



The right antibiotic at the right time

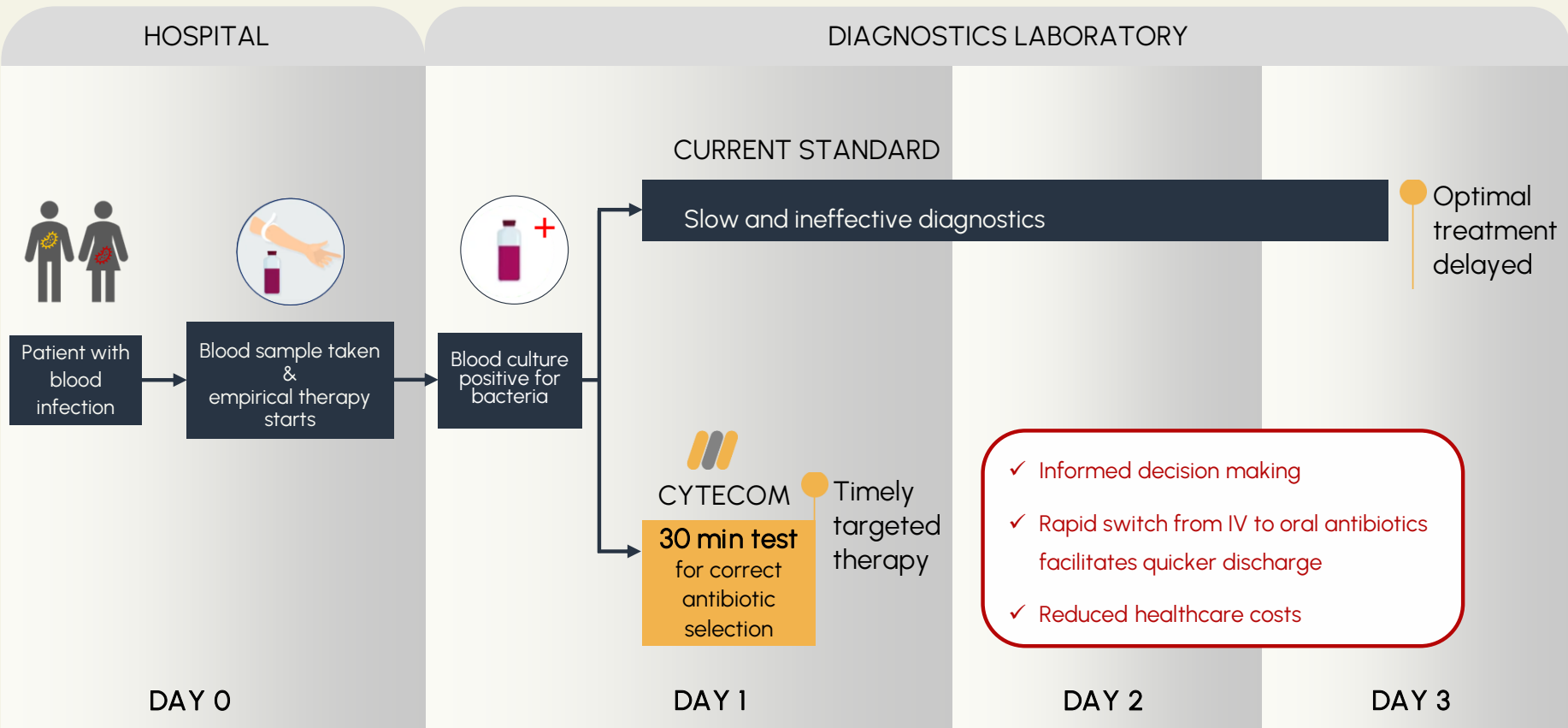
Patented lifesaving technology

Working prototype

£1.5 m NHS contract secured

Dr Magdalena Karlikowska, CEO

RAPID ANTIBIOTIC SELECTION TEST





Electrically induced bacterial membrane-potential dynamics correspond to cellular proliferation capacity

