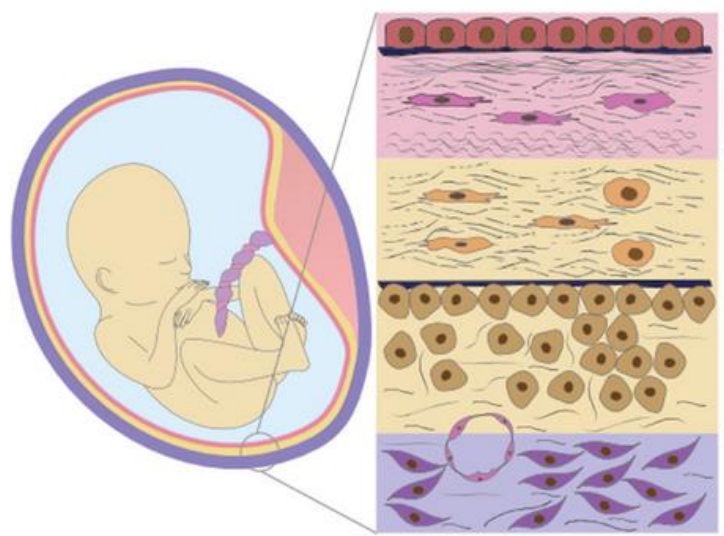


# Ants as a diagnostic tool for

# Premature rupture of amniotic membranes

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## Background



Structure of the foetal membranes (Avilla-Royo et al., 2021)

**Amniotic membranes** rupture before labour (PROM)

- Affects 8% of human pregnancies
- Can lead to complications like infections and respiratory distress for the baby
- Diagnostic tests for PROM are available but their accuracy is limited and can result in unnecessary interventions or missed treatments

Ants are **quick learners** and easy to train  
+ Easy accessibility & husbandry  
→ Can they be a potential diagnostic tool?

