






SwiftX™ based DNA extraction – a versatile tool for diagnosis of Schistosomiasis

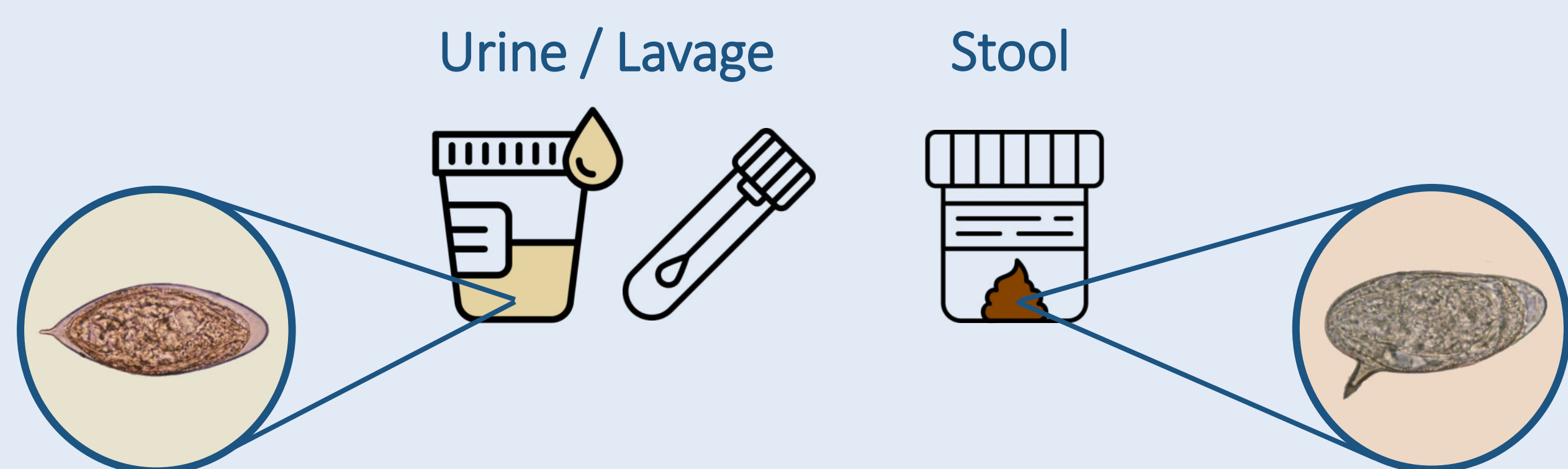
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Background and Objectives

- **SwiftX™ extraction kits work fundamentally different than conventional DNA extraction kits**
- They use **cell capture** and **reverse purification** for sensitive extraction of DNA from parasites and bacteria
- We aim to provide **robust and sensitive extraction tools** with the following characteristics:

-  Enabling accurate analytical results
-  Simple and easy-to-teach handling
-  Reduced extraction time
-  No hazardous reagents
-  Cost-efficient in low- and middle-income countries

Application to Schistosomiasis



Rostron *et al.* (1)

Samples: 14 urine samples
Reference: urine filtration & microscopy
Detection: Fluorescent RPA
Results: **100% Sensitivity**

Archer *et al.* (2)

Samples: 168 urine samples
Reference: urine filtration & microscopy
Detection: Fluorescent RPA
Results: **93.7% Sensitivity**
100% Specificity

Frimpong *et al.* (3)

Samples: 135 urine samples
Reference: QIAGEN extraction & qPCR
Detection: Fluorescent RPA
Results: **98.4% Sensitivity**
100% Specificity

Archer *et al.* (4)

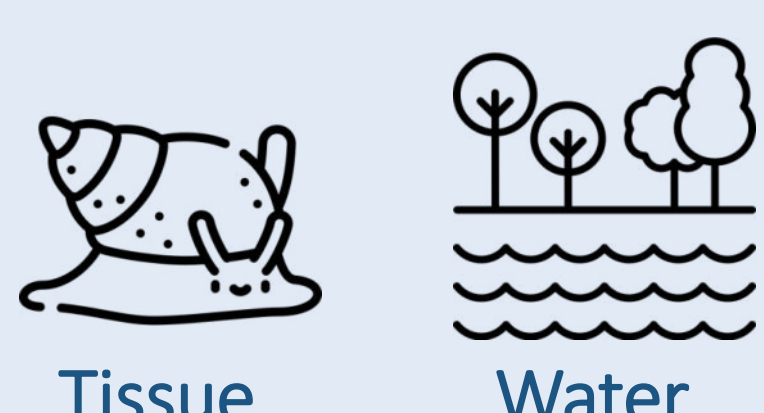
Samples: 223 urine samples
Reference: QIAGEN extraction & qPCR
Detection: Fluorescent RPA
Results: **85.7% Sensitivity**
98.1% Specificity

