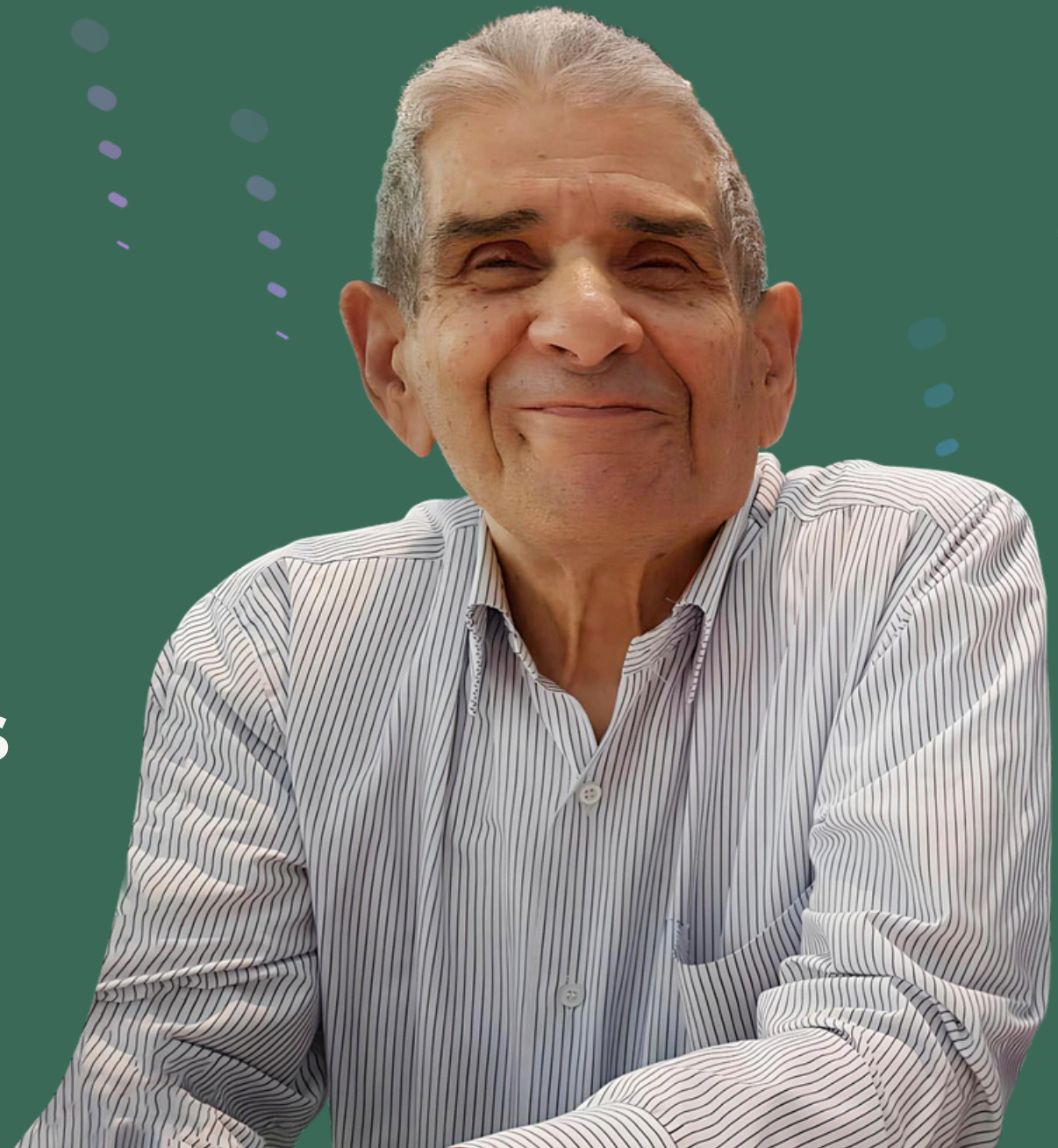
astek

Saving Lives Through Antibiotic Sensitivity Precision Diagnostics

astekdx.com



Grand Vision

Current Focus

Urine

Delivery Roadmap

CSF

Effluent

Blood

Q1 2025 **2026** **2027** **2028**

EXPECTED FDA APPROVAL TIMELINE

Universal Platform

While Astek Diagnosticshas prioritized going to market first with a urine-based test, its vision is for the *Jiddu*system to confirm bacterial infections and assess antibiotic sensitivity across 4 sample types: urine, CSF, effluent, and blood.

