

Spectara

Aerosol Intelligence

January 2026

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Executive Summary



Opportunity

Mass spectrometry-based detection platforms addressing a **\$100B+ market** across chemical/biological security, clinical diagnostics, and environmental health sectors worldwide.



Proven Performance

3+ years of field deployment with DHS SAFETY Act Designation, clinical validation at leading ICUs, and **\$40M+ in non-dilutive funding** secured.



Our Technology

Proprietary MALDI-TOF MS products delivering unprecedented speed, accuracy, and versatility across chemical, biological, and clinical applications.



Traction

\$5M+ near-term commercial pipeline, multiple Fortune 500 deployments, and clear regulatory pathways established across all product lines.

A \$100B+ Detection Gap

Three critical markets, one platform



Security - \$57B

Chemical/Biological weapons,
Pharmaceutical and street drugs



Environmental - \$15B

Airbone pathogens, mold, fungi, novel
viruses



Clinical - \$30B

Pneumonia/VAP, sepsis, COPD &
tuberculosis, respiratory viruses

Spectara's platform technology addresses all three markets with a single core instrument

Why Detection Matters Now

1

Threats are Here Now

3 Fentanyl incidents at single Spectara client in Q2 2025

2

And Accelerating

Engineered pathogens accessible via Mail-Order DNA Synthesis

3

With Massive Stakes

One undetected outbreak could shut down operations for weeks

Legacy Systems Can't Keep Up

Can't Detect Engineered Pathogens - Blind to new threats

Too Many False Alarms - Disrupting operations and eroding trust

\$200k Annual Costs per Site - Prohibitively expensive to scale

24 - 48 Hour Lab Analysis - Too slow for real-time response

An Integrated Platform for Aerosol Intelligence

Spectara leverages proprietary MALDI-TOF mass spectrometry systems to deliver real-time aerosol analysis

Product Line	Aegis	Athena	Anima
Launch Date	Available	Q3 2026	Q3 2028
Target Market	Security	Environmental Monitoring	Clinical Diagnostics
Key Specifications	<5 min threat identification 99% accuracy Simultaneous chem/bio detection Multi-month autonomous operation OTA threat library updates	Continuous environmental baseline monitoring Automated excursion alerts Enterprise scalability	8-day pre-symptomatic detection 98% sensitivity Non-invasive breath analysis Pathogen ID + antibiotic resistance profiling

Deployed with DHS, JPMorgan, and Pittsburgh Airport

Government

11.2M in contracts across 6 agencies

Agency	Status	Value (\$M)	Description
DHS	●	6.2	Agnostic Threat Detection
NIH	●	1.5	Assay Development for Anima
US Army	●	1.3	Microsampler for UAS deployment
NASA	●	0.9	Enhanced resolution miniature TOF MS
USAF	●	1.2	Ruggedized Aegis for integration with UGV
NOAA	●	0.163	Pilot Site Monitoring (Awaiting Authorization)

● Active

● Pending

Commercial

5M+ in Active Pipeline

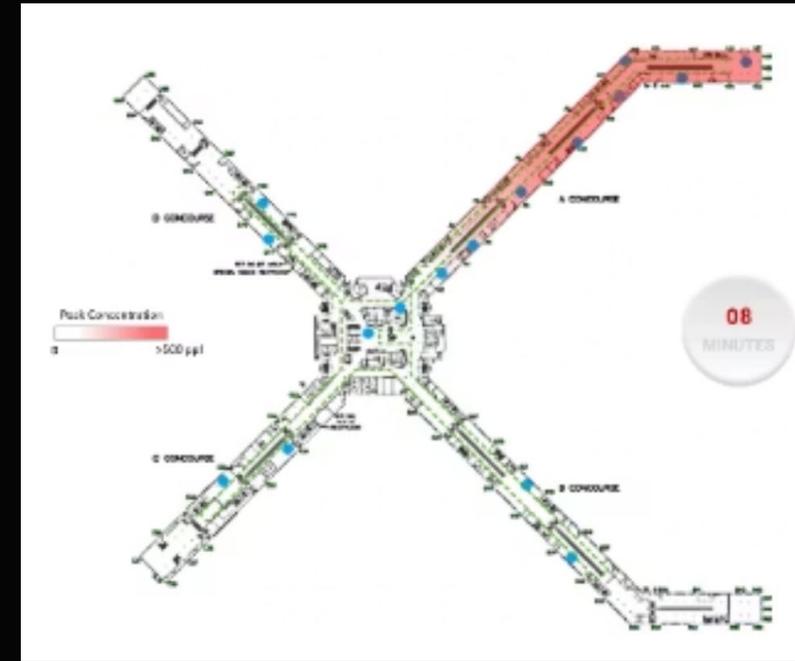
Customer	Status	Est. Acct Value (\$M)	Description
PIT	●	1.4	2 units currently deployed, expansion planned in 2026
JPMorgan	●	0.5	Mail screening for CEO office
SoBran	●	0.5	4 units deployed across 3 sites
Pentagon Force Pro	●	1.4	Unit completed evaluation, expect first order in Q1-Q2 2026
ABQ	●	0.65	2 units currently deployed, expected procurement Q1 2026



