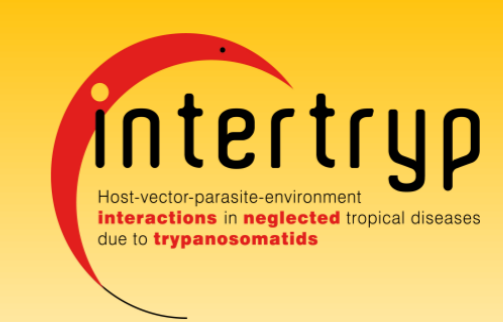
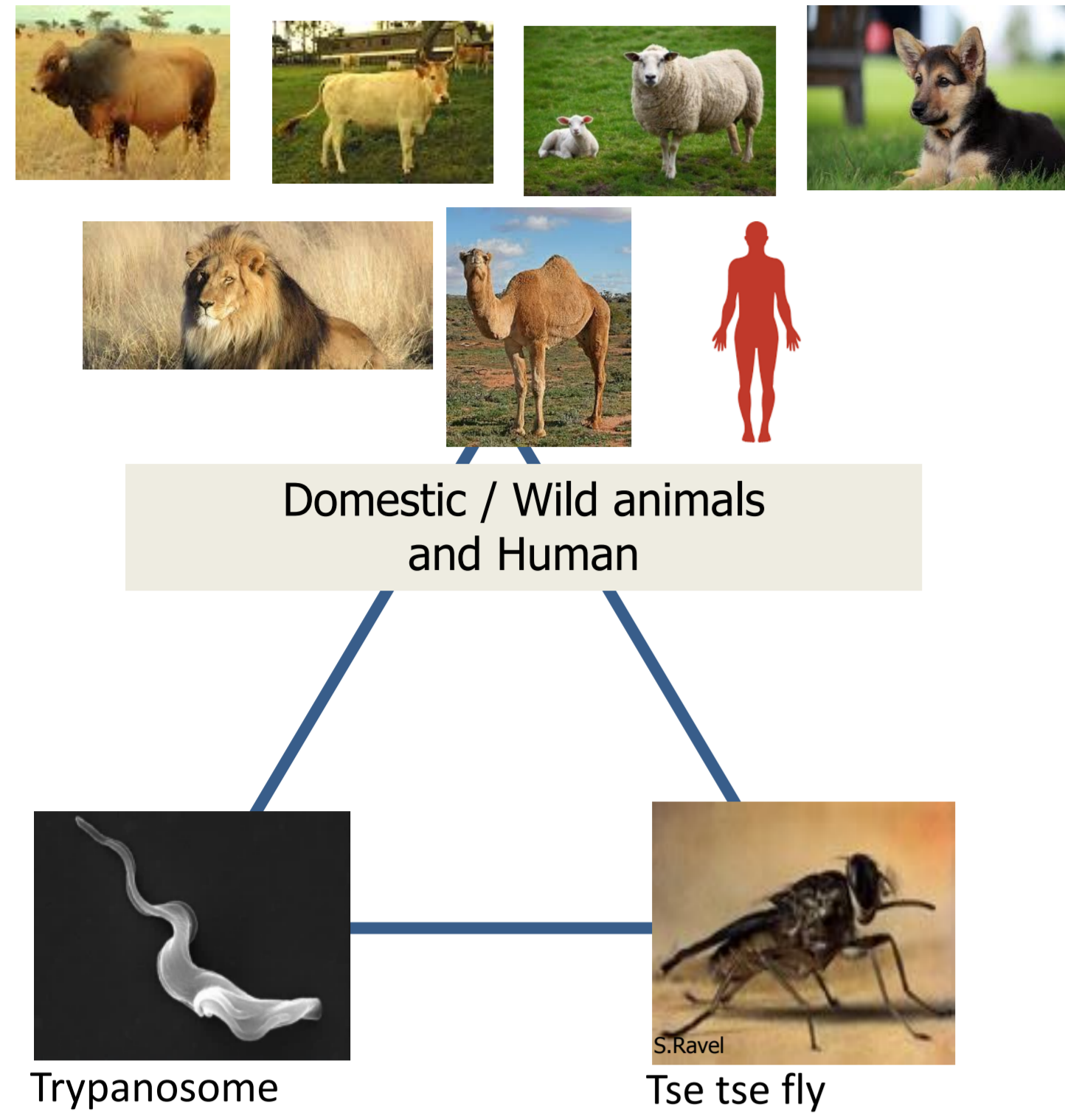


