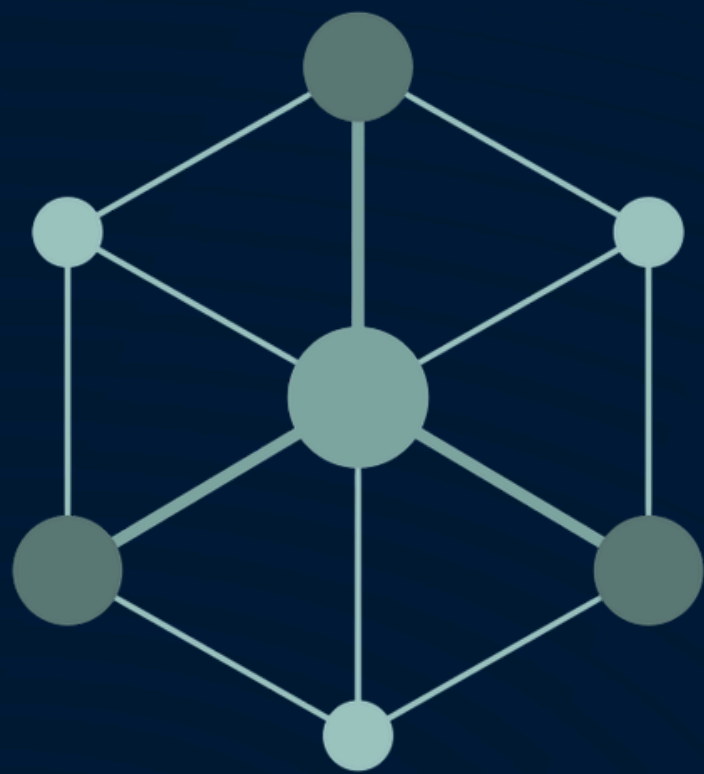




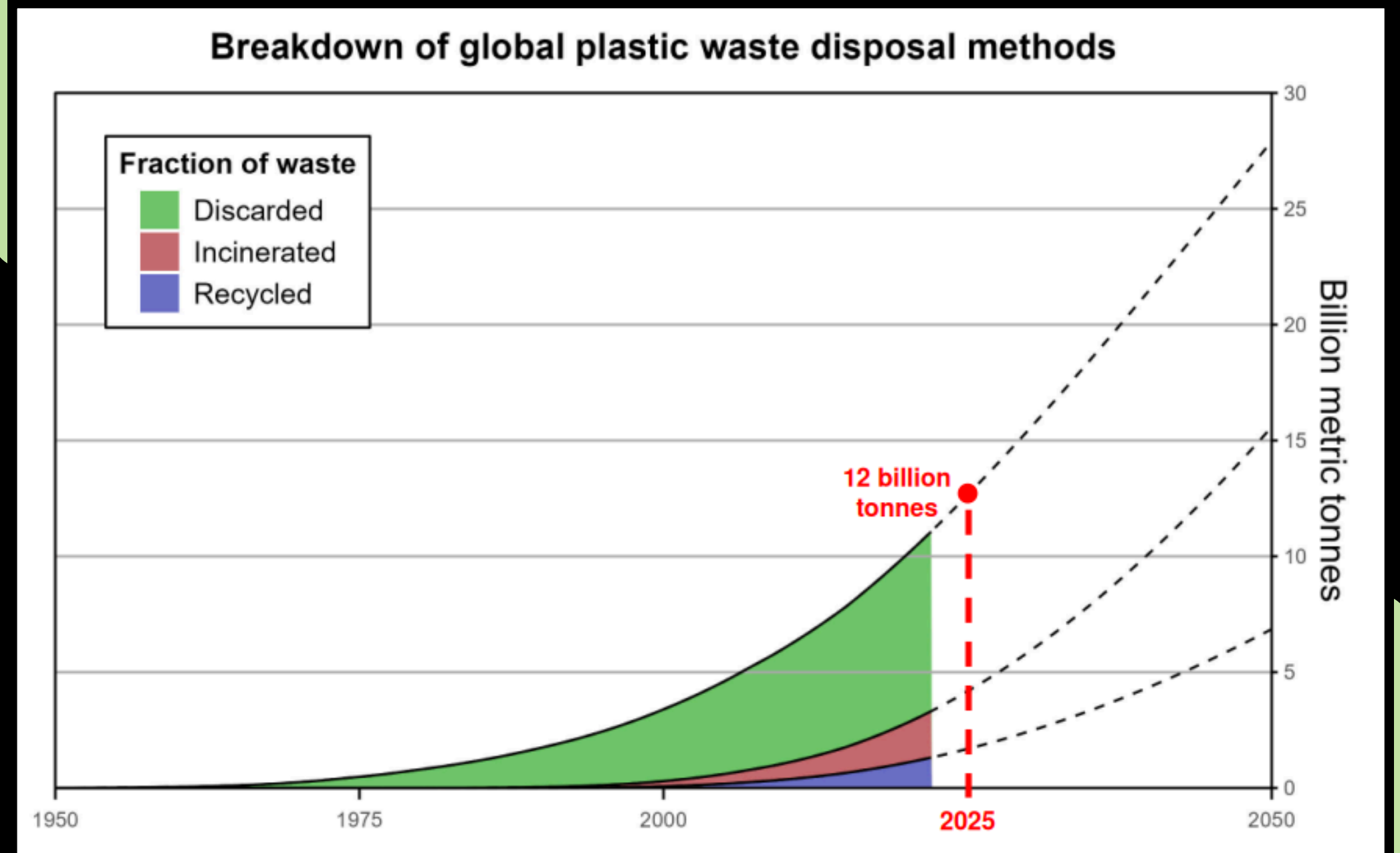
PetaBite

Delivering Tailored Microplastic
Degradation Solutions



Plastics are
everywhere.

