

# Trypanosoma cruzi prevalence in animal trafficking by Loop-mediated isothermal amplification assay

Tália M. TREMORI<sup>1,2\*</sup>, Pedro FERNÁNDEZ SOTO<sup>2</sup>, Eduardo MASSAD<sup>3,4,5</sup>, Antonio MURO ALVARÉZ<sup>2</sup>, Noeme S. ROCHA<sup>1</sup>, Julio LÓPEZ ABÀN<sup>2</sup>.

1. Department of Veterinary Clinical Sciences, School of Veterinary Medicine and Animal Science – São Paulo State University – UNESP – Campus of Botucatu - Brazil 2. CIETUS (Centro de Investigación de Enfermedades Tropicales de la Universidad de Salamanca) - Faculty of Pharmacy – Universidad de Salamanca, Salamanca, Spain 3. Department of Legal Medicine LIM 01, School of Medicine, University of São Paulo, São Paulo, Brazil 4. School of Applied Mathematics of the Fundação Getúlio Vargas, Rio de Janeiro, Brazil 5. School of Natural and Life Sciences of the University of Derby, UK. [talia\\_missen@hotmail.com](mailto:talia_missen@hotmail.com) [laban@usal.es](mailto:laban@usal.es)

## Introduction

*Trypanosoma cruzi*, are an important protozoan parasite for humans and animals. Chagas disease is a neglected tropical disease that could affect roughly 6-7 million people in the world, mainly on underdeveloped countries and requires a specific treatment. The vector is a blood-sucking insect and so many mammals could be reservoirs. Animal trafficking, smuggling and illegal trade is the fourth most common illegal activity in the world. An important point concerning illegal animal trade and the increasing globalization is that represents a possible vehicle for illness spreading, including zoonosis, creating a health public issue. Hence the diagnosis in endemic regions and limited resources is very important, an alternative is a molecular technique named *Loop-mediated Isothermal Amplification* (LAMP), this assay is a one-step amplification reaction that amplifies a target DNA with high specificity, efficiency and rapid under isothermal conditions.

