Evaluation of ATCC® Quantitative Synthetic RNA from Zika virus for Diagnostic Development and Validation

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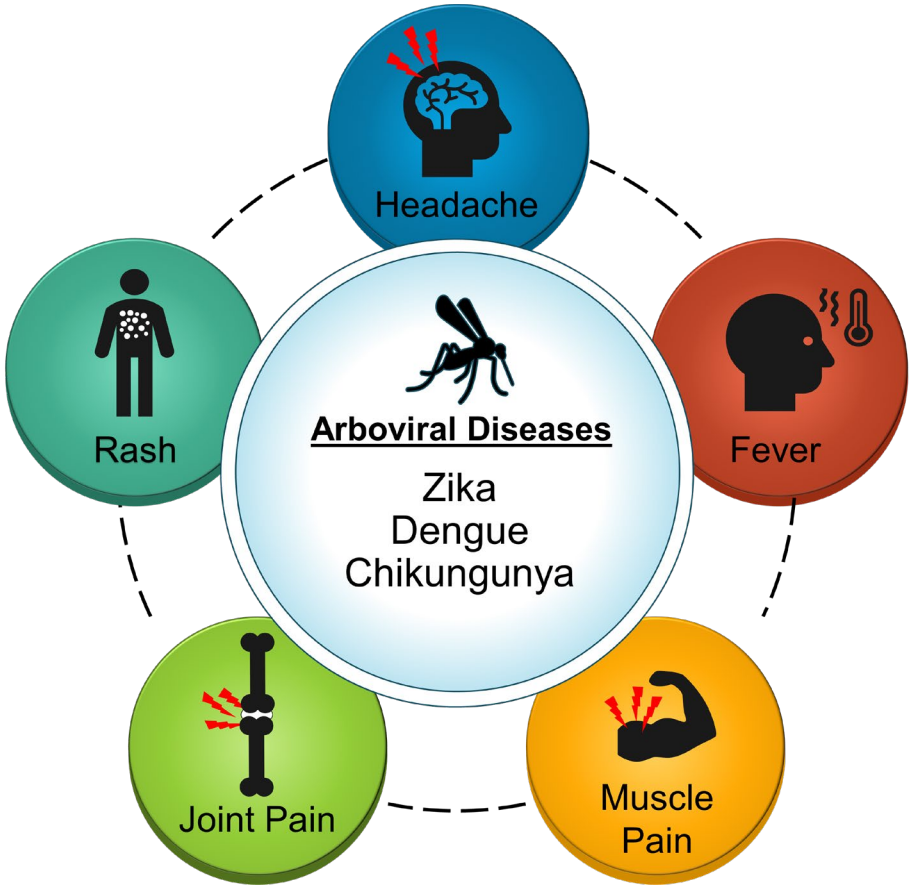
About Us

ATCC is a global leader in providing authenticated, high-quality biological resources and standards for industry, academia, and government.

- Founded in 1925, ATCC is a private, nonprofit, global biological resource center and standards organization that provides scientists with the biomaterials and resources they need to conduct critical life science research.
- World's trusted, premier biological materials resource and standards development organization:
  - 4,000+ cell lines
  - 80,000+ microorganisms
  - Genomic and synthetic nucleic acids
  - Media, sera, and reagents
  - Advanced cell models
  - Standards

