



Diagnosing Complex Infections
Fast, Accurate and Mobile

Guanine

PROBLEM

Sepsis is a major cause of death worldwide and drains millions of dollars from hospitals



SEPSIS and COVID DEATHS

**270,000 US sepsis deaths/yr
(11 M global)**

**93% of COVID hospitalization deaths
are COVID viral sepsis**

Worldwide deaths

COVID and Sepsis 22.9 M

Cardiovascular 18.6 M

Cancer 10.1 M

(Source: CDC, WHO, Harvard/Brigham)



SEPSIS FINANCIAL LOSS

**50% to 77% of sepsis hospital costs
are not reimbursed**

Annual financial loss from sepsis

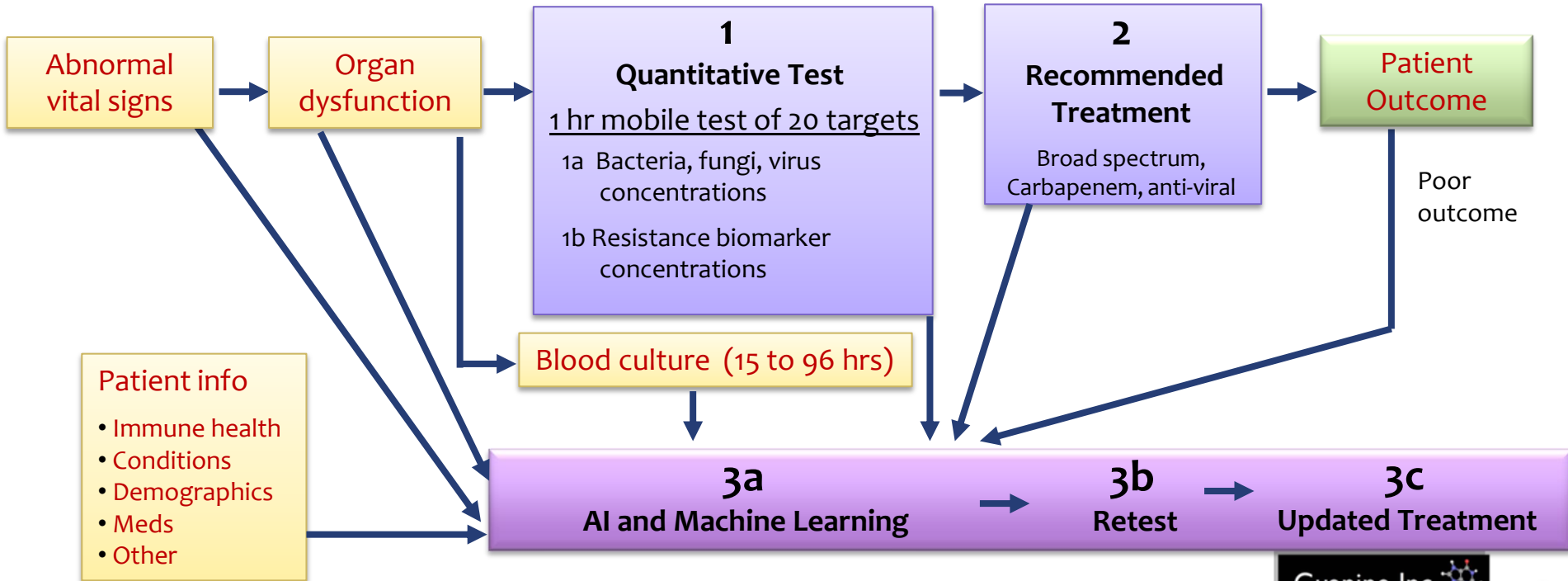
Big US hospital = ~~-\$34 million/yr~~

Small US hospital = ~~-\$10 million/yr~~

(Source: GE Healthcare, Roche Diagnostics, HFMA)

