# *Surra endemic in Indonesia*

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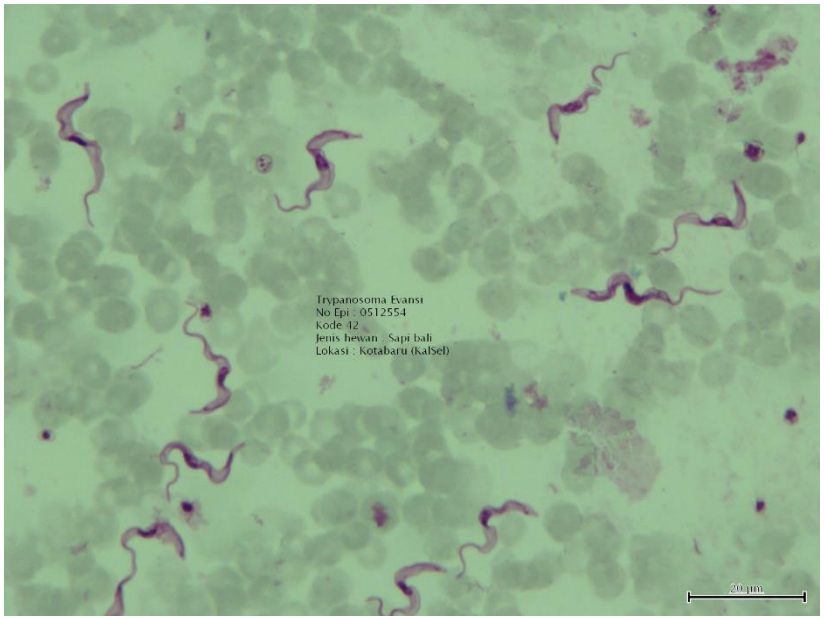
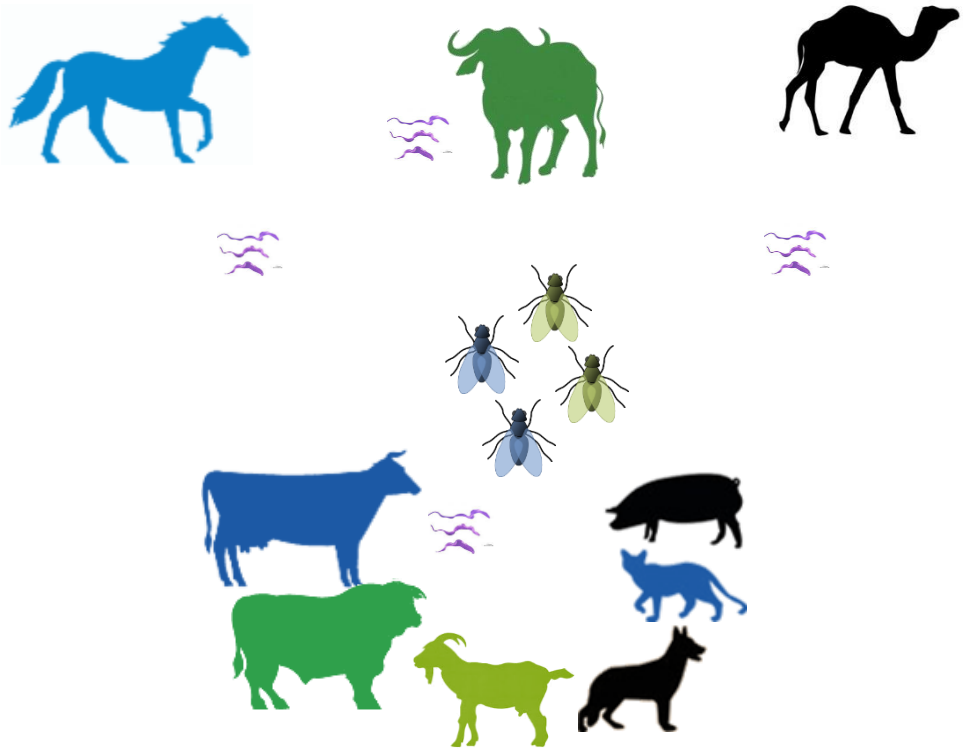
BANJARBARU DISEASE INVESTIGATION CENTER

# *Trypanosoma evansi*

Surra is a blood-borne parasite that affects a wide range of livestock and wild animals, including cattle, buffalo, camels, horses, donkeys, sheep, goats, dogs, cats, elephants, coatis, capybaras, and marsupials (Stephen, 1986)



Transmitted mechanically by bloodsucking fly vectors (Tabanus and Stomoxys) can be from contaminated syringes (Iatrogenik).



