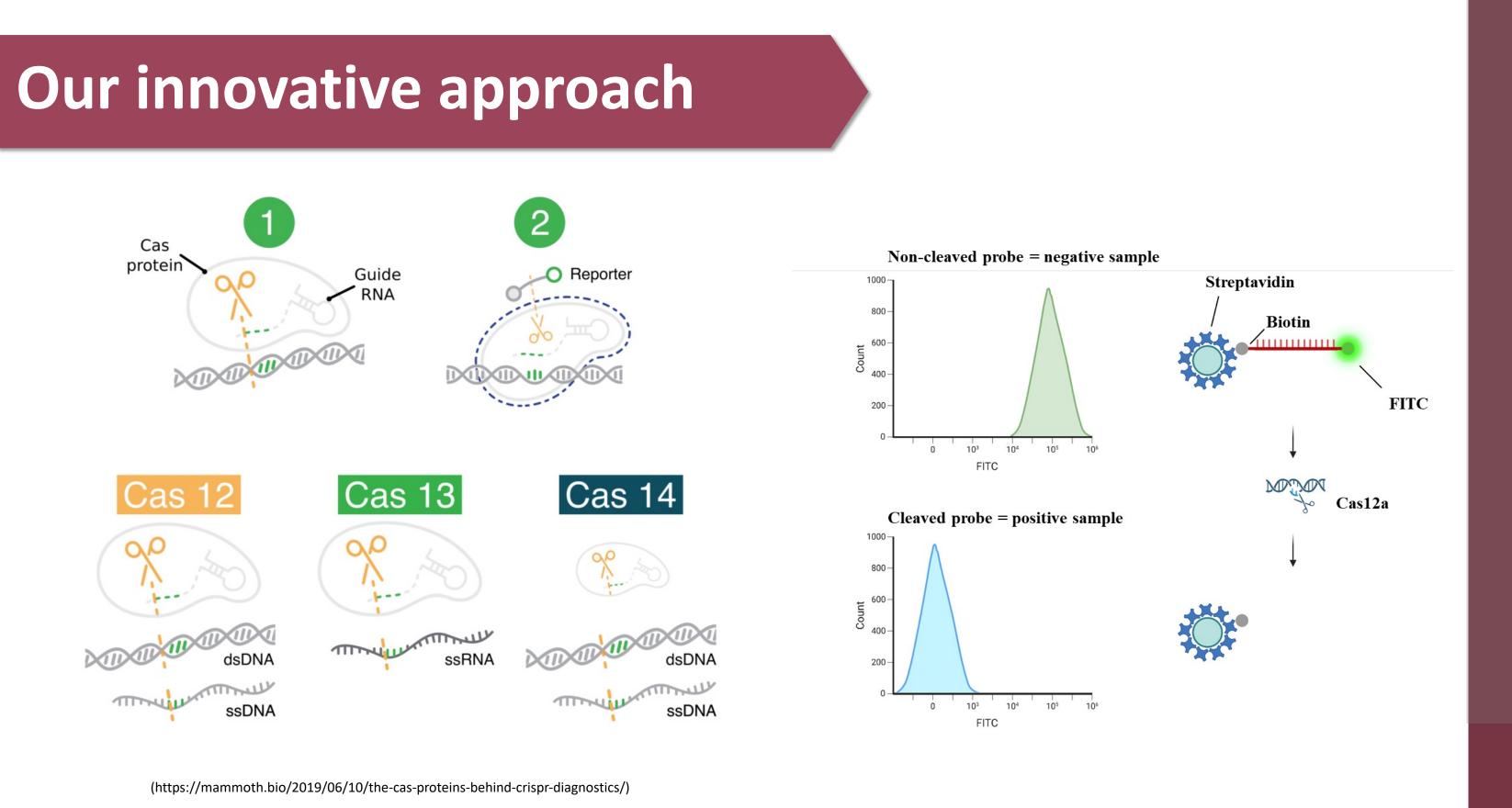


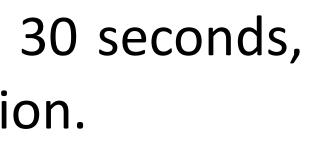
East Coast fever (ECF)

- ECF is a tick-borne disease that kills 1 cow every 30 seconds, with annual economic losses of over USD 500 million.
- The current diagnostic tests are impractical for farm-level or pen-side diagnosis and lack sensitivity to pick infections early for proper treatment.