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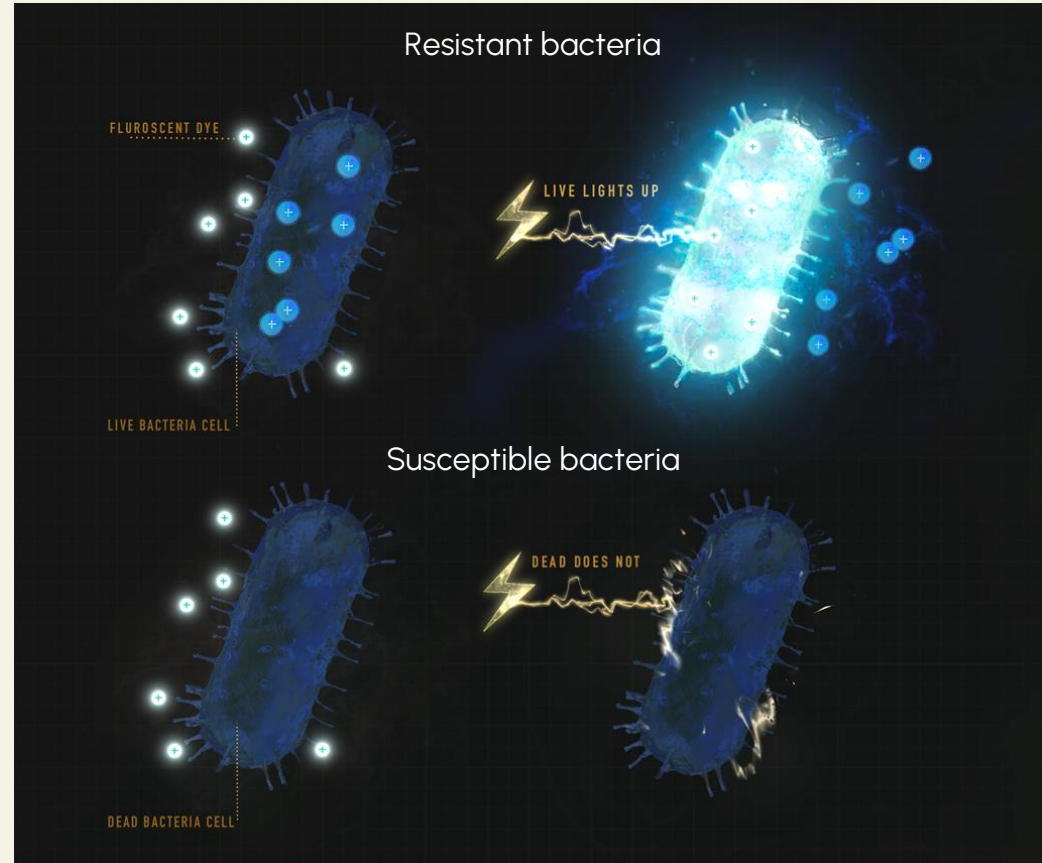
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Phenotypic, growth-independent AST

We combine **time-lapse microscopy**, **bioelectricity**, and **machine learning** to deliver precise measurement of bacterial response to antibiotics in just 45 seconds.

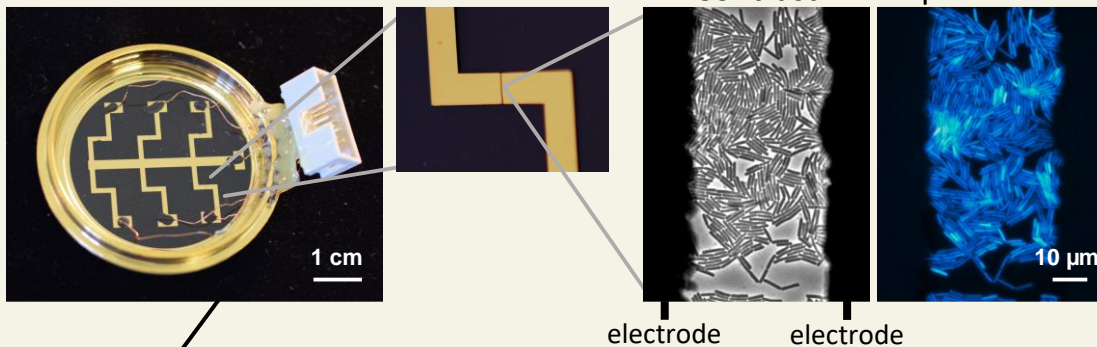


EXPERIMENTAL DESIGN:

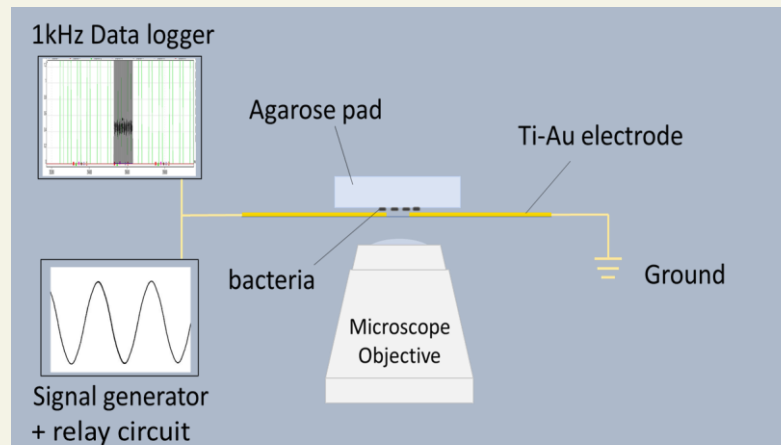
Single-cell time-lapse microscopy + electric zap



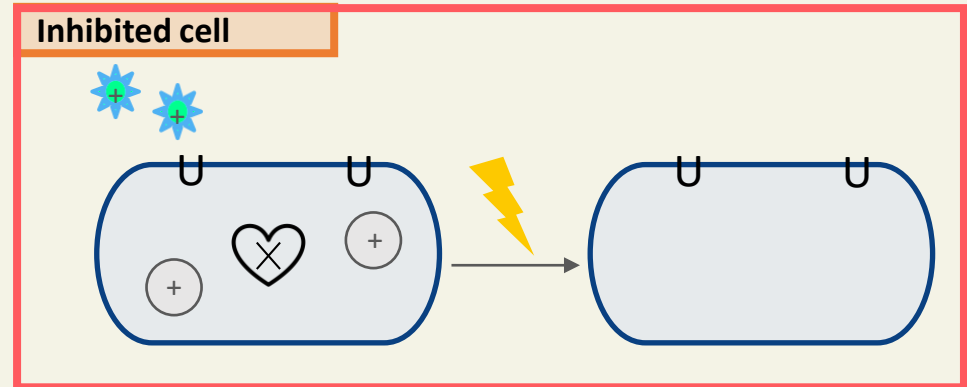
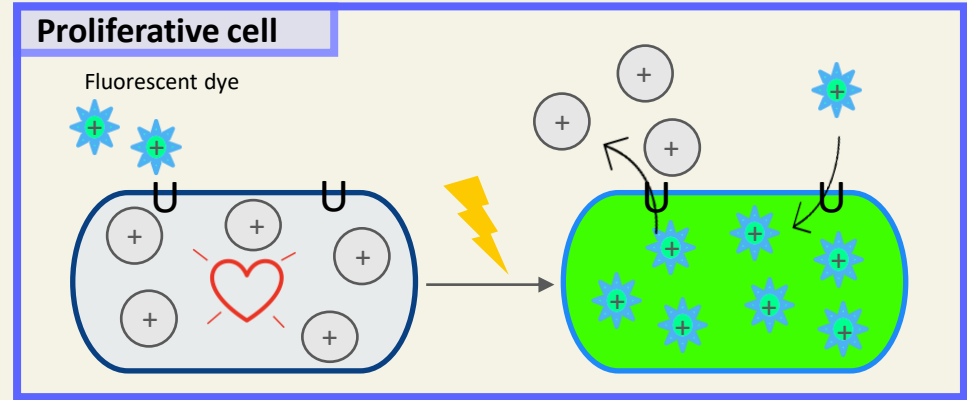
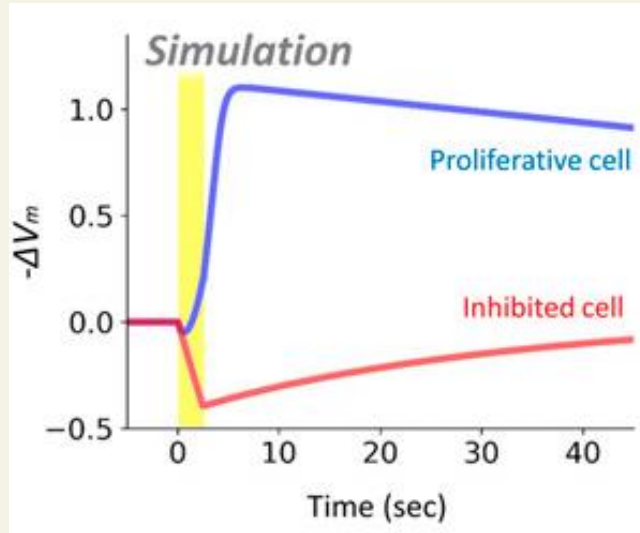
THE ASALLY LAB
THE UNIVERSITY OF WARWICK



