2018

CO-DIAGNOSTICS INC.

Logix Smart Zika Virus (ZIKV) Test™

REF ZIKV-K-004

LOGIX SMART ZIKV TEST™

CO-DIAGNOSTICS, INC.

IVD

CE

CO-DIAGNOSTICS, INC. | 2401 Foothill Dr., Ste D, Salt Lake City, UT 84109 USA

1. Manufacturer and Authorized Representative

Manufacturer:
Co-Diagnostics, Inc
2401 S Foothill Dr. Ste D
Salt Lake City, UT 84109

Phone: +1 (801) 438-1036
Email: info@codiagnostics.com
Website: www.codiagnostics.com

Authorized Representative:
mdi Europa GmbH
Langenhagener Str. 71
D-30855 Hannover-Langenhagen
Germany

Phone: +49 511 39 08 95 30
Email: info@mdi-europa.com
Website: www.mdi-europa.com

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2. Logix Smart Zika Virus Test™

2.1 Device Description

The Logix Smart Zika Virus Test™ kit is an in vitro diagnostics medical device developed by Co-Diagnostics, Inc. The test detects presence or absence of ribonucleic acid (RNA) of Zika Virus in a single step reverse transcription real-time PCR reaction in serum or plasma, collected alongside with urine, from patients suspected of Zika fever or Zika disease during acute stages of the disease that happens between 2 to 20 days after the onset of the symptomatic or non-symptomatic infection. Logix Smart ZIKV Test™ is recommended to be tested in serum or plasma alongside with urine (Zika virus testing is essential to aid the control and spread of virus prior to pregnancy, transfusion or transplantation, or sexual relation). The Logix Smart Zika Virus Test detects the virus within 40 cycles from serum, plasma, and urine specimen.

- In each Logix Smart Zika Virus Test kit supplied is a complete, ready-to-use master mix.
- A human RNaseP gene marker serves as an Internal Positive Control (IPC) to monitor the quality of each reaction and is designed to also detect inadequate samples.
- Each kit provides reagents sufficient for 100 reactions.

3. Intended Use

The Logix Smart Zika Virus Test Kit is intended for molecular biology applications for diagnosis of Zika virus in human specimens such as serum, plasma, or urine. It is recommended for serum or plasma to be collected alongside with a urine sample.

This product is for export only and is not for sale in the United States.

The Logix Smart Zika Virus Test™ was designed and validated as a real-time RT-PCR kit that targets conserved regions in the Zika virus genome. This assay is a single step reverse transcription real-time reaction that can be break down into 3 stages: sample preparation, reverse transcription, and the polymerase chain reaction with real-time monitoring. The assay has an internal positive control (IPC) that also acts as an extraction control to monitor the extraction, amplification, and detection steps.

4. The Zika Virus

Zika virus (ZIKV) is a Flaviviridae family virus. It is spread by daytime-active Aedes mosquitoes, such as A. aegypti and A. albopictus. The virus was first isolated in 1947 in monkeys and is named after the Zika Forest in Uganda. In 1952, the first human cases of Zika were detected and since then, outbreaks of Zika have been reported in Africa, the Americas, Asia, and the Pacific. Zika outbreaks have probably occurred in many other locations. Because the symptoms of Zika are similar to those of many other diseases, many cases may not have been recognized or properly reported.

Before its emergence in 2015 in Brazil, Zika virus was not thought to be endemically transmitted in the Americas. Since then, it has spread across South and into North America, including the Caribbean. As mentioned above, Zika virus is most commonly transmitted by mosquitoes; nevertheless, horizontal and vertical transmission in humans has been reported. The disease caused by the Zika virus, sometimes called Zika fever, presents with similar symptoms to other arboviral infections such as dengue and chikungunya. The symptoms include mild fever, skin rash, conjunctivitis, muscle and joint pain which normally last for 2 to 7 days. Birth defects and serious neurologic sequalae have been reported in association with Zika virus infection. There is no specific treatment but symptoms are normally mild and can be treated with common fever medicines, rest, and drinking plenty of fluids (World Health Organization, 2016). Continued epidemiologic monitoring is needed as well as basic research into the pathogenesis, immunology, and biology of Zika fever and Zika virus for effective counter-measures and vaccines (Relich & Loeffelholz, 2017).

In 2015, right after the reports of Zika infections in Brazil, there was a striking increase in reports of congenital microcephaly cases, which triggered a declaration of an international public health emergency (Araújo, et al., 2018). This same study conducted

in 2016 in Brazil found direct correlation between microcephaly cases and Zika occurrences examining neonates born between January to November 2016 in the Northeast region of the country where Zika cases were prevalent. Another study conducted in 2016 demonstrated that ZIKV infects and destroys human neuronal stem cells grown as neurospheres and brain organoids. These observations helped solidify the link between fetal ZIKV infection and the development of microcephaly (Relich & Loeffelholz, 2017). Due to the Zika disease's serious neurological sequelae this year (2018), the World Health Organization (WHO) issued the Annual review of diseases where the priority for R&D investments for Zika has been raised (World Health Organization, 2018).

