CARB-X

Combating Antibiotic-Resistant Bacteria

BOSTON UNIVERSITY

2025 CARB-X Funding Cycle 2

What You Need to Know

Agenda

- About CARB-X
- Overview of 2025 Funding Call
- How to Apply
- Tips for preparing an application
- Q&A

About CARB-X

CARB-X

Combating Antibiotic-Resistant Bacteria

A global non-profit partnership accelerating the early-stage development of innovative products to prevent, diagnose, and treat bacterial infections

ASPR Administration for Strategic Preparedness and Response

BARDA Biomedical Advanced Research and Development Authority

wellcome

NIAID

Federal Ministry of Research, Technology and Space

UKaid from the British people

GAMRIF

Gates Foundation

Canada

novo nordisk foundation

MEF Ministero dell'Economia e delle Finanze

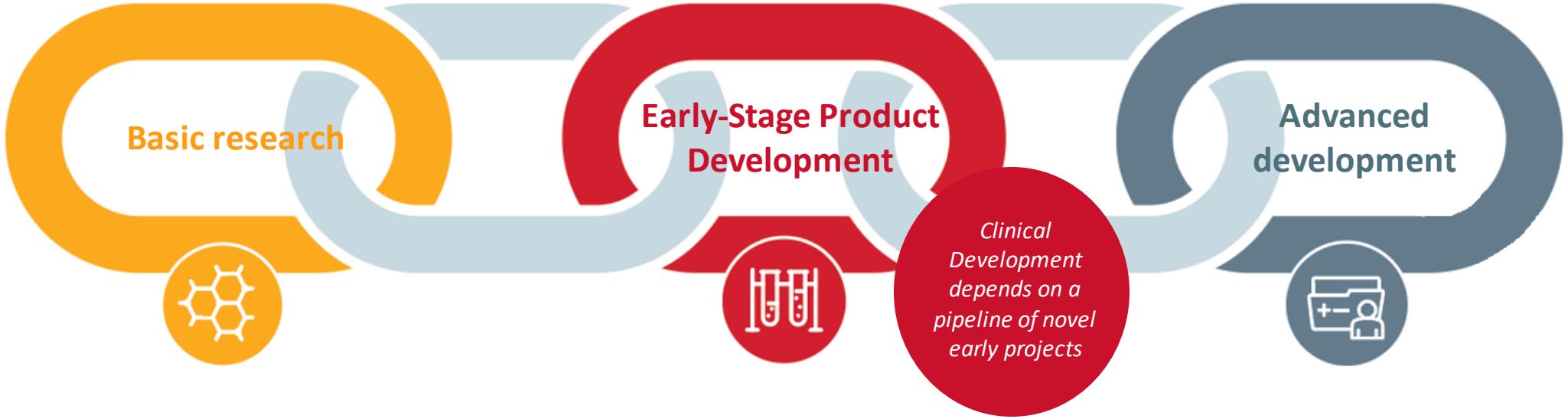
MHLW Ministry of Health, Labour and Welfare of Japan

The content of this presentation is solely the responsibility of the authors and does not necessarily represent the official views of any CARB-X funders.

CARB-X in one slide

- Accelerates translational R&D projects **into human clinical trials**
- Covers **therapeutics, preventatives and diagnostics**
- Selects R&D projects through **public funding calls** validated by external experts
- Focuses on **performance characteristics, pathogens and infectious syndromes with highest morbidity and mortality rates attributable to/associated with AMR globally**
- Requires **stewardship and access obligations**
- Provides **non-dilutive funding** plus a **multi-layered support model**
- Requires product developers to cover a **cost-share** to ensure sustainability
- Advancing most promising early-development portfolio to address drug-resistant infections, **with significant progress already**

A central and indispensable link in the AMR R&D chain



ARPA-H · wellcome · Australian Government National Health and Medical Research Council · NIH · CIHR IRSC · Swiss National Science Foundation · erc · UKRI Medical Research Council · BMBF · CIHR IRSC · Swiss National Science Foundation · CINCATE · PACE · MTP Connect MedTech and Pharma Growth Centre · nadp netherlands antibiotic development platform · C-CAMP · ENABLE-2