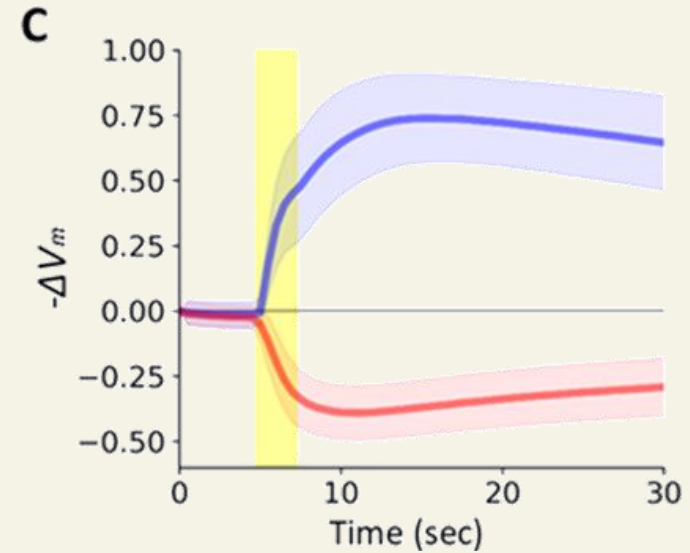
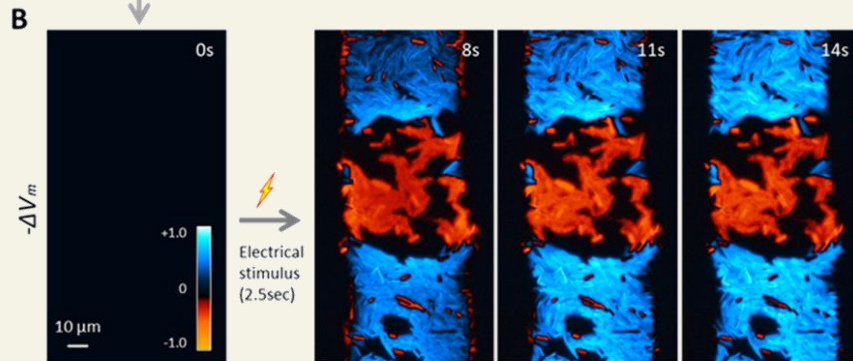
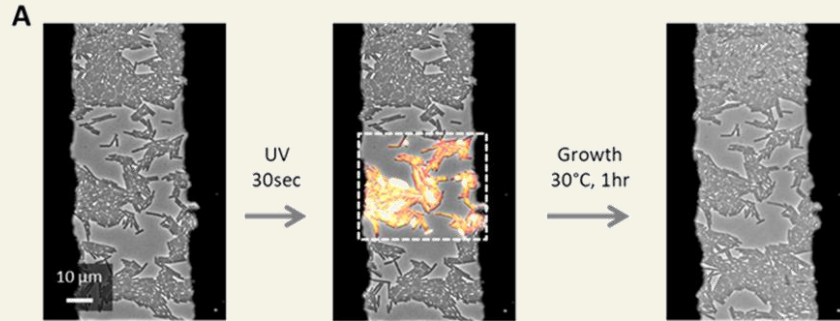
Single-cell Fluorescence Time-lapse Microscopy



