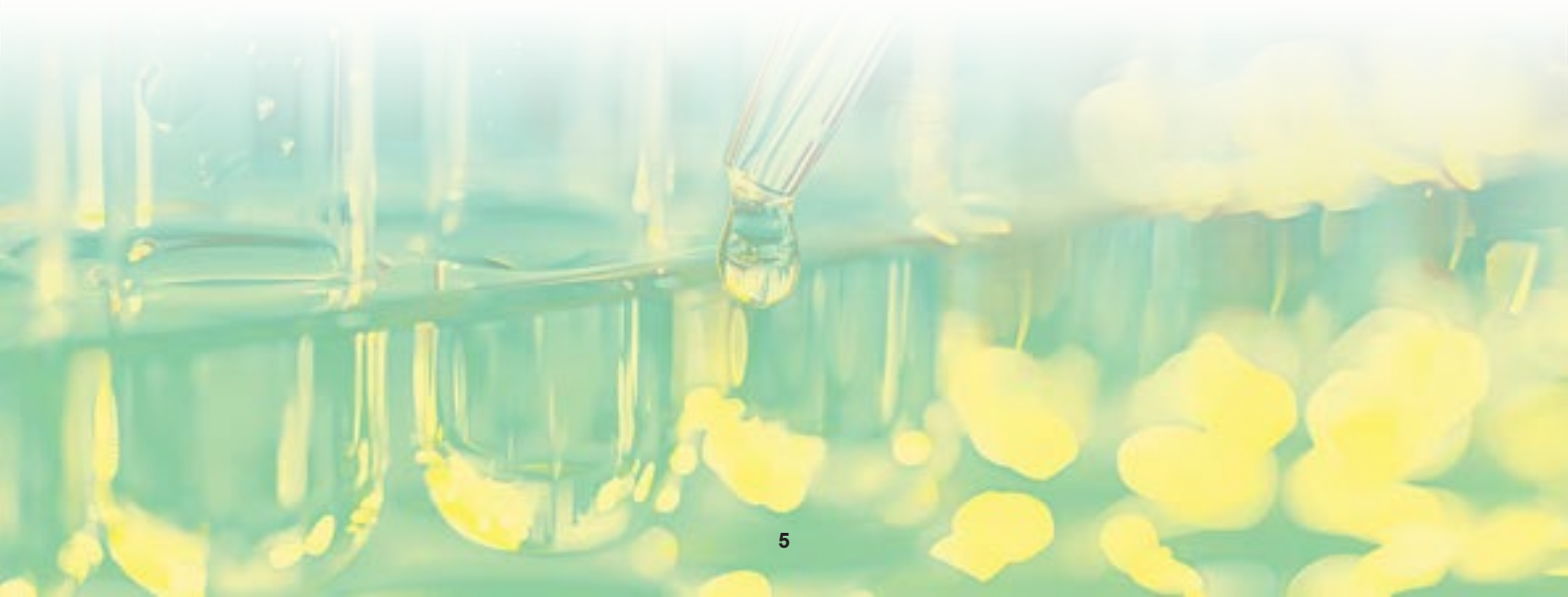
- **Room temperature storage**
  - No refrigeration needed
- **Ready to use and convenient**
  - No addition of alcohols required
- **Simplified protocol**
  - No enzymatic pretreatment (even for gram-positive bacteria and fungi)
- **Rapid and easy procedure**
  - No centrifugation, and automation-compatible
- **Time-saving**
  - No beads drying time
- **Universal protocol**
  - Simultaneous detection of host and microorganisms from single sample
- **High quality total DNA and RNA for molecular applications**

## Specifications:

| | |
|---|---|
| **Technology** | **Magnetic beads** |
| **Packaging Size** | **24-prep or 96-prep** |
| **Storage Condition** | **Room temperature** |
| **Sample Types** | **Whole blood** |
| **Sample Volume** | **300 µL** |
| **Nucleic Acid Source/ Pathogen Type** | • **Host**<br>• **Viruses** (DNA and RNA)<br>• **Bacteria** (gram-negative and gram-positive)<br>• **Fungi** |

| | |
|---|---|
| **Processing** | **Manual** (magnetic rack) **or automated** (automated extraction instrument)* |
| **Elution Volume** | **50 µL** |
| **Type of Extracted Nucleic Acid** | **DNA and RNA** |
| **Downstream applications** | **qPCR, RT-qPCR, isothermal amplification** (LAMP and RT-LAMP) |
| **Time (per prep)** | **13 mins** |

