



# POINT-OF-CARE RT-PCR ASSAY FOR RABIES

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# Importance of POCTs

- ▶ Testing performed in **close proximity** to the patient
- ▶ Results available within a timeframe that allows for an **intervention to take place while the patient is still in the care of the provider**
- ▶ Reduced need for follow-up visits - reduce patient's burden & cost of health care
- ▶ Rapid testing results ensure optimal use of limited health care resources

# Types of POCTs for rabies

- ▶ Antigen detection - Lateral flow devices
- ▶ Antibody Detection - Lateral flow devices
- ▶ Nucleic acid detection - Truenat assay

Molecular testing or NAAT for infectious disease pathogens offer the advantages of improved sensitivity and specificity over antigen testing

# The Truenat Platform

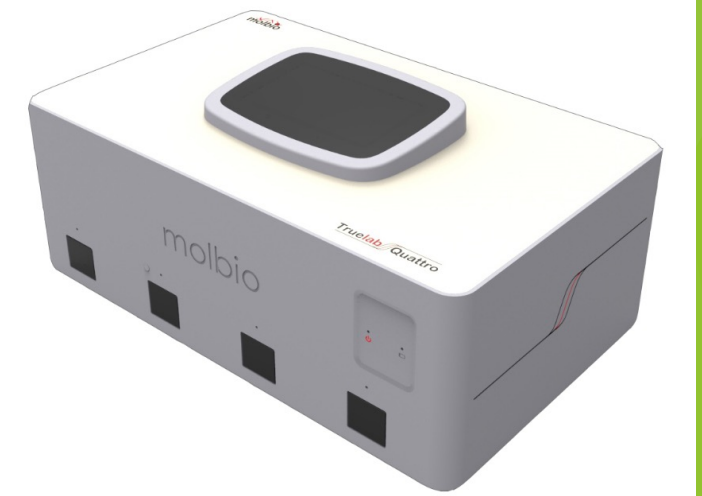
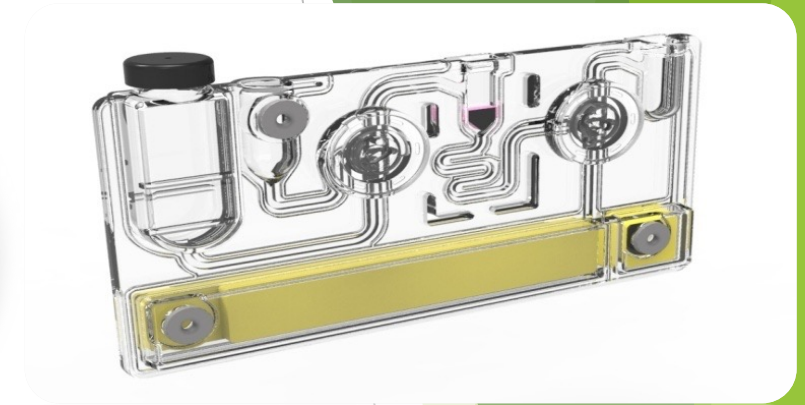


- ▶ Designed & manufactured in India
- ▶ Light weight
- ▶ Portable
- ▶ Temperature tolerance of 40°C
- ▶ Battery powered, rechargeable
- ▶ Ready to use, stabilized consumables
- ▶ >20 different infectious diseases can be tested

Platform approved as a first line molecular test for tuberculosis by WHO

# Test Procedure

- ▶ Automated sample processing:
  - ▶ PCR ready DNA/RNA in 20 minutes
- ▶ Real time, quantitative microPCR.
- ▶ Portable, 8 hours battery backup
- ▶ 3 channel fluorescence
- ▶ Devices with different throughputs
- ▶ All consumables included
- ▶ Results can be printed on a portable printer, or transferred by Bluetooth
- ▶ In-built full process control



# Diagnostic Performance of Truenat Assay

Specimen type	Sensitivity	Specificity	Comparator Assay
Canine brain (n=149)	100%	86.96%	DFA
Human brain (n=48)	100%	100%	

Specimen type	Cohen's Kappa	Comparator Assay
Human antemortem (n=152) (CSF, saliva, nuchal skin)	0.505 (Moderate agreement)	Routine real time RT-PCR

# Practical Applications

- ▶ Seamlessly integration of rabies testing into the pre-existing diagnostic services
- ▶ Portable, battery-operated, IoT-enabled, POC real-time PCR platform
- ▶ Functions without constant power supply
- ▶ Minimal need for complex lab infrastructure
- ▶ User-friendly operation with rapid turnaround time of 1 h
- ▶ Individual sample processing, mitigating cross-contamination risks.
- ▶ Reagents stable at temperatures up to 40°C
- ▶ Eliminate the need for sample storage and transportation from peripheral areas
- ▶ Reduce the burden of testing at referral centers

# International Availability

- ▶ India
  - ▶ **Currently licenced for animal rabies diagnosis**
  - ▶ Licencing process ongoing for human rabies diagnosis
- ▶ Bhutan, Bangladesh, Indonesia, Nepal, Sri Lanka, Timor-Leste
  - ▶ Platform **already in use** for other infectious diseases diagnosis
- ▶ Malaysia
  - ▶ Platform **likely to be available soon**



RESEARCH ARTICLE

JOURNAL OF  
MEDICAL VIROLOGY WILEY

# Evaluation of a rapid, chip-based, micro-PCR assay for detection of rabies virus in human and canine specimens

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## Thank you