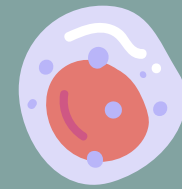
***≈ 400 Million
Tonnes
Produced
Each year.***



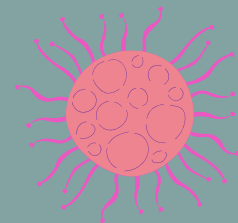
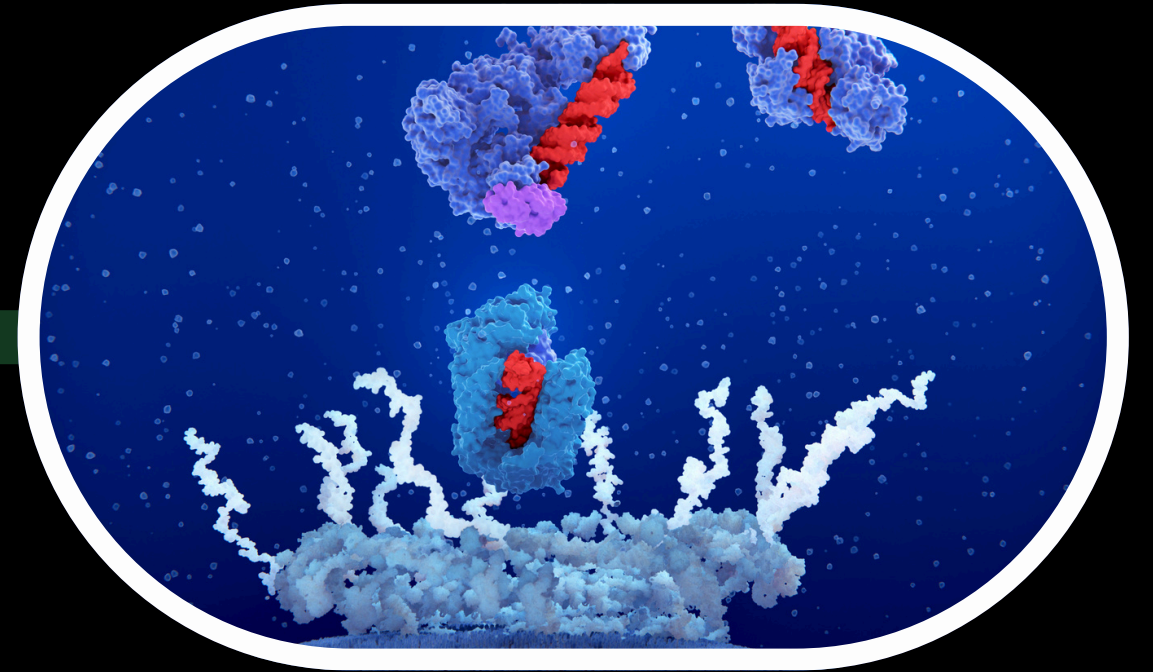
Microplastics