# Surra di Indonesia

- The discovery was initially made by Griffith Evans in 1880 in the blood of Indian horses and camels (Hoare, 1972).
- The first accident involving horses in Java was reported in 1897.
- In less than 10 years, Surra became endemic on the Java island, and until now in most parts of Indonesia declared it endemic based on serologic tests.

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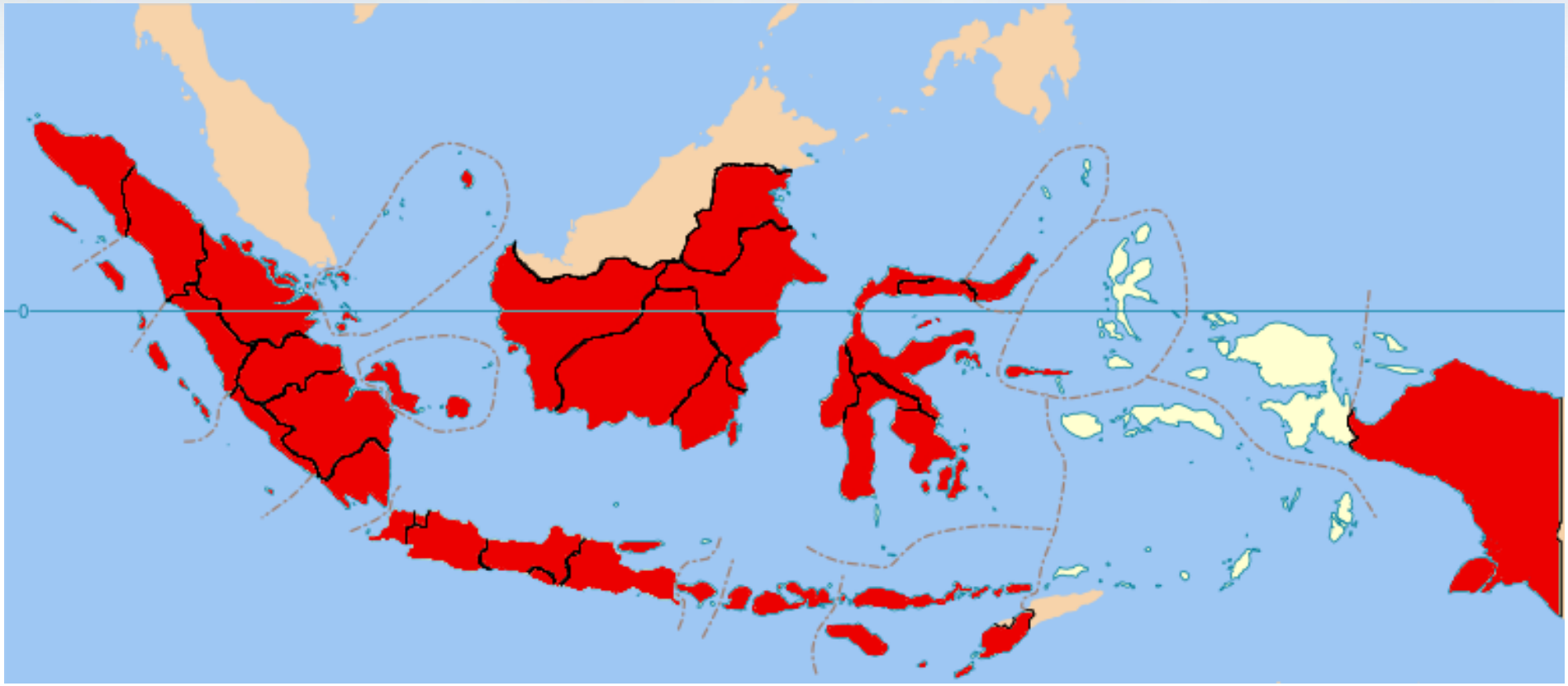