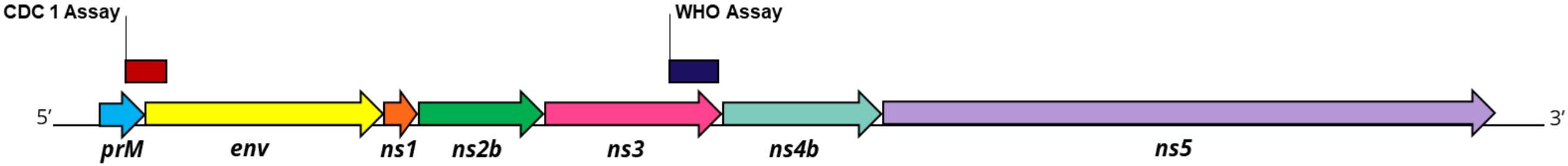
Background

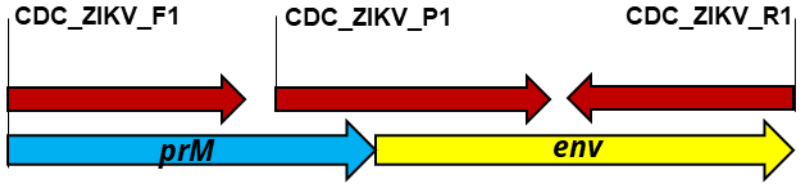
- **Zika virus (ZIKV)** is an enveloped, single-stranded RNA arbovirus
- **Transmission:** Infected *Aedes aegypti* mosquitoes, sexual contact, or from mother to fetus during pregnancy.
- **Genotypes:** Two major lineages - African and Asian.
- **Clinical Presentation:** Most infections are asymptomatic or mild.
  - Symptoms: Rash, fever, conjunctivitis, headache, malaise, and muscle or joint pain.
- **Pregnancy risks:** Infections during pregnancy are linked to severe congenital abnormalities like microcephaly.
- **Neurological effects:** Infection has also been associated with neurological complications such as Guillain–Barré syndrome (rare, but important).



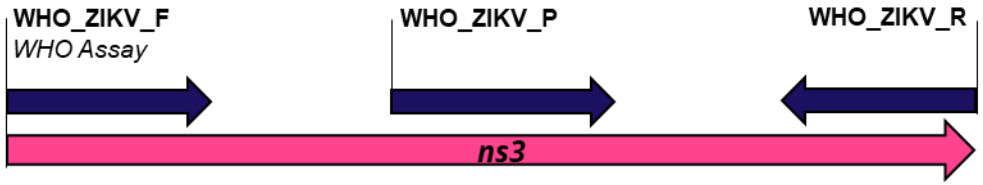
Synthetic Design

4 published qRT-PCR assays were tested to evaluate the performance of the analytical reference material (ARM)

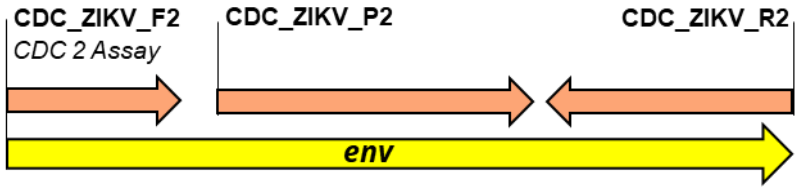




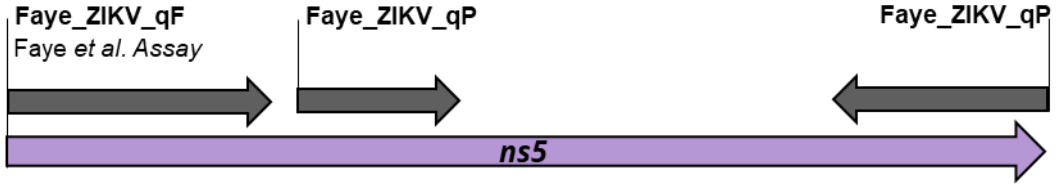
CDC ZIKV assay 1 located on synthetic construct sequence



