

## Collaborative R&D

Scientists at the Center for Disease Control (CDC) collaborated with members of NEB's Research Team to develop a Zika assay based on reverse transcription loop-mediated isothermal amplification (RT-LAMP) technology. This collaboration quickly expanded to include members of our Customized Solutions and Product Development Teams, as the CDC sought a custom formulation of the WarmStart<sup>®</sup> Colorimetric LAMP 2X Master Mix. Specifically, the CDC requested a formulation of the master mix that allowed for greater sample input and improved sensitivity. This project was an exciting opportunity to facilitate progress in addressing an important public health issue.

### CAPABILITY AND SCOPE OF WORK

We evaluated the CDC's request and aligned with their technical team to define formulations that would meet their requirements and could be manufactured at scale. We then embarked on a collaborative development project where we prepared and evaluated several versions of the custom master mix. Ongoing technical support was provided as the CDC assessed the performance of each of the mixes. We reviewed their results and offered recommendations to optimize their workflow and improve performance. After the CDC settled on a version that best suited their needs, NEB ensured a seamless transition of this custom formulation to production. The development team was also responsible for establishing shelf life, generating quality documentation and necessary requirements to provide the custom product on an ongoing basis.

### OUTCOME

The CDC published this work and included reference of NEB's support in developing the custom LAMP Master Mix (1). The CDC also filed a patent application describing the ZIKA RT-LAMP assay, and more recently began considering strategies to enable point-of-care testing for Zika detection.

(1) Calvert, A. E., Biggerstaff, B. J., Tanner, N. A., Lauterbach, M., Lanciotti, R. S. (2017) Rapid colorimetric detection of Zika virus from serum and urine specimens by reverse transcription loop-mediated isothermal amplification (RT-LAMP). *PLoS One*. 12(9):e0185340: <https://doi.org/10.1371/journal.pone.0185340>



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