Because Zika virus belongs to the family Flaviviridae and genus Flavivirus, it is related to the dengue, yellow fever, Japanese encephalitis, and West Nile viruses. The Zika virus is enveloped, icosahedral and has a nonsegmented, single-stranded, 10-kilobase, positive-sense RNA genome. It is most closely related to the Spondweni virus and is one of the two known viruses in the Spondweni virus clade.

5. Kit Content

Table 5.1 Logix Smart

Cap Color	Component	Symbol	Individual Catalog Number	Description	Amount
Black	Logix Smart ZIKV Master Mix	MM	ZIKV-MM-004	Proprietary blend of co-primers and PCR reagents	1x500µL (100 reactions)
Red	Logix Smart ZIKV Positive Control	PC	ZIKV-PC-004	Proprietary blend of positive primers	1x500µL (100 reactions)
Clear	Nuclease Free Water	NTC	GEN-NF-001	Water free of DNase/RNase activity	1x500µL (100 reactions)

5.1 Product Storage and Handling

Logix Smart Zika Virus Test™ *must* be stored at -20ºC.

To prevent degradation of reagents in Test Kits:

1) **Immediately store Logix Smart Zika Virus Test™ at or below -20°C**
2) **Always work with each Logix Smart Zika Virus Master Mix and Logix Smart Zika Virus Positive Control on ice**
3) **Return components of Logix Smart Zika Virus Test to the -20°C freezer immediately after using**

4) Make aliquots if necessary to avoid multiple freeze/thaw cycles

Upon receipt of the **Logix Smart Zika Virus Test™**, check to make sure there is excess dry ice in the shipment and that the reagents are still completely frozen. If there are any problems with the shipment please contact your distributor immediately. **Immediately store the Logix Smart Zika Virus Test™ at -20°C or lower**.

If you work in an area prone to power outages it is recommended to have a back-up generator for your freezer as well as a temperature data log to **ensure that the Logix Smart Zika Virus Test™ remain frozen at -20°C**. Reagents must remain frozen at all times (or on ice when in use) to prevent degradation.

While working with thawed components of **Logix Smart Zika Virus Test™** it is extremely important that the **reagents are kept on ice at all times**. Return the reagents to the freezer immediately after use, and make aliquots to avoid multiple freeze/thaw cycles.

5.2 Stability

Stability data for the product are under research and results will be published and new instructions for use updated to reflect the Stability conditions.

Logix Smart ZIKV Test must be stored at or below -20°C and are stable until the expiry date on the label. Reduce freezing and thawing to the minimum. Expired reagents should be disposed of according to the laboratory's waste disposal protocols for non-hazardous waste. Storage at 2 to 8°C should not exceed five days in total.

6. Materials Required (not included)

Pipettes capable of transferring 5 µL
Ice
Vortex
Centrifuge
Real-time PCR System with FAM (green) or Cal Fluor 610 (orange) dyes or equivalent and accompanying tubes/plates and caps/films.
The Logix Smart Zika Virus Test was validated within CoDx Box MIC manufactured by BioMolecular Systems. And it is the recommended equipment to run the test.

7. Sample Information

7.1 Collection recommendations

Zika virus has been detected in whole blood (also serum and plasma), urine, cerebrospinal fluid, amniotic fluid, semen, and saliva. There are supportive studies that reported that Zika virus was present in urine and semen for longer periods than in other specimen such as blood or saliva (World Health Organization, 2016). In the study conducted in French Polynesia it was reported that urine samples showed a higher viral load for longer periods than blood samples (Gourinat, O'Connor, Calvez, Goarant, & Dupont-Rouzeyrol, 2015). Even though other specimen studies have been researched, the WHO recommends the use of whole blood, serum, and urine to be collected from patients and tested (World Health Organization, 2016). "WHO encourages the testing in other specimen types for confirmatory testing or when investigating the association between Zika virus infection and cases of neurological complications, microcephaly and potential sexual transmission" (World Health Organization, 2016).

- For testing with Logix Smart ZIKV Test: Collect whole blood, serum or plasma collected in a dry tube alongside with urine collected from patients presenting onset of symptoms ≤ 20 days.

  According to a 2017 study, ZIKV RNA can be detected in serum with real time RT-PCR tests from 2 to 7 days after onset of symptoms. After 7 days, the viral load in the blood starts to decrease. The viral RNA can be detected in urine up to 20 days, although it may show up later than it does in serum. Among urine specimens, the virus was found up to 20 days after the onset of the disease. Zika virus was found in semen 2 months after onset of the disease. The same study also recommended that to have a robust result and solve the problem of variability of viral load and days from the onset of the disease, especially because onset of the disease can be difficult to determine as some people are asymptomatic, ideally serum and urine should be tested at the same time. Testing both serum and urine at the same time can produce more accurate results independently from 2 to 20 days after onset of the disease (Relich & Loeffelholz, 2017).