CARB-X
Combating Antibiotic-Resistant Bacteria

- NDBB ENABLE (closing)
- IMI AMR Accelerator (mainly TB)
- repair impact fund novo holdings (paused)
- innovative health initiative (pre-competitive)

BARDA · HERA · FIND · GARDP Global Antibiotic Research & Development Partnership · wellcome · AMR ACTION FUND · BILL & MELINDA GATES foundation · CLINTON HEALTH ACCESS INITIATIVE · IVI

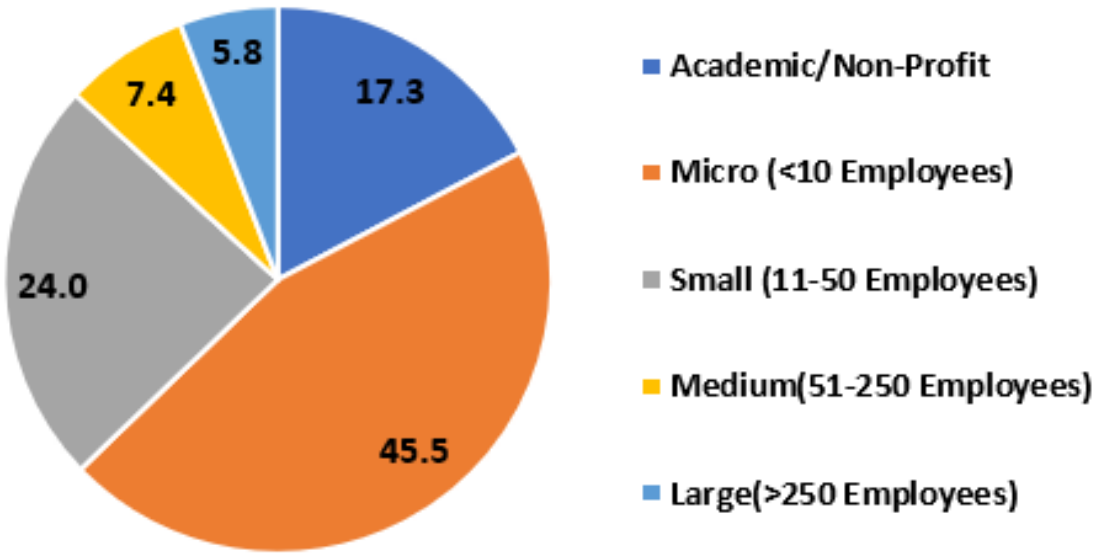
What CARB-X funds in our link of the chain

Therapeutics	Preventatives	Diagnostics
• Hit-to-Lead through First-in-Human*	• Antigen/composition discovery through First-in-Human*	• Feasibility through alpha-prototype development**

*in specific cases, may extend into a proof-of-mechanism study to best prepare for Ph2