Aegis

Real-Time Chemical & Biological Threat Detection

Threat Protection at Pittsburgh International Airport (Active Deployment)



Results

- Aegis identified 100% of the 27 dispersion tests within 15 minutes
- Validation reach back confirmed identification exceeded target metrics
- Solution is **deployed now** (2 units); multi-unit expansion targeted for 2026

Containment Impact

- **With Detection:** Dispersion contained within 8 minutes with countermeasures deployed
- **Without Detection:** Dispersion to 2 terminals in 15 minutes and all terminals in 30 minutes

8

Minutes to Peak Concentration

0 to >500 ppt

6

Minutes to Detection

100%

Test Success Rate

Our Instrument Provides Unmatched Versatility, Automation, and Affordability

Feature	Spectara BioTOF™ z200	Industry Standard
Technology	Mass Spectrometry (MALDI-TOF-MS)	Chemiluminescent Immunoassay (CIA)
Automation	Autonomous for 2-4+ weeks; triggered by presence of threat or anomaly with AI/ML classification and cloud-based data management	Manual; requires knowing a threat was present to process sample, often too late for mitigative action
Threat Capabilities	Simultaneous biological and chemical (e.g., fentanyl). Unlimited library updated over the air. Detects emerging, unknown threats	Biological only. Limited to predefined agents; new agents require assay development
Accuracy	>99%	>98%
Sample Run Time	<5 minutes	<5 minutes
Operational Reliability	99% uptime	Unknown

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JP Morgan Mail Screening

Use-Case

Corporate mail screening to detect harmful biological and chemical agents in mail addressed to CEO

Solution

Mail screen kit consisting of **Aegis system**, downdraft table, and agitation mechanism

Value Proposition

- Enables confident and **rapid deployment** of emergency management protocols
- **Lower cost** of operation and maintenance
- **Fastest identification times** on the market

Status

On-site system in **continuous use** for over 2 years. Deployments planned at **multiple US** locations. Revenue generating.

30s

Average Sampling Time

99.71%

System Uptime

5,000

Daily Mail Volume

2,700

Samples Collected





Athena

Environmental Intelligence & Pandemic Preparedness



Enhanced Instrument Resolution Unlocks New Market Opportunity

Beyond Traditional Metrics

Higher performance detectors and advanced software enable insights on the quality of circulating air far beyond traditional PM 2.5 and PM 10 measurements

Proactive Health Protection

Athena nodes generate localized biological baselines and automatically detect and report excursions — whether they're natural, accidental, or engineered. Providing proactive alerts on potential epidemiological risks

Proven Technology Platform

Athena leverages the same proven MALDI-TOF technology as Aegis, with enhanced resolution and sample collection capabilities specifically optimized for environmental health applications

LAUNCHING Q3 2026

Widespread Deployment Creates Global Bio-Intelligence Network

DHS Legacy BioWatch Program

Established in 2003, BioWatch is a DHS program designed to provide **early warning of airborne biological threats** in major metropolitan areas

The program deploys environmental sensors to **detect pathogens and integrate results** with public health, law enforcement, and emergency response agencies

Spectara's Strategic Position

Spectara is **already under contract with DHS** to deliver enhanced systems to replace legacy equipment

This positions us to become the primary provider for the nation's biological detection infrastructure

Our enhanced capabilities deliver the same mission-critical intelligence while adding simultaneous chemical threat identification, faster response times, and autonomous operation



Anima

Breakthrough Breath-Based Diagnostics



Mass Spec Expertise Led to Another Innovation Enabling Detection of Active Infections from Breath

Immune Response

Humans generate proteases as immune responses to infections.

When bacteria, fungi, or a virus invade the lungs, the body releases proteases as a defense mechanism.

Definitive Link

These proteases have been definitively linked to active infections. Peer-reviewed studies show that each infection class produces a distinct mix of protease activity.

Detection Challenge

However, dilute proteases in breath are undetectable. Only minute amounts of proteases are present in exhaled breath, and conventional assays miss them.

Our Breakthrough

We developed an assay to **amplify these proteases, making otherwise undetectable signals visible** and enabling accurate diagnosis from breath samples.