# BANJARBARU DISEASE INVESTIGATION CENTER

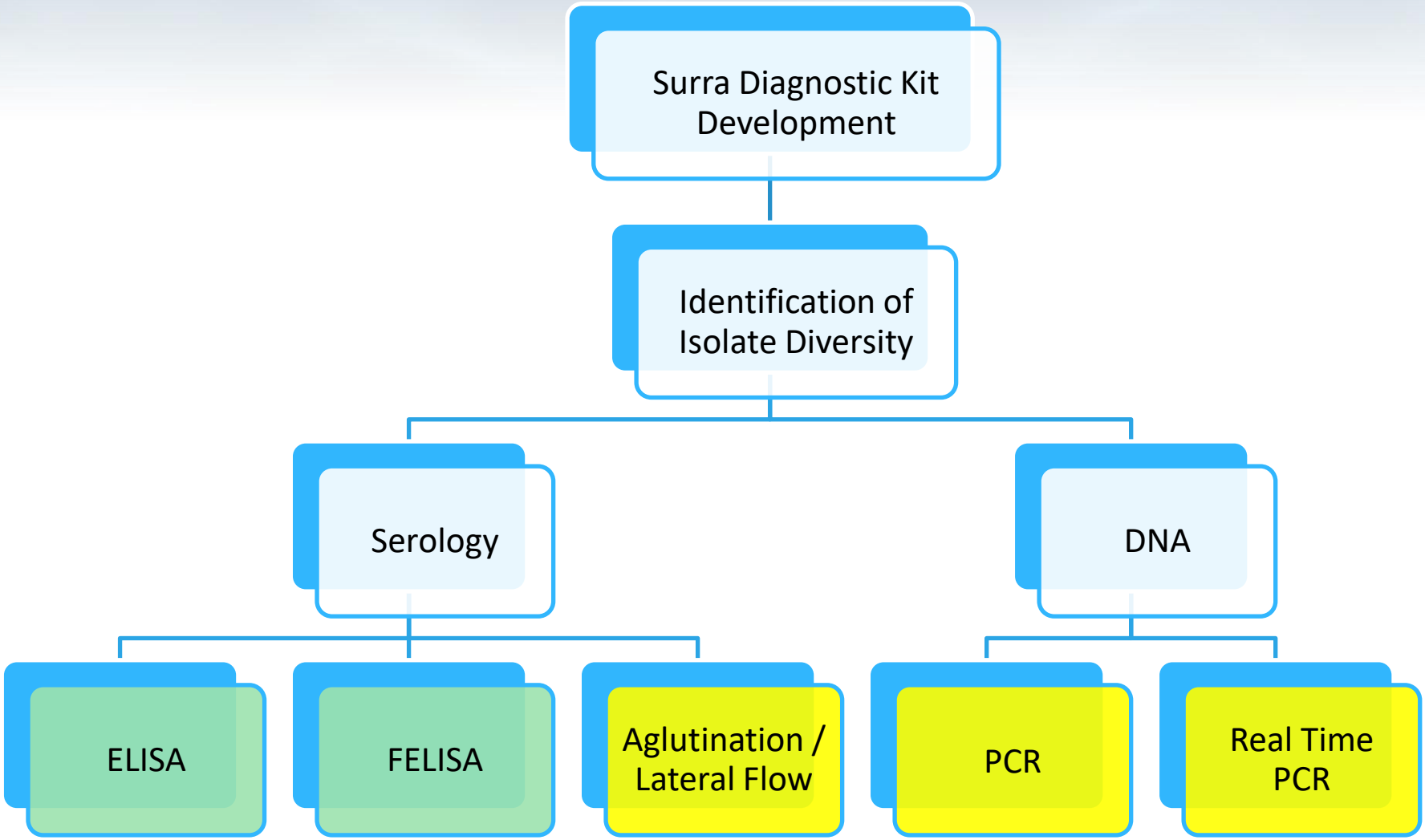
Banjarbaru Disease Investigation Center

has been officially designated as the National Reference Laboratory for Surra

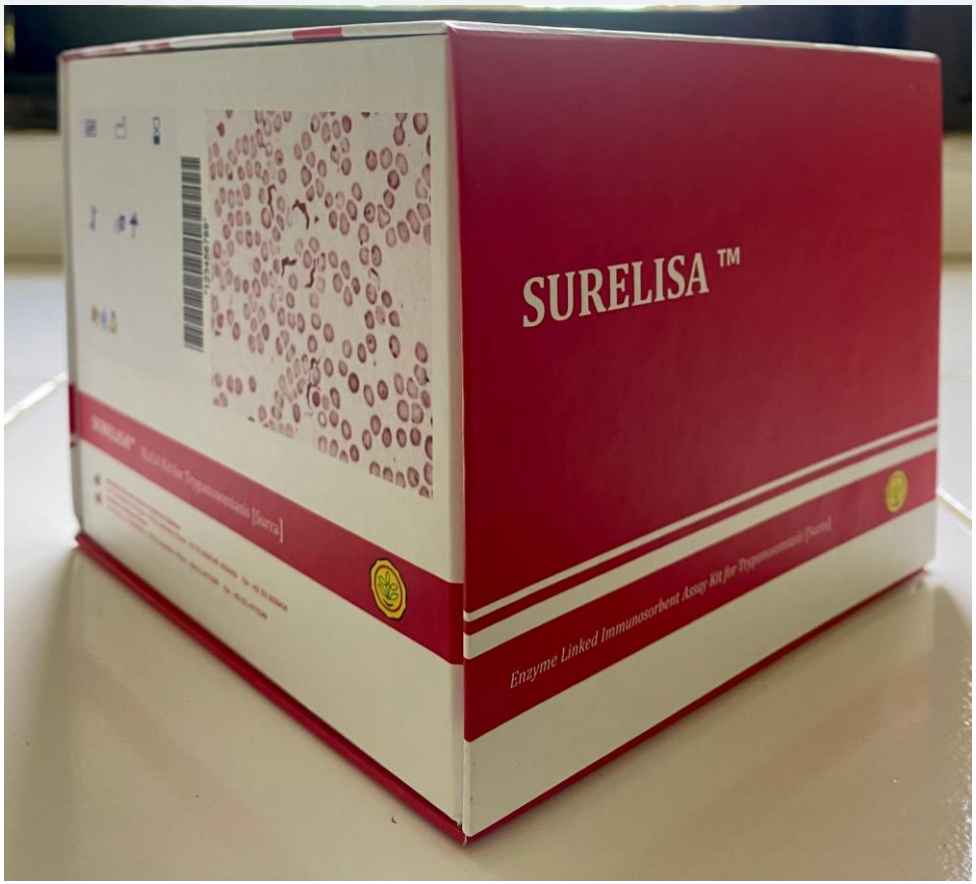
In accordance with

Agriculture Minister's Decree No. 678/Kpts/OT.050/M/11/2021 regarding the Veterinary Laboratory as the National Reference Laboratory