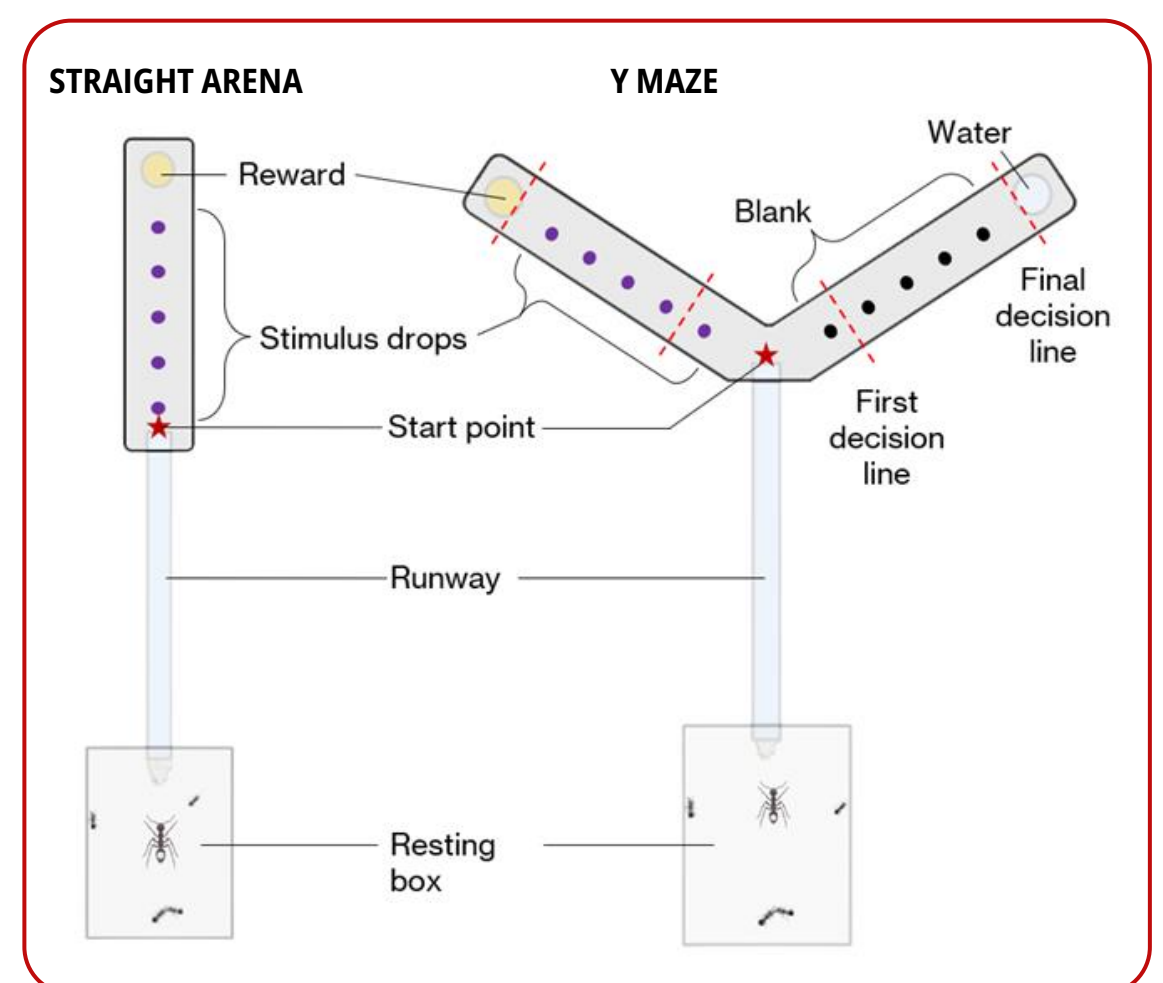
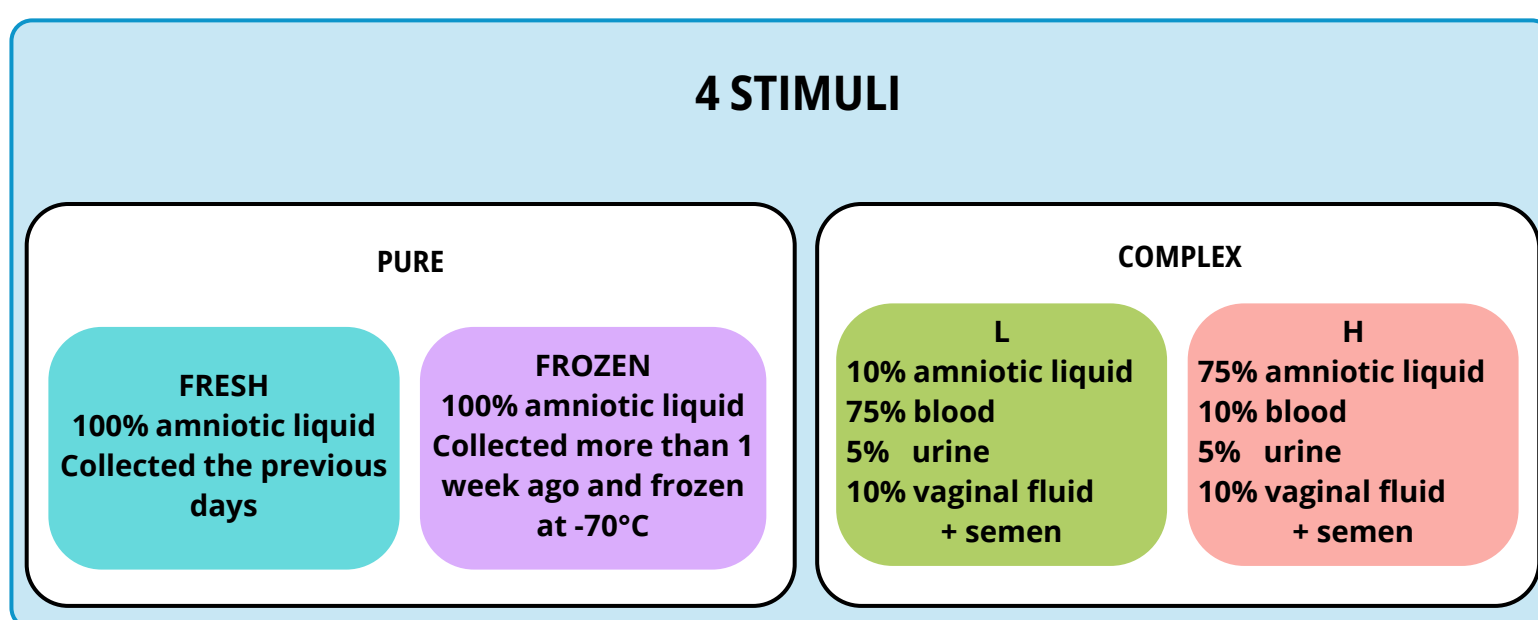
## AIM

Assess the ability of *Lasius niger* ants to form stimulus-reward associations between samples containing amniotic fluid and honey-water

## Methods

Samples of amniotic liquid, urine, blood and vaginal fluid were collected from 51 pregnant volunteers in the hospital during C-sections. 219 *Lasius niger* ants were trained for 6 trials in 2 arenas. Stimulus discrimination was tested for 2 trials only in the Y maze.