Trypanosoma brucei gambiense

Translationally Controlled Tumour Protein interacts with Glossina midgut bacteria



African trypanosomiasis actors



Parasite's strategy

- Molecular dialogue between host and parasite
- Parasite destabilize environment to survive inside tse tse fly by secreted protein (secretome)
- Circulating inside tse tse fly (midgut, gut)
- During a host blood meal infected by trypanosoma

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Approach

- Identified secretome's protein contained in vesicule
- Selected proteins and study them as therapeutic and/or diagnostic target

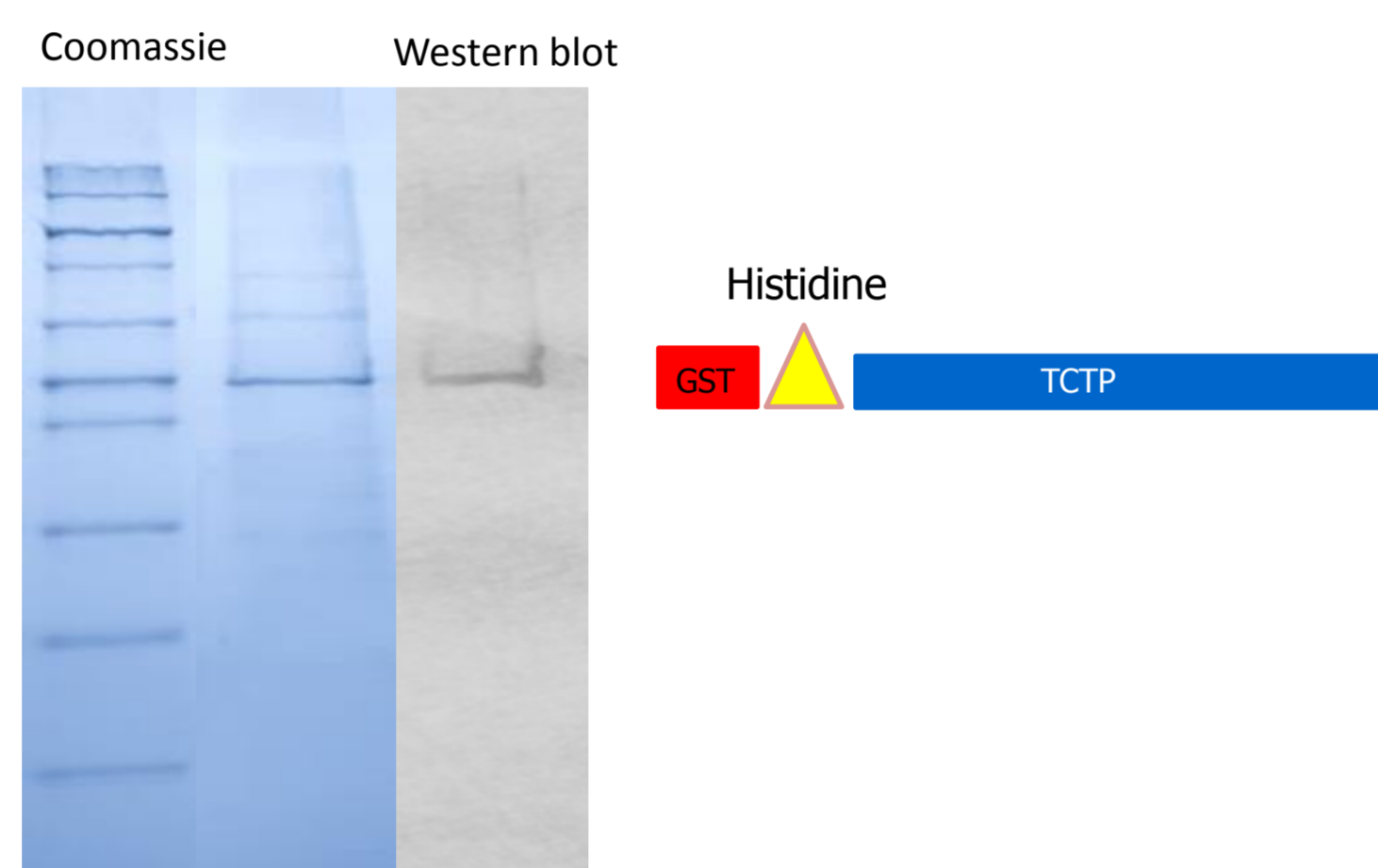
1.