- In addition to recording full name, date of birth, address and contact information, and time and date of collection with the collected specimen, the following information should also be collected:

  a) Symptoms, date of onset, duration of symptoms, contact with known Zika virus cases (and type of contact e.g. breastfeeding, sexual partner);

  b) Comprehensive travel history (dates, place, duration of visit); and

c) Vaccination history, especially associated with vaccination for flaviviruses including yellow fever virus, Japanese encephalitis virus, and when available, dengue viruses.

- All samples should be collected during the acute phase of infection and up to 14 days following the onset of symptoms, if present.

7.2 Specimen Storage

Specimen are best kept refrigerated at 2-8°C and tested within 48 hours. If there is a delay of more than 48 hours before testing whole blood, serum should be separated and stored separately. The WHO recommends that all other types of specimens may be kept at -20°C for up to 7 days. For storage longer than 7 days, specimens should be frozen at -70°C. Because Co-Diagnostics does not have storage area at -70°C to conduct stability studies, the use of -20°C frozen clinical specimen older than 7 days should be avoided. Repeated freezing and thawing of specimens should be avoided. Temperature in the storage areas should be monitored and recorded regularly to identify potential fluctuations. Domestic refrigerators/freezers with wide temperature fluctuations are not suitable for the storage of frozen specimen (World Health Organization, 2016).

7.3 Sample Handling

Reverse-transcription polymerase chain reaction (RT-PCR) analysis on clinical specimens from patients who are suspected or confirmed to be infected with Zika virus, should be conducted under Biosafety Level 2 (BSL-2) conditions as described in the *WHO Laboratory Biosafety Manual, 3rd ed*. Any testing for the presence of Zika virus should be performed in appropriately equipped laboratories by staff trained in the relevant technical and safety procedures. National guidelines on laboratory biosafety should be followed in all circumstances (World Health Organization, 2016).

7.4 Sample Extraction recommendation

The Logix Smart Zika Virus Test Kit has been validated with serum or plasma samples collected in serum separator (red) or EDTA (purple) vacutainers and extracted using the QIAamp Viral RNA Mini Kit (Qiagen, Cat No. 52904).

8. Important Information and Warnings

WARNING!

Users should pay attention to the following:

- **Use sterile pipette tips with filters.**
- **Store and extract positive materials (specimen, controls, and amplicons) separately from other reagents.**
- **Consult appropriate Safety data Sheets (SDS) for safety. The SDS for Logix Smart ZIKV Test is provided with shipment, if absent, please, contact Co-Diagnostics, Inc. on the contacts page at the end of this document for an electronic version of the SDS.**

9. Procedure

9.1 Recommendations

9.1.1 Extraction kit

The QIAamp Viral RNA Mini Kit (Qiagen, Cat No. 52904) was the extraction used during verification and is recommended for use with the Logix Smart Zika Virus Test Kit.

Other kit options include, QIAamp Min Elute Virus Spin Kit (Qiagen, Cat No. 57704, ReliaPrep™ Blood gDNA Kit (Promega, A5081), even though no test performance studies have been performed with the current iteration of Logix Smart Zika Virus test kit.

9.1.2 Thermal cycler

Co-Diagnostics, Inc can either directly or through reagent rental programs provide the CoDx Box MIC machines (manufactured for Co-Diagnostics by BioMolecular System), although the Logix Smart ZIKV test kit can be used in other Real-Time PCR Systems as long as the parameters to run the test are set as established in the Logix Smart Zika Virus kit.

Three machines have been used and validated on previous versions of the product, being the CoDx Box MIC (BioMolecular Systems), Eco 48 (Cole-Parmer), and StepOneTM Real-Time PCR System (Applied BioSystems, ThermoFisher Scientific). Of these, only the CoDx Box MIC (BioMolecular Systems) has been validated with the current version of the product. Other validation exercises will include more equipment in the scope.

The CoDx Box MIC System is recommended due to its ease of use, small size, durability, and fast report generation. The CoDx MIC software was developed by BioMolecular Systems solely for Co-Diagnostics, and it has been verified for use with Co-Diagnostics real-time PCR products, simplifying result interpretation. The CoDx Box MIC System reads fluorescence in real-time, generated from the PCR reagents loaded into MIC PCR reaction tubes, amplifies Zika Virus RNA by thermal cycling using magnetic induction, and displays output data through the integrated software. The CoDx Box MIC is available with 48 reactions wells and 2 or 4 channels.

