

RT-29

Taxonomy

NOVEL, POINT-OF-CARE, REAL-TIME QPCR FOR DETECTION OF DENGUE, CHIKUNGUNYA, AND MALARIA PROMOTING 'ASSURED' CRITERIA OF WORLD HEALTH ORGANIZATION RECOMMENDATION - A MADE IN INDIA INITIATIVE

Arun Kumar, Hindol Maity and Pallab Saha*

Molbio Diagnostics Pvt. Ltd., Verna, Goa-403722, India

*Email: pallabsaha@molbiodiagnostics.com

Molbio Diagnostics Pvt. Ltd, established in 2012 at Goa, India is the manufacturer of lab-on-chip real-time qPCR platform, Truelab™ (Uno Dx, Duo and Quattro) which is point-of-care, battery operated and robust platform (do not need air-conditioning) to detect multiple diseases which ensures World Health Organization's "affordable, sensitive, specific, user-friendly, rapid, easy to handle and deliver to those who need them (ASSURED)" - characteristics of an ideal point-of-care test for resource-limited countries. The cartridge based nucleic acid extraction is completely automated with Trueprep Auto™ device which performs as a standalone device and provides the sample to nucleic acid elute in 25 minutes running under the BIO-MEMS principle. The Polymerase Chain Reaction (PCR) happens on a micro-chip with 6ul of the elute and reports within 45 minutes post-extraction. The android OS platform allows sharing the report with the practitioner or the patient via in-built internet connectivity options. The device is certified by ISO 13485-2016, QMS for medical devices. Truenat™ Dengue: The Limit of Detection is 10 copies of RNA per reaction. The target gene is 3' Untranslated Region (UTR) of Dengue which remains conserved in 4 major serotypes of Dengue virus. The specificity and sensitivity is reported to be 100%. Truenat™ Chikungunya: The Limit of Detection is 10 copies of RNA per reaction. The target gene is non-structural protein (*nsp*) 4 of the Chikungunya virus. The specificity and sensitivity is reported to be 100%. Truenat™ Dengue / Chikungunya: (Dual detection). The target region for Dengue Virus is 3' UTR and for ChikV it is *nsp4* region. The LOD, sensitivity, and specificity remain unchanged for both the viruses. Truenat™ Pv / Pf (*Plasmodium vivax* & *falciparum*): The LOD is 15 copies of DNA per reaction. The target region is taken from the erythrocyte binding protein (EBP) gene which is expressed on the surface of the merozoites. EBP is involved in the parasite's invasion of the red blood cells (RBC) by pathways that are specific to *Plasmodium vivax* & *Plasmodium falciparum*. The region selected is specific for *P.vivax*&*P. falciparum* respectively.

Keywords: Vector-borne disease, dengue, chikungunya, malaria, detection kits



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ABSTRACTS

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