Check list from secretome's protein

Selection filter : no signal peptide
 Physical transporter : microvesicule

Translationally Controlled Tumour Protein (TCTP)

Produced in baculovirus system
 Purified by affinity column



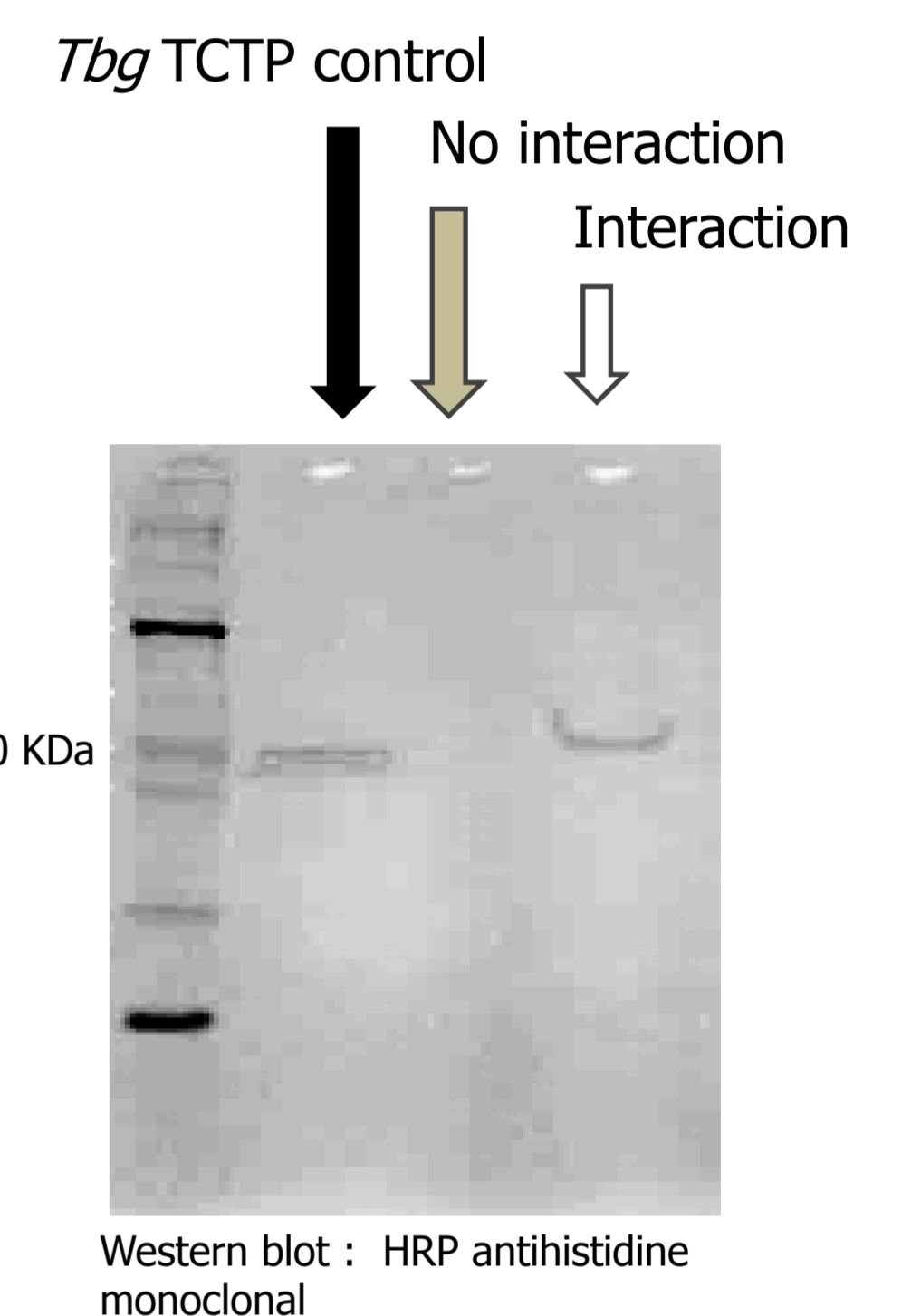
2.

