

The Company

Aqsens Health Ltd. (AQH) develops non-invasive screening and diagnostic tests for urinary tract cancers and lethal infectious diseases.

Industry: Medtech – phage based biosensors to define and detect new biomarkers for non-invasive screening.

Product portfolio

AQ Prostate

- Large pre-clinical and clinical trials with Nanjing Cancer Hospital (China) to certify urine based cancer screening tests for market entry in 2025.

AQ Bladder

- Research study project with the Turku University Hospital and Nanjing Cancer Hospital (China) to detect and classify bladder cancer from urine. Potential market entry in 2025.

AQ Malaria solution

- Large scale clinical trial with the Noguchi Memorial Institute for Medical Research in Ghana. Saliva-based AQ Malaria test using the AQ Mobi platform. With its contextual data and AQ Epic it can become a new way to manage the malaria epidemic.

Revenue model

- AQH provides accurate and low cost tests for large scale screening: 15 € for urine and 3-4€ for saliva-based tests.
- Go-to-market model is based on partnerships in target markets.
- AQH is forecasting high growth (>30%) period from 2025 onwards, reaching breakeven and €30 million revenue in 2027.

SEED+ round: €2,5 million*

INVESTMENT PROCEEDINGS

Clinical trials (EU, China and Ghana)	60%
Research and Development	20%
Go-to-market	15%
Other	5%

* pre-money valuation of 16 M€, 4,5 €/shr (one share class)

Contact:

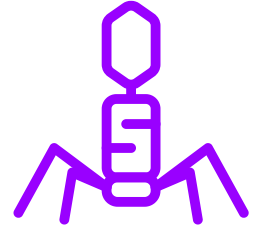
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Problem to be solved

- Healthcare spending is increasing all over the world, the US CAGR estimate for 2030 is over 9%, and in Europe it is over 10%, therefore cost-efficient early detection of diseases with high health economic impact is becoming a top priority.
- The size of the diagnostic market in 2022 was over €80 billion and non-invasive diagnostics is expected to grow quicker than the rest of the market.
- Due to low accuracy (false negatives and positives), there are no tests suitable for prostate or bladder cancer screening.
- Due to global warming malaria is predicted to spread out, which calls for new rapid tests and tools to manage malaria infections.

Core innovation: phage-biosensors

- AQH biosensors are based on specifically selected phages that detect particular molecular targets such as disease-related biomarkers.
- Biosensors are very versatile, accurate and cost-efficient. They can be applied to mobile screening solutions that do not require a laboratory setting.



Value proposition for AQ tests

- Radically lower test and sampling costs for urinary tract cancers compared to current blood-based testing methods.
- Complete solution for real-time management of malaria in developing economies.

Market sizing and entry 2024

- AQH aims to enter the business through China, EU and Ghana (West Africa) by certifying AQ Prostate, AQ Bladder and AQ Malaria tests in 2024-25.
 - BIOURICA project focusing on urinary tract cancers in Nanjing (China) have co-investigators from Finland (Helsinki and Turku University Hospitals).
- AQH's aim is to sign strategic go-to-market partnerships in the coming 6-9 months.

- There were 1,3 million new prostate cancer diagnoses in 2020.
- The yearly economic burden of prostate cancer is estimated at \$9 billion.
- The value of the Prostate-Specific Antigen test market was \$3.9 billion in 2022, and is expected to reach **\$8.8. billion by 2030.**

- There were 247 million new malaria cases in 2021.
 - 627,000 died of the disease, of which over 30% were children.
- In 2021, 13.3 million were exposed to malaria infection during pregnancy.
- The value of the Malaria Rapid Test market is **approx. \$400 million annually.**

Investment Highlights

- Non-invasive (urine and saliva) analysis is a high growth area in which global diagnostic companies are entering.
- Scientifically proven and protected (6 patents) E-TRF method and use of biosensors.
- Highly motivated team with leading clinical, scientific and business advisors.
- Financial base to certify AQ Prostate, AQ Bladder and AQ Malaria tests on which AQH has additionally received 600 K€ grants.
- AQH is looking for a SEED+ equity round of total €2,5 million
 - committed term sheets for 1,5 M€

Technology

E-TRF and biosensors

Aqsens Health's technology provides an exceptionally accurate and affordable solution for cancer and infectious diseases biomarker screening from saliva and urine. The method enables the development of sensitive and specific cancer screening tests like AQ Prostate and AQ Bladder, as well as screening tests of pathogen infections, such as AQ Malaria.