WHO assay located on synthetic construct sequence



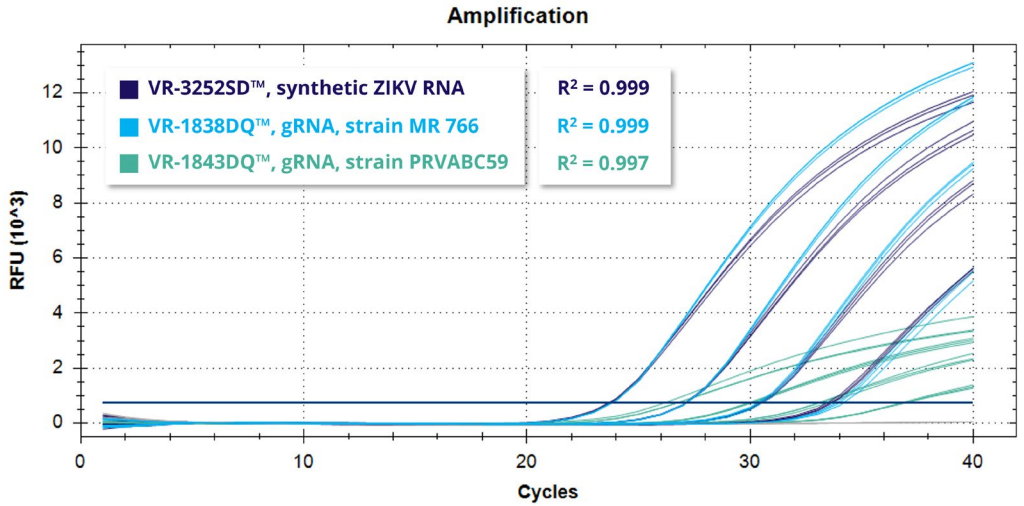
CDC ZIKV assay 2 located on synthetic construct sequence



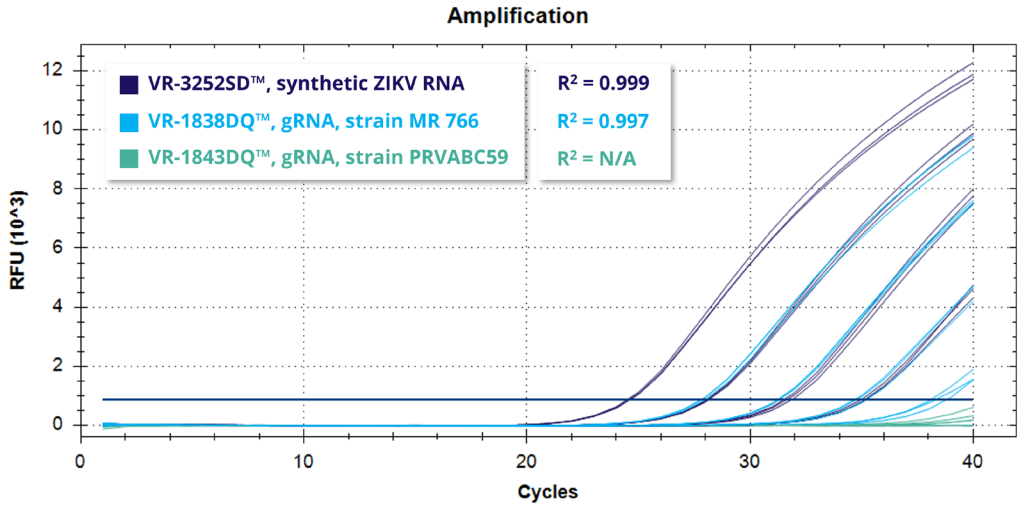
Faye *et al.* assay located on synthetic construct sequence