# Development of Surra Diagnostic Method and Kit

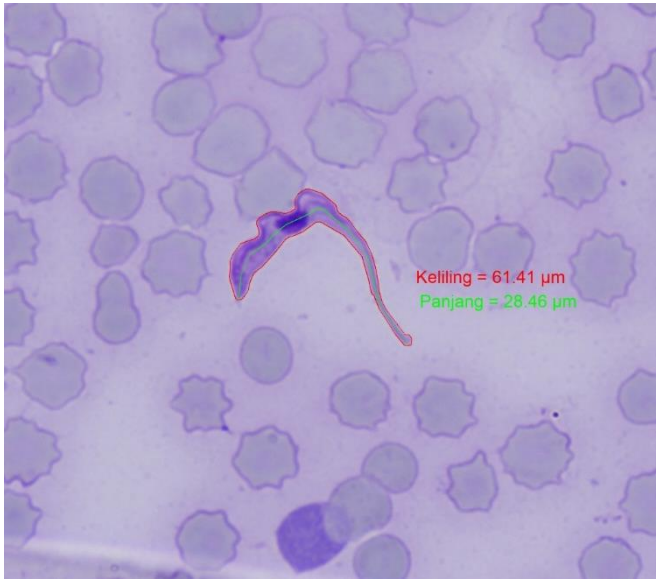


# Surra Antibody Elisa Kit



# Biologis *Trypanosoma evansi*

- *Trypanosoma evansi* primarily replicates by binary fission during the trypomastigote phase inside the host, without the stages of amastigote, promastigote, and epimastigote.
- Its life cycle outside of the host lasts only 6-12 hours.
- There is a variety in parasitemia pattern (Subekti, *et al*, 2013), sensitivity to trypanocidal (Subekti, *et al*, 2015) and protein profile even within the same species (Yuniarto, 2016).
- The length of *Trypanosoma evansi* ranges from 19.4 to 35.3 µm, with a width of 1.3 to 1.6 µm (Stephen, 1986).