Other Co-Diagnostics real-time PCR products also utilize this CoDx Box MIC System. The Microsoft SurfaceTM Pro 4 System (MSPRO-4) is available for use with MIC software. The output device used with the CoDx Box MIC System can be a printer or external computer. Alternately, the results can be manually recorded. The method of reporting is left to the discretion of the user.

9.2 Real Time RT-PCR Setup

- To prevent contamination, it is recommended to use Good Laboratory Practices for Molecular Biology that follow a uniflow process and separation of negative and positive materials.
- All real-time RT-PCR master mix, positive controls, negative controls, and samples should be briefly spun down to remove residue from the lids after storage or mixing.
- Thaw all reagents and samples on ice before starting setup.
- All reagents must remain on ice for the duration of real-time RT-PCR setup.

9.2.1 In the designated negative control setup area:

1. Thaw **Logix Smart Zika Virus Master Mix** (ZIKV-MM-004) on ice (for minimum time possible).
2. Vortex and centrifuge Logix Smart Zika Virus Master Mix for a max 3 seconds.
3. Put the **Logix Smart Zika Virus Master Mix** on ice.
   ***All steps involving Logix Smart Zika Virus Master Mix should be performed on ice or on a frozen tray**
4. Put PCR tubes on ice.
5. Aliquot 5 µL of **Logix Smart Zika Virus Master Mix** into desired wells.
6. Add 5 µL **Nuclease Free Water (GEN-NF-001)** to the appropriate well(s).

9.2.2 In the designated positive control area (preferably separated from the master mix setup area to avoid contamination)

7. Thaw extracted/purified RNA on ice (if frozen).
8. Vortex and centrifuge purified RNA for a few seconds.

9. Add 5 µL of purified RNA sample to each well using a new tip between each sample.
10. Thaw **Logix Smart Zika Virus Positive Control (ZIKV-PC-004)** on ice (for minimum time possible).
11. Vortex and centrifuge **Zika Virus PC** for a few seconds.
12. Add 5 µL of **Zika Virus PC** to appropriate well(s).
13. Place caps on the tubes according to the real-time system being used.
14. Put plate/tubes in real-time PCR machine and start the run.

9.3 Thermal Cycling Setup

Program the thermal cycler to the following conditions for a total reaction volume of 10µL:

Temperature	Time	Cycles	Capture
45˚C	15 minutes		N/A
95˚C	2 minutes		N/A
95˚C	3 seconds	45	N/A
55˚C	32 seconds		FAM (Green) and Cal Fluor Red 610 (CF610) (Orange)

1. When the run is finished, ensure that the run file is saved.
2. Check to see that the controls passed.
3. If controls pass, then interpret the sample results. If controls fail, then the run is invalid, run must be documented and troubleshooting initiated which may include a re-run.

10. Interpretation of Results

10.1 Analyzing Controls

10.1.1 Positive Controls

Highlight the positive control reaction well. Each positive control should show two amplification curves similar to that seen below:

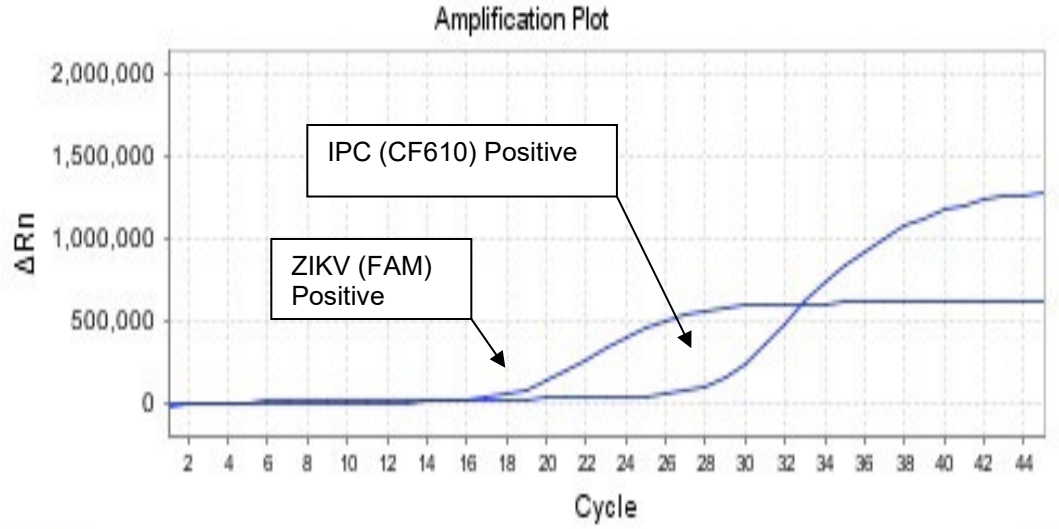

Figure 10.1 Positive Control Amplification

Table 10.1 Positive Control Ranges for Cycle Threshold Values

Range for Positive Control Ct Values*	
ZIKV (FAM)	24.00-28.50
IPC (CF610)	21.00-27.00

ZIKV (FAM): Zika Virus Marker
IPC (CF610): RNaseP Internal Positive Control Marker
*Ct values may vary by ± 2 cycles based on instrument differences.