**for diagnostics targeting the lowest levels of the healthcare system, later stages of development may be supported

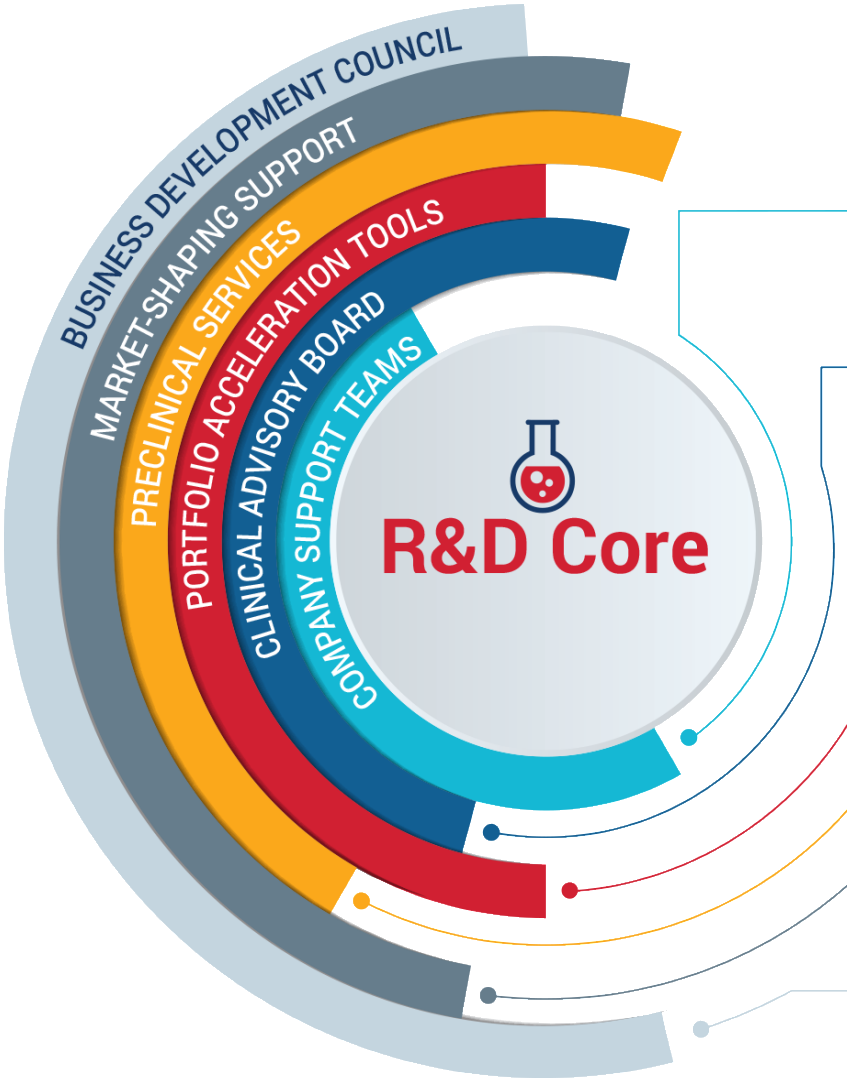
CARB-X is supporting a fragile AMR ecosystem



Source: CARB-X EOI applications (2016 – 2024)
(n = 1733)

- **Almost 1 in 2 applications are from companies with <10 employees**
  - 85.6% companies are private
  - Large companies not solely AMR focused
- **Significant attrition observed**
  - Typically have single asset/small portfolios
  - Many (37.1%) of early company applicants (2016-2019) no longer exist
- **Small groups carry risk around less breadth of discipline expertise**
  - Company support teams include technical expertise

A Comprehensive and Layered Support Model



Company Support Teams
Extensive, global subject matter expert pool across all disciplines to fill key functions in teams

Clinical Advisory Board
Regulatory strategy to build best package for intended label

Portfolio Acceleration Tools
Studies that unblock paths to benefit multiple product developers and ecosystem

Preclinical Services
Free services through the U.S. National Institute of Allergy and Infectious Diseases – including diagnostic services

Market-Shaping Support
Efficient deployment of new antibacterial products

Business Development Council
Pitch preparation and non-IPO roadshows to secure funding for advanced development

Overview of 2025 Funding Call

CARB-X funding rounds

- Multiple research themes announced simultaneously
  - Address unmet medical needs identified by CARB-X strategic review
  - Prioritized to balance investment portfolio
  - Scope and budget are approved by CARB-X funders
- Two intake dates with same funding themes
- Extensive information available online at: carb-x.org

2025 Funding Themes

Therapeutics for infections caused by Gram-negative pathogens

- Direct-acting small molecules
- IV/oral preferred
- Eligible TPPs: LRTI, UTI, diarrheal diseases

Diagnostics for typhoid fever for low-resource settings

- To support diagnosis of acute typhoid fever
- Primary healthcare level setting preferred
- Ease of use, high performance, and affordability prioritized

2025 Funding Themes (updates for Cycle 2)

Therapeutics for infections caused by Gram-negative pathogens

- Direct-acting molecules (no MW limit)
- IV/oral preferred (oral requirement modified)
- Eligible TPPs: LRTI, UTI, diarrheal diseases (largely similar but modified)