Urine CSF Effluent Blood

Comprehensive Approach

Urine

- UTI confirmation and antibiotic sensitivity in 1 hour.
- 408 urine-based tests already completed with increasingly high accuracy over time (c.97% accuracy level currently achieved: MedStar Health pilot).

CSF

- Meningitisconfirmationandantibioticsensitivityin 1 hour.
- Proof of concept data with 12 samples has already been accumulated as part of an active grant from the Henry Jackson Foundation.

Comprehensive Approach (Cont'd)

Effluent

- Surgical site infection confirmation and antibiotic sensitivity in 1 hour.
- Proof of concept data with 12 samples has already been accumulated in advance of ramping up work on this fluid as part of a pending DOD contract.

Blood

- Bacteremiaconfirmationandantibioticsensitivitytestin 1 hour.
- Proof of concept data from a study involving 59 ICU patients has already been accumulated with the company as part of an active NSF SBIR Phase 1 grant.

Current Focus: The UTI Problem

8.1m UTI-caused hospital visits per year in the US [1]

$1.6B of annual cost from mistreated UTIs that require hospitalization

47% 47% treated with inappropriate antibiotics [2]

Empiric therapy causes antibiotic resistant bacteria to increase by 300% per annum [5]

25% 25% of sepsis cases are caused by UTIs [3]

68,000 lives lost [6] per annum in the US alone as a result of UTI-related sepsis cases

72h test processing for urine cultures takes 24-72 hrs

Current testing is slow

50% accuracy of dipstick urinalysis [7]

Current testing is inaccurate

Source:
(1) Link
(2) Link
(3) Link

(4) The Global Burden of Bacterial Antimicrobial Resistance in Urinary Tract Infections in 2019, by A. J.C. van den Berg et al., published in PLOS Medicine in 2022.
(5) Empiric Therapy and the Emergence of Antibiotic Resistance, by J. A. Leggett et al., published in Nature Microbiology in 2019.
(6) Link
(7) Link

Current Focus: The UTI Problem

- Mainly causedby overuse and misuse of antimicrobials
- Leads to the emergence of new and more resistant strains of bacteria
- The economic cost of AMR in the US alone is estimated at c.$55 billion per year

Inadequate diagnostics

Improper antibiotic prescription

Development of resistant strains & serious complications like sepsis

Even harder infections

Inadequate diagnostics

The Solution: The *Jiddu*system

1-Hour Results

- Rapid UTI detection
- Antibioticsensitivityindication (1)

Point-of-Care Testing

- Actionable results
- Expedited treatment

Ease of Use

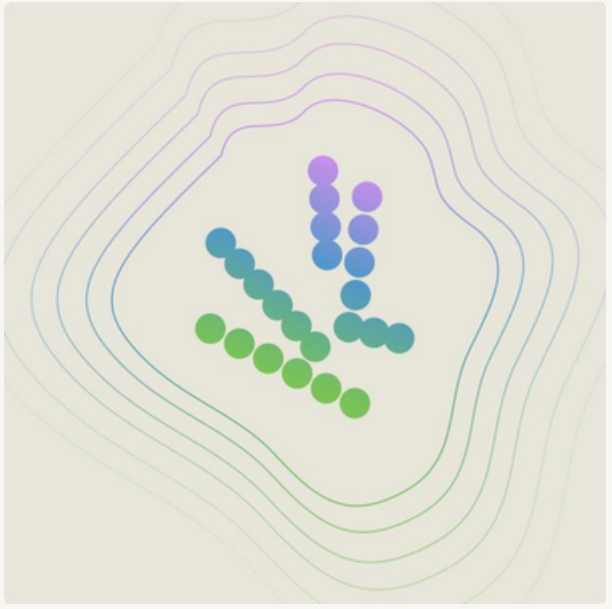
- Basic training requirement
- Automatedtesting& Disposable cartridges

