

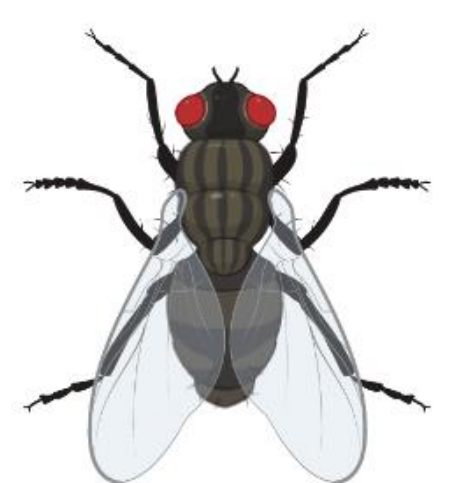


# Drug screening of naturally derived compounds against *Trypanosoma evansi*: Rationale and design

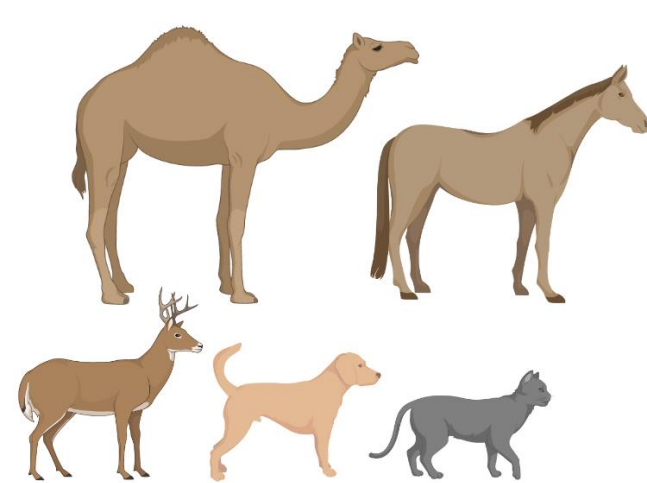
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## The disease - Surra

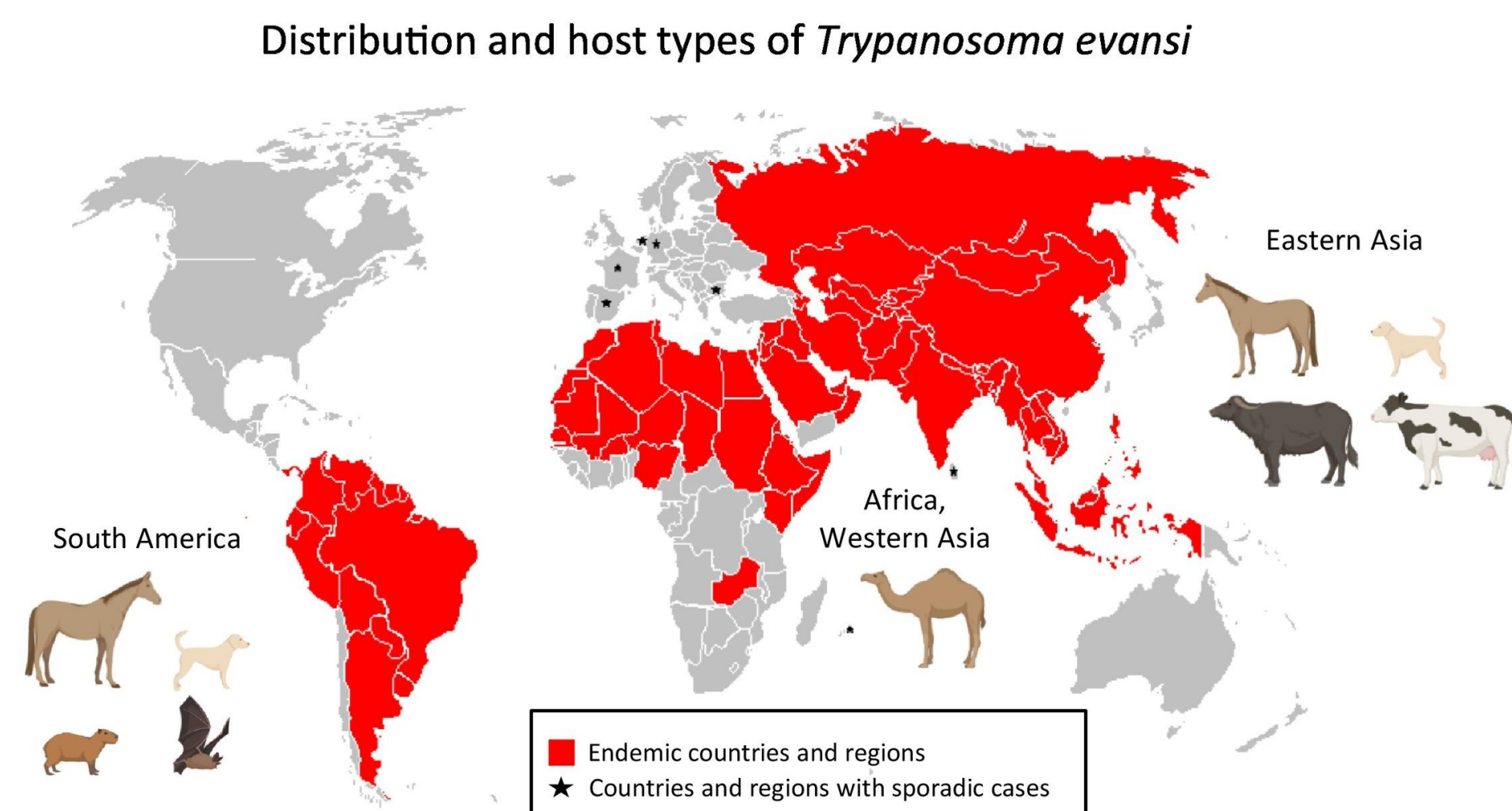
*T. evansi* is a protozoan parasite that causes the disease 'surra'