Damage

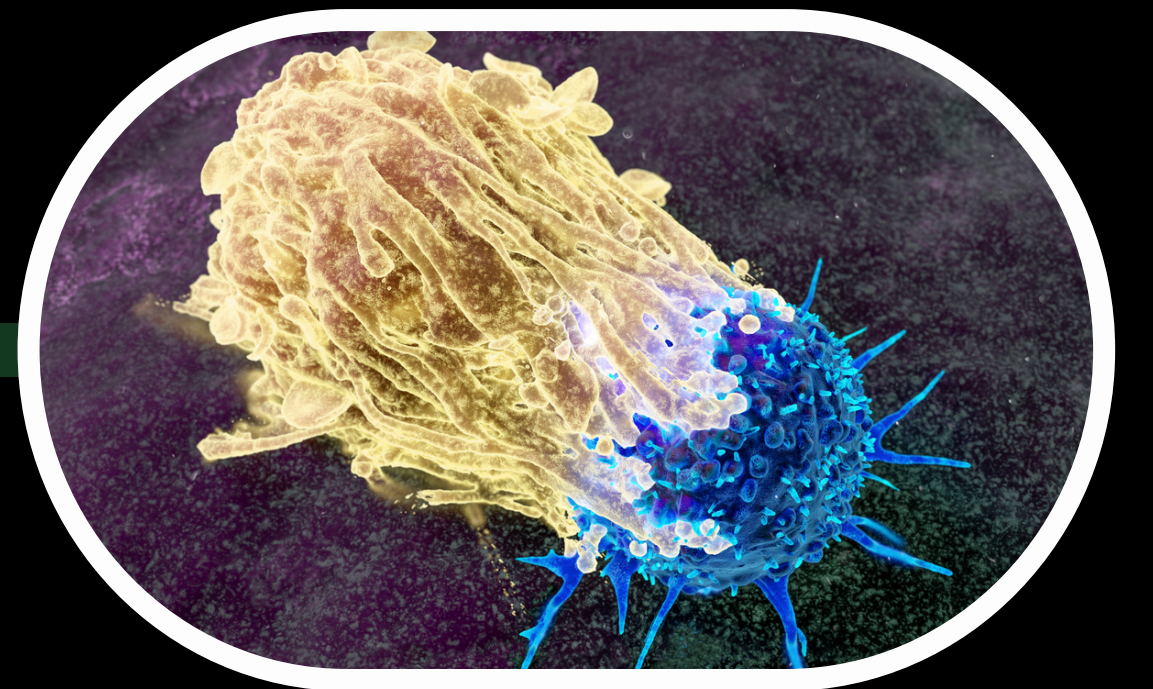
Human Health



Cell Damage



Cancer



The Economic **Burden**

≈\$19B

In Annual Losses



Food Security

Crop yield and supply chain disruption



Public Health

Toxin exposure and contamination



Environmental Cleanup

Remediation costs and ecosystem degradation

Plastic Production is Projected to Grow



Production Increase

Plastic production is expected to balloon from 435 Mt to 736 Mt by 2040



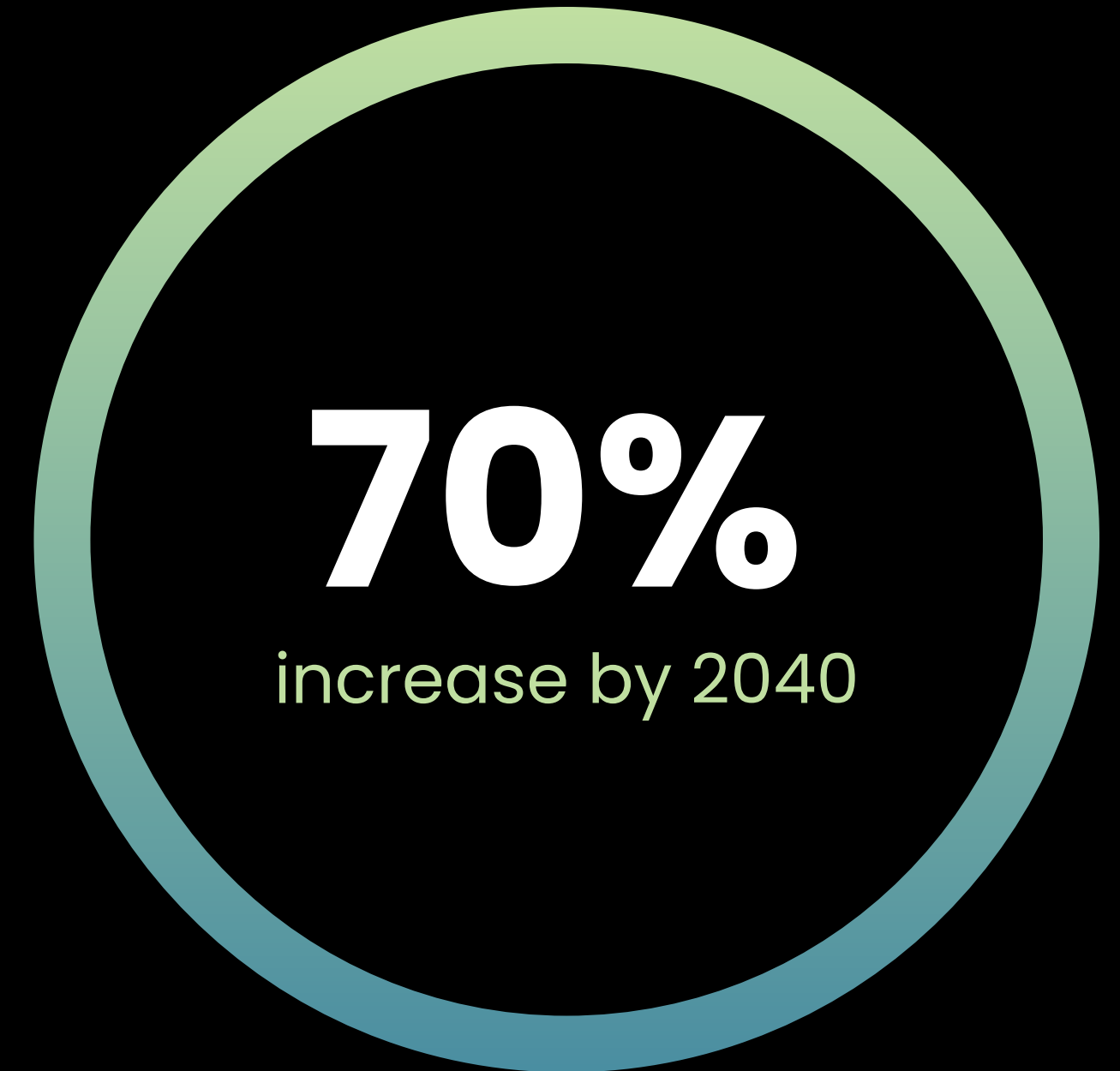
Mismanaged Plastic Waste

