

Chip-based Real Time PCR Test for *Trichomonas vaginalis*

**1. INTENDED USE**

**Truenat<sup>®</sup> Trich (REF 601170005 / 601170020 / 601170025 / 601170050 / 601170100 / 601170200)** is a chip-based Real Time Polymerase Chain Reaction (PCR) test for the semiquantitative detection of *Trichomonas vaginalis* in female endocervical and vaginal swab specimens, male urethral swab specimen and male and female urine specimen. It aids in the diagnosis of symptomatic or asymptomatic infection with *Trichomonas vaginalis*. **Truenat<sup>®</sup> Trich** runs on the **Truelab<sup>®</sup> Real Time micro PCR Analyzers**.

**2. INTRODUCTION**

*Trichomonas vaginalis* is an anaerobic, flagellated protozoan parasite and the causative agent of trichomoniasis, a sexually transmitted infection (STI). It is a common cause of vaginitis in women, while men with this infection can display symptoms of urethritis. Each year, there are an estimated 357 million new infections with 1 of 4 STIs: chlamydia, gonorrhea, syphilis and trichomoniasis. More than 160 million people worldwide are annually infected by *Trichomonas vaginalis*. Some of the complications of *T. vaginalis* in women include: preterm delivery, low birth weight and increased mortality as well as predisposing to HIV infection, AIDS and cervical cancer. Trichomoniasis is considered the most common curable STI. It can be treated and cured with anti-parasitic drugs used against protozoan infections. The three main ways for diagnosis of *T. vaginalis* infections are microscopy, culture, immunoassays and nucleic acid amplification tests (NAATs). Microscopy and culture suffer from low sensitivity. NAAT/molecular tests are the most sensitive tools for diagnosis of *T. vaginalis*. However, molecular tests have so far been restricted to centralized reference laboratories as they require skilled manpower and elaborate infrastructure. Also the turnaround time for results could take a few days.

The **Truelab<sup>®</sup> Real Time micro PCR System** enables decentralization and near patient diagnosis and detection of Trichomoniasis by making real time PCR technology rapid, simple, robust and user friendly and offering “sample to result” capability even at resource limited settings. This is achieved through a combination of lightweight, portable, mains / battery operated **Truelab<sup>®</sup> Real Time micro PCR Analyzer** and **Trueprep<sup>®</sup> AUTO/AUTO v2 Universal Cartridge Based Sample Prep Device** and room temperature stable **Truenat<sup>®</sup> micro PCR chips** and **Trueprep<sup>®</sup> AUTO/AUTO v2 Universal Cartridge Based Sample Prep Kit** so that even the peripheral laboratories with minimal infrastructure and minimally trained technician can easily perform these tests routinely in their facilities and report PCR results in less than an hour. Moreover, with these devices PCR testing can also be initiated in the field level, on site.

**Truenat<sup>®</sup> Trich** is a disposable, room temperature stable, micro PCR chip with dried MgCl<sub>2</sub> in reaction well and freeze dried PCR reagents in microtube for performing Real Time PCR test for *T. vaginalis* and runs on the **Truelab<sup>®</sup> Real Time micro PCR Analyzer**. It requires only six (6) µL of purified DNA to be added to the reaction well for the analysis. The intelligent chip also carries test and batch related information. The **Truenat<sup>®</sup> Trich** chip also stores information of used chips to prevent any accidental re-use of the chip.

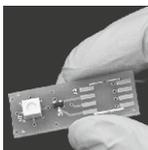
**NOTE: Truelab<sup>®</sup> / Truenat<sup>®</sup> / Trueprep<sup>®</sup> / Truepet<sup>®</sup> are all trademarks of Molbio Diagnostics Private Limited.**

The **Truelab<sup>®</sup> Real Time micro PCR Analyzer** is protected by the following patents and patents granted: IN 2313/CHE/2007 (Patent No. 281573), WO2009/047804 and corresponding claims of any foreign counterpart(s) thereof.

The **Truenat<sup>®</sup> micro PCR chip** is protected by the following patents and patents pending: IN 2312/CHE/2007, WO 2009/047805 and corresponding claims of any foreign counterpart(s) thereof.