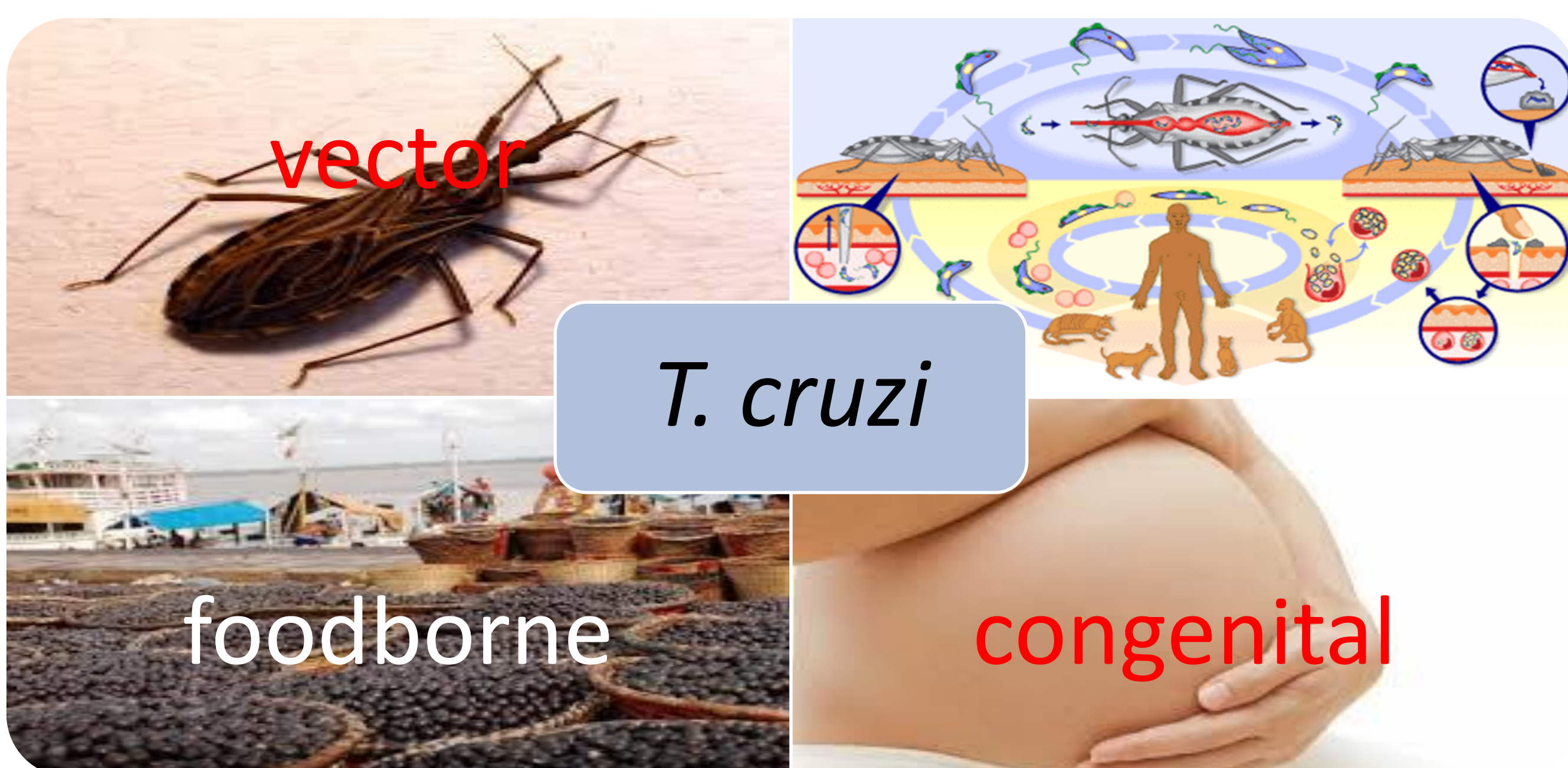


Figure 01: *T. cruzi* and different ways of transmission.

## Methods

Samples were collected from blood, muscle and skin from trafficking mammals in Brazilian territory. The diagnosis of *T. cruzi* were made using the *Loop-mediated Isothermal Amplification* (LAMP) assay.