*Compatible with automated nucleic acid extraction systems, including Katsura M32 Nucleic Acid Extractor and Thermo Fisher Scientific KingFisher Apex System



## Comparison with Leading Commercial Kits:

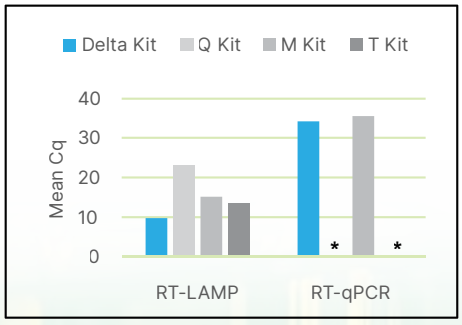
| Features | | Delta Kit | N Kit | M Kit | T Kit | Z Kit | B Kit | Q Kit | G Kit |
|---|---|---|---|---|---|---|---|---|---|
| Reagent simplicity | Alcohol-free | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| | Enzyme-free (e.g. Proteinase K) | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ | ✗ |
| Protocol simplicity | Storage | Room Temperature | RT, 2°C - 8°C, -20°C | RT, 2°C - 8°C, -20°C | RT, 2°C - 8°C, -20°C | RT, 2°C - 8°C, -20°C | RT, 2°C - 8°C, -20°C | RT, -20°C | RT, -20°C |
| | Pretreatment required? | No | Yes | No | No | Yes | Yes | Yes | No |
| | Operational temperature | RT, 95°C | RT, 37°C, 55°C, 65°C | RT, 37°C, 56°C, 60°C | RT, 56°C, 65°C | RT, 37°C | RT, 37°C, 60°C, 65°C | RT, 37°C, 56°C, 95°C | RT, 4°C |
| | No centrifugation | ✓ | ✓ | ✓ | ✓ | ✗ | ✓ | ✗ | ✗ |
| | No beads drying step | ✓ | ✗ | ✗ | ✗ | ✓ | ✗ | ✓ | ✓ |
| | No. of steps | 10 | 23 | 18 | 14 | 10 | 18 | 22 | 22 |
| Targets | Viral RNA | ✓ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✓ |
| | Viral DNA | ✓ | ✗ | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ |
| | Bacterial DNA | ✓ | ✓ | ✗ | ✗ | ✗ | ✗ | ✓ | ✗ |
| | Fungal DNA | ✓ | ✗ | ✗ | ✗ | ✓ | ✓ | ✗ | ✗ |
| Time taken | Total protocol time (minutes) | <13 | 103 | 60 | 45 | 110 | 55 | 20-95 | 41 |

## Performance:

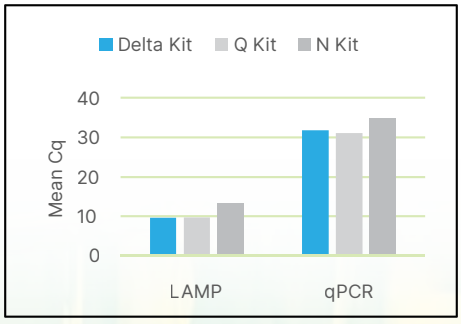
### Better or comparable performance compared with other commercial kits

Nucleic acid extractions from blood spiked with either *S. aureus* (gram-positive bacteria), dengue virus Type 2 (dengue 2; RNA virus), or C*andida albicans* (*C. albicans*; fungus) at 1.5x LoD with Delta kit and leading commercial kits. Protocols were followed according to manufacturers' instructions. Both LAMP and qPCR performances were evaluated, and Delta kit is better or comparable to other commercial kits. (*No amplification observed. For LAMP/RT-LAMP, Cq refers to threshold time and each cycle is 30 sec.)