Isolated from 39 bacteria species from Glossina midguts

Physical interaction test

Methods
 Bacteria + Tbg TCTP 2 hours at 4°C, 3 washes in PBS, and loading in acrylamide gel follow transfer on a nitrocellulose membrane, revealing a with HRP antihistidine monoclonal

Results
 Interaction : 24 bacteria species
 No interaction : 15 bacteria species



3. Impact of Tbg TCTP on the bacteria growth

Parameters

Concentration of Tbg TCTP
 (1.6 µg to 200 µg)

Reading
 0h, 24h, 48h, 72h, 96h

Temperature
 25°C and 37°C

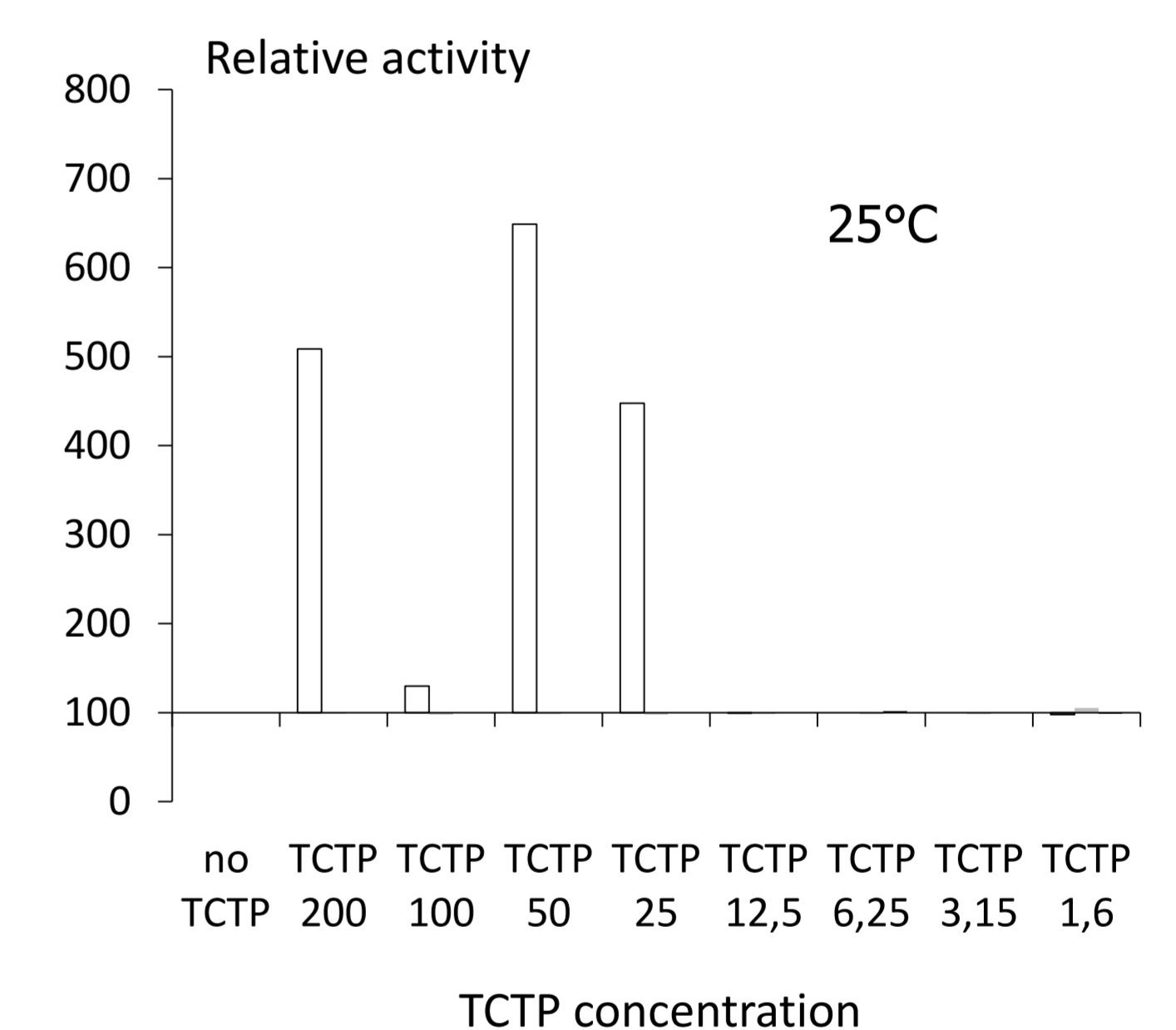
Atmosphere
 aerobiosis
 microaerobiosis
 anaerobiosis