SOLUTION

Guanine's mobile sepsis test detects multiple pathogens and drug resistance in 1 hour WITHOUT A CULTURE and has AI tools to improve outcomes



BREAKTHROUGH

Guanine has invented an electrical oligonucleotide detection tag that detects low concentrations with the simplicity of a glucose meter



LIGHT IS DIFFICULT TO MEASURE

PCR

(invented 1980's)



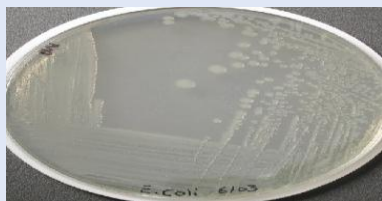
IMMUNOASSAY

(invented 1950's)



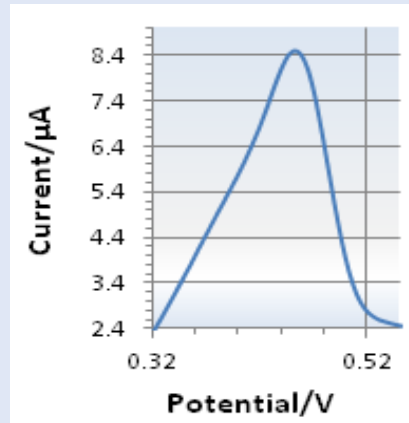
CULTURE

(invented 1890's)



ELECTRONS ARE EASY TO MEASURE

- (1) Attach targets with millions of synthetic DNA tags (oligonucleotides)
- (2) Higher peak is higher concentration
- (3) Upcoming AI tool will diagnose infections from rash recognition, symptoms and medical conditions



Guanine's patented technology detects multiple low level targets in a test cartridge without PCR

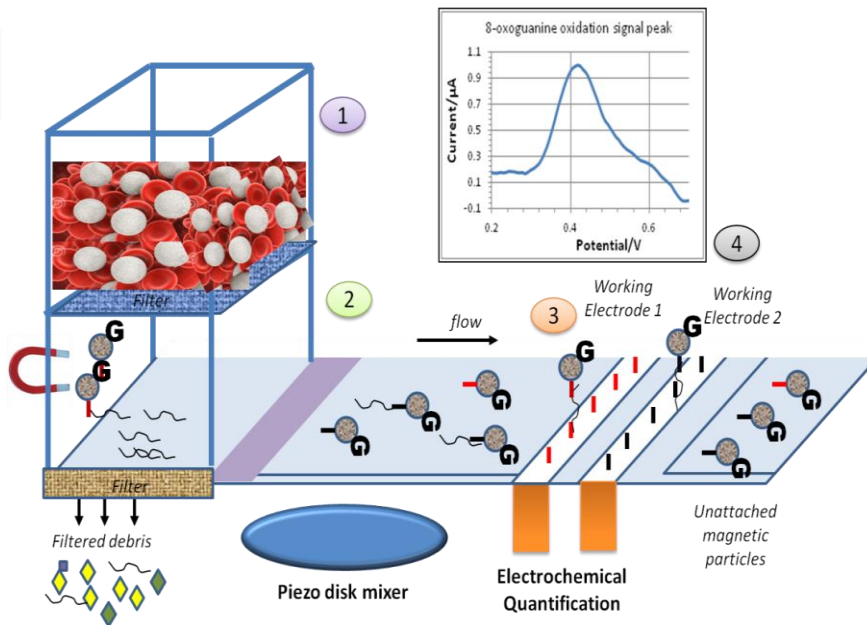
Electrical Detection Tag

5' Biotin-TTA **GGGGGGGGGGGGGGGGGGGG**
 TTATTTT CGGCCCTTGA GTTTCCTCTG
 ACGGTCACTA TTTGACCTCC TTCCACCCCT
 ACTGCAGTTC AGTAGTACCG 3'