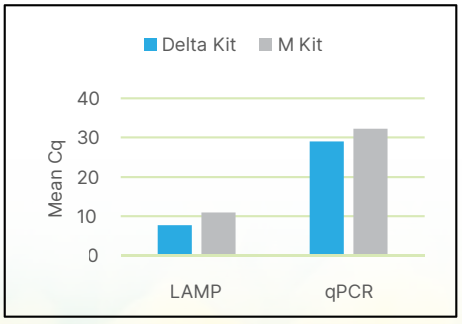
**Dengue 2**



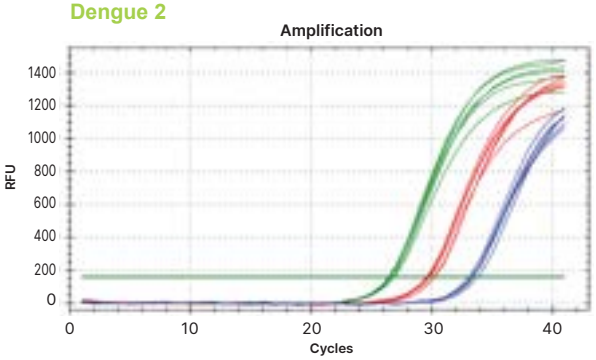

***S. aureus***




***C. albicans***



Dengue 2




| Dilution | Mean Cq |
|---|---|
| Undiluted | 26.59 |
| 10x | 29.84 |
| 100x | 33.35 |

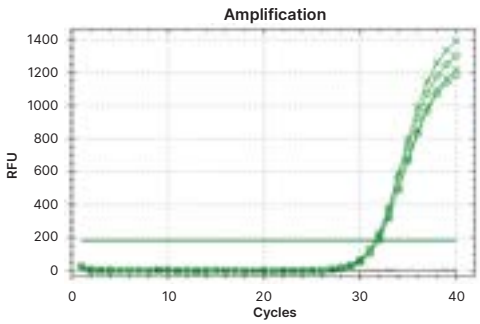
## High quality nucleic acid obtained from our kit contain no PCR inhibitors.

Nucleic acid extraction from 300 µL blood spiked with 100 $TCID_{50}$ dengue virus Type 2 (dengue 2; RNA virus) was performed with TNA Extraction Kit for Blood. RT-qPCR performances of undiluted, 10x-diluted and 100x-diluted eluates indicate there is little or no PCR inhibition.

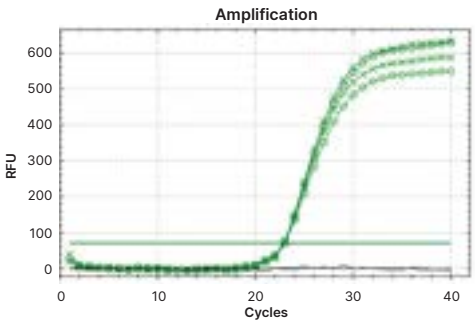
## Different nucleic acids are extracted simultaneously with TNA Extraction Kit for Blood.

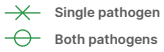
Nucleic acid extractions from 300 µL blood spiked with either 15 CFU of *S. aureus* (gram-positive bacteria), 1000 $TCID_{50}$ dengue virus Type 2 (dengue 2; RNA virus), or both pathogens were performed with TNA Extraction Kit for Blood. Similar qPCR/RT-qPCR amplifications were observed between samples spiked with only one or both pathogens, indicating that the TNA Extraction Kit for Blood allows simultaneous extraction of both RNA and DNA from the same sample.

*S. aureus* qPCR

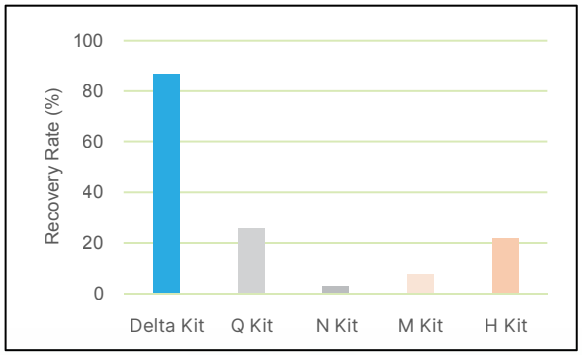



Dengue 2 RT-qPCR




| Target | Spike-in | Mean Cq |
|---|---|---|
| *S. aureus* | Single pathogen | 31.76 |
| | Both pathogens | 31.77 |
| Dengue 2 | Single pathogen | 31.76 |
| | Both pathogens | 31.77 |




## Delta kit has best recovery rate amongst leading commercial kits.

Nucleic acid extraction of whole blood was done with Delta and leading commercial kits. Total DNA amount in the eluates were quantitated by Qubit, and the recovery rate was calculated based on total DNA amount recovered and theoretical amount of leukocytes DNA normally present in blood. Delta kit outperforms other commercial kits with the best recovery rate.

