Today, antibiotics are rarely prescribed based on a definitive diagnosis. Diagnostic tests can show whether or not an antibiotic is actually needed, and which one. Having rapid, low-cost, and readily available diagnostics is an essential part of the solution to this urgent problem.

Dr Margaret Chan, Director General of the World Health Organization

AMR Review, chaired by Jim O’Neill - May 2016
Tackling Drug-Resistant Infections Globally: final report and recommendations
Growing Resistance: individual & societal consequences

Risk of returning to pre-antibiotic age…

CASE: Post caesarean section 25-year-old woman developed sepsis that does not respond to antibiotics: died within one week of giving birth

CASE: 45-year-old oncology patient responding well to treatment, acquires infection that is resistant to key antibiotics.
ANTIBIOTICS IN THE PIPELINE OR RECENTLY LICENSED

High priority
Potential for activity against at least 90% of carbapenemase-producing bacteria in the UK

Medium priority
Targets at least one CDC 'Urgent' threat (Clostridium difficile, carbapenem-resistant Enterobacteriaceae or drug-resistant Neisseria gonorrhoea, but is not classed as a potential breakthrough)

Low priority
Does not meet the criteria for "clinically useful"
What is the Longitude Prize?

A £10 million prize fund that will reward a transformative, rapid, accurate, and affordable point-of-care diagnostic test that can significantly reduce antibiotic misuse or overuse, anywhere in the world.

Why a diagnostic?

- It’s a defined challenge with a tangible output - ideal for a challenge prize.
- More targeted use of antibiotics means more effective stewardship of antibiotics.
- Better stewardship means that the antibiotics we have now, and any new drugs that are developed, will be effective for longer.
LONGITUDE PRIZE

THE JOURNEY FROM IDEA TO AWARD

A diagnostic test that helps solve the problem of global antibiotic resistance

£8 million
WINNER DECLARED!
£8 million awarded to winner to help bring product to market

PRIZE ADVISORY PANEL
Assess applications after every deadline

LONGITUDE COMMITTEE
Ratify decision

ASSESSMENT
Including clinical trials

UNSUCCESSFUL
Use our feedback to reapply

APPLY TO WIN PRIZE
Submit technical details, business plan and prototype design
Deadlines: 31st January, 31st May and 30th September
Ongoing until 2019

REGISTER YOUR INTEREST
Develop your idea

SUPPORT
The winning test could...

Discriminate between bacterial or viral pathogens

OR

Identify which species or strain is causing an infection

AND, OR

Detect antibiotic sensitivity of the infecting pathogen
WHAT KIND OF TEST COULD WIN THE LONGITUDE PRIZE?

THE WINNING TEST MUST BE...

- NEEDED: Improve the antibiotic treatment decision of a globally occurring problem
- ACCURATE: Eliminate harmful treatment decisions and give confidence to the user
- AFFORDABLE: Affordable for purchase and use everywhere that it is needed
- RAPID: Sample collection to result in less than 30 minutes
- EASY TO USE: Can be used and interpreted anywhere in the world with minimal training
- CONNECTED: Tests with built-in data-recording and transmission will be favoured
- SAFE: The benefits for outweigh any risks
- SCALABLE: A plan for full-scale manufacture and distribution

ENVIROMENTAL STABILITY
EASILY CARRIED
NO COLD CHAIN
NO MAINS POWER
LONGITUDE PRIZE

ROUTES TO ANTIBIOTICS

SELF OR COMMUNITY PROVISION
- Given by friends/family
- Given fake prescriptions by 'quack' doctors
- Hoarded from past prescriptions
- Provided by community health workers

CLINICAL PROVISION
- Inpatient care at hospitals from surgeons and physicians (public and private)
- Outpatient care from clinics, surgeries or health professionals' offices (public and private)
- Product samples from pharmaceutical companies by healthcare professionals

PURCHASE
- Over the counter in pharmacies
- Pharmacy counter at supermarkets
- Online pharmacies
- Non-retail outlets
- Market stalls

PRESCRIPTION
- From GPs
- From nurses
- From specialists via private clinics
- From hospital outpatient clinics
Does the winning test need to measure susceptibility / resistance to major antibiotics?
Technologies being used?

- DNA sequencing
- Nanotechnology
  - Glyconanoparticles that discriminate between bacterial and viral proteins and toxins
  - Nanosensors that count nucleic acids
- Characterising phenotypic traits using real-time imaging and microfluidics
- Synthetic polymers that act as binding sensors for bacterial pathogens
- Detection of bacteria using laser-based scattered light
- Separation of bacterial and viral pathogens based on their electrophoretic properties
Update June 2017

239 teams registered, from 41 countries
22 full entries to win

12 Discovery Award seed funding grants (£10-25,000) awarded in 2016

Winners of the second round of Discovery Awards will be announced in July (Merck Funder)
A new round of Discovery Awards seed funding for Indian teams

- Seed grants of £10-25,000, funded by BIRAC
- Help registered teams and individuals further develop their ideas for the Longitude Prize
- Encourage new teams to enter the race
- Closing deadline Friday 1st September, midnight IST
November 2016 Discovery Awards: India

Team: FindeR
From: Bangalore
Idea: Biomarker-based diagnostic to differentiate between bacterial and viral infections for community and intensive care settings

Team: University of Delhi South Campus
From: Delhi
Idea: Resistance-genes-array based rapid detection of AMR and algorithm-driven therapy

More here: bit.ly/IndiaWinners
Team: OmiX Labs  
From: Bangalore  
Idea: AMR signature assays for predicting susceptibility to existing and repurposed drugs

Team: Valetude Primus  
From: Delhi  
Idea: A novel portable device for early stage detection of blood bacterial infection

Team: Vitas Pharma  
From: Hyderabad  
Idea: A rapid molecular assay to test for bacterial pathogens in patient samples
ARE YOU READY TO APPLY TO WIN?

IF YOUR APPLICATION PROGRESSES:

**PERFORMANCE EVALUATION**
With support from the Longitude Prize
- Feasibility testing
- Stability testing

**YOU COULD NOW WIN THE PRIZE**
To get your test to market, you will need regulatory approval

**CE MARKING**
- Design
- Feasibility
- Optimisation

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**FEASIBILITY / DESIGN**
- Initial lab tests
- Reagent definitions

**OPTIMISATION**
- Refining reagent
- Standardisation
- Analytical sensitivity and specificity
- Working prototype x3

**PRE-VALIDATION / PILOT EVALUATION**
- Validation
- Repeatability
- Reproducibility
- Diagnostic sensitivity and specificity
- Diagnostic thresholds
- User acceptability test
- Trial-ready prototype x3

Registration on: longitudeprize.org/enter

EARLIEST STAGE TO APPLY

RECOMMENDED STAGE TO APPLY
Behaviour change: Superbugs
Contact

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