

CARB-X

Combating Antibiotic Resistant Bacteria

Introducing CARB-X



CARB-X

Combating Antibiotic Resistant Bacteria

A non-profit partnership
accelerating the best science
from around the world to fight
drug resistant infections

FUNDERS



PARTNERS





CARB-X funds R&D to combat the rising threat of serious drug-resistant bacteria

CARB-X



Urgent public health need

Antibiotic resistance kills an estimated 700,000 people each year world-wide. No new antibiotic classes for drug-resistant Gram-negative bacteria have been approved in decades.



Turning science into products

CARB-X provides non-dilutive funding and accelerator support for projects that target Gram-negative resistant bacteria on the WHO and CDC priority lists.



Investing globally

CARB-X is a non-profit public-private partnership investing \$455M in 2016-2021 to accelerate the early development of life-saving antibiotics, vaccines and rapid diagnostics.



Partnering for results

CARB-X is funded by BARDA and the Wellcome Trust. NIAID provides pre-clinical services. Partners include the Broad Institute of MIT and Harvard, Massachusetts Biotechnology Council (MassBio), California Life Sciences Institute (CLSI) and RTI International. CARB-X is led by Boston University.

Global Reach: CARB-X Funds 26 Projects in 6 Countries*



North America

Forge Therapeutics
San Diego, CA

Cidara Therapeutics San
Diego, CA

Inhibrx
La Jolla CA

Amicrobe Inc.
Calsbad, CA

MicRx
Hayward, CA

Curza
Salt Lake City, UT

VenatoRx
Pharmaceuticals
Malvern, PA

Integrated
Biotherapeutics
Rockville, MD

Contrafact Corporation
Yonkers, NY

Seres Therapeutics
Cambridge, MA

Vedanta Biosciences
Cambridge, MA

Spero Therapeutics
Cambridge, MA

Visterra Inc.
Cambridge, MA

Macrolide Pharmaceuticals
Watertown, MA

Tetraphase Pharmaceuticals
Watertown, MA

Entasis Therapeutics (2)
Waltham, MA

Microbiotix Inc.
Worcester, MA

T2 Biosystems
Lexington, MA

Europe and Asia

Iterum Therapeutics Ltd.
Dublin, Ireland

Proteus IRC
Edinburgh, Scotland

Oppilotech Ltd.
London, UK

Eligochem Ltd.
Sandwich, UK

Antabio
Labège, France

Debiopharm International S.A.
Lausanne, Switzerland

Bugworks Research India Pvt Ltd.
Bangalore, India

* As of March 9, 2018

- 26 early development projects targeting serious drug resistant bacteria
- 8 new classes of antibiotics
- 10 non-traditional antibiotics
- 11 new molecular targets and a rapid diagnostic
- 2 diagnostics