- ✓ **Detection sequence** with 20 mer electroactive G, A, T or C
- ✓ **Capture sequence** with 70 mers for high selectivity and rapid hybridization
- ✓ **Rapid signal amplification** by binding targets with millions of tags on a magnetic particle

OTHER CAPABILITIES

- ✓ Multiplex with multiple particles, multiple electrodes and different tags G,A,T,C
- ✓ Quantitative results
- ✓ Measure with mobile potentiostat
- ✓ Detect proteins with aptamers or antibody/polyG blend



Mobile Sepsis Pathogen Test

- 1) Filter concentrate
- 2) Bind targets to magnetic microparticle with millions of tags then magnetically separate
- 3) Form sandwiches on electrodes
- 4) Apply voltage and generate current peak proportional to concentration

Guanine's rapid mobile detection will reduce sepsis deaths and lower sepsis healthcare costs

Breakthrough technology emits easy-to-measure electric current that makes culture technology obsolete



FEATURES

- Handheld reader
- Automated cartridge
- Transmit test results
- Software recommends treatment

BENEFITS

- Reduce time to 1 hr
- Eliminate culture errors
- Detect viral sepsis
- Reduce instrument price by 90%

RESULTS

- Less deaths from faster treatment
- Reduced sepsis healthcare costs by up to 50%

MARKET

Guanine's sepsis test will initially target big hospitals in NYC

\$34 B

TAM

Medical and non medical pathogen detection, infection diagnosis

\$800 M

SAM

Sepsis in big hospitals and small users in US, Canada and EU (9.5% CAGR)

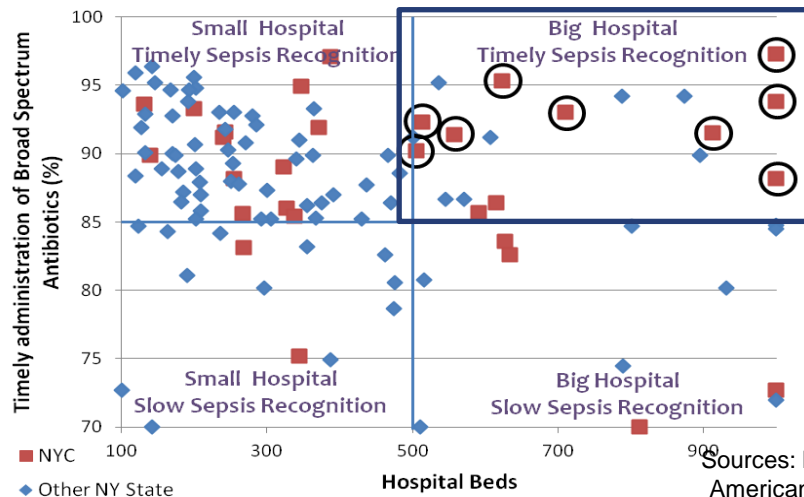
\$220 M

SOM

Sepsis early adopters in US/Canada/EU

Hospital Size	Target Number	Potential Revenue
Big	100	\$183 M
Small	250	\$ 37 M
		\$ 220 M

NY State Hospitals – Timely Sepsis Recognition vs Size



TARGET MARKET

- ✓ Big hospitals
- ✓ Timely sepsis recognition (but still needs to know pathogen type and drug resistance)
- ✓ NYC → NY/NJ/PA → National → International

ENGAGE SEPSIS CHAMPIONS

- ✓ Pursuing improved sepsis outcomes
- ✓ Promotes success in publications and conferences
- ✓ Not aligned with competitors
- ✓ Willing to collaborate in trial

Sources: NY Sepsis Initiative, American Hospital Directory

REVENUE MODEL

Guanine's mobile sepsis test is ideal for big hospitals

UPFRONT COST

Reader \$500

Margins increase with volume 30% -> 50%

REPEAT SALE

Cartridge \$200

Margins increase with volume 60% -> 80%

Sepsis Market	US/Canada/EU \$800 M	
	Big Hospitals \$600 M	Small Hospitals \$200 M
Revenue / Customer (\$200/cartridge)	\$1.83 M / yr (25 tests/day)	\$150 k / yr (2 tests/day)
Customer Lifetime Value	\$18.3 M	\$1.5 M
Customer Acquisition Cost	\$150k	\$100k

Untapped upside for low cost reader and test in developing countries

COMPETITION

Guanine's mobile sepsis test saves time, reduces cost and improves accuracy over the competition

Guanine Inc. 