- We applied the latest gene editing technology, CRISPR, and its associated Cas protein to develop a pen-side test for ECF.
- The test has been adapted to field or farm testing by including an isothermal (RPA) pre-amplification step and a lateral flow strip readout format.









Novel CRISPR-Cas-powered pen-side test for East Coast fever

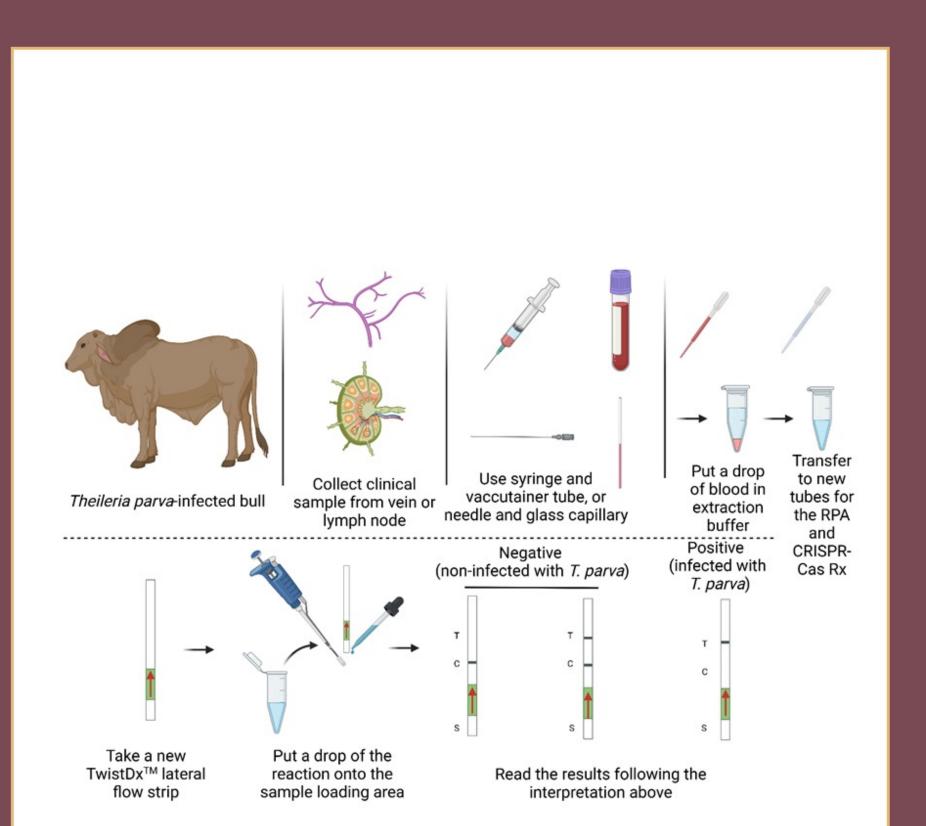


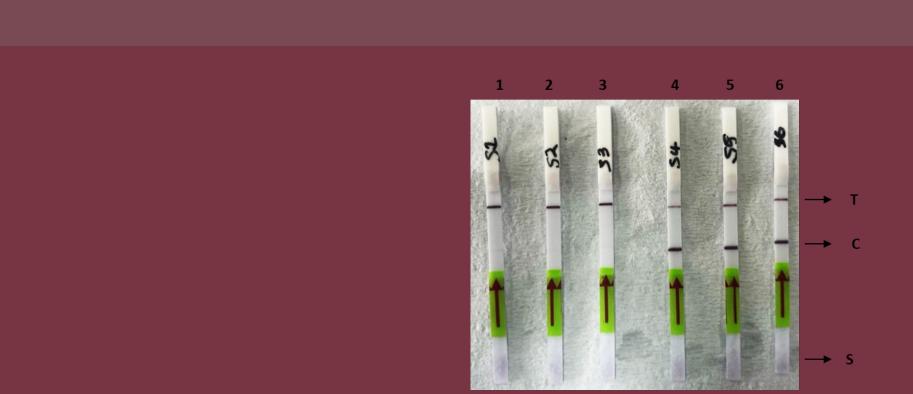
journal homepage: www.elsevier.com/locate/ijpara

