AI diagnostics for
combating antibiotic resistance

PhAST - Executive summary

- Boston-based AI imaging startup
- Founded by MIT entrepreneurs
- Secured $4.5M seed funding, including non-dilutive grants
  - NIH/NIAID SBIR Phase I ($600k)
  - Massachusetts Life Sciences Center ($200k)
  - Discovery Award, UK's Longitude Prize committee ($12k)
- A team of 10 (engineers, biologists, data scientists, MBAs)
- Core IP issued (April, 2019), IP fully owned by PhAST
- Built 6 minimum viable products (MVPs)
- Established 2 collaborations with Partners Healthcare Institutions

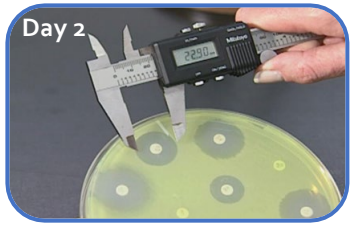
PARTNERS HEALTHCARE

BRIGHAM HEALTH

BWH BRIGHAM AND WOMEN'S HOSPITAL

INFECTIOUS DISEASE INSTITUTE

AI diagnostics for combating antibiotic resistance

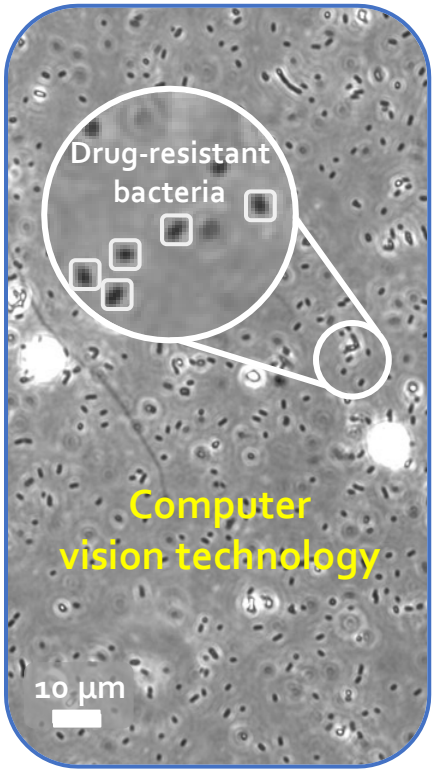


Standard of care

PhAST

Slow
Multistep
Labor intensive
Culturing required

Fast
All-in-one
Fully automated
Directly from sample



Days

Providing answers to:

1. Screening
2. Identification
3. Resistance profile

Minutes

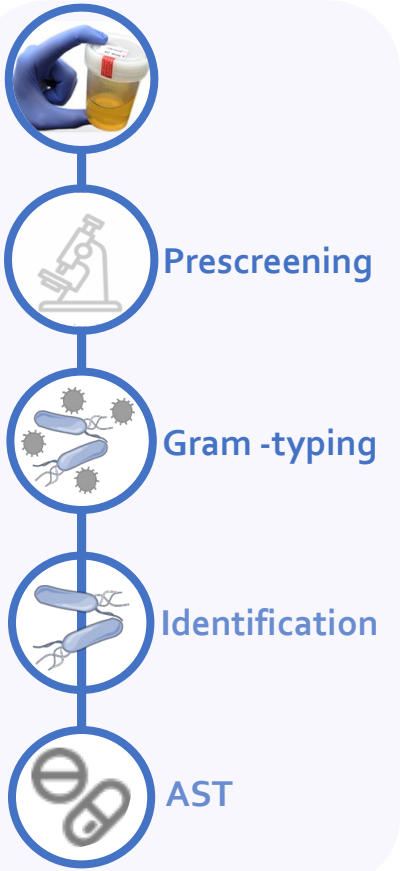
PhAST

To view the video please use this link of the archived webcast: https://youtu.be/Fu2_myQZbNM?t=52m48s

To view the video please use this link of the archived webcast: https://youtu.be/Fu2_myQZbNM?t=52m59s

To view the video please use this link of the archived webcast: https://youtu.be/Fu2_myQZbNM?t=53m30s

Preliminary performance of all-in-one diagnostics



	Sensitivity	Specificity	Time-to-result
Prescreening*	95% (58)	86% (153)	<5 min
Gram-typing*	100% (7)	100% (40)	<5 min
ID (*P. aeruginosa*)	95% (198)	96% (196)	<5 min

AST: Categorical Agreement# (60-100 min)	*P. aeruginosa*	Enterobacterales
Ciprofloxacin (fluoroquinolone)	98% (83)	94% (108)
Meropenem (carbapenem)	90% (123)	99% (89)
Ceftazidime/Ceftriaxone (Cephalosporin)	99% (89)	98% (44)

* Diagnostic cutoff: > 10^5 CFU/ml

Low intermediate (I) strain count

[1] Antibiotic Susceptibility Test

PhAST

Simple and affordable diagnostic system

- Built-off-the shelf (Nikon TS2R - $3,800)
- Inexpensive CCD camera ($750)
- Chips ($8, off-the-shelf)

- Instrument pricing: $10,000/unit
- Test pricing: $10/test
- Cloud-based technology

PhAST

PhAST - DUAL impact AI platform

Drug development platform

Enhancing clinical trial efficiency

Targeted Patient Recruitment [1]

Diagnostic platform

Clinical decision support

Improve patient outcome

Healthcare savings

Other applications

Food/companion animal health

Biodefense

Global health (LMICs[2])

[1] Identifying patients with infection caused by specific pathogens with specific resistance profiles

[2] Low and Middle Income Countries

AI diagnostics for
combating antibiotic resistance

info@phast.ai