Already Achieved Early Clinical Validation in Leading ICUs

Objective

Evaluate Anima® performance in clinical setting by predicting lower respiratory tract infection (LRTI) using host proteases, validated by comparison to physician's diagnosis

Additional goals include identifying bacterial/fungal pathogens and profiling antibiotic susceptibility

Process

Breath samples repeatedly collected from ~100 mechanically ventilated ICU patients throughout their hospital stay

Outcome

LRTIs detected avg. 8 days before clinical diagnosis with over 90% accuracy, increasing almost to 100% accuracy on the day of clinical diagnosis

Accurate identification of the infectious organism and antibiotic resistance characteristics

📄 The Johns Hopkins Hospital & Oregon Health and Science University are using Anima® sampler under IRB, pursuing 510(k) regulatory clearance

Anima[®] LRTI Diagnostic Performance

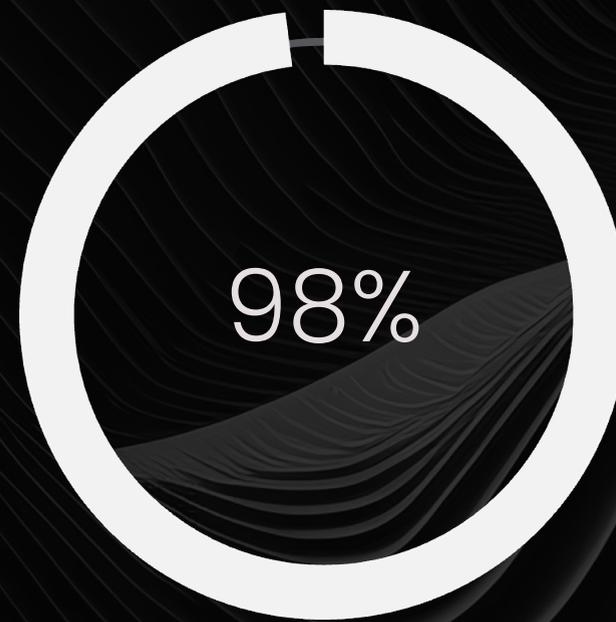
Essentially No False Positives or False Negatives

Detecting LRTI in mechanically intubated patients with clinical symptoms

Our Sensors Detect 3 Host Proteases

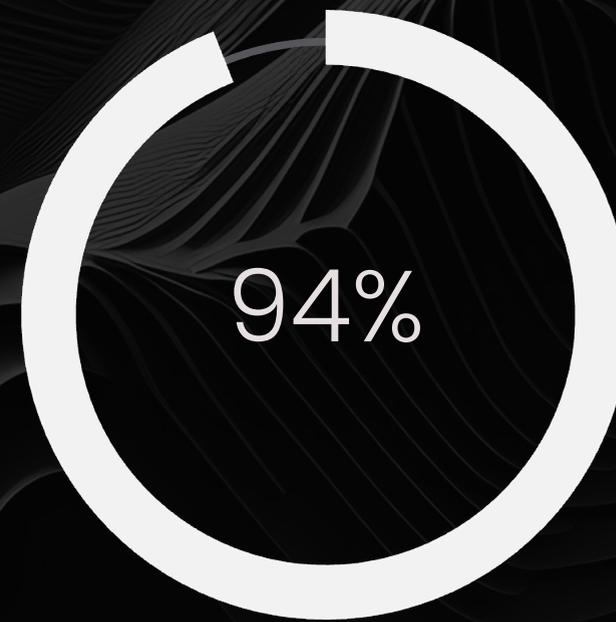
- HNE (Sensor 1)
- MMP8&9 (Sensor 2)
- MMP8&9 (Sensor 3)

Note: The assay measures human neutrophil elastase (HNE), matrix metalloproteinase 8 (MMP8), and matrix metalloproteinase 9 (MMP9) activity in a multiplexed format.



Sensitivity

True positive rate



Specificity

True negative rate



Pathogen ID Match

To clinical diagnosis

Proven Leadership Team

Combining Deep Scientific Expertise with Operational Excellence



Hunter Brown
CEO



Wayne Bryden
CSO



Mike McLoughlin
CTO



Strategic Partners & Collaborators



Raising \$5M Series A

Accelerating Commercial Growth Across Three Product Lines



Team Development

Onboard dedicated commercial leads to capture market opportunity

Scale engineering resources to execute ongoing government programs



Laboratory Validation

Expand threat library through focused development of simulation software and real-world BSL 3+ tests

Continue **Anima clinical trials** toward 510(k) clearance



Expand Partnerships

Execute partnerships with leading providers of mail screening services and hardware (e.g X-ray, millimeter wave)

Demonstrate integration with facility security management solutions