**3. PRINCIPLE OF THE TEST**

**Truenat<sup>®</sup> Trich** works on the principle of Real Time Polymerase Chain Reaction based on Taqman chemistry. The DNA from the patient sample is first extracted using **Trueprep<sup>®</sup> AUTO/AUTO v2 Universal Cartridge Based Sample Prep Device** and **Trueprep<sup>®</sup> AUTO/AUTO v2 Universal Cartridge Based Sample Prep kit**. The **Truenat<sup>®</sup> Trich** chip is placed on the chip tray of the **Truelab<sup>®</sup> Real Time micro PCR Analyzer**. Six (6) µL of the purified DNA is then dispensed using the provided micropipette and tip into the microtube containing freeze dried PCR reagents and allowed to stand for 30-60 seconds to get a clear solution. **△ No mixing by tapping, shaking or by reverse pipetting should be done.** Six (6) µL of this clear solution is then pipetted out using the same pipette and tip and dispensed into the reaction well of the **Truenat<sup>®</sup> Trich** chip and the test is started. A positive amplification causes the dual labeled fluorescent probe in the **Truenat<sup>®</sup> Trich** chip to release the fluorophores in an exponential manner which is then captured by the built-in opto-electronic sensor and displayed as amplification curve on the analyzer screen, on a real time basis during the test run. The Cycle threshold (Ct) is defined as the number of amplification cycles



required for the fluorescent signal to cross the threshold (i.e. exceed the background signal). Ct levels are inversely proportional to the amount of target nucleic acid in the sample (i.e. the lower the Ct level the greater is the amount of target nucleic acid in the sample). In the case of negative samples, amplification does not occur and a horizontal amplification curve is displayed on the screen during the test run. At the end of the test run, Trich “DETECTED” or “NOT DETECTED” result is displayed and in positive cases, semi quantitative result is also displayed on the screen. Based on the detection of the internal positive control (IPC), the validity of the test run is also displayed. The IPC is a full process control that undergoes all the processes the specimen undergoes – from extraction to amplification thereby validating the test run from sample to result. Absence of or shift of IPC Ct beyond a pre-set range in case of negative samples invalidates the test run. While IPC will co-amplify in most positive cases also, in some specimen having a high target load, the IPC may not amplify, however the test run is still considered valid. The results can be printed using the **Truelab<sup>®</sup> micro PCR printer** or transferred to the lab computer/or any remote computer via Wifi network or 3G/GPRS network. Upto 20000 results in **Truelab<sup>®</sup> Uno Dx/ Duo/Quattro** can be stored on the analyzer for future recall and reference.

**4. TARGET SELECTION**

The target sequence for this assay is the gene coding for malate dehydrogenase in the *T. vaginalis* genome.

**5. CONTENTS OF THE Truenat<sup>®</sup> Trich KIT**

- A. Individually sealed pouches, each containing
  - 1. **Truenat<sup>®</sup> Trich** micro PCR chip.
  - 2. Microtube with freeze dried PCR reagents.
  - 3. DNase & RNase free pipette tip.
  - 4. Desiccant pouch.
- B. Package Insert.

REF	601170005	601170020	601170025	601170050	601170100	601170200
▽	5T	20T	25T	50T	100T	200T

**6. CONTENTS OF THE Trueprep<sup>®</sup> AUTO Universal Sample Pre-treatment Pack**

- A. Lysis Buffer.
- B. Disposable transfer pipette (graduated).
- C. Package Insert.

REF	60205AB05	60205AB20	60205AB25	60205AB50	60205AB100	60205AB200
▽	5T	20T	25T	50T	100T	200T

**7. CONTENTS OF THE Trueprep<sup>®</sup> AUTO Transport Medium for Swab Specimen Pack**

- A. Transport Medium for Swab specimen tubes (contains transport medium).
- B. Package Insert.

REF	60206TS05	60206TS20	60206TS25	60206TS50	60206TS100	60206TS200
▽	5T	20T	25T	50T	100T	200T

**8. STORAGE AND STABILITY**

**Truenat<sup>®</sup> Trich** is stable for two (2) years from the date of manufacture if stored between 2-30°C. It is also stable for one (1) month at temperatures up to 45°C. Avoid exposure to light or elevated temperatures (above recommended levels). Do not freeze.