CARB-X Antibacterial Treatment and Prevention Product Portfolio											
Sponsor	Product	Novelty			Description	Priority		Development Stage			
		New Abx Class	New Non-traditional Product	New Target		CDC	WHO	Hit to Lead	Lead Optimization	Pre-Clinical	Phase I
Amicrobe	Amicidin-β		✓		Next-generation local antimicrobial	✓	✓	Broad spectrum			
Antabio	PEI		✓	✓	Pseudomonas elastase inhibitor	✓	✓	<i>P. aeruginosa</i>			
Bugworks Research	GYROX	✓			Gyrase-topoisomerase inhibitor	✓	✓	Gram-negative activity			
Cidara Therapeutics	CD201		✓	✓	Bifunctional immunotherapy	✓	✓	<i>Acinetobacter</i> + <i>P. aeruginosa</i> + Enterobacteriaceae			
Contrafect	Gram-negative lysins		✓	✓	Recombinant lysin protein	✓	✓	<i>P. aeruginosa</i>			
Curza	CZ-02	✓		✓	Novel class Gram-negative	✓	✓	Broad Spectrum			
Debiopharm International SA	Debio1453	✓		✓	Narrow-spectrum inhibitors of FtsI	✓	✓	<i>Neisseria Gonorrhoeae</i>			
Eligochem	Helical AMP	✓			Helical antimicrobial peptide	✓	✓	Gram-negative activity			
Entasis Therapeutics	ETX0282CPOP				Oral Gram-negative combination	✓	✓	Gram-negative activity			
Entasis Therapeutics	Non-βL PBPI	✓			Non-beta-lactam PBPI	✓	✓	Gram-negative activity			
Forge Therapeutics	FG-LpAC	✓		✓	LpAC inhibitor	✓	✓	Gram-negative activity			
Inhibrx	INBRX-111		✓	✓	Multi-specific antibody	✓	✓	<i>P. aeruginosa</i>			
Integrated BioTherapeutics	IBT-V02		✓		Multi-valent toxoid vaccine	✓	✓	<i>S. aureus</i>			
Iterum	Sulopenem				Oral and IV penem	✓	✓	Gram-negative activity			
Macrolide	Novel Macrolides				Novel macrolide antibiotics with Gram-negative activity	✓	✓	Gram-negative activity			
Microbiotix	T355 Inhibitor		✓	✓	Virulence modifier	✓	✓	<i>P. aeruginosa</i>			
MicrRx	MRX-8				with drug polymyxins	✓	✓	Gram-negative activity			
Opplotech	LPS	✓		✓	Targets synthesis of LPS	✓	✓	Gram-negative activity			
Seres Therapeutics	SER-155		✓		Microbiome - transplant patients	✓	✓	Broad spectrum activity vs C difficile			
Spero Therapeutics	SPR741			✓	Potentiator	✓	✓	Gram-negative activity			
Tetraphase Pharmaceuticals	TP-6076				Next-generation tetracycline	✓	✓	<i>Acinetobacter</i> + Enterobacteriaceae			
Vedanta	VE303		✓		Microbiome	✓		<i>C. difficile</i>			
VenatoRx	VNRX-PBP	✓			β-lactamase resistant PBP inhibitor	✓	✓	Enterobacteriaceae			
Viverra	VIS705		✓	✓	Antibody-drug conjugate	✓	✓	<i>P. aeruginosa</i>			

CARB-X Antibacterial Devices and Diagnostic Product Portfolio						
Sponsor	Type	Technology	Description			
			Feasibility Demonstration	Optimization and Preparation for Development	Product Development	System Integration and Testing
Proteus	Rapid POC Dx	Optical bacterial imaging	POC Diagnostic			
T2 Biosystems	Hospital Dx	Expanded bacteria and resistance panels for T2Ds	Bloodstream Infections			