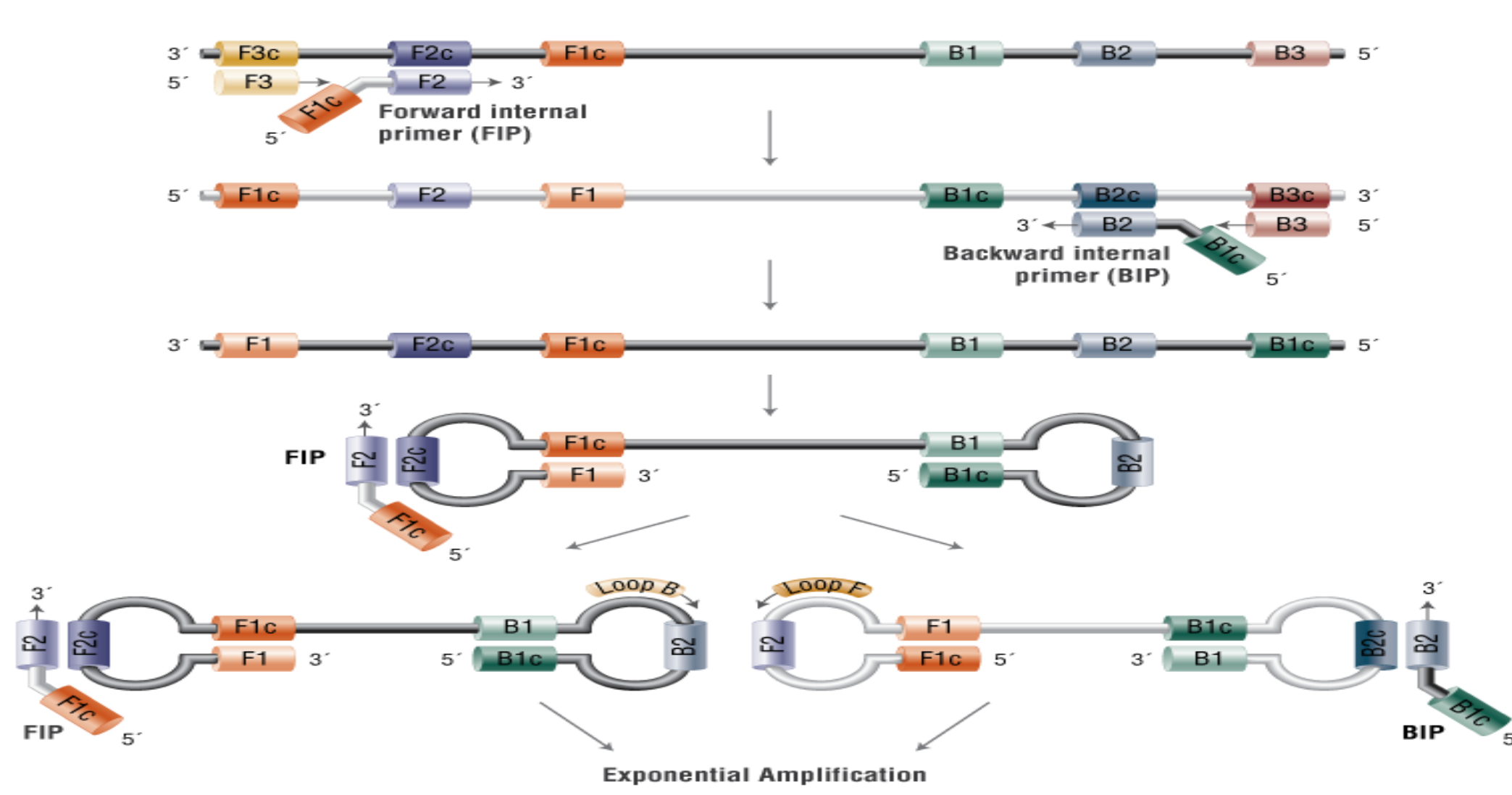


Figure 02: LAMP assay, (New England Biolabs, Isothermal Amplification [www.neb.com](http://www.neb.com))

## Results

From all samples 50% (25/50) of animals were positive in LAMP assay to *T. cruzi*, according to Figure 03. Blood samples had 47,06% positivity according to Figure 04.

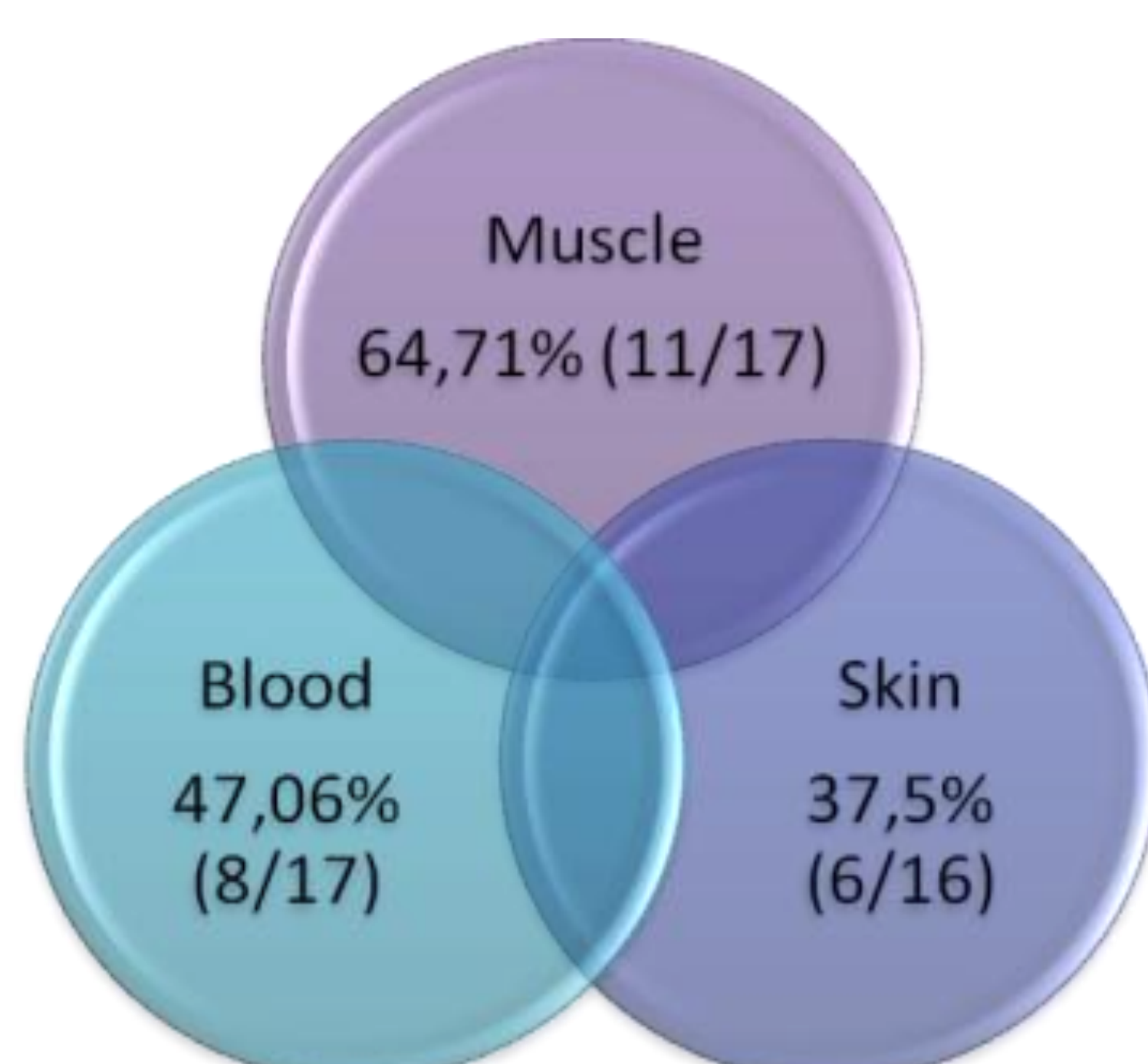


Figure 03: Frequency distribution of LAMP positivity on animal trafficking samples. N=50.