**Trueprep<sup>®</sup> AUTO Universal Sample Pre-treatment Pack** and **Trueprep<sup>®</sup> AUTO Transport Medium for Swab Specimen Pack** is stable for two (2) years from the date of manufacture if stored between 2-40°C. It is also stable for one (1) month at temperatures upto 45°C.

**9. MATERIALS REQUIRED BUT NOT PROVIDED WITH THE KIT**

**Truelab<sup>®</sup> Real Time micro PCR Workstation (REF 623010001 / 633010001 / 643010001 / 653010001)** consisting of

- 1. **Trueprep<sup>®</sup> AUTO/AUTO v2 Universal Cartridge Based Sample Prep Device (REF603041001/603042001).**
- 2. **Truelab<sup>®</sup> Uno Dx/Truelab<sup>®</sup> Duo/Truelab<sup>®</sup> Quattro Real Time micro PCR Analyzer (REF603021001/603022001/603023001).**
- 3. **Truelab<sup>®</sup> micro PCR Printer (REF 603050001).**
- 4. **Truepet<sup>®</sup> SPA fixed volume precision micropipette - 6 µl (REF 604070006).**
- 5. **Truelab<sup>®</sup> Microtube Stand (REF 603070001).**

Also required additionally are: **Trueprep<sup>®</sup> AUTO Universal Sample Pre-treatment Pack (REF60205AB05 / REF60205AB20 / REF60205AB25 / REF60205AB50 / REF60205AB100 / REF60205AB200), Trueprep<sup>®</sup> AUTO Transport Medium for Swab Specimen Pack (REF60206TS05 / REF60206TS20 / REF60206TS25 / REF60206TS50 / REF60206TS100 / REF60206TS200), Trueprep<sup>®</sup> AUTO Universal Cartridge Based Sample Prep Kit (REF60203AR05 / REF60203AR25 / REF60203AR50 / REF60203AR100) or Trueprep<sup>®</sup> AUTO v2 Universal Cartridge Based Sample Prep Kit (REF60207AR05 / REF60207AR25 / REF60207AR50 / REF60207AR100), Truenat<sup>®</sup> Positive Control Kit - Panel III (REF 801030008), Powder free disposable gloves, waste disposal container with lid.**

## 10. SPECIMEN PREPARATION FOR EXTRACTION WITH Trueprep® AUTO/AUTO v2

Swab specimen must be collected as per standard procedures using a standard nylon flocked swab. Insert the swab with specimen into the Transport Medium for Swab Specimen Tube provided and mix well by repeatedly twirling the swab in the buffer solution. After mixing, squeeze out the excess liquid from the swab by pressing it a few times against the inside wall of the tube. ⚠ Dispose off the swab as per the section on "Disposal and Destruction" (Section 18). Transfer 500 µL from the Transport Medium for Swab Specimen Tube into the Lysis Buffer Tube. Tightly close the cap of the Transport Medium for Swab Specimen Tube (Refer to the package insert of Trueprep® AUTO Transport Medium for Swab Specimen Pack for further details).

**For Urine specimen:** Collect about 10 ml of first flow of urine (ensuring atleast 2 hours gap from last urination) in a urine collection cup. Transfer 0.5 ml from the cup to the lysis buffer tube and mix well after tightly closing the cap (Refer to the package insert of Trueprep® AUTO Universal Sample Pre-treatment Pack for further details).

⚠ Dispose off urine collection cup as per the section on "Disposal and Destruction" (Section 18).

### Sample Storage and Transportation:

Transport Medium for Swab Specimen decontaminates the specimen and makes it ready for storage/ transportation/extraction. The specimen in this form is stable for up to 3 days at 40°C and 1 week at 30°C.

**Nucleic acid extraction:** Use the entire content of lysis buffer tube containing urine sample/Transport Medium for Swab Specimen for further procedure with the Trueprep® AUTO/AUTO v2 Universal Cartridge Based Sample Prep Device and Trueprep® AUTO/AUTO v2 Universal Cartridge Based Sample Prep Kit (Refer to the User Manual of Trueprep® AUTO/AUTO v2 Universal Cartridge Based Sample Prep Device and the package insert of Trueprep® AUTO/AUTO v2 Universal Cartridge Based Sample Prep kit for details). ⚠ Dispose off the Transport Medium for Swab Specimen Tube, lysis buffer tube and transfer pipette after use, as per the section on "Disposal and Destruction" (Section 18).