Global results

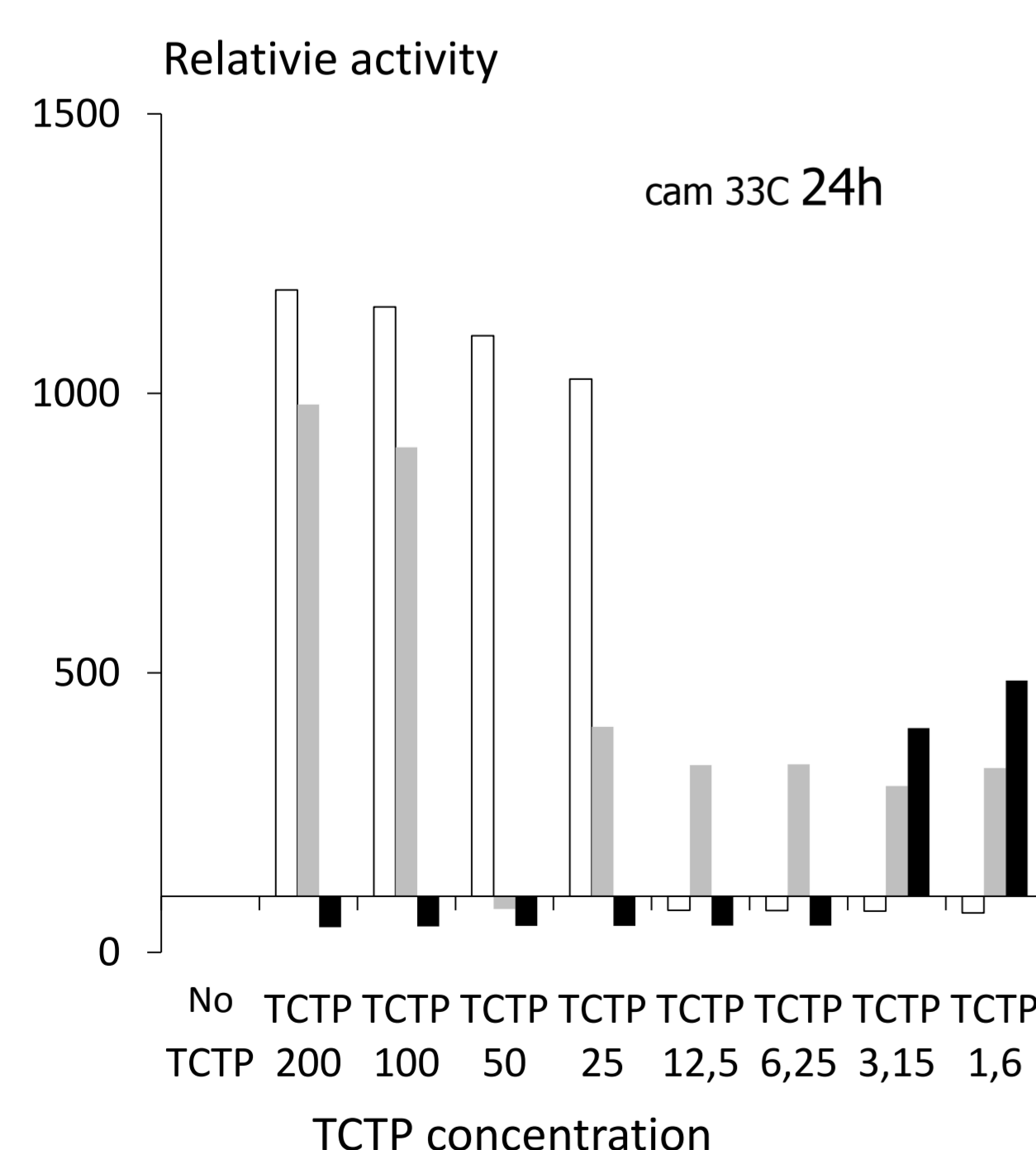
- 25°C and 37°C bacteria have a similar growth with any Tbg TCTP concentration