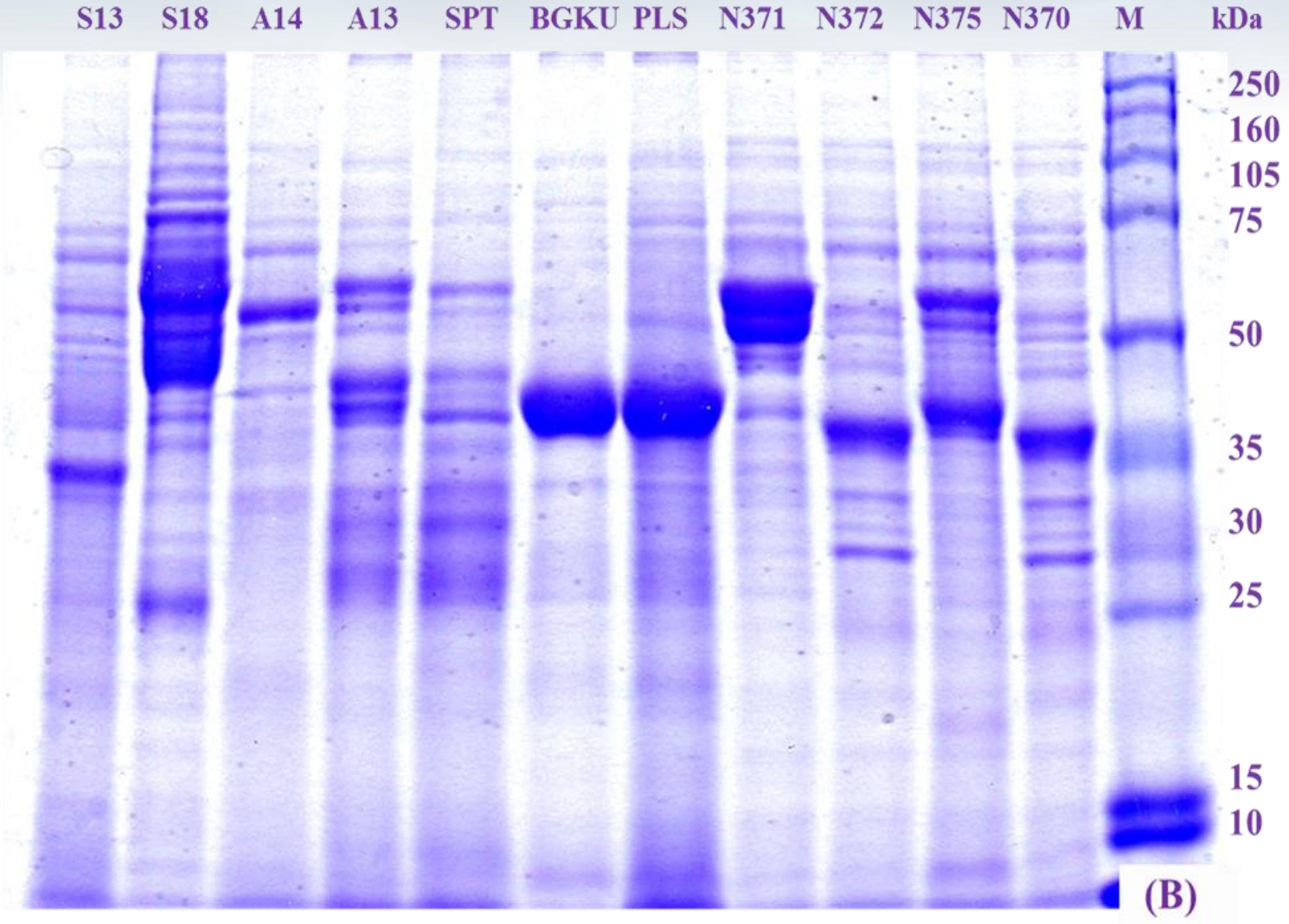


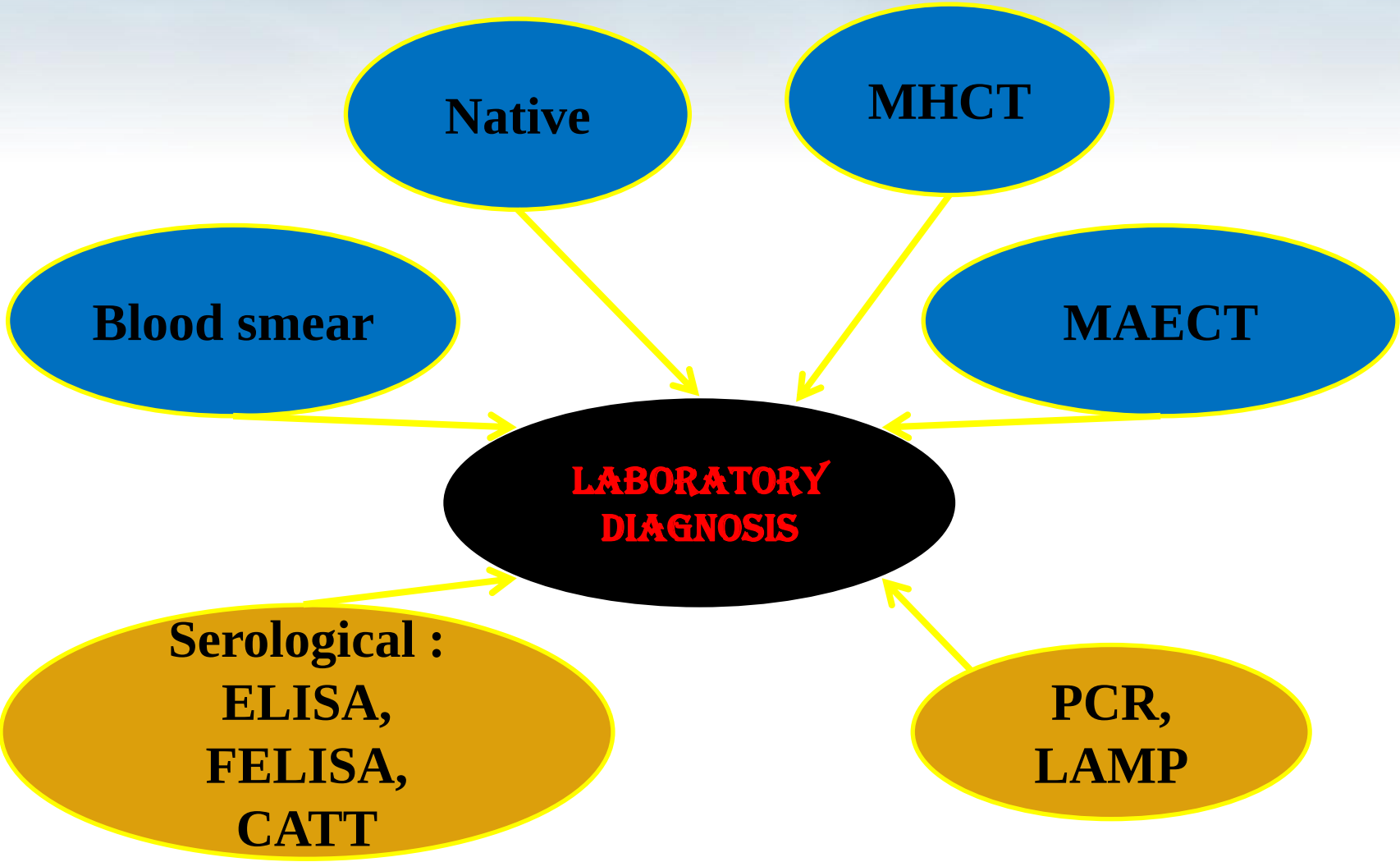
# Variations in Sensitivity to Trypanocidal