## 11. SAFETY PRECAUTIONS

1. For *in vitro* diagnostic use only.
2. Bring all reagents and specimen to room temperature (20 - 30°C) before use.
3. Do not use kit beyond expiry date.
4. Carefully read the User Manuals, package inserts and Material Safety Data Sheets (MSDS) of all the components of the Truelab® Real Time micro PCR System before use.
5. All materials of human origin should be handled as though potentially infectious.
6. Do not pipette any material by mouth.
7. Do not eat, drink, smoke, apply cosmetics or handle contact lenses in the area where testing is done.
8. Use protective clothing and wear disposable gloves when handling samples and while performing sample extraction.

## 12. PROCEDURAL PRECAUTIONS

1. Check all packages before using the kit. Damage to the packaging does not prevent the contents of the kit from being used. However, if the outer packaging is damaged the user must confirm that individual components of the kit are intact before using them.
2. Do not perform the test in the presence of reactive vapours (e.g. from sodium hypochlorite, acids, alkalis or aldehydes) or dust.
3. While retrieving the Truenat® Trich micro PCR chip, microtube and the DNase & RNase free pipette tip from the pouch, ensure that neither bare hands nor gloves that have been used for previous tests are used.

## 13. PROCEDURAL LIMITATIONS

1. Optimal performance of this test requires appropriate specimen collection, handling, storage and transport to the test site.
2. Though very rare, mutations within the highly conserved regions of the target genome where the Truenat® assay primers and/or probe bind may result in the under-quantitation of or a failure to detect the presence of the concerned pathogen.
3. The instruments and assay procedures are designed to minimize the risk of contamination by PCR amplification products. However, it is essential to follow good laboratory practices and ensure careful adherence to the procedures specified in this package insert for avoiding nucleic acid contamination from previous amplifications, positive controls or specimens.
4. A specimen for which the Truenat® assay reports "Not Detected" cannot be concluded to be negative for the concerned pathogen. As with any diagnostic test, results from the Truenat® assay should be interpreted in the context of other clinical and laboratory findings.

## 14. CLEANING AND DECONTAMINATION

1. Spills of potentially infectious material should be cleaned up immediately with absorbent paper tissue and the contaminated area should be decontaminated with disinfectants such as 0.5% freshly prepared sodium hypochlorite [10 times dilution of 5% sodium hypochlorite (household bleach)] before continuing work.

2. Sodium hypochlorite should not be used on an acid-containing spill unless the spill-area is wiped dry first. Materials used to clean spills, including gloves should be disposed off as potentially bio-hazardous waste e.g. in a bio-hazard waste container.

## 15. TEST PROCEDURE

(Please also refer the Truelab® Real Time micro PCR Analyzer user manual)