Cost effective

- $10K as aone-timedevice purchase
- $50 per test cartridge (recurring revenue stream)

(1) The device screens for 5 different antibiotics

How it works



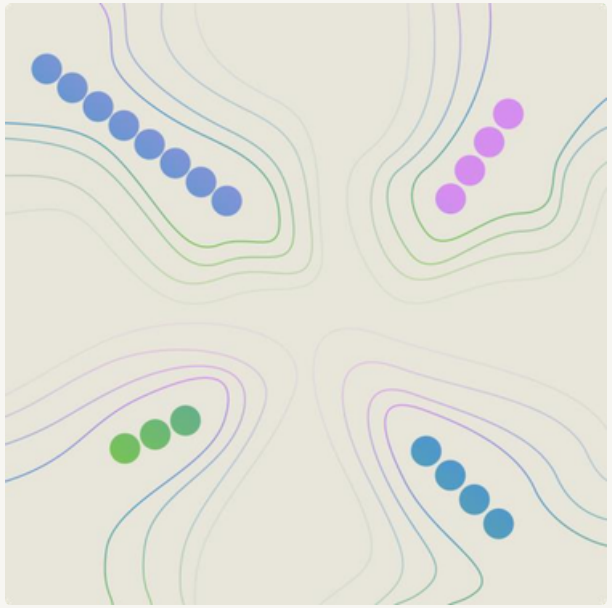
1 Place the sample into the cartridge

The sample is placed inaspecialized microfluidic cartridge. The type of cartridge utilized varies with the sample type. Once attached, the cartridge is placed in the device and the automated testing process begins.

2 Bacteria from the sample is captured

Through anautomated filtering process, thebacteria is captured from the sample. For the blood panel, this capturing process incorporates a step to eliminate hemoglobin from lysed blood cells.

How it works (Cont’d)



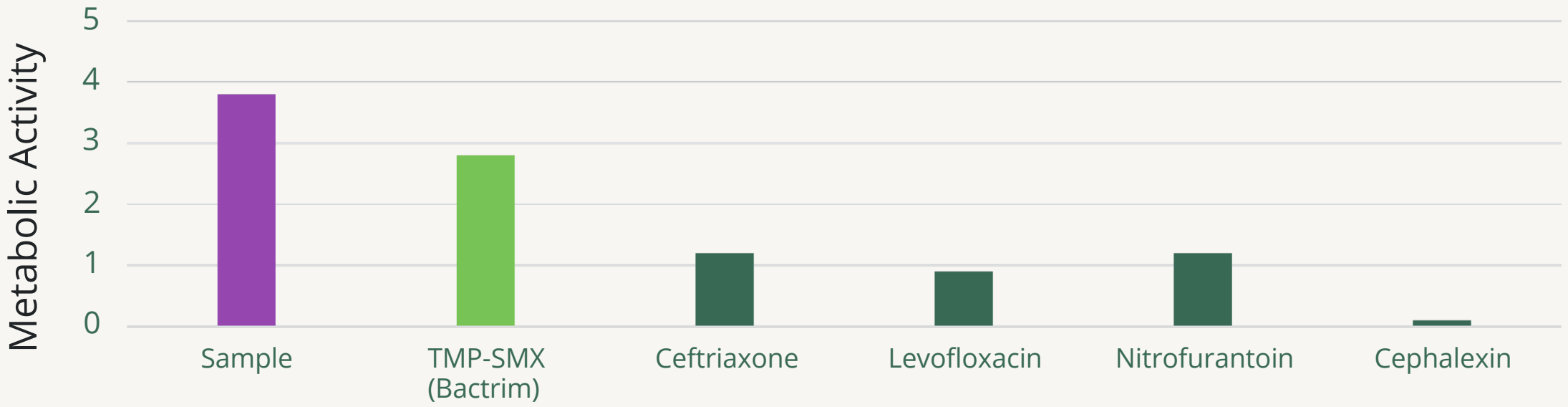
3 Cultivation and antibiotic testing

The sample is subdivided into multiple channels, allowing it to be mixed with specified antibiotics, as well as have two control channels. Once divided and mixed, the sample channels are cultivated for 35 minutes in a conducive media.

