

# Research program of the Biotherapeutics Laboratory

**Drug bio-discovery**  
**Botanicals**

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# Biodiversity-based approach

*In vitro* cellular screening:

- Malaria,
- Cytotoxicity.

*In vitro* molecular screening:

- GSK, AChE, DYRK1A, BCI-XL, etc.

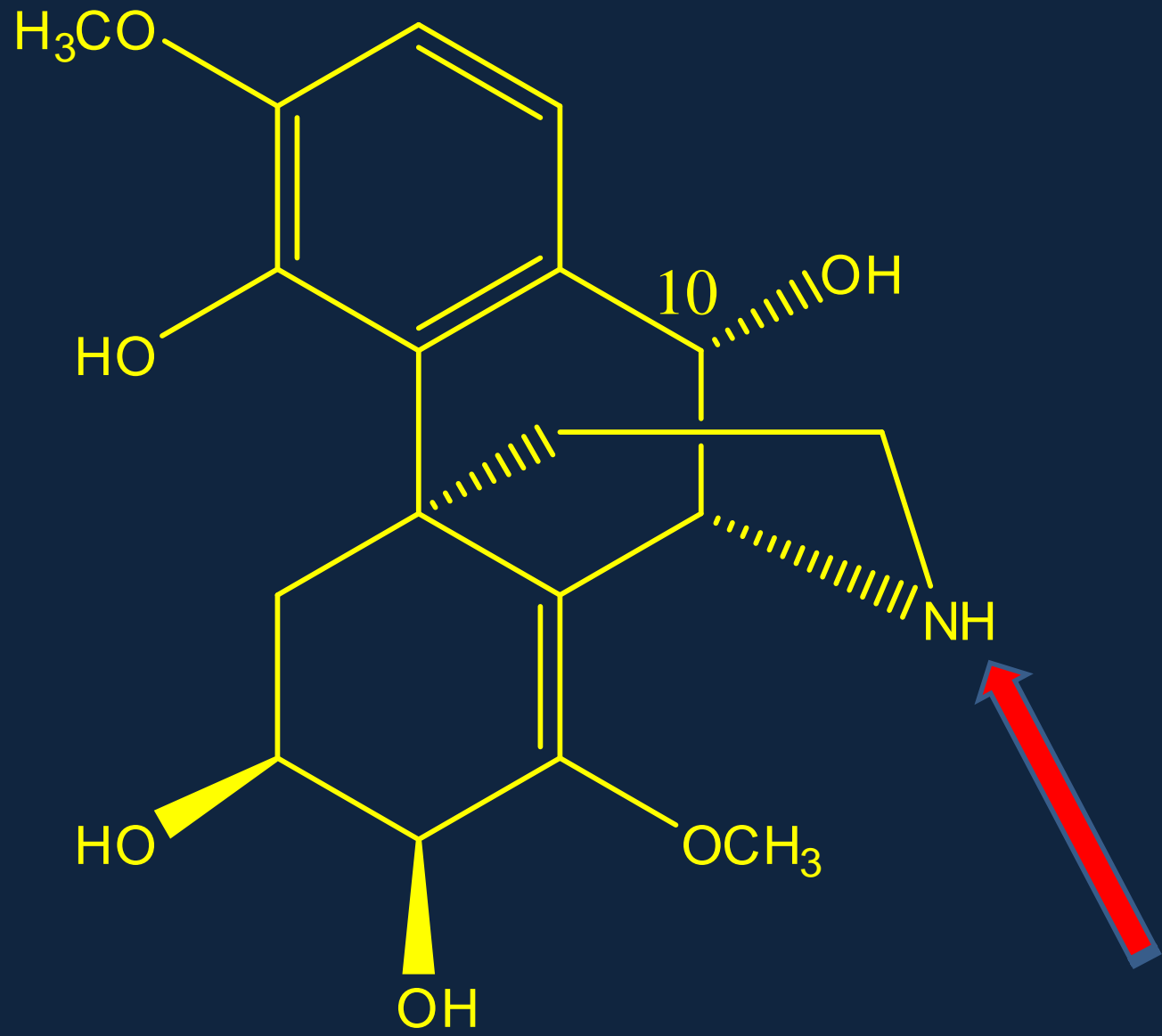
# Ethnobotany-based approach

*In vivo* models:

- Malaria,
- Diabetes and its complications.