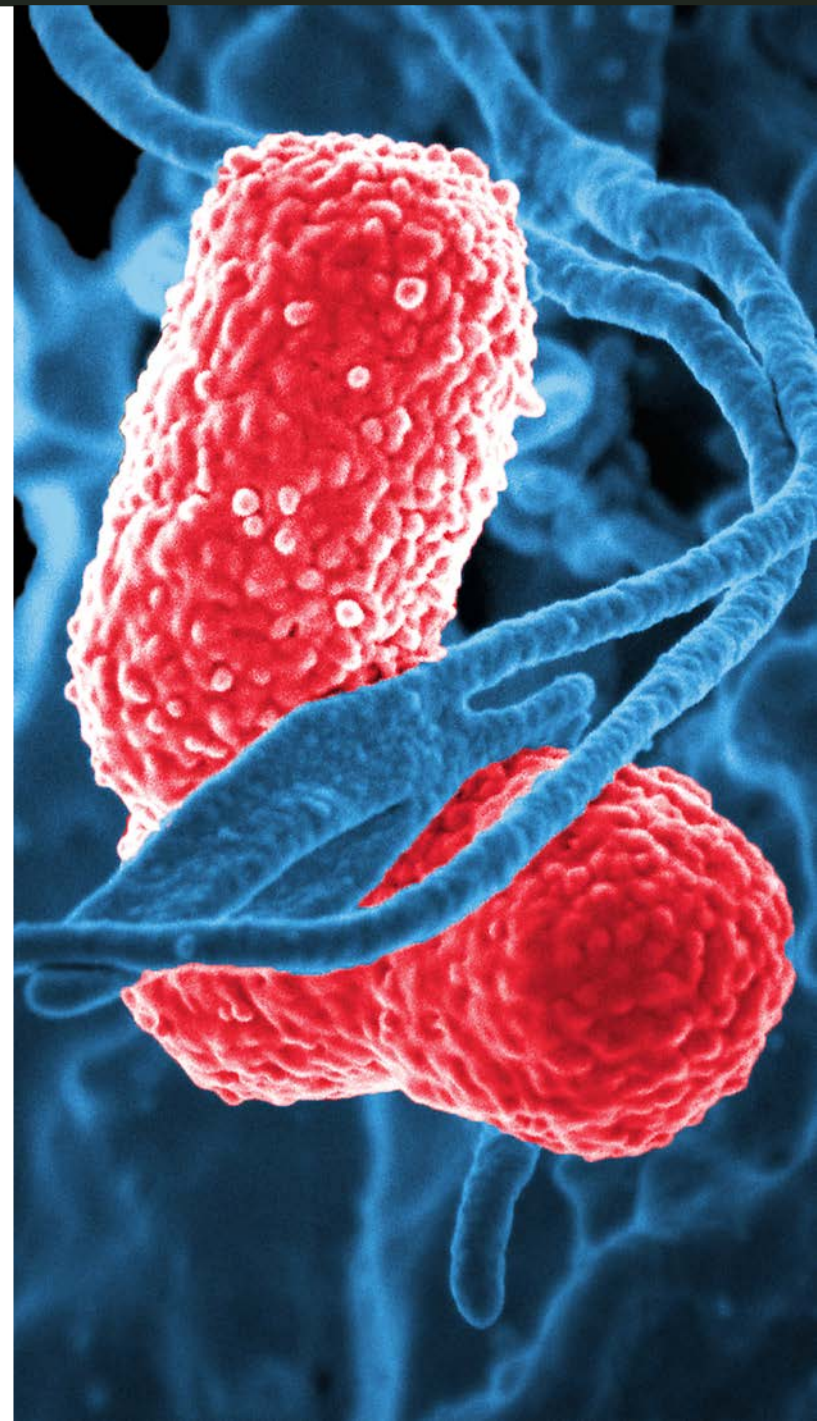
- CARB-X has announced more than \$68.2 million in awards, plus an additional \$85.1 million if project milestones are met.
- Many more awards to come in 2018, including a significant number of additional diagnostics

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What CARB-X Funds

- Early development projects that address serious bacterial threats
 - antibiotics and therapeutics of all types
 - rapid diagnostics
 - prevention such as vaccines, microbiome, devices
- Projects must target specific bacteria on the [Antibiotic Resistance Threats List](#) issued by the Centers for Disease Control and Prevention (CDC) in 2013 or on the [Priority Bacterial Pathogens list](#) published by the World Health Organization (WHO) in 2017



CARB-X Funds Projects in Early Development

Therapeutics & Preventatives



Diagnostics & Devices



How CARB-X works

CARB-X welcomes applications from around the world. Projects are selected through a competitive process by panels of experts. Funded projects are supported by a network of world-class accelerators

Funding Partners (\$455 million 2016-2021)



Scientific & Business Support Partners

From CARB-X Partners



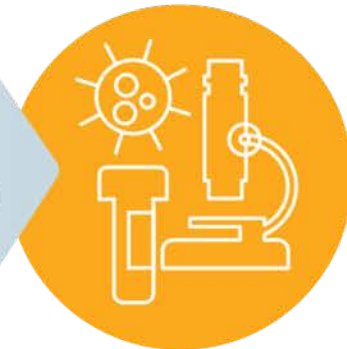
CARB-X

- Scientific review:** Scientific Advisory Board reviews applications & makes recommendations
- Governance:** Joint Oversight Committee makes funding decisions
- Administration:** Boston University hosts CARB-X



Applications for funding

Received from companies around the world



Selected projects

Receive funding & support

Combating antibiotic resistant bacteria

Better stewardship for existing antibiotics

Eliminate inappropriate use of these lifesaving drugs in both humans and animals.



Reduce the need for antibiotics by using alternative and nontraditional approaches to disease treatment and prevention.

Ensure that antibiotics are accessible and available to the people who need them.

Innovation to find new types of antibiotics

Support targeted research initiatives to overcome scientific challenges impeding the discovery of new antibiotics.



Address the complex barriers hindering the development of new treatment options for patients.



Drug-resistant bacteria
Centers for Disease Control and Prevention