Expected to increase nearly 70% by 2040

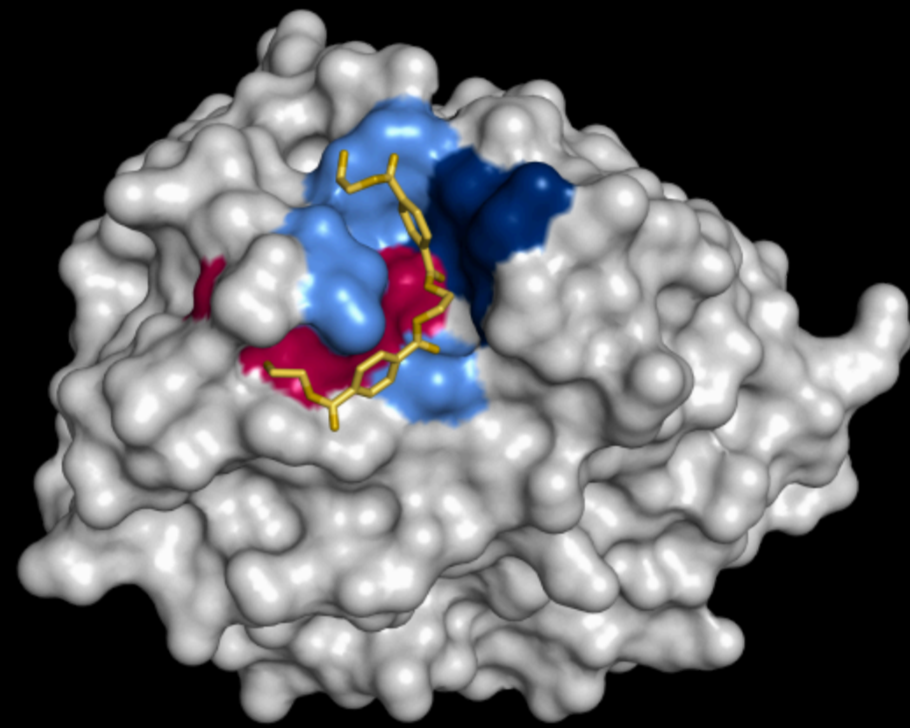


Rising Government Pressure

Ex. Canada's 2030 sustainability targets are driving urgent action on microplastic pollution.



Organisation for Economic Cooperation (OECD).

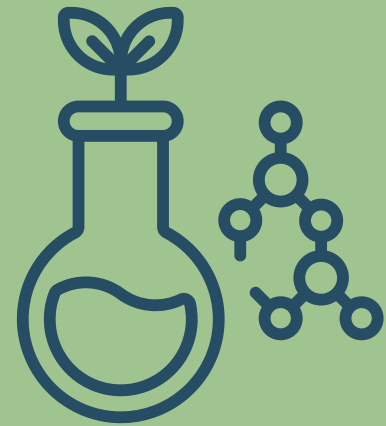


3D PETase Model

Our Solution:
Engineered
Plastic-Degrading
Enzymes (PETases)

Current PETases

Have **MAJOR** Industry Limitations



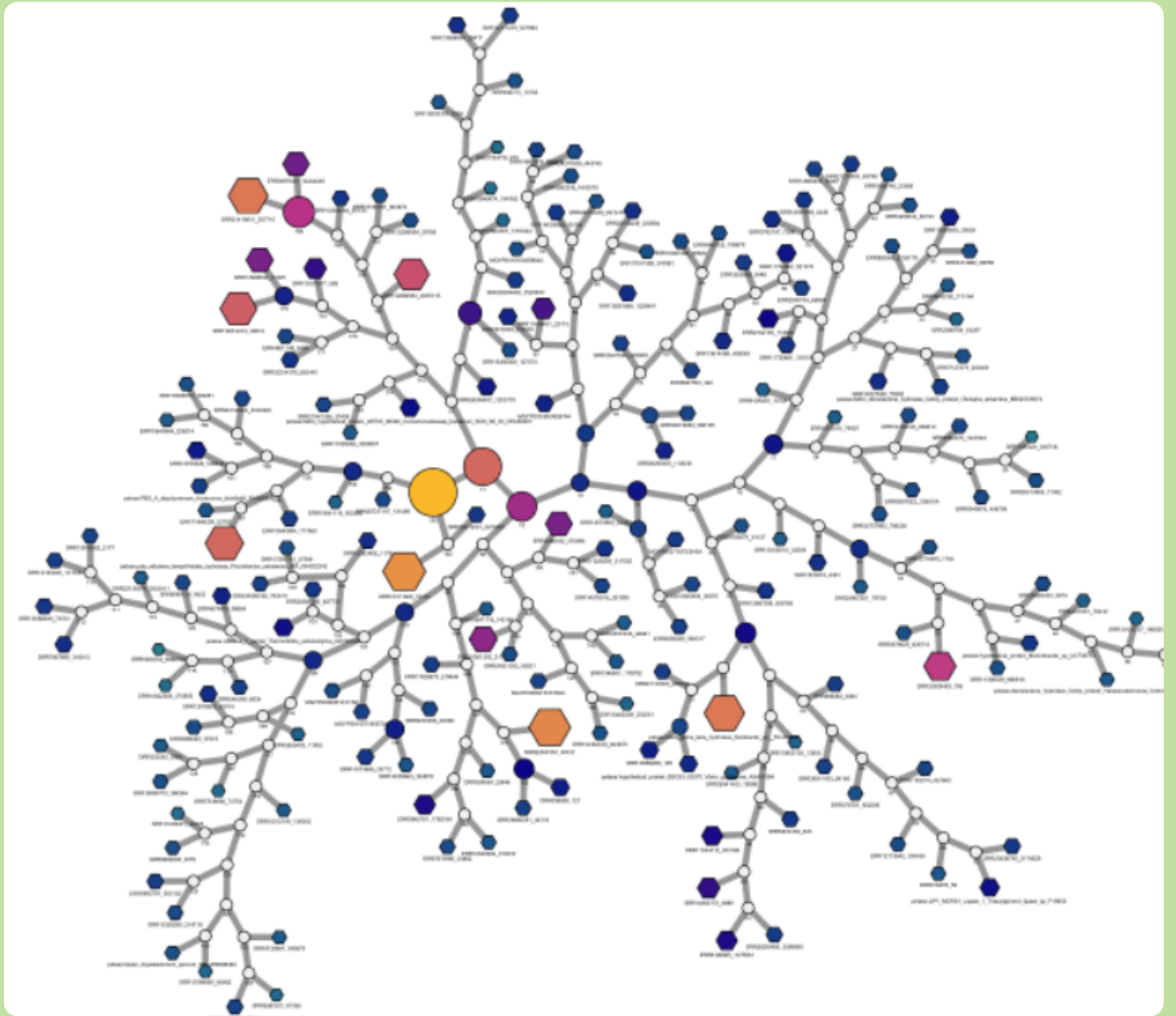
**Operate at very specific
temperatures, pH,
controlled conditions**