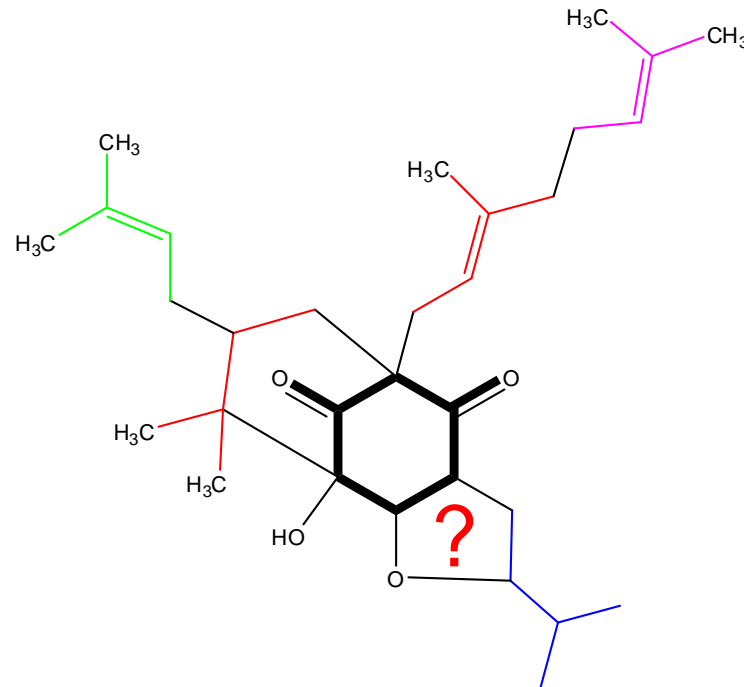
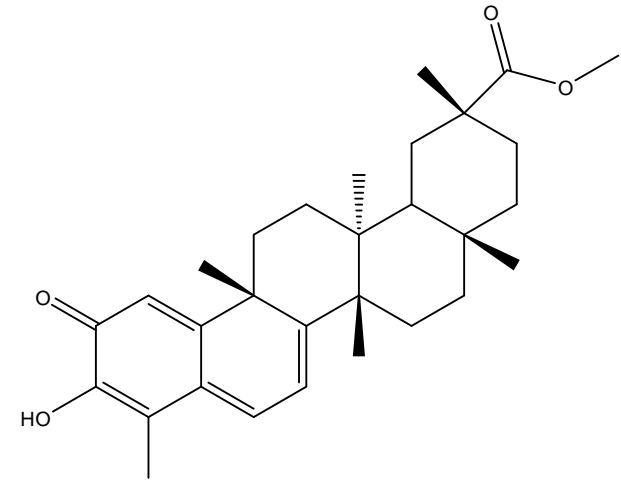
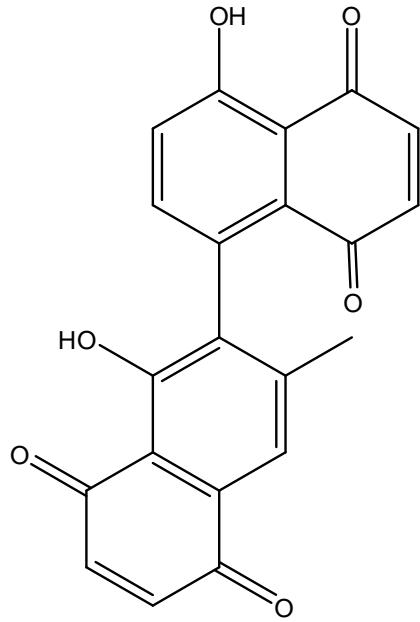
# Malaria Consortium