Synthetic ARM was Compatible with 4 Published qRT-PCR Assays

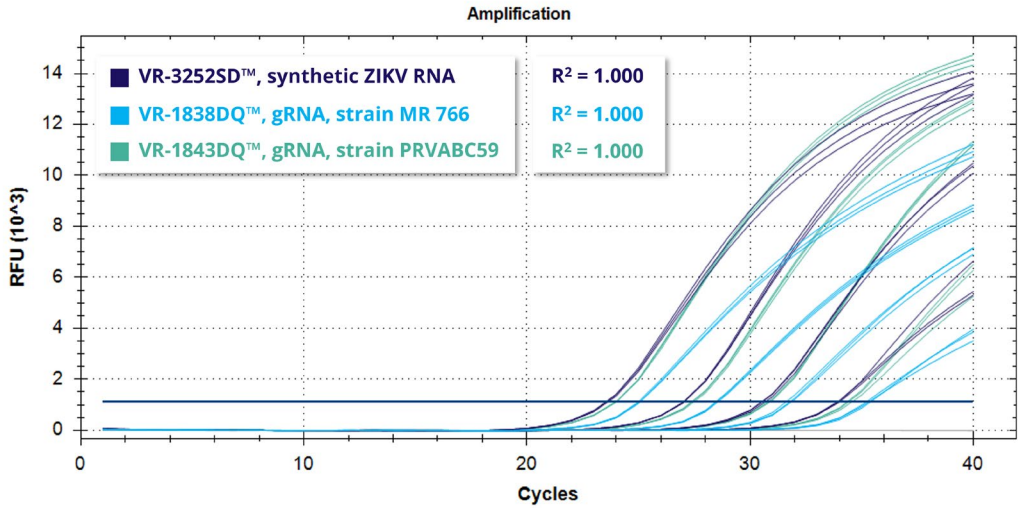
Synthetic ARM was compatible with Faye *et al.* Assay



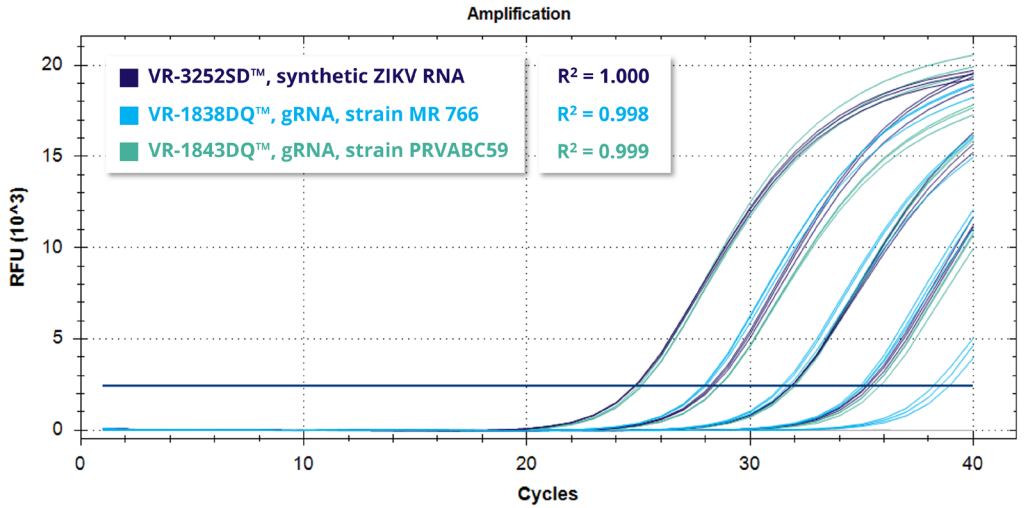
Synthetic ARM *was* compatible with WHO Assay



Synthetic ARM was compatible with CDC 1 Assay



Synthetic ARM was compatible with CDC 2 Assay



Conclusions

ATCC® VR-3252SD™

Quantitative Synthetic RNA from Zika virus

Applications

- Generation of a standard curve for quantitative PCR
- Positive control for qPCR assays
- Assay verification and validation studies
- Monitor assay-to-assay and lot-to-lot variation
- Molecular diagnostics assay development

Target Genes

prM | E | NS1 | NS2B | NS3 | NS4B | NS5

Key features

Stabilized

Quantitated

Biosafety Level 1

Have you developed your own ZIKV assay?

Contact tech@atcc.org to confirm the compatibility of your assay with our ARM!

Acknowledgements

Thank you!

- Microbiology Product Development
  - Victoria Knight-Connoni, PhD
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  - Leka Papazisi, DVM, PhD
  - Holly Asbury, BS
- Manufacturing Science and Technology
  - Sung-Oui Suh, PhD
- Product Management
  - Kyle Young, MBA

Scan here for more information on the quantitative synthetic ZIKV RNA

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Thank You