4 Detection of bacteria presence

The sample channels mix with specified reagents before moving to an analysis chamber. After 15 minutes, the device can confirm the presence of bacteria in the sample as well as provide antibiotic sensitivity results for the pre-selected antibiotics.

Technology: Metabolic Activity Detection



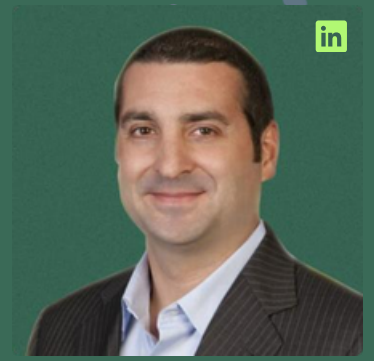
- A high metabolic activity shows that an infection is present
- TMP-SMX (marketed as Bactrim) is the go-to drug administered for UTIs
- A decline in metabolic activity indicates the antibiotic is working

Team

Mustafa Al-Adhami
Chief Executive Officer

Kevin Tran
ChiefTechnology Officer

Rick Faint
ChiefFinancial Officer



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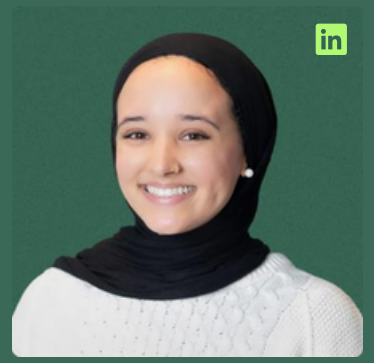

Ayisha Korme
Engineer

Advisory Board

Urine-based Testing

Microbiology

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Blood-based Testing

Infectious Diseases

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ICU

Mohan Tulapurkar, PhD

Research Associate at University of Maryland at Baltimore

Technology Validation

TechnologyPilotPartners		
University of Maryland Medical Center	MedStar Health	Johns Hopkins Medicine
Status: **Completed**	Status: **Ongoing**	Status: **Pending**
Duration: **Jun 2022 -May 2023**	Duration: **Jul 2023 - Jan 2024**	Duration:**Mar2024 -May 2024**
Accuracy: **A:82.00%; B: 95.60%**	Accuracy: **A: 96.97%; B: TBD**	Accuracy: **TBD**

Early PilotResults:*Jiddu*System				
	UMB Pilot (A) Jun -Dec 2022	**UMB Pilot (B)** Jan -May 2023	**MedStar Pilot (A)** Jul 2023 -Sep 2023	**MedStar Pilot (B)** Oct 2023 -Jan 2024
Samples	150	208	50	62
Accuracy	**82.00%**	**95.60%**	**96.97%**	**Alpha Verification**

- The *Jiddu*system has already completed 408 tests with increasingly high accuracy over time.

IP Overview

Area	Patent Disclosure
Test Algorithm (Issued)	Method and apparatus for rapid detection of bacterial contamination. Publication number: 20210223177.
Fluidic Cartridge (Pending)	Apparatus for separating the cellular and liquid portions of a whole blood sample. Publication number: 20210252507.
Reagent Mix (Pending)	Method and device for detecting presence, concentration, and antibiotic resistance of bacteria in urine samples. Application number: 63/525,510.
Rapid Cartridge Modification	System and method for automated translation of user requirements into engineering specifications and provide instructions for numerical control (NC) machines. Docket Number: 103662.20100.