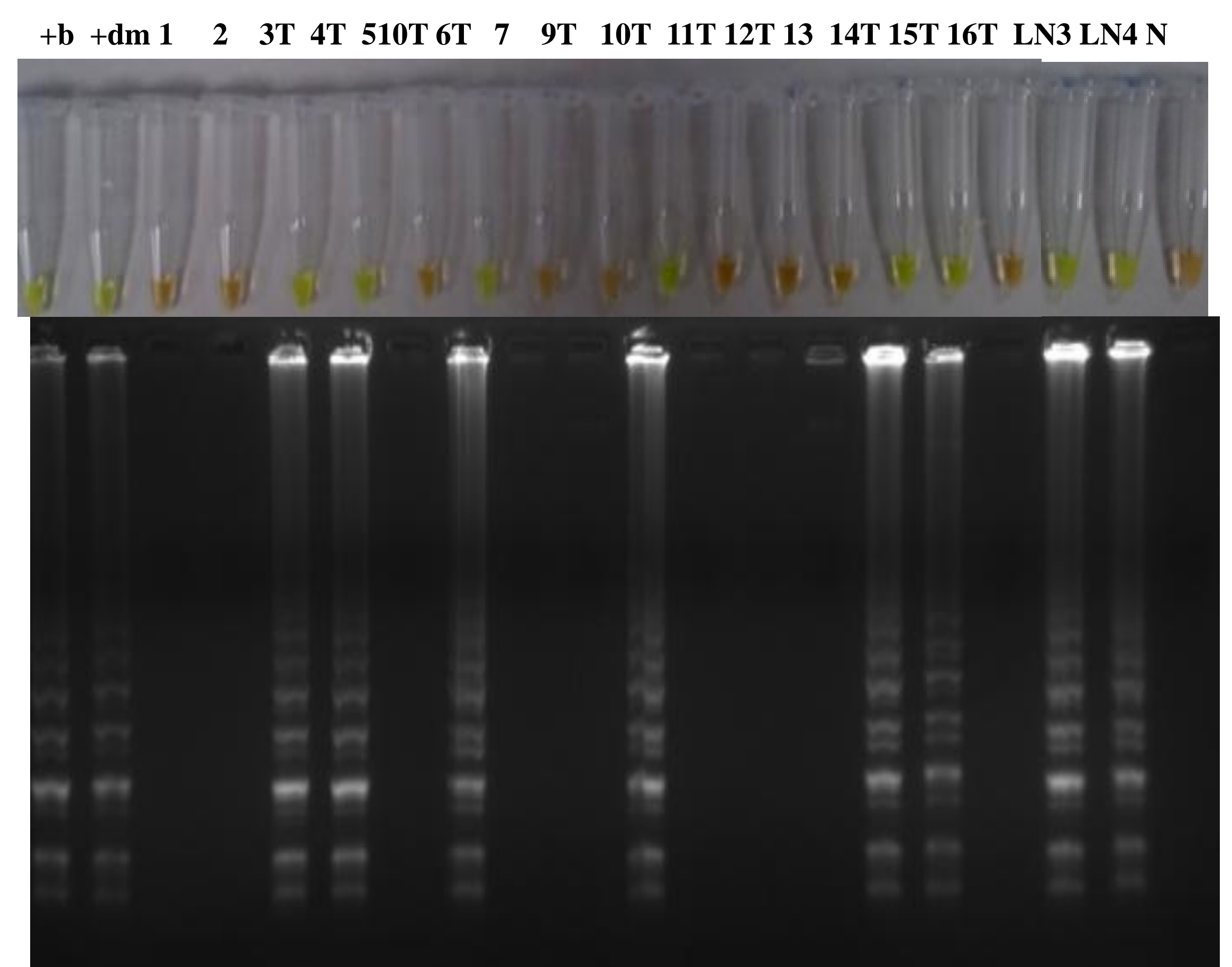


Figure 02: LAMP assay in blood samples, tubes above with colorimetric reaction (yellow = positive, orange = negativa). Electroforesis to confirm the amplification under each tube reaction samples. N= negative control, +b = positive *T. cruzi* (cepa Brener); +dm = positive *T. cruzi* (cepa dm28).

## Conclusion

This analysis could be important to identify species reservoirs and the risk about animal trafficking to human health and the use of LAMP assay in fast and trial diagnosis. Not only the Chagas' diseases, but other potential pathogens that cause multiples neglected tropical diseases.



## References

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