Diagnostics for typhoid fever for low-resource settings

- To support diagnosis of acute typhoid fever
- Rapid Diagnostic Test: primary healthcare level setting preferred; ease of use, high performance, and affordability prioritized; ability to detect *S. enterica* Typhi and Paratyphi
- Lab Test: diagnostics for ≥ Level 2 healthcare settings, with AST and ability to distinguish *S. enterica* Typhi vs Paratyphi

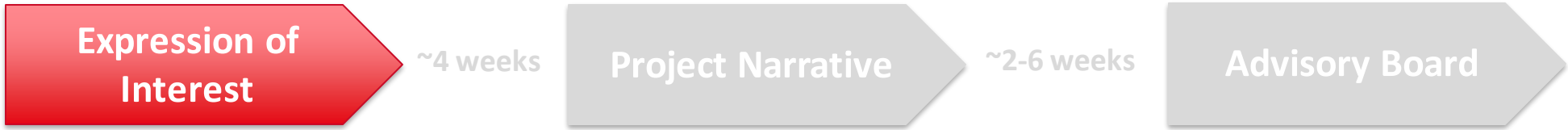
Key dates for 2025 Cycle 2

- EOI portal opens: 1 December 2025@ 10:00 ET
- EOI submission deadline: 12 December 2025 by 23:59:59 ET

- Project Narrative submission period: 5 January 2026 10:00 ET – 2 February 2026 23:59:59 ET
- Project Narrative disposition notice: 24 March 2026

- Advisory Board submission deadline: 7 April 2026
- Advisory Board presentations: April-May 2026
- Final disposition notice: 15 June 2026

CARB-X application process



- **Non-confidential Expression-of-Interest (EOI) – <u>2-week application period</u>**
  - Must be within scope of funding call (modality, pathogen, product characteristics, etc.)
  - Eligibility determined by minimal entry criteria and TPPs (posted on website)
  - Relatively short application: a few basic questions and up to ~1000 words
    - No need to describe AMR problem
  - Include as much specific data as possible to showcase your program's potential and eligibility
    - Data can be shared without release of confidential aspects

CARB-X application process

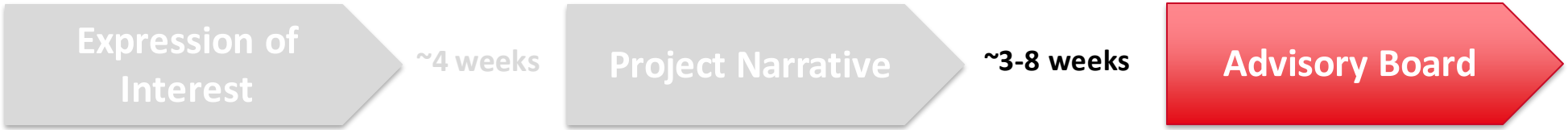
- **Written Project Narrative (under confidentiality agreement)**
  - Due approximately 4 weeks after notice of successful EOI
  - Templated application form – **follow instructions carefully** on content and length
  - Information is submitted under confidentiality agreement
    - Supporting background data: be data-rich and ensure that eligibility criteria are addressed
    - Details of proposed workplan and scientific rationale to be performed with CARB-X funding
    - Information regarding LMIC plans and enabling access
    - Details on project team and 'business structure'
    - Evidence of clinical development strategy (as appropriate to stage)
    - Quantitative milestones, TPP that aligns with call, risk register/mitigation strategies, competitive differentiation vs clinical/preclinical pipeline, and budget

Scoring Assessment

- Application process is supported by team of external reviewers
  - Pillar-specific (Tx and Dx) but crossing all relevant disciplines

- Reviewers score across six categories:
  - Severity and Size of Unmet Medical Need
  - Demonstrated Performance Characteristics versus Unmet Medical Need
  - Scientific Assessment and Technical Feasibility
  - Clinical Development Feasibility and Translation of Product to Medical Value
  - Commercial Feasibility
  - Team

CARB-X application process



- **Advisory Board presentation**
  - Virtual meeting between 3 and 8 weeks after notice of successful Project Narrative
    - Will receive invitation with pertinent details
  - Focused 15-minute presentation to Advisory Board
    - Applicant can bring up to 4 presenters
    - Specifically address the questions provided by reviewers
    - Same experts that have reviewed prior materials – no need to repeat information
      - Overview of organization, etc. is not required
  - 30-minute Q&A period