Shift in resting membrane potential is sufficient to describe the distinct responses between proliferative and inhibited cells

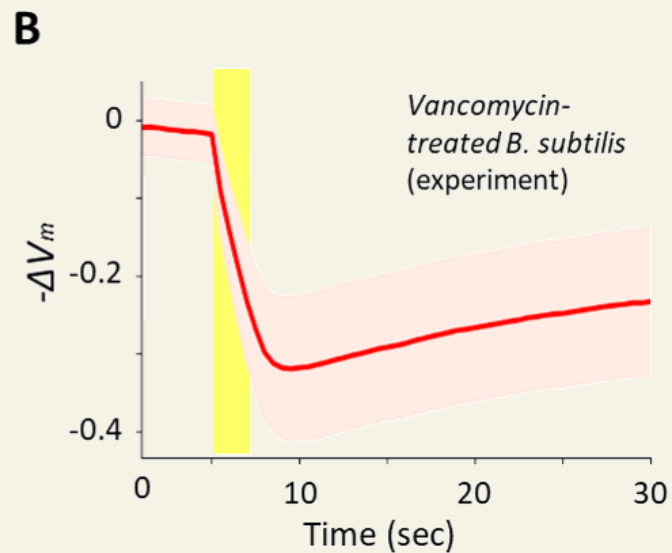
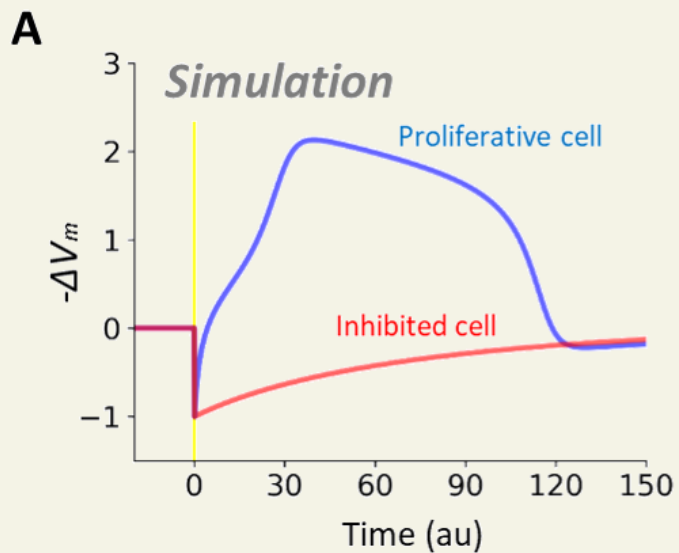


Cells killed with UV light can be quickly and easily differentiated from live cells

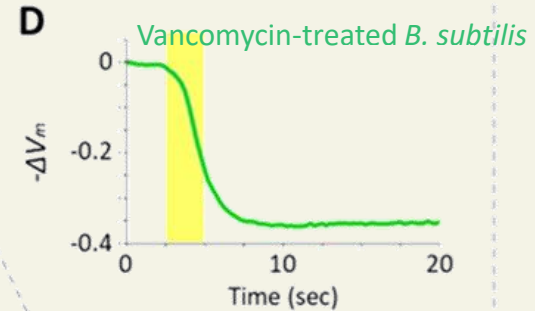
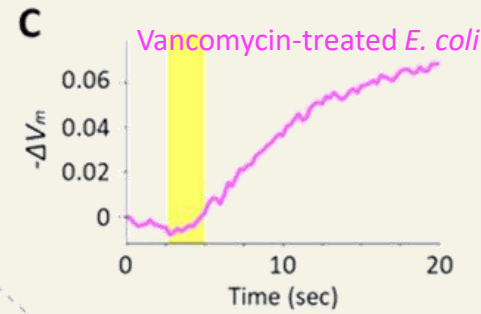
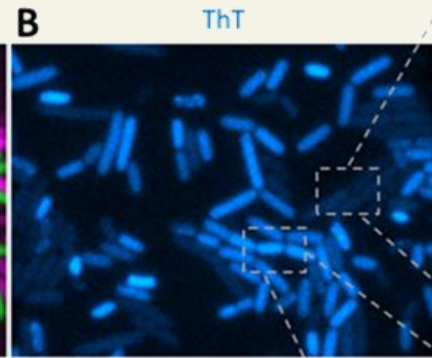
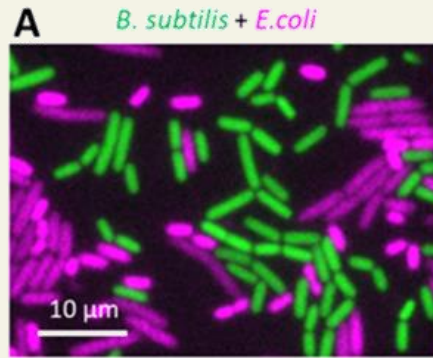