**Unable to function in real-
world environments and
industry applications**



LOGAN Index

*A planetary sequence
search that discovers novel
PETases*



Phylogenetic tree of the **plastic
degrading enzyme** candidates

Without LOGAN:
495 enzymes*

WITH
LOGAN:
**300
MILLION
ENZYMES**

Sample Metadata

Geographic distribution of plastic-degrading enzyme discovery sites

Total Samples

394

Countries

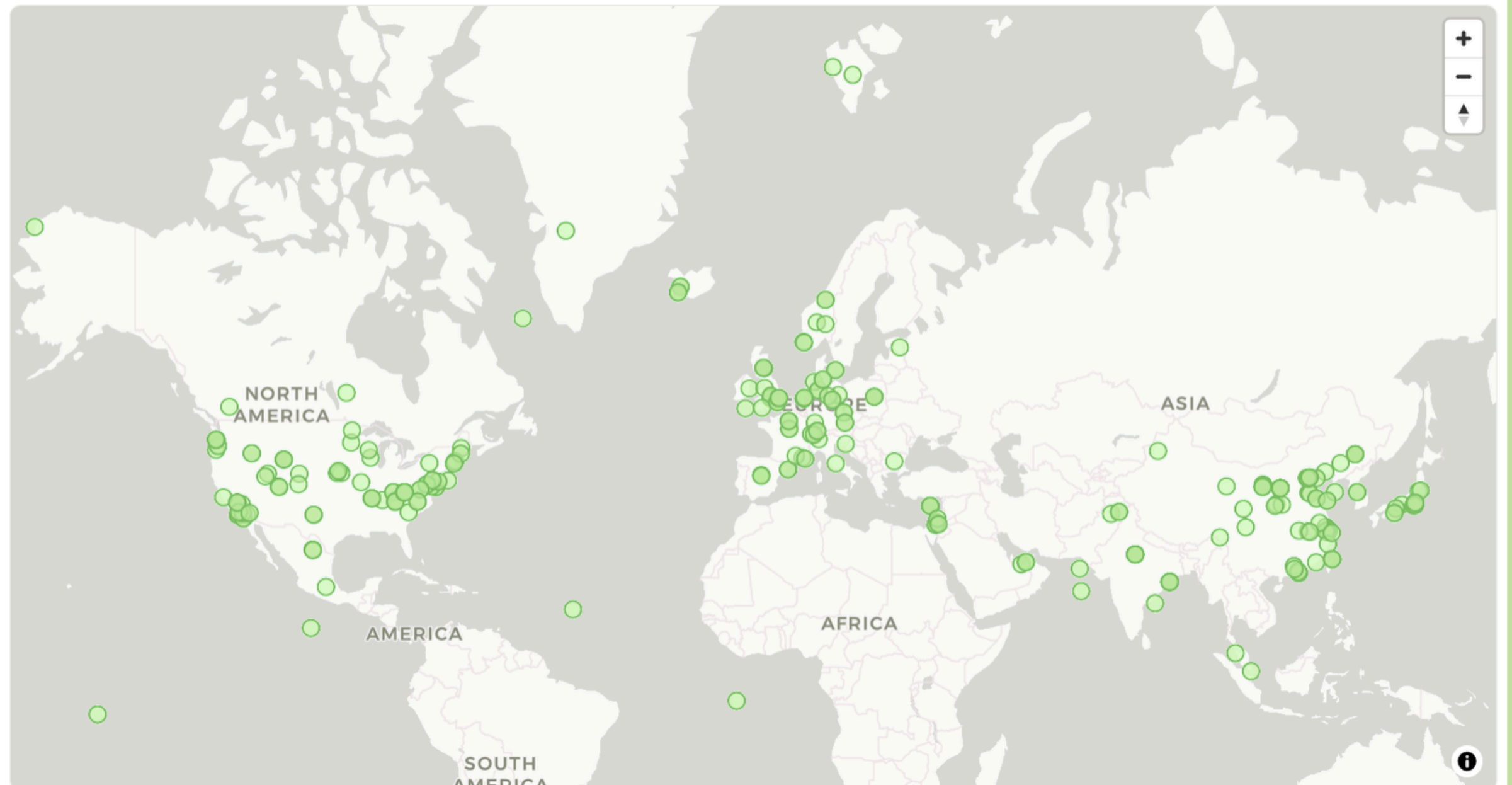
28

Continents

6

Biomes

11



**Science, 2025*

The PETadex

OPEN · FREE · COMMUNITY-DRIVEN

Every plastic-degrading enzyme, in one atlas.