Entering CARB-X Portfolio

- Applications supported by Advisory Board are then recommended to the CARB-X Investment Committee (CIC) for a decision on whether to enter negotiations
- Successful applicants will negotiate workplans with a CARB-X Alliance Lead, incorporating feedback and suggestions from the Advisory Board
- Once contracted, a Company Support Team is built around each funded group
  - Led by Alliance Lead, includes Compliance and Finance personnel from CARB-X
  - Includes expert consultants in disciplines relevant for stage of project
  - Product Developer may request specific support from Alliance Lead
- Funded groups receive support in additional areas

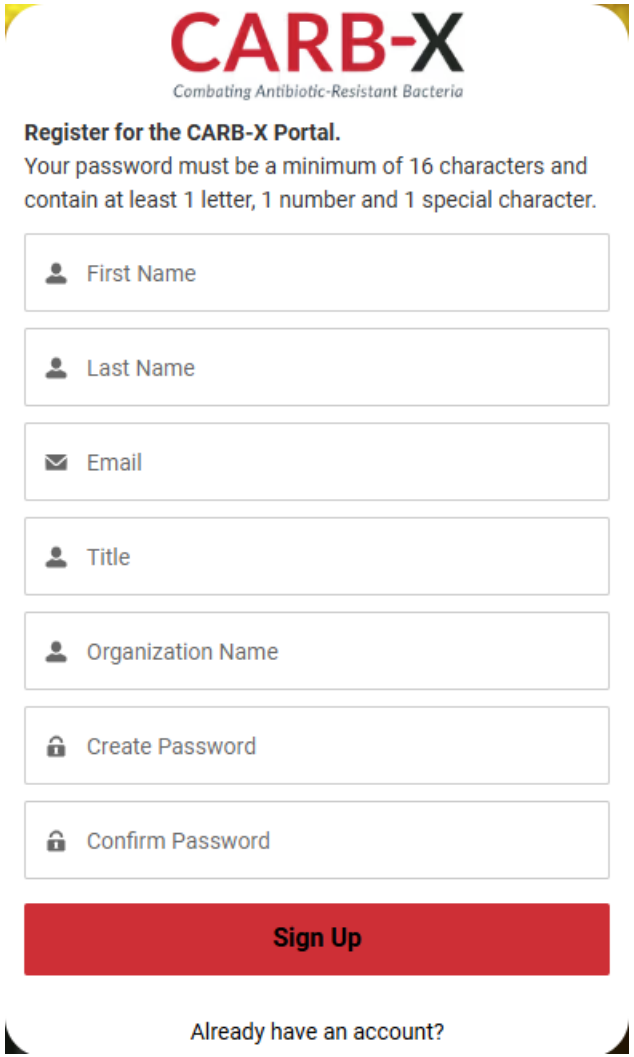
Other Key Activities During Application

- **Portfolio Company Agreement (PCA) review**
  - Engage appropriate person at your organization to review the CARB-X PCA. The terms of this agreement, including Article V that covers Stewardship and Access plus Additional Obligations, are non-negotiable.
    - Please find the most recent version of the PCA on our website: https://carb-x.org/apply/entering-portfolio/
    - The CARB-X and Wellcome Trust webinar on developing a Stewardship & Access Plan is available: https://www.youtube.com/watch?v=C5S6oD706-o
- **Research Compliance**
  - Detailed information about planned animal, human, or biospecimens experiments
- **Due Diligence**
  - High-level details regarding IP landscape
  - Full diligence on business structure, financials, and legal compliance required for contract execution