Cells killed with vancomycin can be differentiated from untreated control cells using the same process



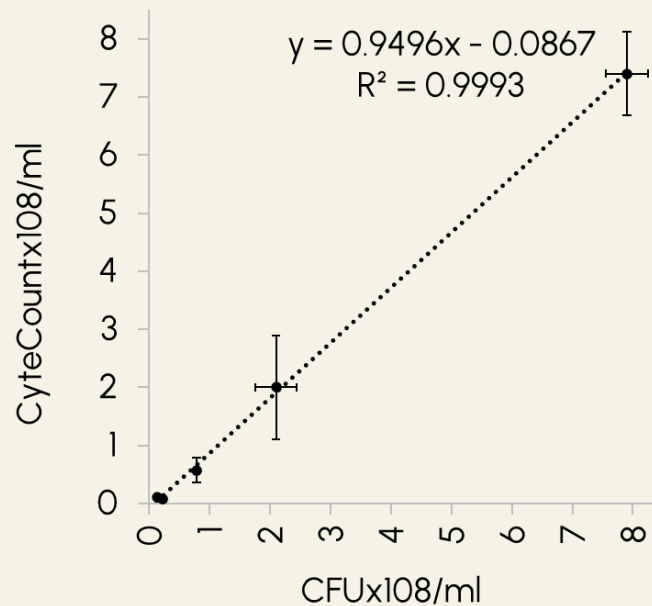
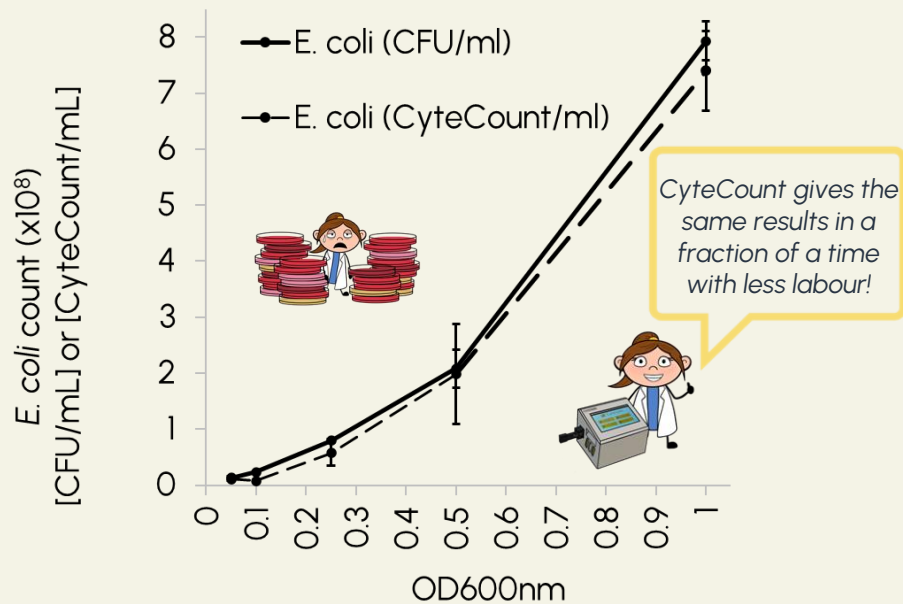
Many antibiotics are selective in their ability to inhibit cells
- useful for differentiating broad groups of bacteria