Novel CRISPR-Cas-powered pen-side test for East Coast fever

Robert Muriuki^{a,b}, Maingi Ndichu^a, Samuel Githigia^a, Nicholas Svitek^{b,*}

^a University of Nairobi, Faculty of Veterinary Medicine, Department of Veterinary Pathology and Parasitology P.O. Box 30197, Nairobi, Kenya ^b International Livestock Research Institute (ILRI), Animal and Human Health Program, P.O. Box 30709, Nairobi, Kenya





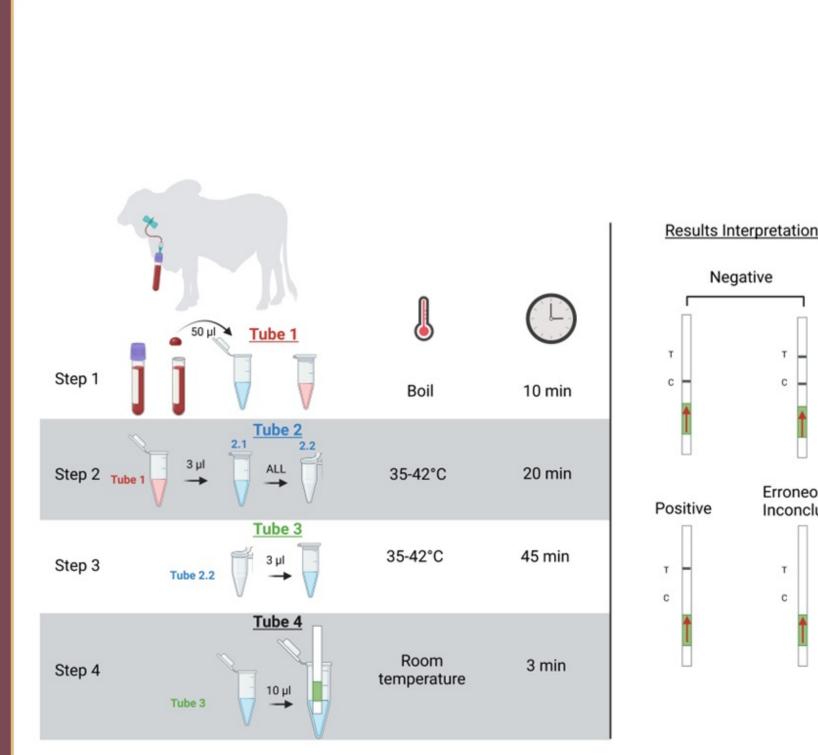
Authors: Robert Muriuki*, Maingi Ndichu ,Samuel Githigia Nicholas Svitek

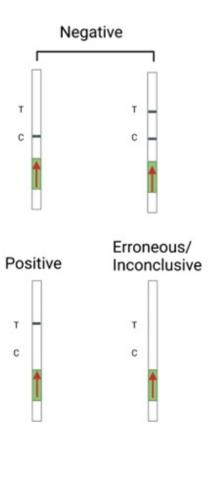
Title/role: * PhD fellow Email addresses: R.muriuki@cgiar.org, N.Svitek@cgiar.org

International Journal for Parasitology 54 (2024) 507-521

Contents lists available at ScienceDirect

International Journal for Parasitology





TIPE OF A THE ALE OF A MARKAGEN

Outcomes

Next steps

- Two tests
- tests

Partners







 First ever CRISPR-Cas pen-side test for the diagnosis of Theileria parva infections in cattle.

• This pen-side test is highly specific and can detect one T. *parva-infected* cell per 3 μ l of blood and up to eight different *T. parva* field isolates.

• The utilization of the test can be easily carried out using simple instruments like a boiling pot of water, and results are achievable in under two hours.

CRISPR-Cas-based pen-side more developed been for have Anaplasmosis and Babesiosis.

A multiplex test will be developed to enable the simultaneous detection of these three tick-borne diseases.

• The next step will be to scale up these development into widely for accessible commercial products.