| Trypanosidal | Dosage | ST372 | ST373 | ST375 | ST371 | S13 | S18 | HSU | PLS |
|---|---|---|---|---|---|---|---|---|---|
| Melarsomine hydrochloride | 0,25 mg/kg BB | Effective | Effective | Effective | Ineffective | Ineffective | Effective | Ineffective | Effective |
| | 0,75 mg/kg BB | Effective | Effective | Effective | Effective | Effective | Effective | Ineffective | Effective |
| Suramin | 5 mg/kg BB | Effective | Effective | Effective | Effective | Effective | Effective | Effective | Effective |
| | 10 mg/kg BB | Effective | Effective | Effective | Effective | Effective | Effective | Effective | Effective |
| Diminazene aceturate | 3,5 mg/kg BB | Ineffective | Effective | Ineffective | Ineffective | Effective | Ineffective | NS | Effective |
| | 7 mg/kg BB | Effective | Effective | Effective | Ineffective | Effective | Ineffective | Ineffective | Effective |
| Isometamidium chloride | 0,5 mg/kg BB | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective |
| | 1 mg/kg BB | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective | Ineffective |

**Source : Subekti *et al.* 2015**

# Variety of Protein Profile




Native
MHCT
Blood smear
MAECT
LABORATORY DIAGNOSIS
Serological : ELISA, FELISA, CATT
PCR, LAMP

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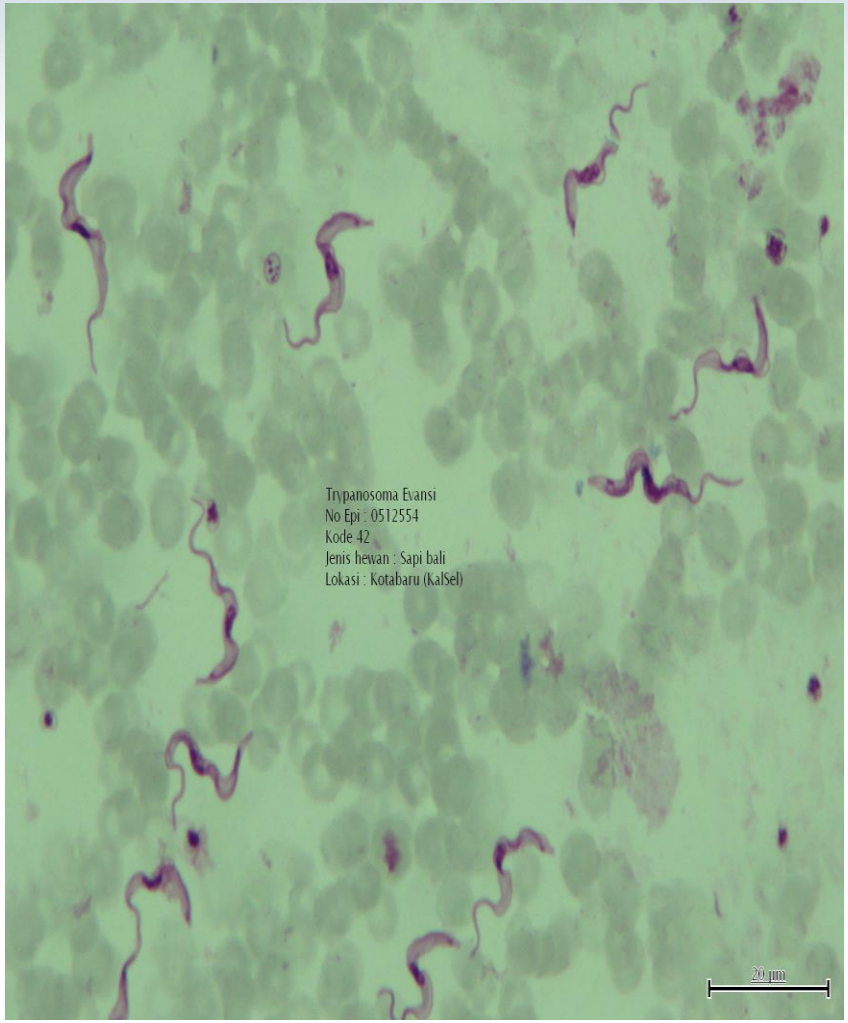