# TNA Extraction Kit for STD (Swab)

TNA Extraction Kit for STD (Swab) provides a unique and rapid method to extract and purify both DNA and RNA in 10 mins from STD swab samples. It extracts nucleic acid effectively from host and a range of STD pathogens, including *Chlamydia trachomatis, Neisseria gonorrhoeae, Mycoplasma genitalium, Trichomonas vaginalis*, Herpes simplex viruses 1 and 2, and *Candida albicans*. This kit, which utilizes magnetic beads-based technology, is compatible with automated platforms to enable high throughput extraction in extremely short processing time. Reagents are specially formulated to be enzyme-free, alcohol-free, and stable when stored at room temperature, thus eliminating any special storage and handling requirements.

## Highlights:

- **Room temperature storage**
  - No refrigeration needed
- **Ready to use and convenient**
  - No addition of alcohols required
- **Simplified protocol**
  - No enzymatic pretreatment
- **Rapid and easy procedure**
  - No centrifugation, and automation-compatible
- **Time-saving**
  - No beads drying time
- **Universal protocol**
  - Simultaneous detection of different microorganism types from single sample
- **High quality total DNA and RNA for molecular applications**

## Specifications:

| | |
|---|---|
| **Technology** | **Magnetic beads** |
| **Packaging Size** | **24-prep or 96-prep** |
| **Storage Condition** | **Room temperature** |
| **Sample Types** | • **Wet swab in UTM/VTM/MTM**<br>• **Dry swab** |
| **Sample Volume** | **300 µL** (wet swab) |
| **Nucleic Acid Source/ Pathogen Type** | • **Host**<br>• ***Chlamydia trachomatis***<br>• ***Neisseria gonorrhoeae***<br>• ***Mycoplasma genitalium***<br>• ***Trichomonas vaginalis***<br>• **Herpes simplex viruses 1 and 2**<br>• ***Candida albicans*** |

| | |
|---|---|
| **Processing** | **Manual** (magnetic rack) **or automated** (automated extraction instrument)* |
| **Elution Volume** | **80 µL** |
| **Type of Extracted Nucleic Acid** | **DNA and RNA** |
| **Downstream applications** | **qPCR, RT-qPCR, isothermal amplification** (LAMP and RT-LAMP) |
| **Time (per prep)** | **10 mins** |

*Compatible with automated nucleic acid extraction systems, including Katsura M32 Nucleic Acid Extractor and Thermo Fisher Scientific KingFisher Apex System

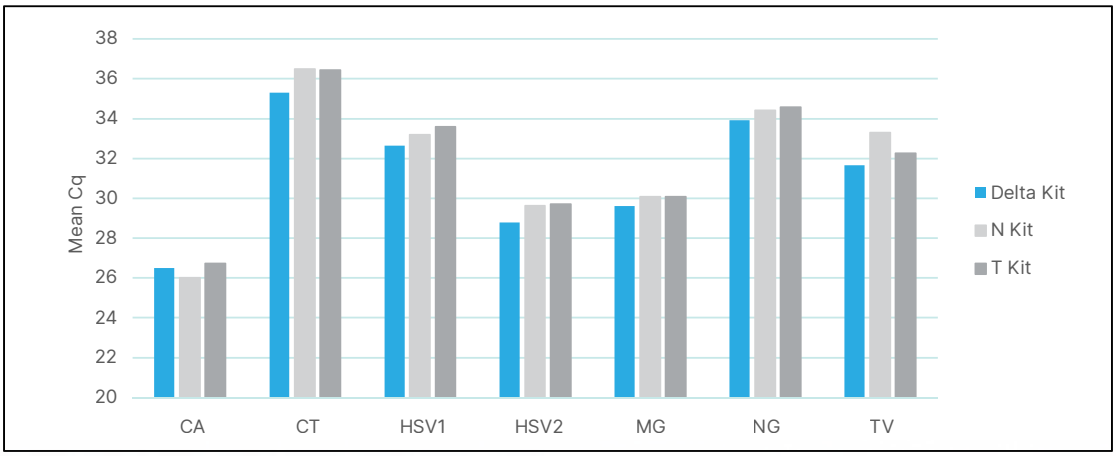
## Comparison with Leading Commercial Kits:

| Features | | Delta Kit | T Kit | N Kit |
|---|---|---|---|---|
| Reagent simplicity | Alcohol-free | ✓ | ✗ | ✗ |
| | Enzyme-free (e.g. Proteinase K) | ✓ | ✗ | ✗ |
| | Storage | Room Temperature | Room Temperature | Room Temperature |
| Protocol simplicity | Operational temperature | RT, 80°C | RT, 65°C | RT, 65°C |
| | No beads drying required | ✓ | ✗ | ✗ |
| | No. of steps | 10 | 20 | 20 |
| Targets | Viral DNA | ✓ | ✓ | ✓ |
| | Viral RNA | ✓ | ✓ | ✓ |
| | Bacterial DNA | ✓ | ✓ | ✓ |
| | Fungal DNA | ✓ | ✗ | ✗ |
| Time taken | Total protocol time (minutes) | <10 | 90 | 45 |

## Performance:

### Better or comparable performance compared with other commercial kits

Nucleic acid extractions from pooled human vaginal fluid spiked with 3x LoD each of 7 pathogens **(***Chlamydia trachomatis* (CT), *Neisseria gonorrhoeae* (NG), *Mycoplasma genitalium* (MG), *Trichomonas vaginalis* (TV), Herpes simplex viruses 1 and 2 (HSV1, HSV2), *Candida albicans* (CA)**)** were performed with Delta and leading commercial kits. Protocols were followed according to manufacturers' instructions. qPCR performances were evaluated, and Delta kit is better or comparable to other commercial kits.

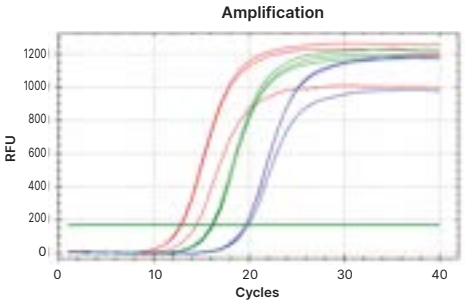


## High quality nucleic acid obtained from our kit contain no PCR inhibitors.

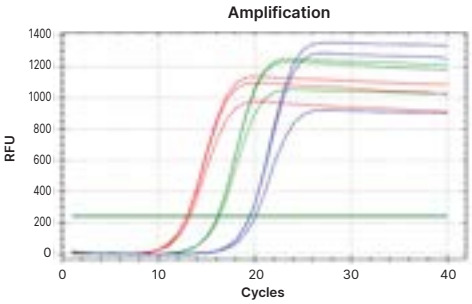
Nucleic acid extractions from 300 µL pathogen-spiked artificial vaginal fluid in MTM were performed with TNA Extraction Kit for STD (Swab). qPCR performances of undiluted, 10x-diluted and 100x-diluted eluates indicate there is little or no PCR inhibition.

| Pathogen | Dilution | Mean Cq |
|---|---|---|
| *Neisseria gonorrhoeae* | Undiluted | 13.38 |
| | 10x | 16.16 |
| | 100x | 19.70 |
| *Trichomonas vaginalis* | Undiluted | 13.08 |
| | 10x | 16.19 |
| | 100x | 19.67 |

*Neisseria gonorrhoeae*

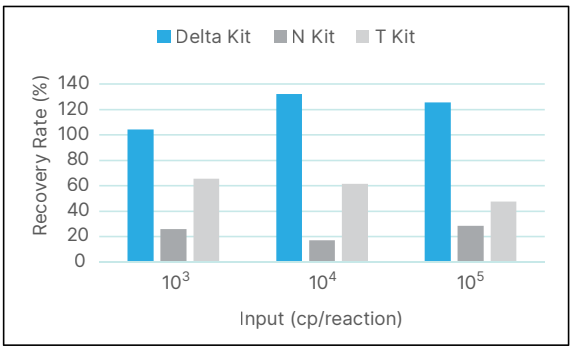



*Trichomonas vaginalis*




## Delta kit has the best recovery rate compared with leading commercial kits.

Varying amounts of purified *Chlamydia trachomatis* DNA was spiked into artificial vaginal fluid in MTM, and nucleic acid extractions were done with Delta and leading commercial kits. Based on standard curve generated from purified *Chlamydia trachomatis* DNA spiked directly into qPCR reactions, the DNA yield from each kit was quantitated, and recovery rates were tabulated. Delta kit outperforms other commercial kits with the best recovery rates.