How to apply

CARB-X Portal: Registration

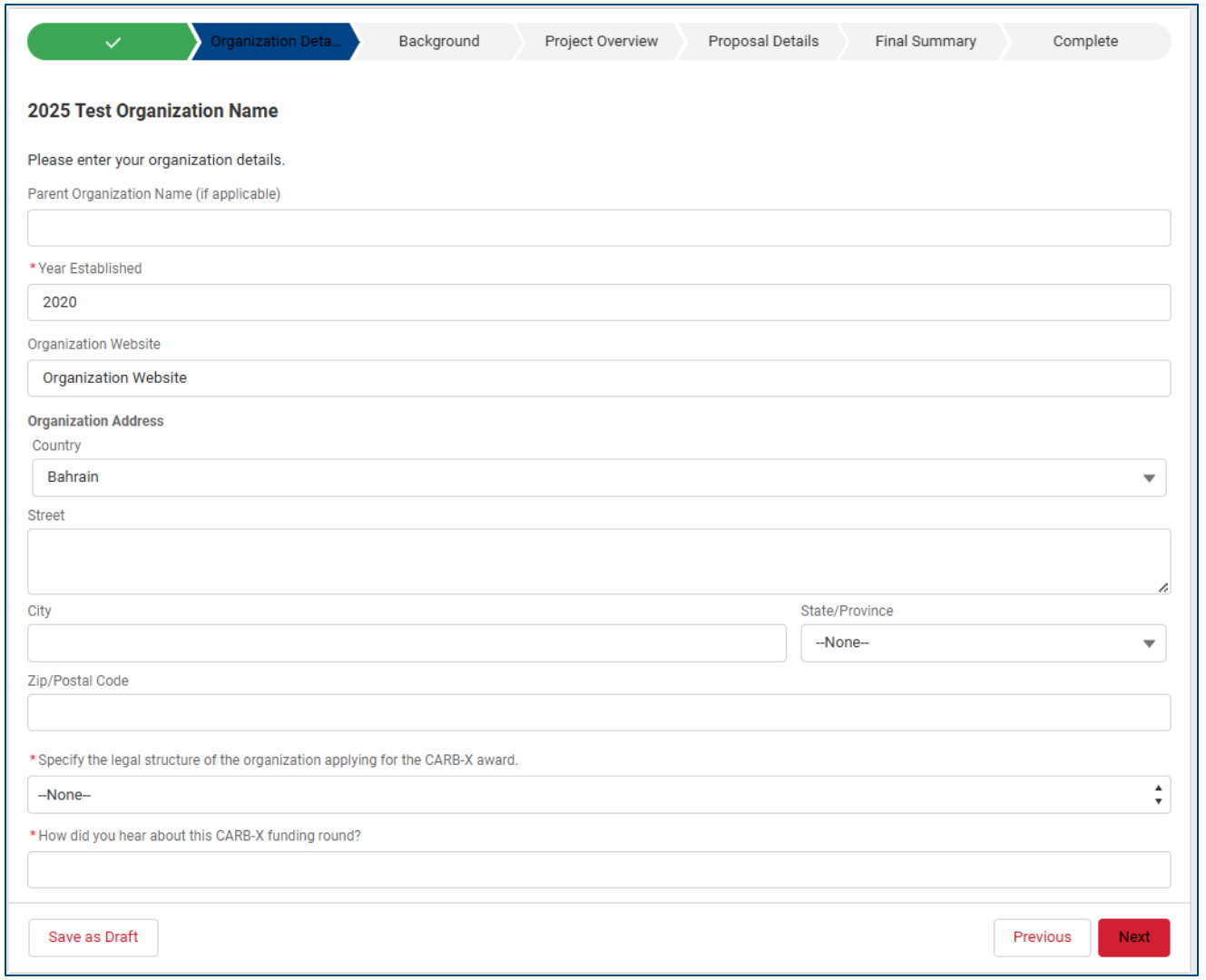
- Beginning on 1 December 10:00 ET, applicants can register in the **CARB-X Portal** and complete an Expression of Interest for either funding theme.
- You will find the link to the CARB-X Portal on our website: https://carb-x.org/apply/apply-here/
- Your login name will be the email address you registered with appended with *.carbx*
  - If you have already registered, you will receive an email with your username.
- IMPORTANT: the Portal can only support one Application Contact per EOI. Please ensure that the registrant is the person responsible for submitting your EOI. Any collaboration on content should be done outside the Portal.