Results at 25°C

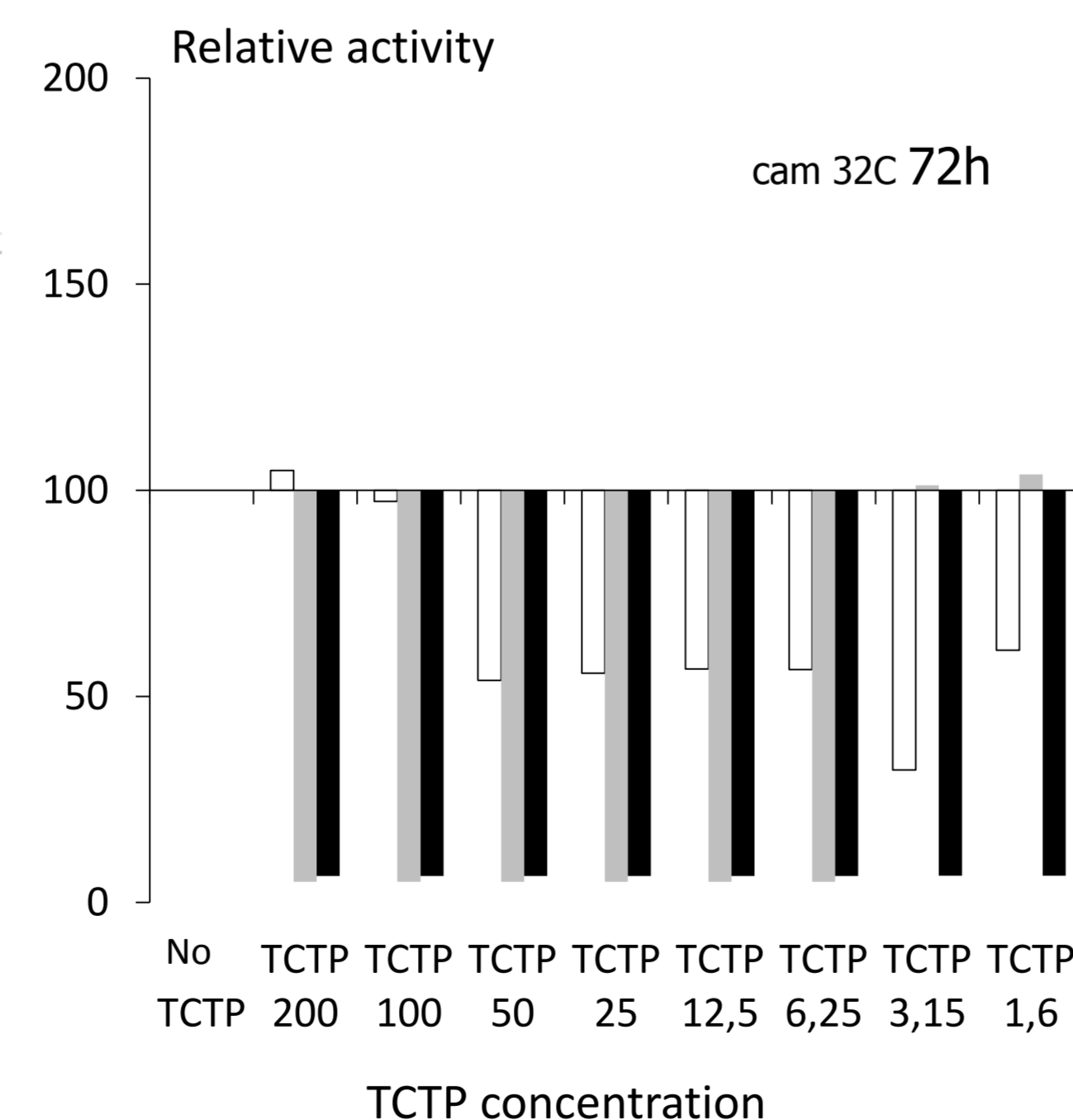
- In majority no effect regardless atmosphere excepted to few bacteria species at three concentration of Tbg TCTP