Transmitted by biting insects



Infects working animals causing fever, weightloss, paralysis and death



Trends in Parasitology

Figure from: [2]

## The problem



Drug resistance reduces efficacy of drugs currently available



No vaccine – difficult to target parasite



Death of animals has catastrophic economic effect on livelihoods

## The solution

The PhytoQuest Phytopure library is a commercially available collection of 1130 purified compounds derived from temperate region plants.



### PRIMARY OBJECTIVE

To screen the plant compounds against the parasite to find any that kill the parasite, providing the foundation for a new drug.



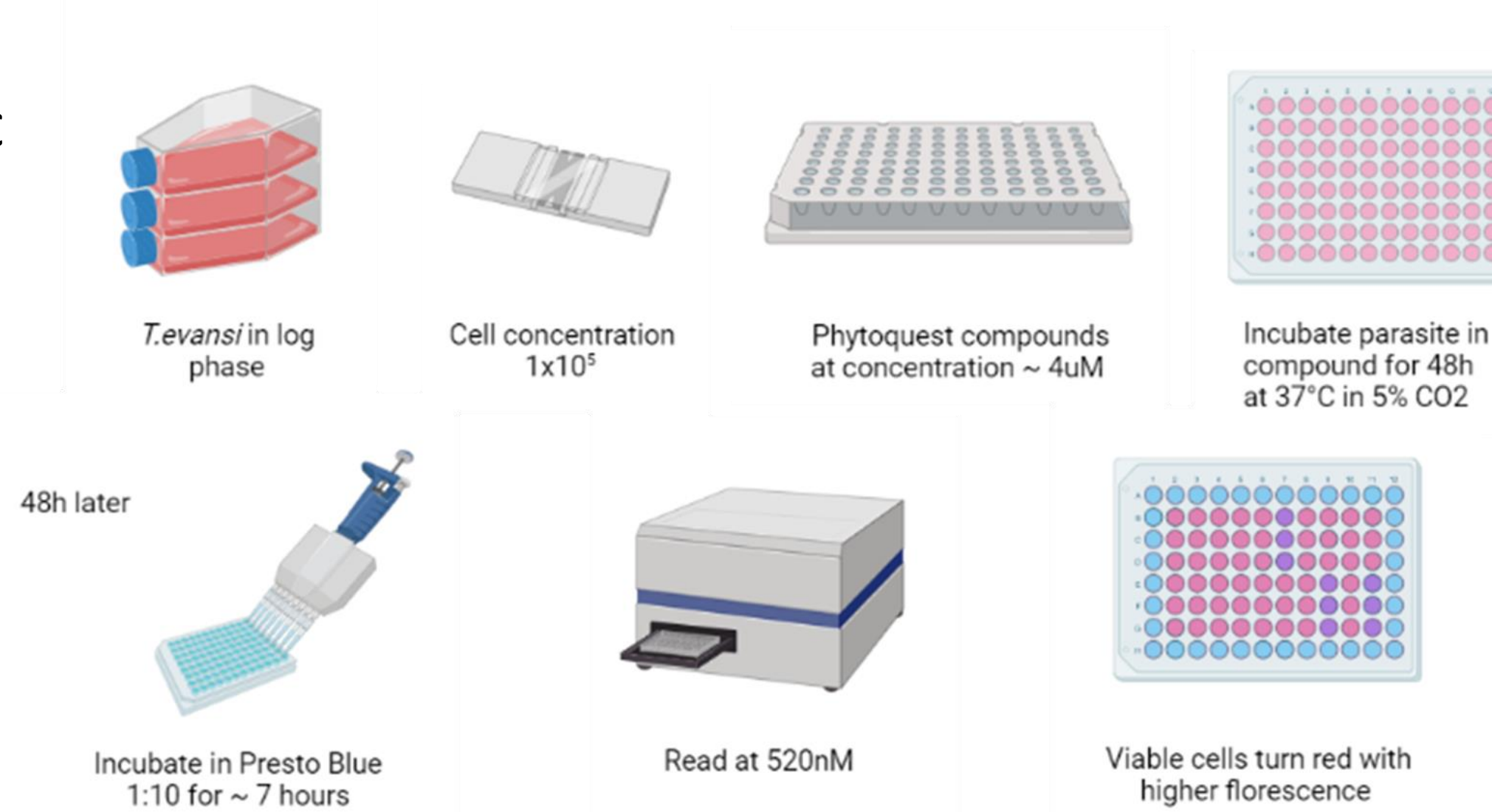
## Methods

### Cell Culture

- The *T. evansi* strain Antat 3/3 will be maintained *in vitro* at 37°C with 5% (v/v) CO<sub>2</sub> in modified HMI-11 medium supplemented with 10% FBS.

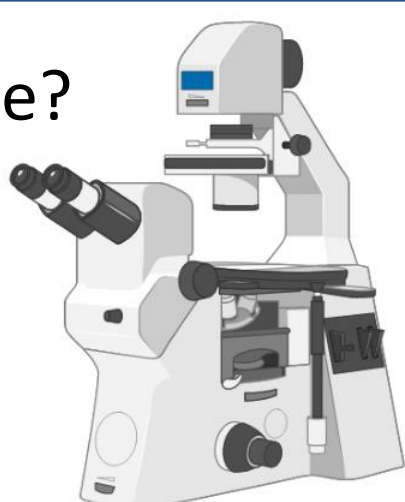
### Drug Screening

- The parasite will be incubated with each compound for 48h.
- After the incubation, a dye will be added and the parasites that are alive will fluoresce.
- Fluorescence is read on a plate reader.
- A low fluorescence reading will mean that the compound effectively killed the parasite.



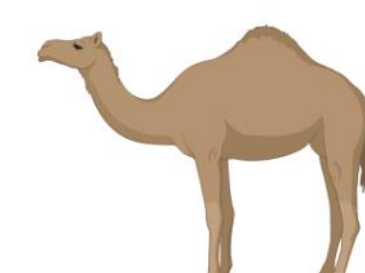
## Further Investigation

- How quickly does the compound kill the parasite?
- What is the lethal dose of the compound?
- Test the compound is not toxic to mammalian cells.
- Create a parasite cell line resistant to the compound and then investigate its morphology (shape and structure) and length of flagella using microscopy.



## Discussion

- There is a need to develop new drugs against animal trypanosomes such as *T. evansi*.
- This study aims to identify compounds for future development of a new drug for surra.
- A new treatment would increase the socio-economic livelihoods of millions of people.



## Further Reading

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