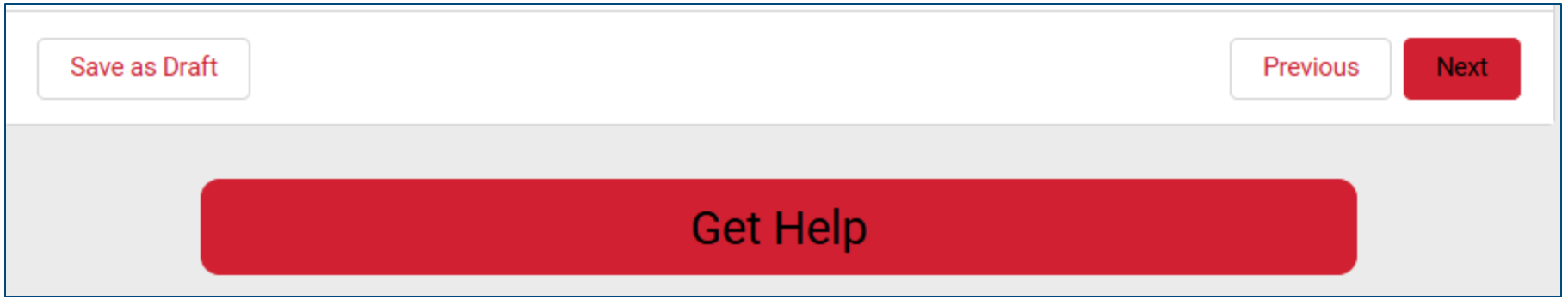
CARB-X Portal: Completing the EOI

Guides for every EOI will be available on our website: https://carb-x.org/apply/apply-here/

The EOI contains several screens with questions about your organization, your project, and your product.



CARB-X Portal: Completing the EOI



You may pause and save your draft EOI at any time by clicking the Save as Draft button and entering a pause reason. You can then resume your EOI at any time under “My Applications.”

Please note: Once you resume a paused EOI, you **must** select **Save Draft** again before exiting – **even if you make no changes**. Otherwise, the EOI you resumed will be lost.

AI Guidelines

- Applicants may use AI to help draft their applications. However, the use of AI must be disclosed and described. In your description, please include which tool(s) was used.

Tips for preparing an application

General advice

- State your product's liabilities clearly
  - Show that you understand your product's challenges, and how your proposed workplan specifically addresses those challenges
- Support all key claims with data (especially in Project Narrative)
  - Spectrum, safety, SAR trends, sample types, sensitivity and specificity, etc.
- Differentiate from existing products and competitors
  - Show awareness of other efforts and the overall landscape
  - What specific clinical value will your product offer, compared to standard of care (SOC) or competitors?

At EOI stage (non-confidential)

- Clearly address the eligibility criteria
  - Minimal Entry Criteria
  - Target Product Profile (TPP) and/or Preferred Product Characteristics (PPC)

  - FAQs document available on website

Specific examples of EOI flaws (Therapeutics)

Issue	Example	Improved
Insufficient data	Preliminary data generated with non-TPP pathogens	Preliminary data generated with minimal TPP pathogens
Insufficient data	In silico prediction of oral bioavailability	Caco-2 or animal PK data, as specified in the MEC
Out of scope	No specific molecular target (e.g., "membrane-active")	Specific molecular target named
Out of scope	Proposal for ineligible TPP, with promised future expansion	Proposal for an eligible TPP

Specific examples of EOI flaws (Diagnostics)

Issue	Example	Improved
Insufficient data	No data supplied to support pathogen/biomarker detection	Data provided (not a citation) demonstrating pathogen or biomarker detection
Insufficient data	Lack of detail on Cost of Good Sold (COGS)	Sufficient detail to determine that COGS information meets minimal entry criteria
Out of scope	Data provided does not support detection at clinically relevant levels	Data provided is compatible with detection in clinical specimens
Out of scope	Data supplied does not include target pathogen or biomarker	Data provided uses samples that include the target pathogen

At Project Narrative stage (confidential)