If the Ct values do not match the graph, then the threshold or the baseline must be manually changed until the values represent the growth curves. The threshold must be set as close to the start of the growth curve and above the background noise. The baseline must be set before the first amplification curve. Check the instrument user manual for instructions for adjusting the threshold or baseline.

If the positive control does not show amplification, then the tests are invalid. Loss of amplification for a positive control is indicative of primer degradation which may result from reagents being at temperatures above -20˚C for more than one hour or being used past the expiration date. Pipetting error may also account for lack of positive control amplification by pipetting control into the wrong well, missing a well, or pipetting an inadequate amount of reagent into a reaction well.

10.1.2 Negative Controls

Next highlight the negative control. The results of the negative control should show results similar to those seen below:

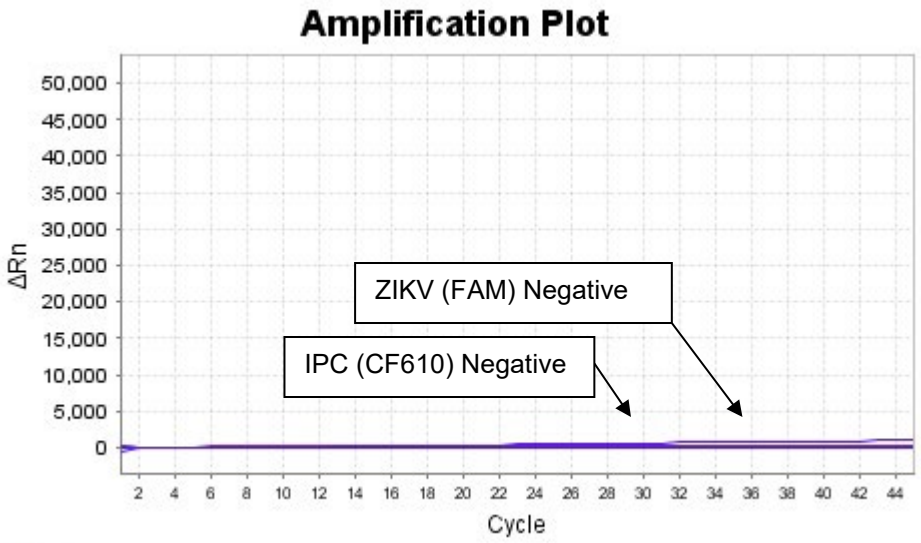

Figure 10.2 Negative Control Amplification

Occasionally, ubiquitous binding will cause amplification of RNaseP as seen in the figure below:

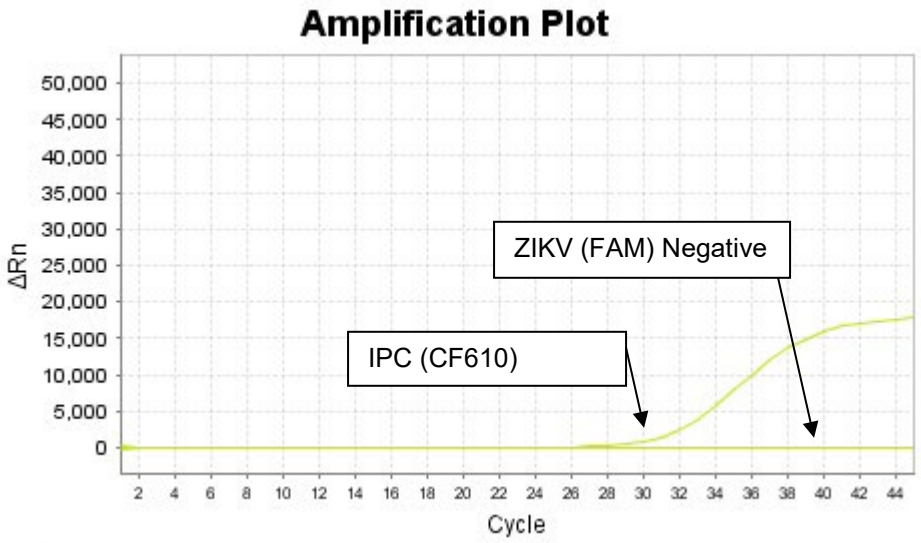

Figure 10.3 Ubiquitous Binding of Negative Control

If the negative control shows any amplification of ZIKV <40 cycles the results are invalid and the entire experiment must be repeated. Amplification of ZIKV in a negative control indicates contamination in one or more of the reagents or pipetting error. Amplification of ZIKV >40 cycles is outside the detectable range and is considered negative.