Acquired 2021
\$1.8 Billion

DiaSorin

Acquired 2021
\$1.8 Billion



Acquired 2014
\$486 Million

	Guanine	GenMark Plex	Luminex Verigene	BioFire Film Array
Detection time	1 hr	17 hrs	14 hrs	13 hrs
Instrument price	\$500	>\$25,000	\$22,000	\$35,400
Instrument size	2 lbs, 3”H	88 lbs, 24” H	63 lbs, 18” H	57 lbs , 38”H
Culture errors	No culture errors	Culture errors present		
Viral sepsis	Viruses detected	No viruses detection capability		

TRACTION

Guanine IP is protected by 3 approved patents and Guanine has leveraged \$10 M investment from its predecessor NASA spin-off



3 approved patents protection to 2039

US 11,105,801
Expiry 2039

Approved: US, CA Pending: EP

US 11,175,285
Expiry 2038

Approved: US, CA

US 9,624,532
Expiry 2035

Approved: US, CA, DE, FR, GB



Mount Sinai *Innovation Partners*

Clinicians and stakeholders to help transform innovation into accepted healthcare products



Grant funded data, protocol, sensor and cartridge design



Rensselaer

Prototyped Guanine's sensor and designed cartridge



Leverages \$10 million in predecessor NASA spin-off



Interested in investing in NASA spin-off before it was acquired by TI



Interested in use once reader is developed



Award for best Lyme disease technology

TEAM

Guanine's management team has vast experience and has worked together on multiple endeavors



PRESIDENT

Neil Gordon, B.Eng, MBA

- *Inventor of Guanine's detection platform*
- *Previously spun-out NASA detection company*
- *One of first nanotechnology business consultants*



VP R&D

Garry Palmateer, MS

- *40 years experience in microbiology*
- *Developed and used dozens of assays*
- *Oversaw Walkerton E.coli outbreak for Ontario Gov't*



VP BUS. DEV.

Raj Bawa, MD, PhD

- *MD PhD with sepsis insight*
- *Experience with biotech R&D and patents*
- *Editor of cutting edge personalized medicine books*



VP OPERATIONS

Ara Altounian B.Eng, MBA

- *40 years in administration and marketing*
- *Co-developed software tools with Neil*

TIMELINE

Guanine will expand its sepsis offering with tests for other infections, licensing and AI diagnosis