2 training paradigms →



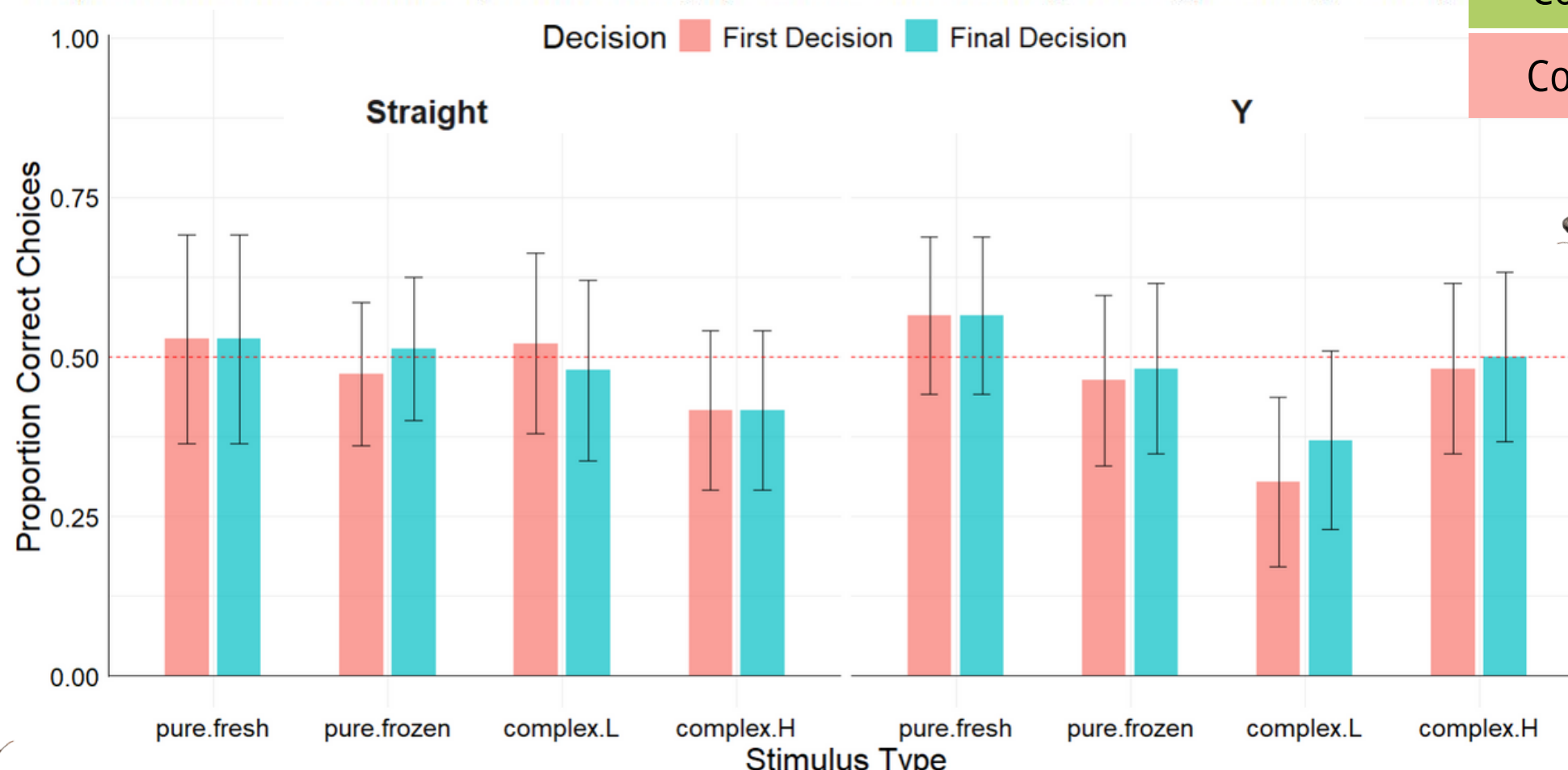
## Results

- Stimulus and training paradigm did not significantly influence the ants' performance during the testing phase
- Ants reached the reward faster in the straight arena than in the Y maze
- The ants performed statistically better when trained in the straight arena with complex L

Average latencies to reach the reward in seconds

STIMULUS	Y MAZE	STRAIGHT ARENA
Pure FRESH	56.7	18
Pure FROZEN	56.5	15
Complex L	55.2	23.5
Complex H	57.6	21.7

Proportion of Correct Choices (first and final) by Stimulus and training arena type during Testing



## Discussion

- Too many trials could have led to a **decline in motivation**
- Effects of the stimuli components have not been studied
  - Some might have **aversive effects** on the ants?
- Maybe this species does not smell the amniotic liquid?

## Summary

The ants did not successfully learn the stimulus-reward association  
The ants did not successfully discriminate between the different stimuli

Want to know more?