10.1.3 Analyzing Samples

Once the controls have passed, the unknown samples can be interpreted based on three possible outcomes (figures may vary based on machine used and quantity of MM and sample):

1. Positive (Figures 10.4 and 10.5)
2. Negative (Figure 10.6)
3. Negative Due to Inadequate Nuclear Material (Figure 10.7)

A **Positive** result will show an amplification curve or cycle threshold value for ZIKV at or below 40 cycles. Amplification curves greater than 40 cycles for ZIKV are outside of the detection limits for the assay. A positive sample will have the following curves:

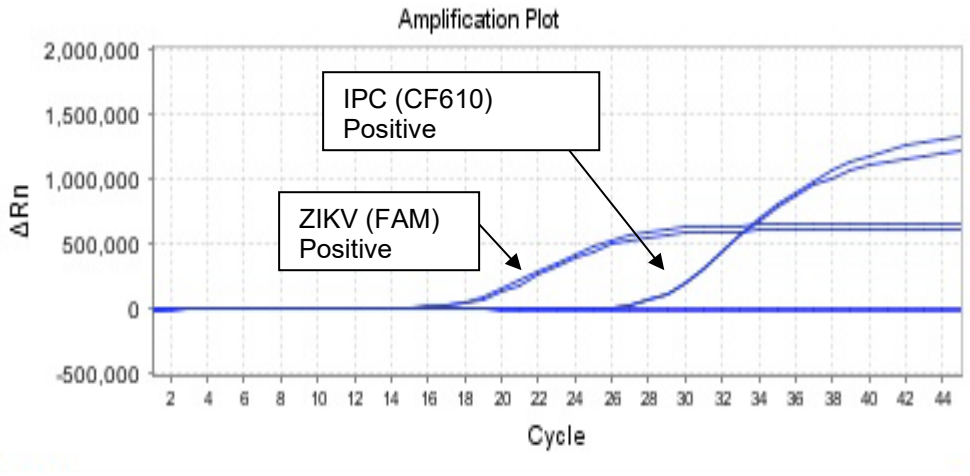

Figure 10.4 ZIKV positive sample

The presence of a curve for ZIKV (FAM) indicates a positive result. The amplification of the IPC (CF610) shows that the extraction was successful.

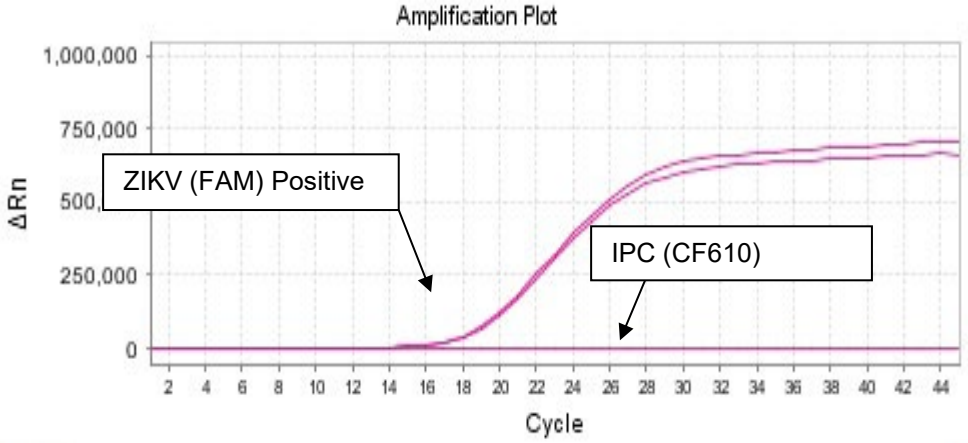

Figure 10.5 ZIKV positive sample

The presence of a curve for ZIKV indicates a positive result even when the RNaseP (IPC) marker is negative. This will occur when the concentration of ZIKV is greater than the concentration of RNaseP or when using cell lysates or extremely pure/sterile samples.

A **Negative** result will show no amplification for ZIKV; however, occasionally amplification greater than 40 cycles occurs in ZIKV or RNaseP channels. Any amplification curves greater than 40 cycles for ZIKV are outside of the detection limits for the assay. A negative sample result will have the following curve:

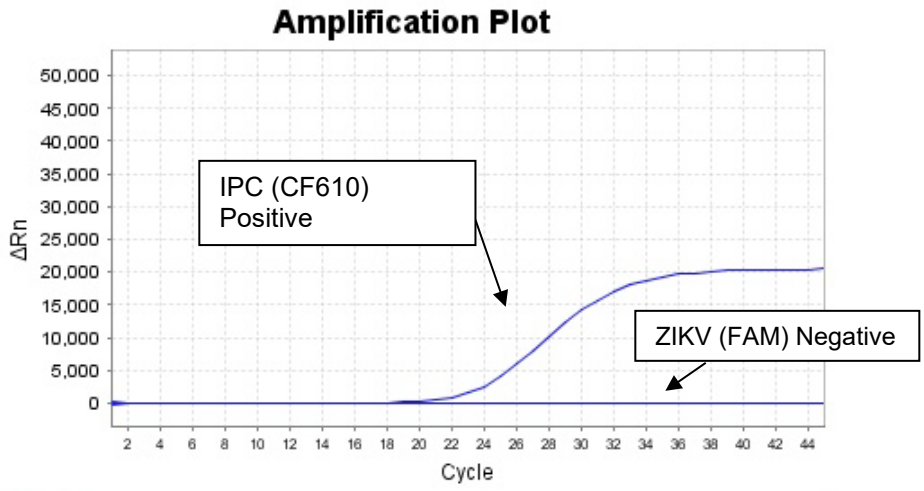

Figure 10.6 ZIKV negative sample

The absence of a curve for ZIKV indicates a negative result ONLY when the RNaseP (IPC) marker is positive.

A **Negative Due to Inadequate Nuclear Material** result will have the following curve:

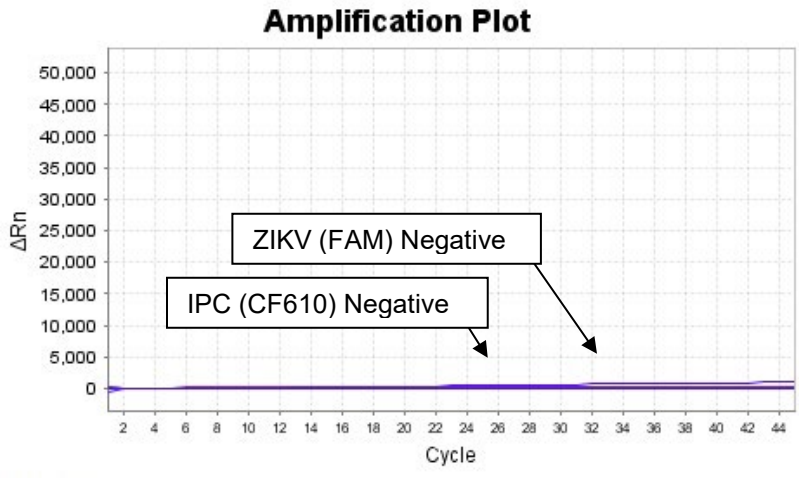

Figure 10.7 Negative Due to Inadequate Nuclear Material

If the RNaseP (IPC) control marker is also negative, the result is negative due to inadequate nuclear material. This can be consequence of human error in sample preparation, sample degradation, or an inadequate sampling. The test may be repeated with a new sample or called negative due to inadequate nuclear material.

Note: Samples obtained from culture or sterile/pure sites (*e.g.* CSF, urine, cell lysates, etc) may not contain RnaseP. In such case, the two negative markers indicate a true negative result for Zika virus.

10.2 Results Interpretation Table

The interpretation of results with Ct values can be translated to the following table:

	Patient Sample	**Positive Control (IPC)**	**Negative Control (NTC)**	**Final Result**
Serum	Zero or no Amplification	Must always amplify with Ct value between 21.0 to 27.0. If IPC does not amplify, see troubleshooting	Must always not amplify. If any amplification with NTC, see troubleshooting	Negative (-)
	Positive or Amplification			Positive (+)
Urine	Zero or no Amplification			Negative (-)
	Positive or Amplification			Positive (+)

Negative result for Zika in Serum or Urine does not exclude the possibility of having the disease but it may happen to be the beginning of the infection where the virus is showing up only in Serum, but possible the viral load is still low and harder to detect. Or it may be

late in the infection, after 10 days where the virus does not show up in blood any longer, but can be detected in urine. Or it may be late in the infection, after 20 days, and the viral load is reduced because the immune system has been combating Zika efficiently. In this case only a serological exam will be able to detect Zika specific antibodies.

11. Troubleshooting

11.1 Stability

Real-time and Accelerated Shelf-life, and In-use Stability Studies are currently under testing and results will be communicated as soon as they are released. A new version of this Instructions for Use will be issued to replace this one. Please discard this document when a new version is issued.

Without the stability studies results it is imperative that the storage conditions are followed as best as possible to assure the product's performance is maintained.

The expiration date of this product has been stablished as 12 months and it does not exceed the expiration date of any of its reagents used in manufacturing.

11.2 User Errors

Polymerase Chain Reaction (PCR) Assay is a technique that uses Molecular Biology technology to amplify a single copy or a few copies of a segment of a particular DNA or RNA sequence.

In order to ensure the Good Laboratory Practices for Molecular Biology Assays it is essential that the user has good skills in pipetting to prevent errors such as splashes, crossover contamination, and errors in volume selection. Pipette tips must be replaced for every pipetting. Gloves must be replaced often. Equipment must have calibration up to date for the pipettes and thermo cyclers.