1. Switch on the Truelab® Analyzer.
2. Select User and enter password.
3. For Truelab® Uno Dx, select the test profile for "Trichomonas" to be run from the Profiles Screen on the Analyzer screen. For Truelab® Duo/Quattro, select the Bay (Idle1/2) for Duo and (Idle1/2/3/4) for Quattro from the Status Screen to view the Profiles Screen. Select the test profile for "Trichomonas" to be run from the Profiles Screen on the Analyzer screen.
4. Enter the patient details as prompted in the Truelab® Analyzer screen.
5. Press Start Reaction.
6. For Truelab® Uno Dx, Press the eject button to open the chip tray. For Truelab® Duo/Quattro, the chip tray opens automatically on tapping the "Start Reaction" button.
7. Open a pouch of Truenat® Trich and retrieve the micro PCR chip, microtube and DNase & RNase free pipette tip.
8. Place the Truenat® Trich chip on the chip tray without touching the white reaction well. The reaction well should be facing up and away from the Analyzer. Gently press the chip to ensure that it has seated in the chip tray properly.
9. Place the microtube containing freeze dried PCR reagents in the microtube stand provided along with the Truelab® Real Time micro PCR workstation **after ensuring that white pellet of dried PCR reagents remains at the bottom of the microtube**. Remove the microtube cap and dispose it off as per the section on "Disposal and Destruction" (Section 18). Using the filter barrier tip provided in the pouch, pipette out six (6) µL of the purified DNA from the Elute Collection Tube into the microtube. Allow it to stand for 30-60 seconds to get a clear solution. ⚠ Do not mix it by tapping, shaking or by reverse pipetting. Using the same filter barrier tip, pipette out six (6) µL of this clear solution and dispense into the centre of the white reaction well of the Truenat® Trich chip. Take care not to scratch the internal well surface and not to spill elute on the outside of the well. Dispose off the microtip as per the section on "Disposal and Destruction" (Section 18).
10. For Truelab® Uno Dx, slide the chip tray containing the Truenat® Trich chip-based Real Time PCR test loaded with the sample into the Truelab® Analyzer. Press Done on the "Please Load Sample" Alert message. For Truelab® Duo/Quattro, select "YES" at the Please load Sample prompt. Chip tray will close automatically and the reaction will start.
11. Read the result from the screen.
12. After the reaction is completed, for Truelab® Uno Dx, push the Eject button to eject the chip tray. For Truelab® Duo/Quattro, tap the "Open/Close Tray" button to eject the chip tray.
13. Take out the Truenat® Trich micro PCR chip at end of the test and dispose it off as per the section on "Disposal and Destruction" (Section 18).
14. Turn on Truelab® micro PCR printer and select print on the screen for printing out hard copy of the results. Test results are automatically stored and can be retrieved any time later. (Refer to Truelab® Analyzer manual).
15. Switch off the Truelab® Analyzer.

## 16. RESULTS & INTERPRETATIONS

Two amplification curves are displayed on the Truelab® Analyzer screen to indicate the progress of the test. Both the target and the internal positive control (IPC) curves will take a steep, exponential path when the fluorescence crosses the threshold value in case of positive samples. The time taken (Ct) of the specimen will depend on the number of target DNA in the sample. The curve will remain horizontal throughout the test duration and the IPC curve will take an exponential path in case of negative samples. In case the IPC curve remains horizontal in a negative sample, the test is considered as Invalid. At the end of the test run, the results screen will display "DETECTED" for Positive result or "NOT DETECTED" for Negative result. The result screen would also display the Trich load as "HIGH (Ct<20)", "MEDIUM (20≤Ct<25)", "LOW (25≤Ct<30)" or "VERY LOW (Ct≥30)" for positive specimen. The result screen also displays the validity of the test run as "VALID" or "INVALID". Invalid samples have to be repeated with fresh specimen from the sample preparation stage. \*While IPC will co-amplify in most positive cases also, in some specimen having a high target load, the IPC may not amplify, however the test run is still considered valid.

## 17. QUALITY CONTROL PROCEDURES

To ensure that the Truelab® Real Time micro PCR Analyzer is working accurately, run positive and negative controls from time to time. The Truenat® Positive Control Kit - Panel III (REF 801030008) containing Positive Control and Negative Control must be ordered separately. It is advisable to run controls under the following circumstances:

- Whenever a new shipment of test kits is received.
- When opening a new test kit lot.
- If the temperature of the storage area falls outside of 2-30°C.
- By each new user prior to performing testing on clinical specimen.

## 18. DISPOSAL AND DESTRUCTION

1. Submerge the used content such as **Truenat<sup>®</sup> Trich** chip, microtube, microtube cap, transfer pipette, pipette tips, nylon flocked swab, Transport Medium for Swab Specimen Tube, lysis buffer tube, urine collection cup etc. in freshly prepared 0.5% sodium hypochlorite solution for 30 minutes before disposal as per the standard medical waste disposal guidelines.
2. Disinfect the solutions and/or solid waste containing biological samples before discarding them according to local regulations.
3. Samples and reagents of human and animal origin as well as contaminated materials, disposables, neutralized acids and other waste materials must be discarded according to local regulations after decontamination by immersion in a freshly prepared 0.5% of sodium hypochlorite for 30 minutes (1 volume of 5% sodium hypochlorite for 10 volumes of water).
4. Do not autoclave materials or solutions containing sodium hypochlorite.
5. Chemicals should be handled in accordance with Good Laboratory Practice and disposed off according to the local regulations.