Enhanced Time-Resolved Fluorescence

TRF is the basis of the detection method to gain information on different types of molecular interactions.

When the natural background fluorescence of the sample is eliminated, the resulting fluorescence delivers highly accurate information about each specific molecular interaction that is measured.

Aqsens Health's proprietary invention E-TRF enhances this unique capability even further.

Biosensors

AQH biosensors are based on specifically selected phages that detect particular molecular targets such as disease-related biomarkers.

The agility of phage biosensors is based on their evolvability and chemical adaptability. Phages have a high mutation rate and are easily incorporated into different chemical assemblies. AQH is testing 5 different phage species, which further increases the screening capabilities.

Chemical sensors

Chemical sensors are non-specific or reaction specific chemistries that help AQH in characterizing each unique sample and diseases.

The chemical sensors focus on the overall chemical environment of a sample and their use enables the detection of even small changes in the reaction solution using E-TRF measurement.

Scientific publications:

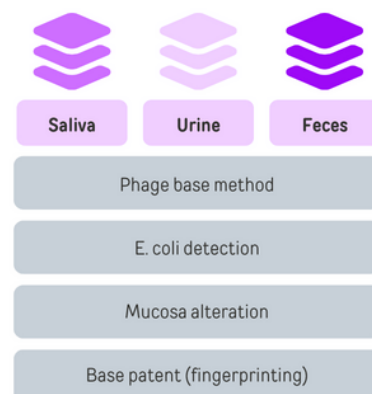
- Time-resolved fluorescence-based assay for rapid detection of Escherichia coli. Anal Biochem. 470, 1–6. / Kulpakko J., Kopra K. and Hänninen P. (2015).
- Rapid time-resolved luminescence based screening of bacteria in urine with luminescence modulating biosensing phages. Analytical Biochemistry, 570, 21–26. / Kulpakko, J., Rantakokko-Jalava, K., Eerola, E., & Hänninen, P. E. (2019).
- Detecting disease associated biomarkers by luminescence modulating phages. Scientific Reports, 12, 2433. / Kulpakko J., Juusti V., Rannikko A., and Hänninen P. (2022).
- Biophysical properties of bifunctional phage-biosensor / Juusti V., Kulpakko J. Cudjoe E., Pimenoff V, and Hänninen P. (12/2022)

Upcoming publications:

- **Phage-based biosensors for the classification of metastatic urological cancers from urine samples.** Juusti V., Rannikko A., Laurila A., Sundvall M., Hänninen P., Kulpakko J. (1/2024)
- **Phage-based fast Biosensors for Malaria detection from Saliva** / Juusti V., Kulpakko J., Amoah L., Pimenoff V. and Hänninen P. (2/2024)

Intellectual Property Rights:

- Copyrights, model protection for AQ Mobi and below IPR portfolio:



Urine-based pre-clinical and clinical studies

BIOURICA

Project timeline: 2023 - 12 / 2024

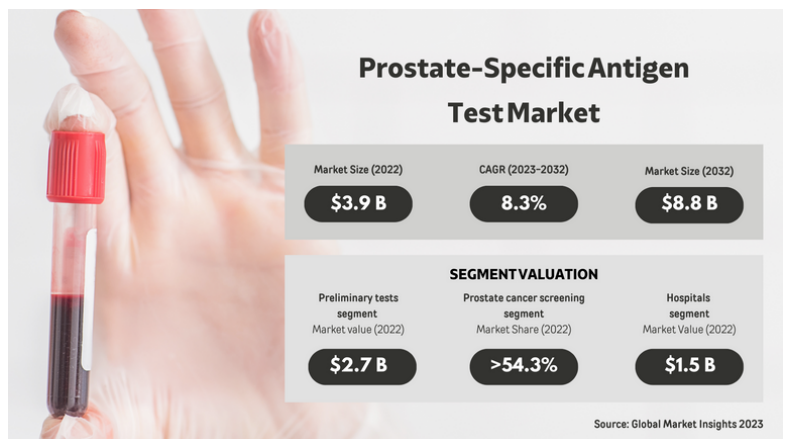
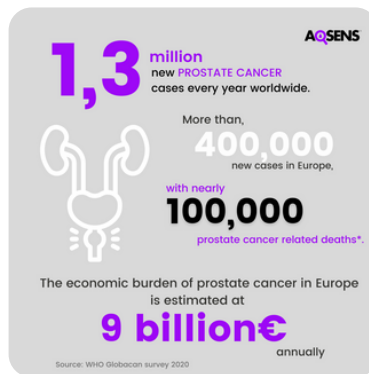
Focus: Urinary tract cancers

Project under the bilateral research collaboration agreement (Ministry of Science and Technology, China and Ministry of Economic Affairs and Employment, Finland) to perform large scale prostate and bladder cancer pre-clinical and clinical trials in China to screen biomarkers for the detection of solid-tumor cancers and their metastasis.

Collaborating parties are Aqsens Health Ltd. (Helsinki and Turku University Hospitals) and OG Pharmaceuticals (Nanjing) and regional hospitals in Jiangsu province.

The aims of BIOURICA:

- To validate the detection accuracy (sensitivity and specificity) of the E-TRF method in large urinary tract cancer cohorts.
- To perform pre-clinical and clinical certification (China and EU) for prostate, bladder and kidney cancers. Both for solid-tumor and metastatic variants.
- To promote urine based sampling and its benefits in the EU and China



Saliva-based validation projects

AQ Malaria

Clinical validation: 2024

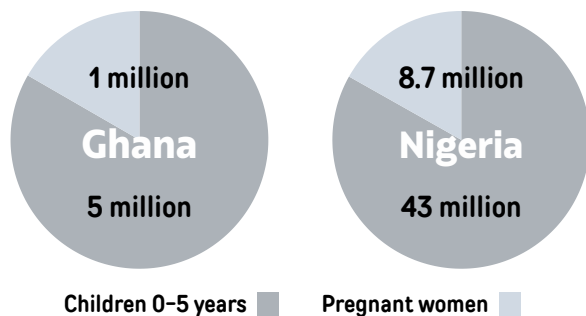
Market entry: 4Q 2024

Aqsens Health develops the AQ Malaria test in collaboration with the **Noguchi Memorial Institute for Medical Research in Accra, Ghana.**

AQ Malaria is a saliva-based test that enables affordable and accurate malaria breakout screening and management. Measurement is based on a color reaction, which enables the usage of standard mobile phone and its contextual metadata for real time epidemic breakout management (AQ Epic).

Aqsens Health aim is to launch a “Safe & secure early life” – program in Ghana and later in West Africa, targeting children (0-5 yrs) and pregnant women who are the most vulnerable population segments when it comes to malaria.

Go-to-market segment: Safe and secure early life



Research projects

BIOSALIVA

- Research project under bilateral R&D program between the Ministry of Science and Technology, China and Ministry of Economic Affairs and Employment, Finland.
- Project goal is to assess the sensitivity and specificity of the E-TRF and biosensor to detect: i) Lung cancer and ii) Tuberculosis.

PARKINSON'S DISEASE

- Research collaboration with the Turku University Hospital to assess Aqsens' biosensor's capability to detect Parkinson's disease from saliva.