Verification and validation studies performed for Logix Smart ZIKV Test (ZIKV-K-004) have been conducted following the current Good Laboratory Practices for Molecular Biology Assays. If these conditions are not met the performance will show higher variability due to User Errors while conducting the experiment.

11.3 Invalid Results

Positive Control and Negative Control are validated, manufactured and tested along with the Master Mix. The purpose of these controls is to verify the performance of the Master Mix, as well as validate the user technique used during the experiment.

If the user has a poor use of the techniques required to perform a Molecular Biology Assay, it is more likely that it will be shown by the Positive Control not amplifying or the Negative Control showing amplification.

11.3.1 Positive Control not amplifying

It means that for some reason (e.g. bad conservation, break of stability, expired reagent, volumes errors, pipetting error) a user error occurred while conducting the experiment. An investigation should be conducted to identify possible causes for error and the test has to be reprocessed from extraction or not, depending on the investigation results and risks identified in the process.

11.3.2 Negative Control showing amplification

It means that for some reason (e.g. contamination from pipetting, splashes on the PCR plate, user contamination) a user error caused the negative control to be contaminated with the positive contaminated with genetic material. An investigation should be conducted to identify possible causes for error and the test has to be reprocessed from extraction or not, depending on the investigation results and risks identified in the process.

12. Summary of Performance Data

Diagnostic Evaluation is based on only contrived samples with serum, plasma and urine used for matrix.

Table 12.1 Diagnostics Statistics from contrived samples used in this study

Statistic	Value	95% Confidence Interval
Sensitivity	98.84%	98.89% to 99.86%
Specificity	100.0%	97.83% to 100.0%
Positive Likelihood Ratio	-	-
Negative Likelihood Ratio	0.01	0.00 to 0.05
Disease Prevalence	50.73%	42.59% to 56.16%
Positive Predictive Value	100%	-

Negative Predictive Value	98.82%	95.49% to 99.70%
Accuracy	99.41%	97.90% to 99.93%

Analytical Evaluation found overall precision on 97.83% with less than 5% coefficient of variance in all analysis. Analytical Sensitivity was performed to determine the Limit of Detection which is the concentration with detection rate ≥. See table below:

Table 12.2 Analytical Sensitivity (LoD) for Logix Smart ZIKV Test Kit (ZIKV-K-004)

Specimen	Strain	Limit of Detection
Serum	Asian Lineage (PRVABC59)	**35 copies/µL or 0.035 copies/mL**
Urine	Zika African Lineage (MR766)	**30 copies/µL or 0.03 copies/mL**
	Zika Asian Lineage (PRVABC59)	**130 copies/µL or 0.13 copies/mL**

Analytical Specificity was performed with wet-test and in-silico analysis with microorganism of interest that could cross-reactive or interfere with the kit performance. Specificity also tested the performance of Logix Smart Zika Virus Test with common interfering substances.

Logix Smart Zika Virus Test showed 100% specificity not cross-reacting with any microorganism tested on wet-test or in-silico analysis, nor having performance altered by the same microorganisms or interfering substances. The only substance acting as interference was Heparin, which is a well-known PCR inhibitor.

A list of microorganisms tested in wet-test: West-Nile, Dengue (Type 1, 2, 3 and 4), Chikungunya, Influenza A H1, Influenza A H1N1, Influenza A H5, Influenza B, St. Louis Encephalitis, Measles, Epstein-Barr Virus, Borrelia Burgdorferi, Varicella Zoster Virus, Eastern Equine Encephalitis, Tick-Borne Encephalitis (TBEV)

A list of in-silico analysis tested: Lassa Virus (LASV), Leptospira, Rickettsiales, Spondweni Virus (SPOV)

A list of interfering substances tested: Albumin, Bilirubin, Cholesterol, EDTA, gDNA, Hemoglobin, Heparin, Lipids, and Sodium Citrate. As mentioned before Heparin was the only substance found to interfere on Logix Smart Zika Virus Test™.

13. Bibliography

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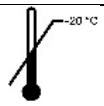
14. Legend of Package Symbols

IVD	*In vitro* diagnostic medical device
REF	Catalogue number
LOT	Batch Code
CAP	Cap color
COMP	Component
CONT	Content/Volume
NUM	Number
	Use-by-date

	Contains sufficient for 100 tests/reactions
	Protect from light
	Temperature limit
	Consult Instructions for Use
	Non-Sterile product – Do not sterilize
	Manufacturer
	Authorized representative in the European Community
	CE-Marking for IVD in compliance to EU Directive 98/79/EC

For Information or Questions contact Manufacturer:

Phone: +1 (801) 438-1036

Email: info@codiagnostics.com

Website: www.codiagnostics.com