1.3 billion unique sequences. 64,730 enzyme families. 350+ characterized PETases. One interface to search, align, compare substrates, and trace evolution.

Start exploring →

How to cite

v0.4 · April 2026

α/β hydrolase

DD-peptidase

Amidase

Trypsin-like

Arylesterase

Cupredoxin

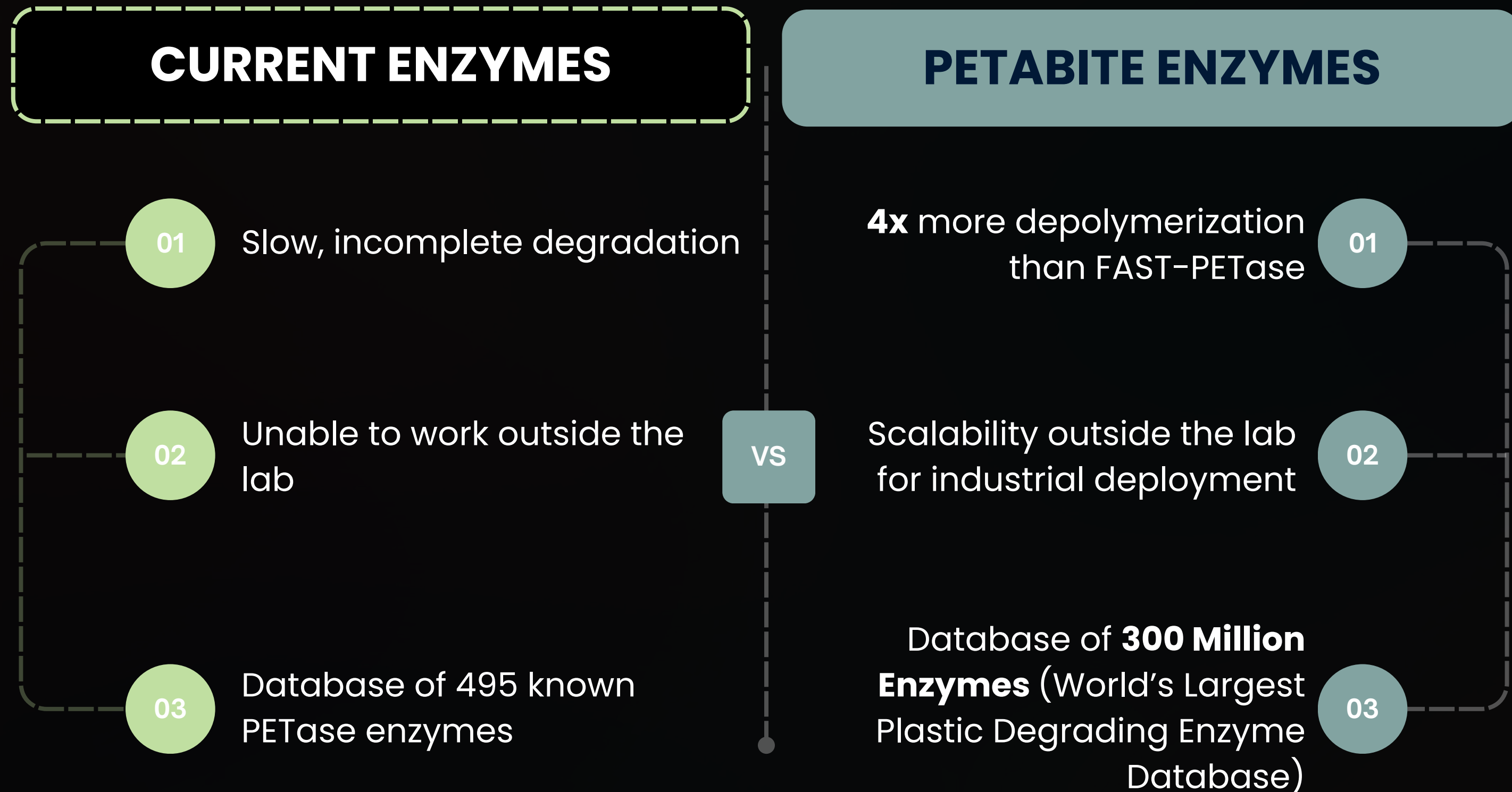
L-aa peptidase

To explore the PETadex, please visit:

PETADEX.NET

Our PETases

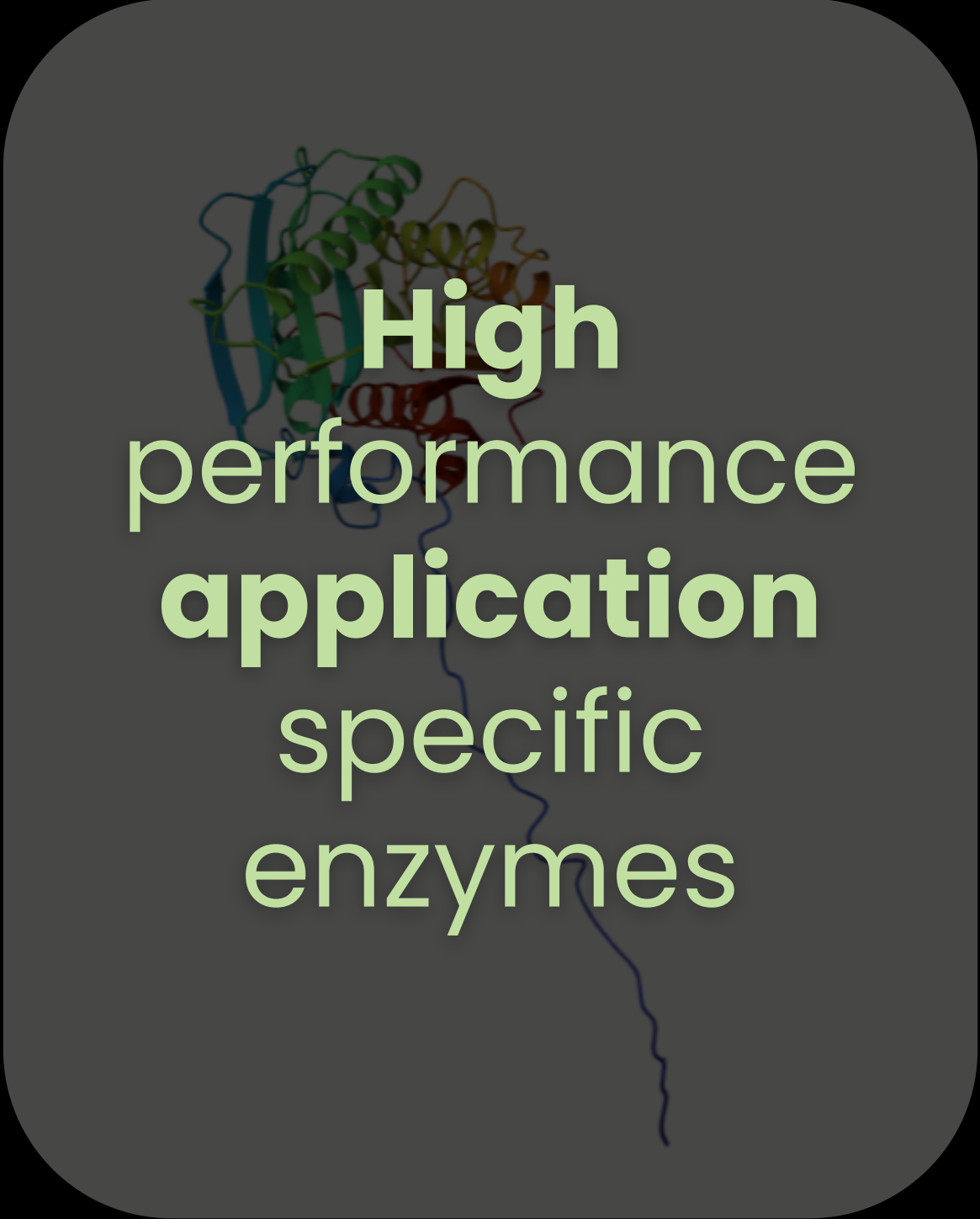
OUTPERFORM the current **lab standard** 'FAST-PETase' in **Plastic Degradation**