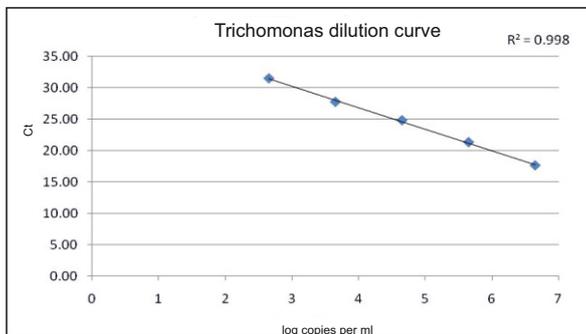
## 19. SPECIFIC PERFORMANCE CHARACTERISTICS

**Analytical Exclusivity (Primer specificity):** The following viruses and microorganisms were evaluated *in silico* from the NCBI database using the NCBI nucleotide blast and primer blast tools to determine potential cross-reactivity in the **Truenat<sup>®</sup> Trich** assay. Results obtained showed no cross reactivity of the **Truenat<sup>®</sup> Trich** assay with the listed organisms.

Bacteria	Virus
<i>Acinetobacter anitratus</i>	Human Papilloma virus
<i>Candida albicans</i>	Cytomegalovirus
<i>Gardnerella vaginalis</i>	Hepatitis B virus
<i>Enterobacter cloacae</i>	Epstein-Barr virus
<i>Salmonella enterica</i>	Simian virus
<i>Staphylococcus aureus</i>	Human Immunodeficiency virus
<i>Neisseria gonorrhoeae</i>	Hepatitis C virus
<i>Escherichia coli</i>	Herpes Simplex virus
<i>Streptococcus mutans</i>	Adenovirus
<i>Enterococcus faecalis</i>	
<i>Chlamydia trachomatis</i>	

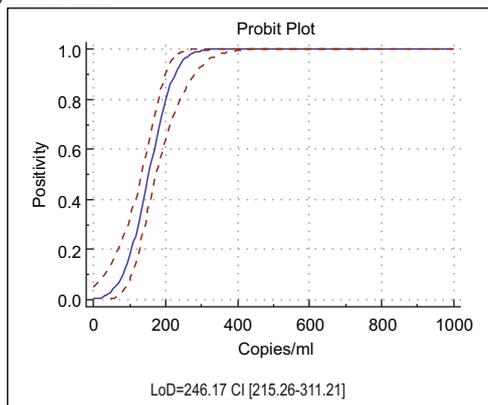
### Linearity:

The linearity analysis was performed according to CLSI guidelines. Serial dilutions of the *Trichomonas vaginalis* Donne (ATCC<sup>®</sup>-30001D™) strain DNA from 4.50E+06 to 4.50E+02 copies/mL was made and tested using single batch chips of **Truenat<sup>®</sup> Trich** on **Truelab<sup>®</sup> Uno Dx** Real Time micro PCR analyzer. The assay is found to be linear over 5 orders of magnitude (from 4.50E+06 copies/mL to 4.50E+02 copies/mL) for *Trichomonas vaginalis* Donne (ATCC<sup>®</sup>-30001D™) strain DNA as depicted in the given graph.



### Limit of detection (LoD):

The LoD was determined by testing dilutions of *Trichomonas vaginalis* Donne (ATCC<sup>®</sup>-30001D™) strain DNA. Probit analysis of the data was used to determine the concentration of the respective DNA with 95% probability of detection. LoD was determined to be 246.17 copies/ml for *Trichomonas vaginalis* Donne (ATCC<sup>®</sup>-30001D™) strain DNA.



### Robustness:

To determine whether the **Truenat<sup>®</sup> Trich** chip-based Real Time PCR test showed any signs of carryover of PCR products between runs, alternating runs of positive samples and negatives samples were performed. 20 positive samples and 20

negative samples were used for the study. The **Truenat<sup>®</sup> Trich** test did not exhibit detectable carryover contamination between positive to negative sample runs.