- Further support all key claims with data
  - Underline your product's ability to address an eligible TPP and entry criteria
  - Spectrum, safety, SAR trends, sample types, sensitivity and specificity, etc.
- Differentiate from competitors and standard of care
  - Show awareness of other efforts, the landscape, and overall project position
  - Novelty alone is not enough
- Plan should focus on the critical path for product development
  - Clearly identify your product's liabilities and how you will address them
  - Outline clear decision points; describe the data/milestones needed for these decisions
  - Team: describe your strengths/weaknesses, provide realistic plan to fill expertise gaps

Specific examples of Project Narrative flaws (Therapeutics)

Issue	Example	Improved
Insufficient data	MIC data without proof of target engagement	Engagement of specific molecular target confirmed by at least one method (biophysical, crystallographic, biochemical, or genetic), correlating with MIC
Weak data	Data provided for exemplar molecule only (at HTL/LO)	Data & structures provided for multiple molecules, illustrating SAR trend and potential
Out of scope	Workplan for ineligible TPP (e.g., ineligible spectrum or indication) with promised future expansion	Data and workplan focused on an eligible TPP

Specific examples of Project Narrative flaws (Therapeutics)

Issue	Example	Improved
Poorly defined or open-ended goals	Proposal to synthesize molecules with "improved tolerability"	Proposal states specific liabilities (e.g., hERG inhibition, receptor binding) and a specific plan/milestones to address
Unclear value proposition	Hypothesized lack of cross-resistance due to novel target/class	Data-driven differentiation vs SOC and late-stage clinical candidates

Specific examples of Project Narrative flaws (Diagnostics)

Issue	Example	Improved
Insufficient data	Written summary of results, without supporting primary data	Specific data and experimental details (sample type, number, etc.) to support claims
Insufficient data	“Sales pitch” instead of data to enable assessment of the product’s scientific/clinical value	Specific details on product’s technical feasibility (e.g., data or specific use case examples showing clinical utility)
Out of scope	Sensitivity/LoD is not at (or cannot reasonably meet) the PPC or a clinically relevant level	Sample volumes/concentration enable lower end of detection in clinical samples

Specific examples of Project Narrative flaws (Diagnostics)

Issue	Example	Improved
Unclear value proposition/Out of Scope	Workflow/instrumentation too complex, time-consuming, or expensive for clinical use and/or commercialization	Detailed plan to adapt technology (including instrument, workflow, and price) for the intended clinical setting
Weak workplan	Vague workplan does not identify or focus on critical path to achieve priority product characteristics (PPC)	Detailed plan for critical-path activities, decision points, and measurable criteria to de-risk and advance product development towards the minimum PPC

Specific examples of common flaws (Project Narrative stage)

Issue	Example	Improved
Team capabilities	Reliance on unspecified/unproven partners (esp. if outsourced)	Team (incl. outsourced work) has established and effective workflow
Timeline	Implausibly short or long	Timeline reflects an ambitious but realistic effort focused on critical-path milestones
IP position unclear	Competing effort cited without addressing IP	IP position stated clearly relative to competitors, including FTO results
Weak competitive matrix	Too-narrow set of competitors (e.g., proposal only lists competitors with same modality)	Includes multiple and most-relevant competing products (preclinical and clinical)

Specific common flaws (Project Narrative stage)

Issue	Example	Improved
Weak risk register	Includes few or only short-term risks, or lacking effective mitigation strategies	Includes near-term and later-stage risks (e.g., COGs) as well as appropriate timing for risk mitigation
Weak milestones	Go/NoGo criteria are vague and/or do not reflect the TPP and critical path	Quantitative Go/NoGo criteria that clearly support critical decision points

Final thoughts

- Data, Data, Data
  - If key data are missing, it is impossible for CARB-X to assess the proposal.
  - Pay particular attention to stated product requirements and minimal entry criteria.

- Never too early to think how your product will be used in the patient journey
  - What product details (TPP/PPC) will bring meaningful differentiation to clinicians?
  - What experiments will emphasize/demonstrate key product characteristics?
  - How will you perform your clinical development (patient populations, etc.)?

- Demonstrate that you understand product development
  - Be scientifically critical and transparent/realistic about program challenges.
  - Important to work alongside CARB-X as a collaborator to solve problems.


Q&A