PAST

- ✓ Leverage \$10 M from predecessor NASA Spinoff

PRODUCT ROUND

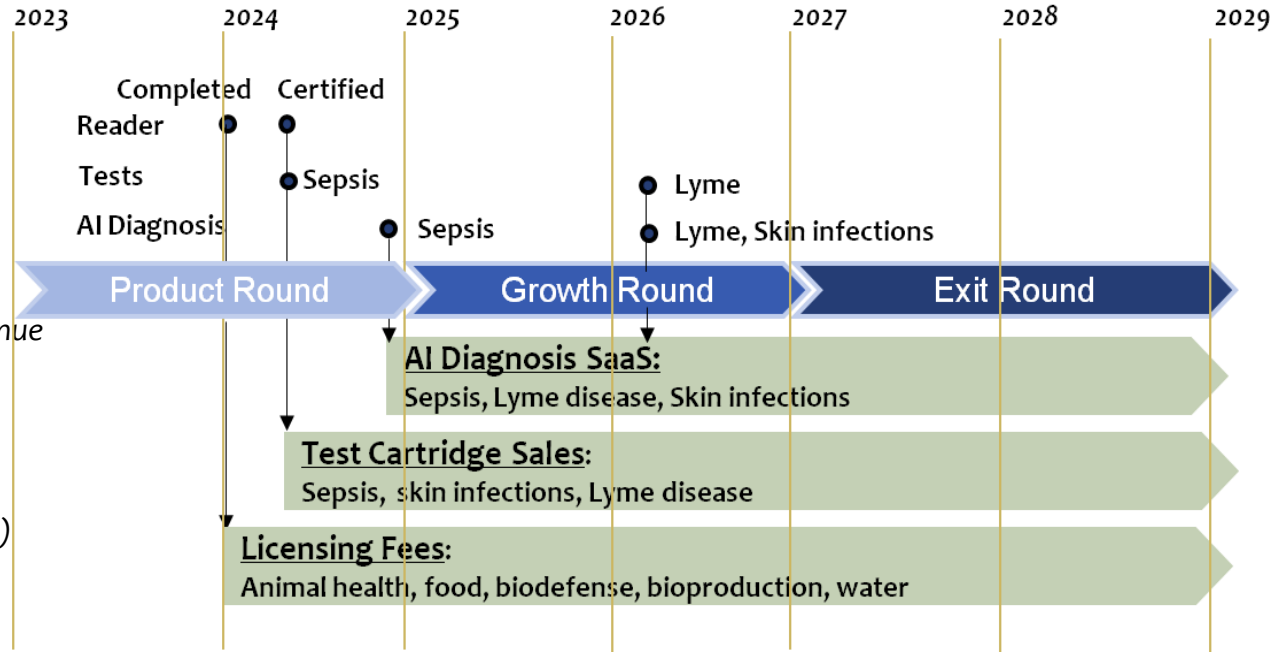
- ✓ SAFE Note
- ✓ VCs in contact via Newchip
- ✓ Complete sepsis assay / reader
- ✓ Generate sepsis product and licensing revenue

GROWTH ROUND

- ✓ Priced Series A
- ✓ Expand product and licensing revenue
- ✓ Complete Lyme test and AI diagnosis (SaaS)

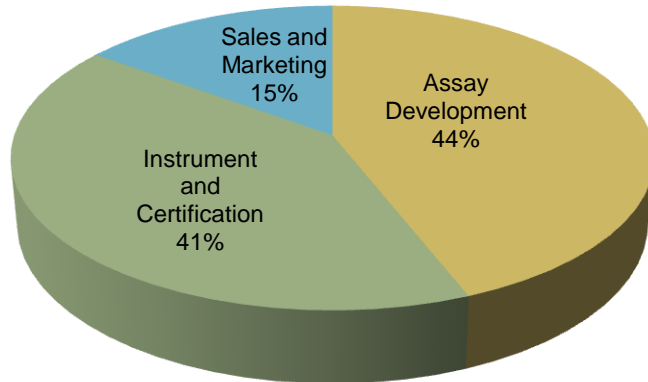
EXIT ROUND

- ✓ Exit expected in year 6 - 7



Guanine is seeking \$7.5 M to launch the sepsis test and to license the platform to non-medical test developers

USES



PRODUCT MILESTONES

- Sepsis assay with reader – Mo 12
- FDA Certification – Mo 16
- Sepsis AI tool – Mo 18



MARKETING MILESTONES

- NYC Pilot – Mo 12
- First License Agreement – Mo 13
- First Sepsis Product Sale – Mo 16
- First Distributor – Mo 18
- First Sepsis SaaS Sale – Mo 22

Thank you

Neil Gordon, President

Guanine Inc.

7 University Place, Suite B210
Rensselaer, NY 12144

neil.gordon@guanineinc.com

514-813-7936

www.guanineinc.com