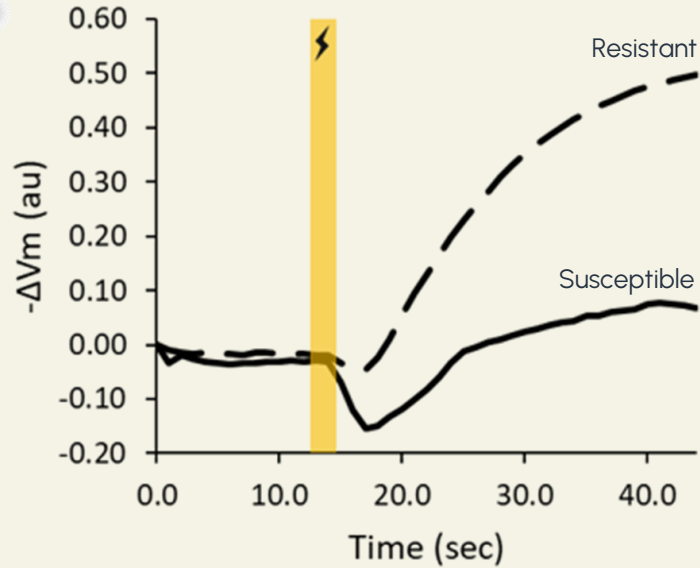
FROM BIG LAB SET UP TO PORTABLE PROTOTYPE



CYTECOM RESULTS MATCH THE GOLD STANDARD

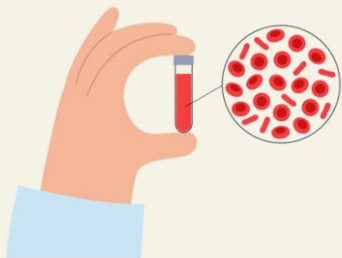


ANTIBIOTIC STRESS RESPONSE IN MINUTES



- Distinct bacterial response profiles to electric show following antibiotic exposure in lab media
- Resistant vs susceptible bacteria detected in 30 mins

RESISTANT BACTERIA DETECTION DIRECTLY IN BLOOD

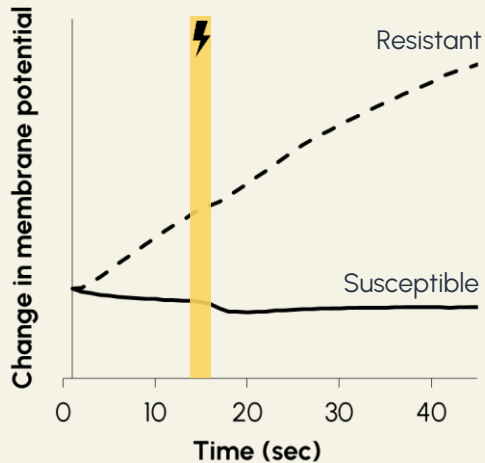


Sample Preparation:

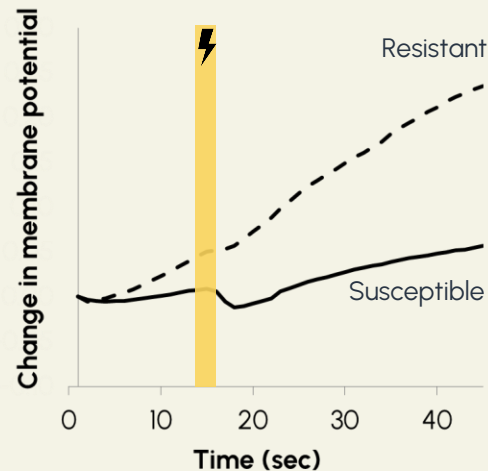
Direct from positive blood culture!