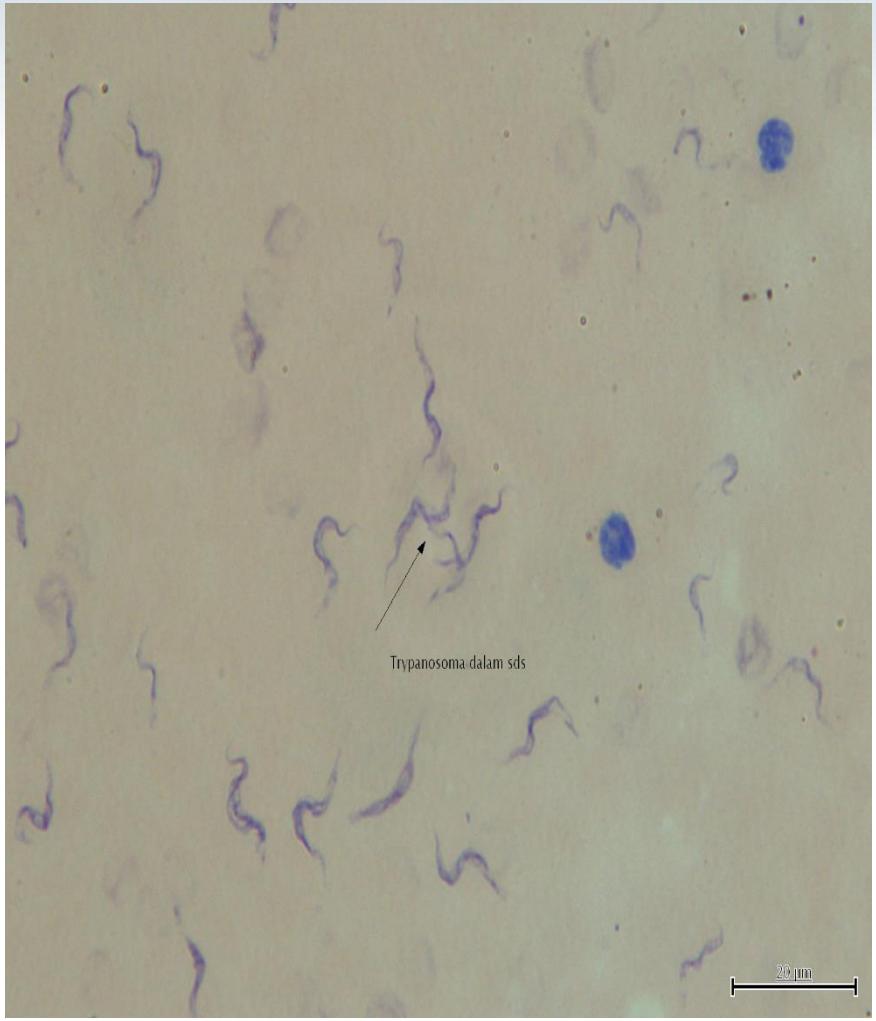

# HANDLING AND CONTROL

# BANJARBARU DISEASE INVESTIGATION CENTER

IMPROVING HUMAN RESOURCES COMPETENCY

TRYPANOSOMES SURVEILLANCE AND ISOLATION

BUILD A NETWORKS

ISOLATE RESISTANCE TEST TO TRYPANOCIDAL

DEVELOPING SURRA DIAGNOSTIC KITS

IDENTIFYING SURRA VECTORS

SURRA INTEGRATED CONTROL

# Treatment

***Diminazene aceturate***

***Isometamedium***

**Registered in Indonesia**

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**Unregistered in Indonesia**

***Suramin***

***Quinapyramine***

***Melarsomine***

# THANK YOU