Company Validation

Pilot Partners

Current Pilots:

University of Maryland Medical Center
MedStar Health
Johns Hopkins Medicine
Aceso

Pilots Pipeline:

HALO Diagnostics
VA | U.S. Department of Veterans Affairs
RGU Rio Grande Urology
Total Urology Care of New York
Aceso

Industry Recognition

Y Combinator
Johnson & Johnson Innovation | JLABS
Bio Biotechnology Innovation Organization
Maryland Tech Council — Advancing Life Sciences and Technology
ACS Chemistry for Life®

Scientific Grants ($1.4m)

NSF
FDA
BARDA — Biomedical Advanced Research and Development Authority
NIH
M tech — Maryland Industrial Partnerships

Investors ($2.6m)

Ayana Capital
Wexford Science+Technology
TEDCO — Leading Innovation to Market
University System of Maryland — Maryland Momentum Fund
Harvard — Veritas
Y Combinator
Notable angels

Timeline

>2022

2023 | **2024** | **2025** | **2025**

Pre-Seed:

$XXM

UMB Urology Pilot A:
82.00% Accuracy

Seed:

$XXM

- Breadboard prototype
- Technology validation

UMB Urology Pilot B:
95.60% Accuracy

MedStar Pilot A:
96.97% Accuracy

Pre-Series A:

$XXM

- Alpha Prototype (April 2024)
- Beta Prototype (Nov 2024)
- Clinical Trials (Jan 2025)

Series A:

TBD

- FDAClearance (April 2025)
- Commercialization strategy and execution

Go-to-Market:

10 Pilots

- UMB
- MedStar Health
- John Hopkins
- Halo Dx
- VA
- Rio Grande Urology
- Total Urology
- Aceso
- Others

- CLIA waiver

Investment Terms

Key Terms	Rationale
Amount: $XXM via convertible notes	Requiredtoget to Series A Target Milestones
Cap: $XXM pre-money cap	Astek's Board is open to a priced term sheet but is prioritizing speed by offering convertible notes
Discount: XX%	In line with market and prior convertible notes
Interest Rate: XX%	In line with market and prior convertible notes
Biotechnology Investment Incentive Tax Credit (BIITC)	▶Investors (puttingin thefirst$3.6Min theround)are eligible for a 33% tax refund (up to $250K per investor). ▸ Astek's management team has already navigated this state tax incentive program very effectively in the past to the benefit of current investors

Commercial & Exit Strategy

Commercial Strategy

- Astek Diagnostics plans to outsource all activities related to the design, manufacturing, delivery and maintenance of the *Jiddu*system to vendors like Key Tech.
- The company also plans to engage large MedTech players in the distribution of the *Jiddu*system while remaining focused on R&D in order toexpand the platform to CSF, effluent and blood.

Exit Strategy

- In spite ofthe company's early stage of development, Astek Diagnostics has already been approached by several strategic investors regarding a potential acquisition (e.g., BioMerieux, BD, Qiagen, Bio-Rad, etc).
- The company is of significant interest to such industry players, given its platform strategy of ultimately testing urine, CSF, effluent and blood with the same device but different cartridges.
- The Board of Directors believes that upon FDA clearance (expected by April 2025), Astek Diagnostics will become a prime acquisition target which could be bought out as early as Q1 2025.

Comparable Transactions

Transaction Comps					
Target	**Deal Date**	**Buyer**	**Purchase Price**	**Revenue**	**Revenue Multiple**
Specific Diagnostics	2022	BioMérieux		7	
Mesa Biotech			417	40	59.5x
Abaxis	2021	Thermo Fisher Scientific	450	245	11.3x
STAT-Dx	2018	Zoetis Qiagen Werfen	2,000	7	8.2x
AccrivaDiagnostics	2018	BioMérieux	191	100	27.3x
BioFire2014	2017		380	80	3.8x
Source: Pitch Book and other public/private sources	2014		450	Low	5.6x
				High	3.8x
				Mean	59.5x
				Median	19.3x
					9.7x

Executive Summary

Raised

$XXM

Built and verified

a fully functional platform

prototype

with 95%+ accuracy

Currently seeking

$XXM

inaseed round to finalize platform developmentand

complete clinical trials

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