All in One Enzyme Platform



**Growing
Dataset**

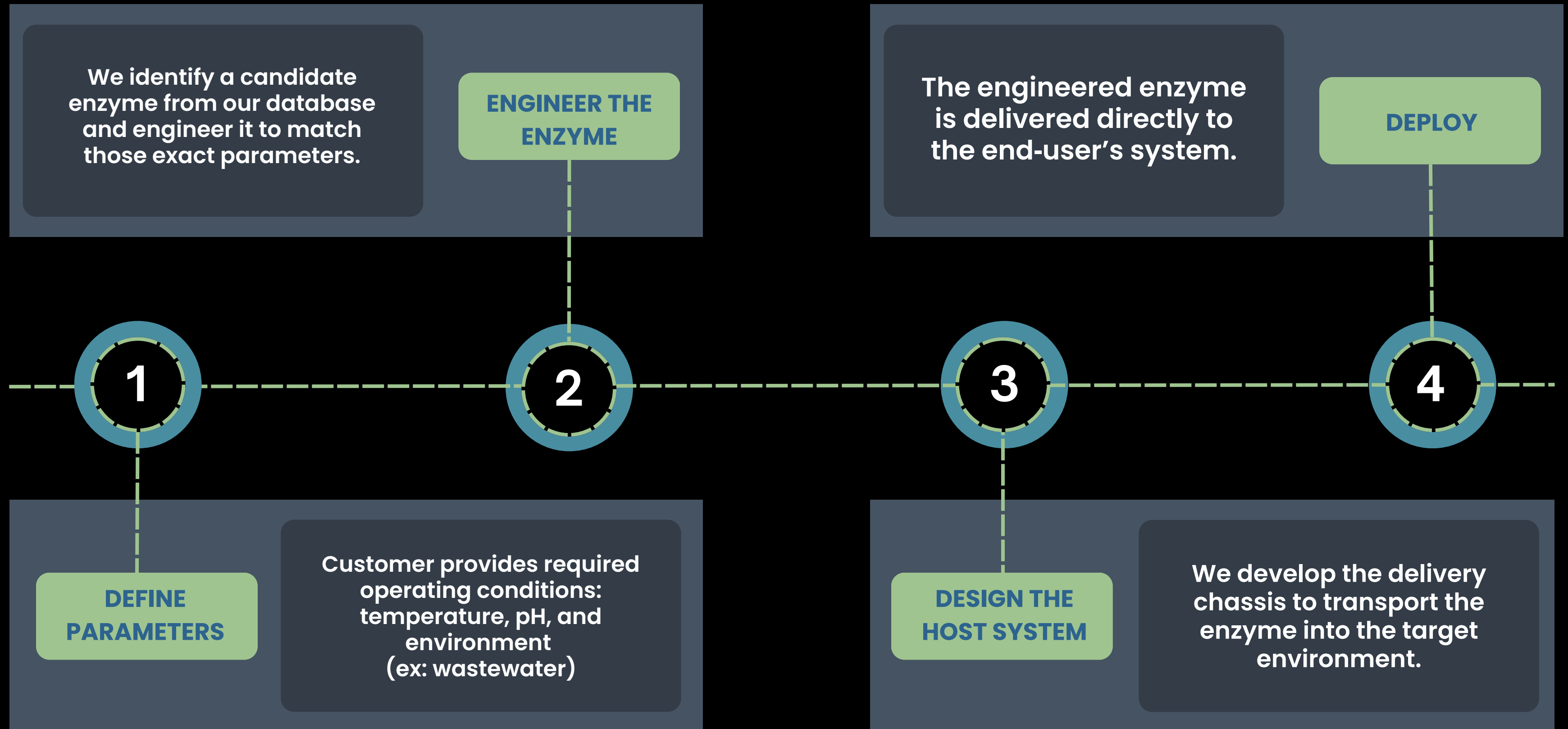


**High
performance
application
specific
enzymes**



**Product-
Market Fit**
validated with
WWTPs across
3 provinces

The Operational Pipeline



Development Pipeline

Each phase unlocks a distinct market

PHASE 1



PET Degradation

Enzymatic PET degradation across wastewater and bioremediation systems.

TAM: 63.4B

PHASE 2



All Polymer Degradation

Enzymes capable of degrading every major plastic polymer in the listed use-cases.

TAM: ≈145B

PHASE 3



Upcycling

Convert degraded plastic monomers into new biodegradable materials.

TAM: ≈22B

Team

Benjamin Outar



Economics

Business Development and
R&D Strategy

Anthony Dinglasan



**Applied Genetics &
Biotechnology + Immunology**

Go-to-Market Strategy and
Operations. DWRG and R.L.
Clark Water Facility Researcher

Noorine Jaffery



**Biochemistry + Molecular
Genetics & Microbiology**

Wet-Lab Design and R&D
Strategy

Isabella Sobec



**Applied Genetics & Biotechnology +
Cellular & Molecular Biology +
French Languages**

Experimental Design, Outreach, and
R&D Strategy

Advisors from:



**INSTITUT
PASTEUR**

Drinking Water Research Group

University of Toronto, Toronto, Ontario



VECTOR INSTITUTE



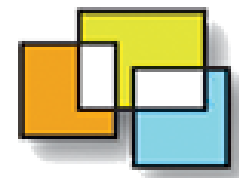
The Laboratory for

**RNA-Based
Lifeforms**

<https://RNAlab.ca> | @RNA_Life



Supporting Labs and Institutions:



Donnelly Centre

for **Cellular** + **Biomolecular** Research

UNIVERSITY OF TORONTO



Institute of Biomedical Engineering

UNIVERSITY OF TORONTO



UNIVERSITY OF TORONTO
FACULTY OF ARTS & SCIENCE



UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING



iGEMTO

***AI-powered, PET microplastic
degradation to scale to industry.***

Appendix:

PRODUCT-MARKET FIT INTERVIEWS

FEEDBACK ON DEPLOYMENT



PROF. GRANT ALLEN
FORMER CHAIR OF THE
CHEMICAL INSTITUTE OF CANADA

Emphasized that enzymes
can be deployed directly
into WWTP secondary
clarifiers for targeted PET
breakdown.

FEEDBACK ON PRODUCT-MARKET FIT



DR. RASHA MAAL-BARED
WASTEWATER TREATMENT
SPECIALIST AT EPCOR

Highlighted that reducing
microplastics in WWTPs
extends membrane lifespan
and improves internal
filtration performance

FEEDBACK ON ENZYME VERTICALS



DR. SYED SHAMS YAZDANI
GROUP LEADER OF MICROBIAL
ENGINEERING AT ICGEB

Emphasized verticals
beyond WWTP such as
disposal, detergents, landfill
leachate.

PetaBite PETase Verticals of Deployment

01

Waste-water Treatment Plants

PETase deployed in clarifiers to break down concentrated PET in biosolid sludge. *Use-case validated with WWTP operators and research specialists.*

02

Textile Pellet Bioremediation

Targets PET pellets released in textile processing before they enter waterways.

03

Detergents

Breaks down PET microfibers shed during washing to reduce household discharge.

04

Landfill Leachate Bioremediation

Degrades PET in leachate streams, reducing climate pollution from landfills. *Use-case validated with research specialists.*

05

Degreasers

Breaks down PET trapped in oily industrial waste streams.

TAM Analysis

Phase 1

PET Degradation

Parent category proxied from the global water-treatment chemicals market, derived top-down from the total water/wastewater treatment technologies market multiplied by the chemicals segment. Note, TAM not yet filtered to microplastic specific treatment.

Phase 2

Multi-Polymer Degradation

Applying the same parent-category logic as Phase 1, multi-polymer degradation expands beyond WWTP/water into the global environmental remediation market; a broader budget pool rather than bioremediation-specific demand.

Phase 3

Circular Materials (Upcycling)

Largely sperate market to phase 1 and 2, but similar methodology of parent market used, with bioplastic/biodegradable materials market. Although smaller than earlier phases, places PetaBite at an additional step in the value chain.