# TNA Extraction Kit for Serum/Plasma

TNA Extraction Kit for Serum/Plasma provides a unique and rapid method to extract and purify both viral DNA and RNA in around 13 mins from serum/plasma samples. This kit, which utilizes magnetic beads-based technology, is compatible with automated platforms to enable high throughput extraction in extremely short processing time. Reagents are specially formulated to be enzyme-free, alcohol-free, and stable when stored at room temperature, thus eliminating any special storage and handling requirements.

## Highlights:

- **Room temperature storage**
  - No refrigeration needed
- **Ready to use and convenient**
  - No addition of alcohols required
- **Simplified protocol**
  - No enzymatic pretreatment
- **Rapid and easy procedure**
  - No centrifugation, and automation-compatible
- **Time-saving**
  - No beads drying time
- **High quality total DNA and RNA for molecular applications**

## Specifications:

| | |
|---|---|
| **Technology** | **Magnetic beads** |
| **Packaging Size** | **24-prep or 96-prep** |
| **Storage Condition** | **Room temperature** |
| **Sample Types** | **Serum or plasma** |
| **Sample Volume** | **300 µL** |
| **Nucleic Acid Source/ Pathogen Type** | **Viruses** (DNA and RNA) |

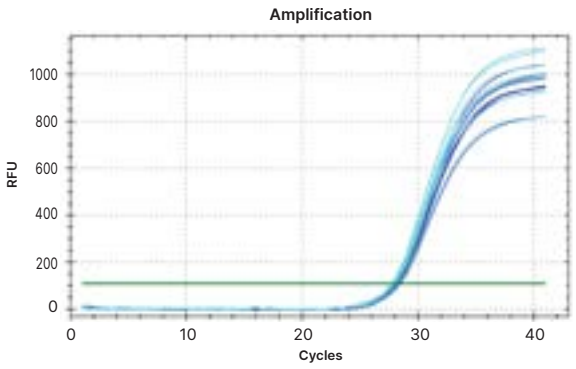
| | |
|---|---|
| **Processing** | **Manual** (magnetic rack) **or automated** (automated extraction instrument)* |
| **Elution Volume** | **50 µL** |
| **Type of Extracted Nucleic Acid** | **DNA and RNA** |
| **Downstream applications** | **qPCR, RT-qPCR, isothermal amplification** (LAMP and RT-LAMP) |
| **Time (per prep)** | **13 mins** |

*Compatible with automated nucleic acid extraction systems, including Katsura M32 Nucleic Acid Extractor and Thermo Fisher Scientific KingFisher Apex System

## Comparison with Leading Commercial Kits:

| Features | | Delta Kit | M Kit | T Kit |
|---|---|---|---|---|
| Reagent simplicity | Alcohol-free | ✓ | ✗ | ✗ |
| | Enzyme-free (e.g. Proteinase K) | ✓ | ✗ | ✗ |
| | Storage | Room Temperature | RT, 2°C - 8°C, -20°C | RT, 2°C - 8°C, -20°C |
| Protocol simplicity | Operational temperature | RT, 95˚C | RT, 37°C, 56°C, 60°C | RT, 56°C, 65°C |
| | No beads drying required | ✓ | ✗ | ✗ |
| | No. of steps | 10 | 21 | 19 |
| Targets | Viral DNA | ✓ | ✓ | ✓ |
| | Viral RNA | ✓ | ✓ | ✓ |
| Time taken | Total protocol time (minutes) | <13 | 60 | 45 |

## Performance:




**High quality nucleic acid obtained from TNA Extraction Kit for Serum/Plasma show good RT-qPCR performance that is comparable to that of TNA Extraction Kit for Blood.**

Nucleic acid extraction from 300 µL serum spiked with dengue virus Type 2 (dengue 2; RNA virus) was performed with both TNA Extraction Kit for Blood and TNA Extraction Kit for Serum/Plasma. Similar Cq values were obtained from both eluates, indicating that they have similar extraction efficiencies.

| Kit | Mean Cq |
|---|---|
| Serum/Plasma | 28.22 |
| Blood | 27.95 |

# Molecular Transport Medium (MTM)

Delta MTM buffer (Catalog No.: 810101060; 60 mL) is developed with the aim to inactivate all pathogens from patient samples, and to protect the integrity of pathogen nucleic acids for downstream molecular analysis. The buffer is intended for transportation and storage at ambient temperature.