Further observations:

- SwiftX™ DNA lyses *S. haematobium* eggs even without heat (5)
- SwiftX™ cell capturing also works with eggs homogenized by bead-beating (6)
- SwiftX™ cell capturing technology has demonstrated affinity to CAA in extractions from adult *Schistosoma mansoni* worms. (7)

Further potential applications:

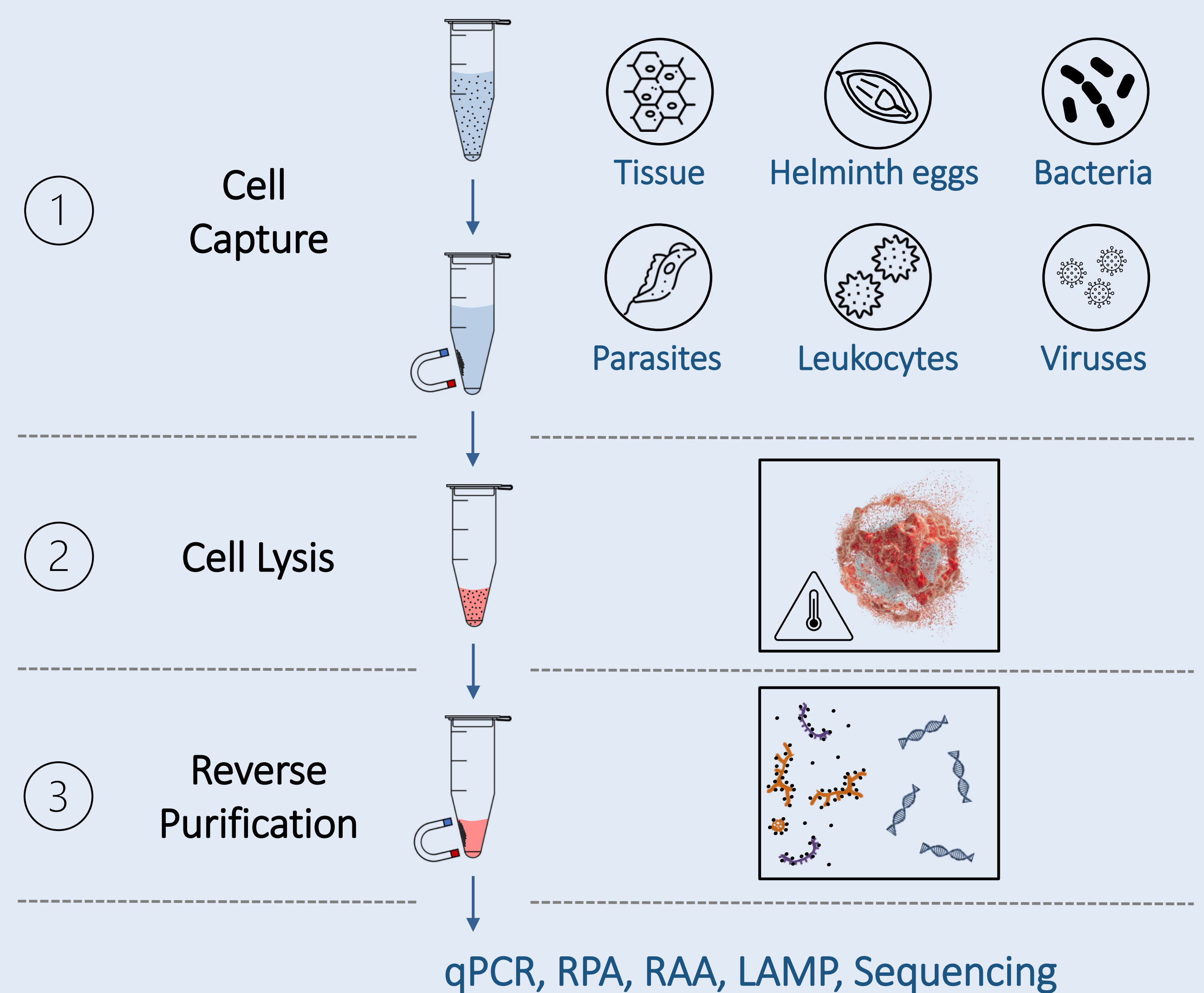
Environmental monitoring



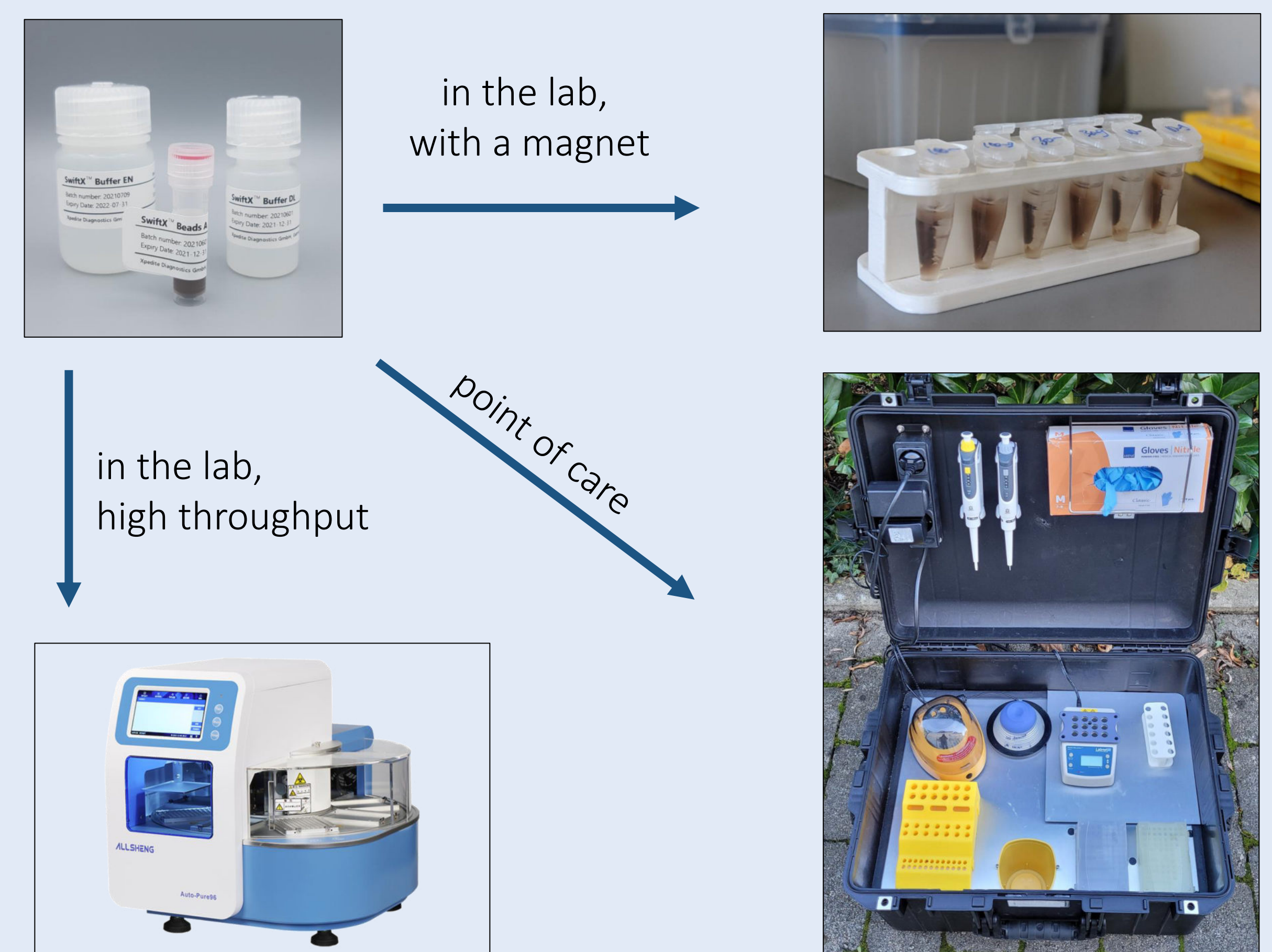
Antigen enrichment



Technology



SwiftX™ Kits



Conclusion and Outlook

- **SwiftX™ DNA is well suited for capture of *Schistosoma* eggs and extraction of their DNA**
- Investigation of SwiftX™ cell capturing technology as **alternative for CAA concentration** by centrifugal ultrafiltration
- Investigation of **applicability** for diagnosis of **other helminths**
- **Improvement of reverse purification** for better applicability to **faecal samples**
- **CE-IVD certification** for routine use is **possible**

References

1. Rostron *et al.* (2019) Parasites & Vectors 12: 514
2. Archer *et al.* (2020) Molecules 25: 4175
3. Frimpong *et al.* (2021) Acta Tropica 216: 105847
4. Archer *et al.* (2022) PLOS Neglected Trop Dis 16: e0010276
5. Personal communication Bonnie L. Webster
6. Personal communication Eric Brienen & Lisette van Lieshout
7. Personal communication Paul Corstjens

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Download the poster from our Schistosomiasis webpage in the document section

Contact Andy Wende directly on WhatsApp