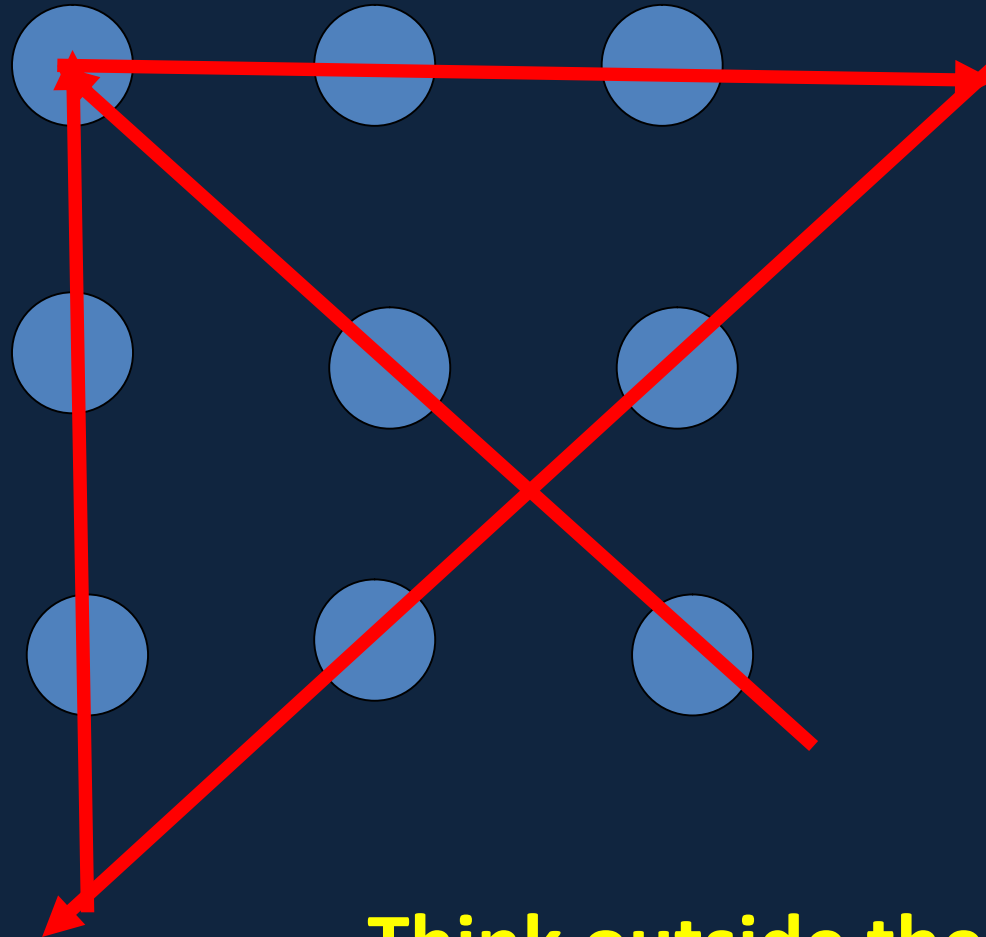
Tazopsine

# Cytotoxicity



# Diabetes and its complications

## Nine dots puzzle



Think outside the box

# Hypothalamus



Hypophysis  
Anterior lobe



Hormones



Hypophysis  
Posterior lobe



$\beta$  cells: insulin

# Diabetes



## Diabetes Complications

Cardiovascular diseases

Erectile dysfunction

Neuropathy

Retinopathy



Libido

Alzheimer disease



## Idea behind the research program

Complex, pleiotropic diseases may require multi-component, multi-functional therapies

Complex molecular diseases produce effects that may not be achieved by single component NCEs



**Multi-component botanical therapeutics**



**Collaborative work**