### Reproducibility:

The purpose of this study is to compare the functional performance of the **Truenat<sup>®</sup> Trich** assay using three different titres of samples on **Truelab<sup>®</sup> Uno Dx** Real Time micro PCR analyzer. High, Medium and low titre samples were extracted on **Trueprep<sup>®</sup> AUTO** Universal Cartridge Based Sample Prep Device and tested among three different users (Inter user), on three different devices (Inter device) and on 5 consecutive days (Inter day) to check the variability. Mean %CV values for all titres has been calculated for Inter User (2.27), Inter day (1.07) and Inter Device (1.56) which were in the accepted range of  $\leq 15\%$  CV for **Truenat<sup>®</sup> Trich** assay.

### Interference:

The purpose of this study is to determine the effect of potentially interfering substances on the **Truenat<sup>®</sup> Trich** assay. For this study medium load samples were used. To the samples different concentrations of blood ranging from 5%, 10% and 30% were spiked and then the samples were subjected to sample prep on **Trueprep<sup>®</sup> AUTO** Universal Cartridge Based Sample Prep Device. DNA was eluted and PCR was performed on **Truelab<sup>®</sup> Uno Dx** Real Time micro PCR analyzer using **Truenat<sup>®</sup> Trich** chips. The presence of blood till 30% did not interfere with the performance of **Truenat<sup>®</sup> Trich** assay.

### Precision of Truenat<sup>®</sup> Trich assay:

Precision was tested by performing **Truenat<sup>®</sup> Trich** assay with extracted DNA of High (4.50E+05 copies/mL), Medium (4.50E+03 copies/mL) and Low (4.50E+02 copies/mL) titres for five consecutive days. Every day PCR for each titre DNA was run in duplicates. The %CV values obtained for High titre (1.61), Medium titre (1.27) and low titre (3.04) were within the accepted range of  $\leq 15\%$  CV for **Truenat<sup>®</sup> Trich** assay.

### Clinical Validation:

The study was performed at Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh. A panel of 524 samples from patients screened by smear microscopy and in-house PCR was chosen for the study. In-house PCR was selected as the molecular reference test to compare the performance of **Truenat<sup>®</sup> Trich** PCR test. Out of 524 samples, in-house PCR was positive for 23 samples and the wet mount was positive for 15 samples. The **Truenat<sup>®</sup> Trich** test was positive in 22 samples. The proportion of agreement between the in-house PCR test and the **Truenat<sup>®</sup> Trich** test was found to be 0.99.

	In-house PCR +ve	In-house PCR -ve
<b>Truenat<sup>®</sup> Trich+ve</b>	22	0
<b>Truenat<sup>®</sup> Trich-ve</b>	1	501

**Sensitivity:** 95.83% with a 95% CI of 78.88% to 99.89%

**Specificity:** 100% with a 95% CI of 99.27% to 100%

## 20. REFERENCES

1. <http://www.cdc.gov/std/trichomonas/stdfact-trichomoniasis.htm>
2. <http://www.who.int/mediacentre/factsheets/fs110/en/>
3. Vos, Theo, et al. "Global, regional, and national incidence, prevalence, and years lived with disability for 301 acute and chronic diseases and injuries in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013." *The Lancet* 386.9995 (2015): 743-800.
4. Harp, Djana F., and Indrajit Chowdhury. "Trichomoniasis: evaluation to execution." *European Journal of Obstetrics & Gynecology and Reproductive Biology* 157.1 (2011): 3-9.
5. Schwebke, Jane R. and Donald Burgess. "Trichomoniasis." *Clinical microbiology reviews* 17.4 (2004): 794-803.
6. Schwebke, Jane R., et al. "Molecular testing for *Trichomonas vaginalis* in women: results from a prospective US clinical trial." *Journal of clinical microbiology* 49.12 (2011): 4106-4111.
7. Hobbs, Marcia M., et al. "Methods for detection of *Trichomonas vaginalis* in the male partners of infected women: implications for control of trichomoniasis." *Journal of clinical microbiology* 44.11 (2006): 3994-3999.

**SYMBOL KEYS**

 Consult instructions for use	 In vitro Diagnostic Medical Device. Not for medicinal use.	 Temperature Limitation	 Catalogue Number	 For single use only	 This Side Up	 Manufacturer
 Date of Manufacture	 Date of Expiry	 Batch Number / Lot Number	 Caution	 Contains sufficient for <-> tests	 Authorised Representative in the European Community	



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