	Traditional test	Emerging rapid tests	Cytecom rapid test
Sample prep	1-step	~5-15 steps	1-step
Antibiotic exposure	24-48h	2-7h	0.5-2h

Gram-negative *E. coli*

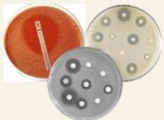








Gram-positive *S. aureus*



COMPETITIVE ADVANTAGE



	Established Competition		Novel Technologies		
	Culture-based	Molecular-based	Direct growth-dependent	Indirect growth-dependent	Phenotypic growth-independent
					
Method	Broth Microdilution, Disk Diffusion	PCR, Sequencing	Automated Microscopy, Growth Kinematics	Electrochemical Profiles, Volatile Organic Compounds	Flow-cytometry, Nanomotion
No growth delay	✗	✓	✗	✗	✓
Phenotypic MIC	✓	✗	✓	✓	✓
Bactericidal / bacteriostatic differentiation	✗	✗	✗	✗	✗
Portable	✗	✗	✗	✗	✗
Low upfront capital cost	✓	✗	✗	✓	✗
Time to result	24 hours	hours to days	~3h-7h	2.5h – ≥5.5h	2h – 4h
					 
					Optical Electrophysiology
					✓
					✓
					✓
					✓
					30 min

MEET THE TEAM



Dr Magdalena Karlikowska
CEO

- PhD in Microbiology
- Clinical diagnostics experience, including UK Health Security Agency and NHS
- Strategy consulting and public health outreach



Conor Edwards
Co-Founder & Product Lead

- 6 years in bio-engineering
- Co-developed Cytecom's first prototype
- Expert in prototyping and supply chain



Dr James Stratford
Co-Founder & CTO

- Strong track record of entrepreneurship at the interface of microbiology
- Inventor of 5 patents



Noah Tattersall
Application Development Scientist

- Biomaterial scientist
- Expert in bacterial electrophysiology



Dr Munehiro Asally
Co-Founder

- World-leading expert in bacterial electrophysiology
- Published in prestigious journals: Nature, PNAS, eLife, and Advanced Science



Inderpreet Kaur
R&D Scientist

- Biomedical scientist
- Experience in clinical diagnostics

CLINICAL ADVISORY BOARD - KEY MEMBERS



Prof Michael Barer

- NHS Consultant Clinical Microbiologist
- 30 years pioneering the synergy of bacterial physiology and human infection dynamics



Dr David Jenkins

- President of BSAC (British Society for Antimicrobial chemotherapy)
- NHS Consultant Clinical Microbiologist



Prof Keith Abrams

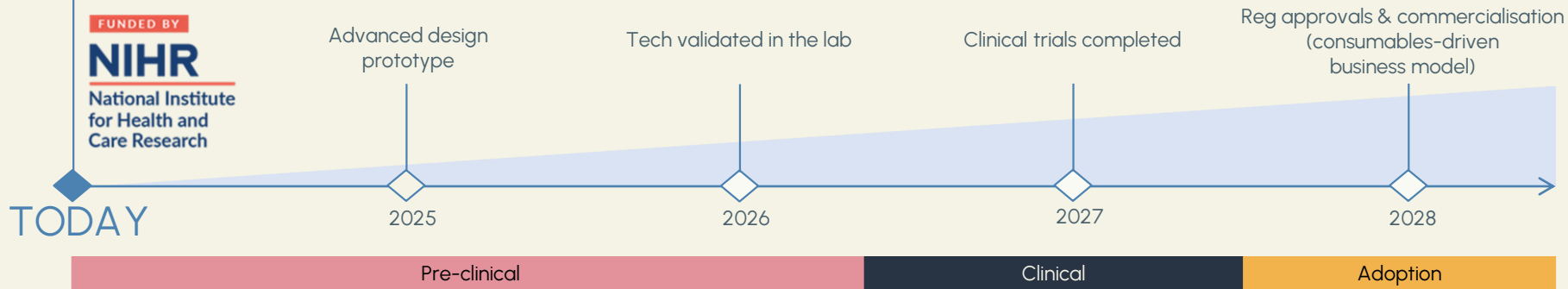
- NICE Diagnostic Advisory Committee Member
- Health Technology Assessment (HTA) expert



GO-TO-MARKET STRATEGY



£1.5 million government contract
to develop rapid AMR diagnostic device
in collaboration with key partners:





The right antibiotic at the right time

Patented lifesaving technology

Working prototype

£1.5 m contract secured

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