Performance Dashboard

AQ Prostate and AQ Bladder (China and EU)

Revenue target 2027
€25,5 Million

Not included:

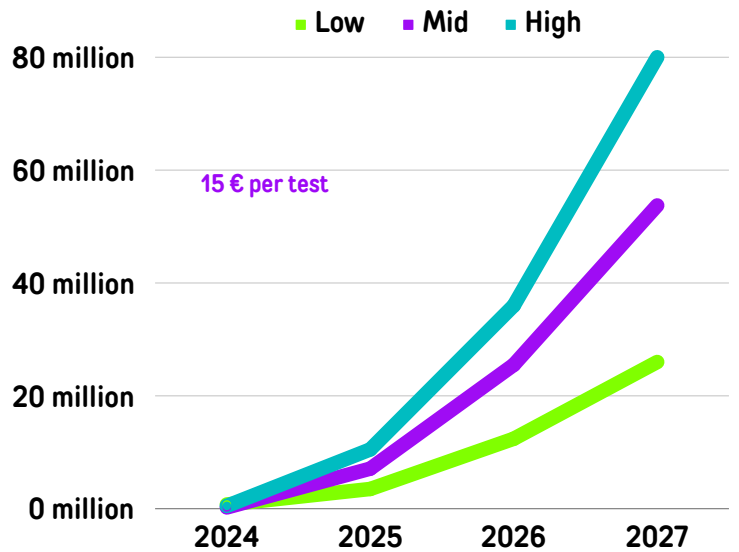
- No licensing agreements or service revenue included.

Sensitivity* Specificity*
>80% **>75%**

* Accuracy clearly above the current gold standard PSA tests

Key deliverables

- Certified AQ Prostate and AQ Bladder test for China and EU 2025
- Kidney cancer in pre-clinical trial 2024
- Go-to-market partnerships agreed in main market in 2024
 - licensing and / or strategic partnerships signed



- based on population data (50-74 yrs), participation rates and market take-off estimates.

AQ Malaria (Ghana and West Africa)

Revenue target 2026
\$4,5 Million

Not included:

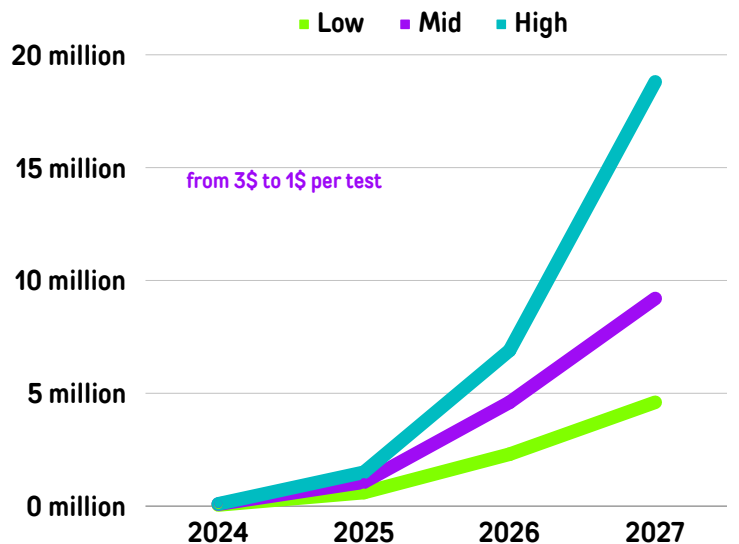
- No licensing agreements or service revenue included.

Sensitivity* Specificity*
>80% **>80%**

* based on the previous studies

Key deliverables

- Certified AQ Malaria (test kit, AQ MOBI platform and software) test available in 2024.
 - AQ Tuberculosis certified in 2025.
- Manufacturing and packaging partnerships agreed in 2024.
- Other West African markets under execution in 2025 and WHO certification started.



- based on population data on risk group (0-20 yrs), participation rates and market take-off estimates.