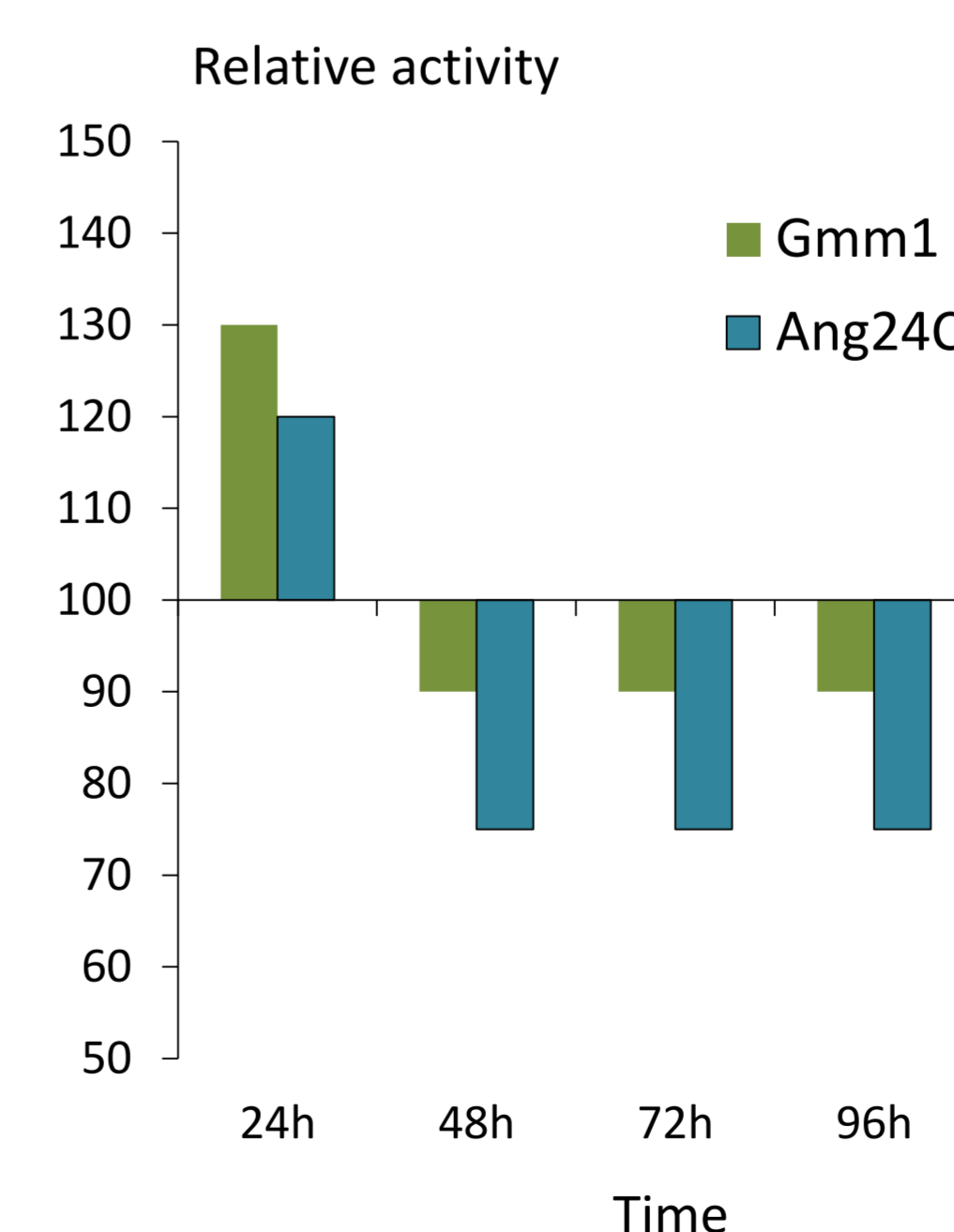
Results at 37°C



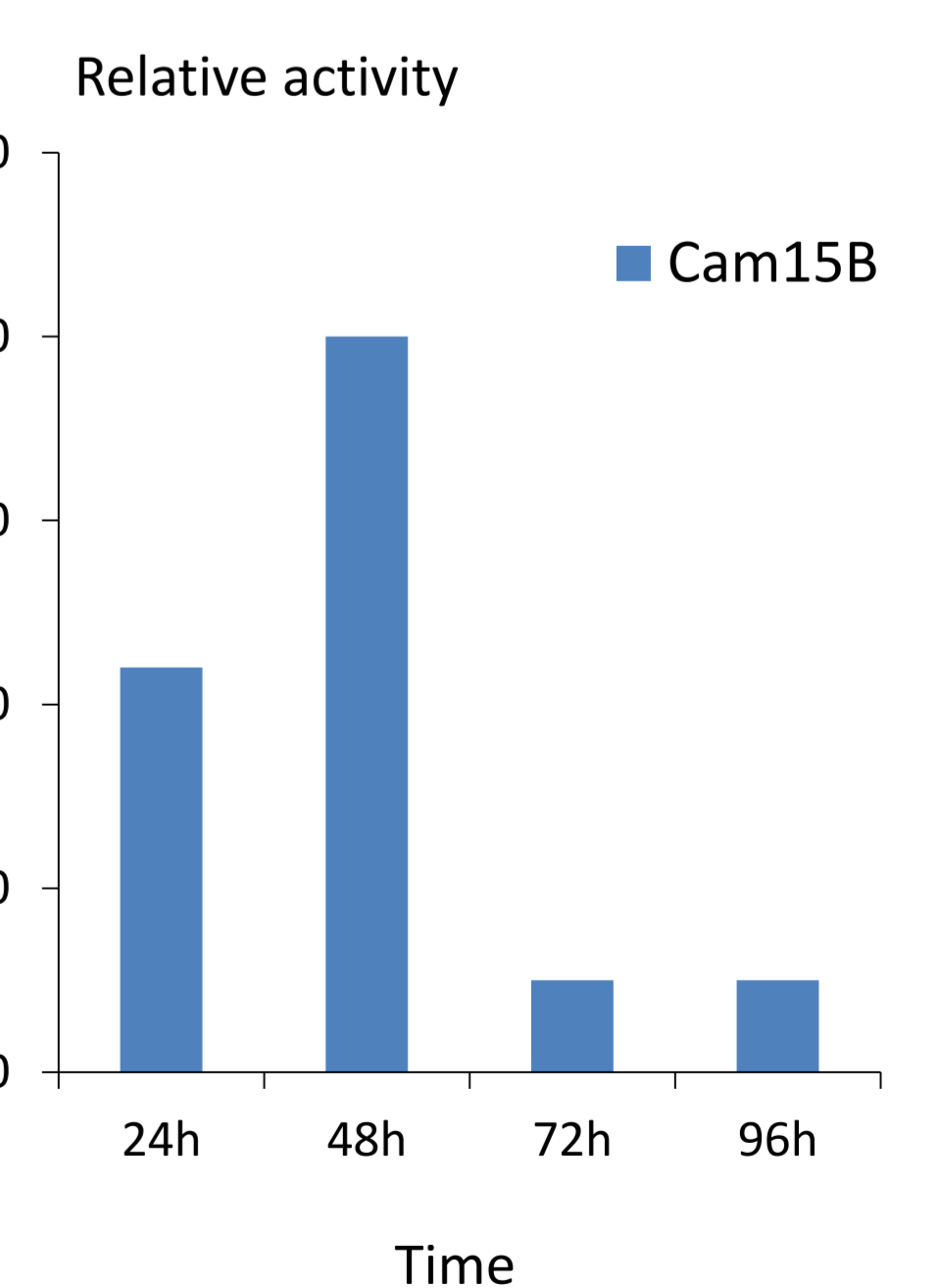
Temperature effect



Inhibition effect independant time, atmosphere, and Tbg TCTP dose



Activation modulating



Conclusion

- Identification of Tbg TCTP in vesicules
- Production and purification
- Physical interaction with number of Glossina bacteria species
- Impact of bacteria growth is highly disturbed regardless the concentration of Tbg TCTP in vitro
- In vivo, in Glossina, this bacteriome modulated could be associated to vector competence

[Characterization of recombinant Trypanosoma brucei gambiense Translationally Controlled Tumor Protein \(rTbgTCTP\) and its interaction with Glossina midgut bacteria.](#)
 Bossard G, Bartoli M, Fardeau ML, Holzmuller P, Ollivier B, Geiger A. Gut Microbes. 2017 Sep 3;8(5):413-427. doi: 10.1080/19490976.2017.1331833. Epub 2017 Jun 6.