## Hightlights

### Effective pathogen inactivation
- Inactivate bacteria (gram-positive & gram-negative) at point of collection
- Inactivate viruses within seconds

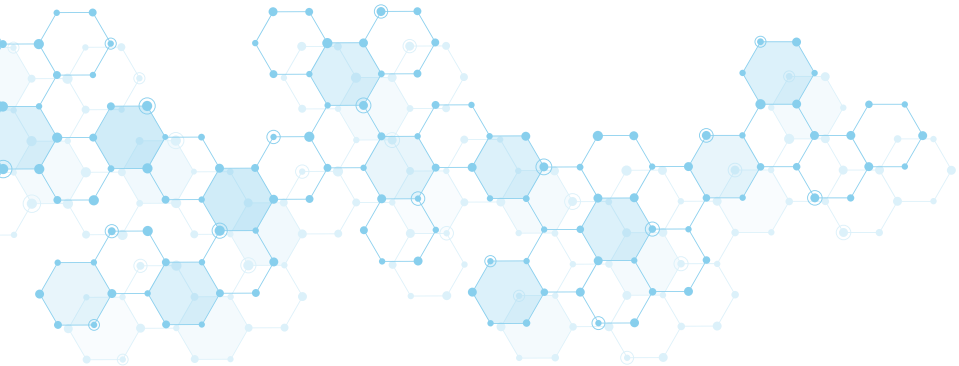
### Ambient temperature storage and transportation
- Stabilize and preserve both DNA and RNA
- Suitable for field usage

### Versatile
- Compatible with nucleic acid extraction kits
- Compatible with downstream molecular diagnostics and genomic analysis

### Ready to use and ease of shipping
- Ethanol-free buffer

## Comparison with Leading Commercial Kits:

| Features | Delta Kit | P Company | C Company | Z Company | N Company | R Company |
|---|---|---|---|---|---|---|
| Alcohol-free | ✓ | ✗ | ✗ | ✗ | ✗ | ✗ |
| Target pathogen(s) | *S. aureus, P. aeruginosa*, Human coronaviruses, mycobacteria, influenza A | Influenza A, *Mycobacteria tuberculosis* | Influenza A | SARS-CoV2 | Adenovirus, influenza A, human parainfluenza virus 2 | Influenza A |
| Nucleic acid type | RNA & DNA | RNA & DNA | RNA | RNA | RNA | RNA |
| Specimen stability | RNA: 3 months DNA:18 months | 8 days at 27°C, 28 days at 4°C | 28 days | 28 days | 15 days | 1 day |
| Shelf life | 24 months | 24 months | 18 months | 24 months | 12 months | 14 days |
| Viral inactivation efficiency (conc.reduction) | >4.0 log | >4.0 log | >4.0 log | >2.0 log | >4.0 log | >4.0 log |
| Viral inactivation speed | 10 seconds | 10 seconds | 10 seconds | 30 minutes | 10 seconds | 5 minutes |
| Bacterial inactivation efficiency (100% inactivation; CFU/mL) | $10^7$ (*P. aeruginosa, S. aureus*), $10^6$ (*M. fortuitum*) | 1.5 x $10^6$ (TB) | NA | NA | NA | NA |
| Bacterial inactivation speed | 10 minutes | >60 mins (TB) | NA | NA | NA | NA |
| Extraction platform compatibility | FAVORGEN Viral Nucleic Acid Extraction Kit II, QIAGEN QIAamp Viral RNA Mini Kit, TIANGEN Hi-DNA/RNA Kit, MACHEREY-NAGEL NucleoMag Pathogen Kit | QIAGEN QIAamp DNA Mini Kit, Roche MagNA Pure 96 System, bioMerieux NucliSENS easyMAg | NA | NA | NA | NA |



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