

## [The Problem that is Ultimately Leaving Humanity in the Dark and Virtually Defenseless](#)

- Technology has not existed to directly obtain drug-like chemistry of unculturable microbes creating a 99% vulnerability to pandemics, ARB (99% of microbes can't be grown in labs).
- Evolved and preoptimized small molecules are perfect starting points for future cures as they are drug-like and work in organisms. All other methods to obtain the secrets of microbes relies on indirect-omics and though these tools are exceptional, these tools have failed to deliver or uncover nature's hidden secrets of cell to cell signaling (therapeutics, products).

## [Biosortia's Breakthrough Technologies Directly Harvests & Mines Microbiomes for Discovery](#)

- Obtaining high quality and quantity of natural microbiomes, deconvoluting, then presenting previously hidden and unknown microbial small molecules into highly refined mixtures or isolated compounds for screening in a rapid cascading approach. Filling major data gaps.

## [Opportunities to Rapidly and Efficiently Advance Research for Solving Humanity's Challenges](#)

- Biologically preoptimized small molecules to hit assays for new drug (other) starting points.

# Moore's Law Opportunity in Life Sciences with the Doubling of New Natural, Biologically Relevant Small-Molecules Every 18 Months

| Technology Readiness Level  | 1                                   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
|-----------------------------|-------------------------------------|---|---|---|---|---|---|---|---|--|
| Scale Microbiome Harvesting | Ready to Deploy – Unique Capability |   |   |   |   |   |   |   |   |  |
| Microbiome Mining Factory   | Ready to Build – Unique Capability  |   |   |   |   |   |   |   |   |  |



## Ready to Execute: [New Tools of Discovery, Industrial Scale](#)

- The ability to harvest a microbiome at scale and maintain integrity of the natural state is fully developed, proven, & environmentally friendly. One million Grams Dry Wt. Typical.

## Ready to Build: [Industrial Scale Deconvolution, MMF](#)

- Microbiome mining factory can handle batch minimum of 50,000 grams dry wt. of microbiome: extractions, fractionating, and presenting molecules for testing and discovery.

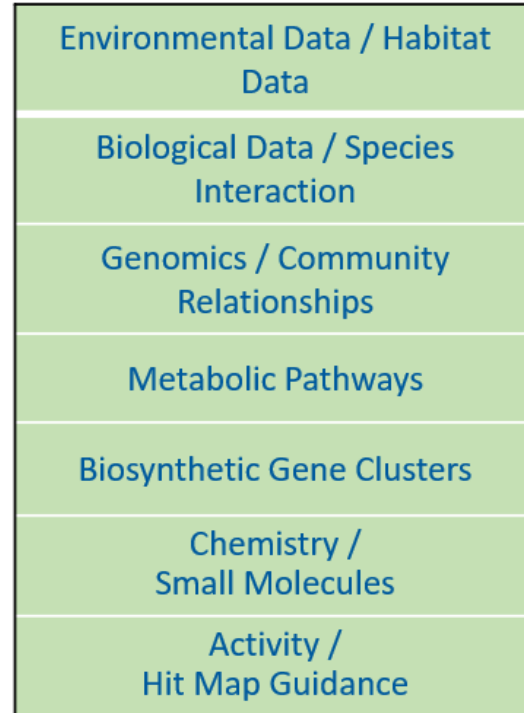
## Future Realities: [Microbiome Mining will Complete Critical Missing Data Sets](#)

- Microbiome mining fills in massive critical datasets with chemistry & activities while creating critically needed new drug opportunities. Genomics, Combinatorial Chemistry, Synthetic Biology, and Computational Biology currently are virtually blind to the chemistry in biology but, will be valuable tools combined with Biosortia's direct technologies for Microbiomics.

# New Microbiome Mining Tools Along with Existing Tools Accelerates the Advancement of Microbiomics Impacting all Segments of Life

Microbial Molecules  
are sought for:

- Markers & modulators
- Inhibitors & promoters
- Agonists & antagonists
- Cytokines & checkpoints
- Anti-infectives, antibiotic, antiviral, & anticancer
- AI, analytics to indirect omics understanding
- Pesticides & herbicides
- Other purposes



Impact on Humanity with  
New Discoveries:

- HHS, NIH, CDC, NCI
- Agriculture, USDA
- Defense, DOD, DARPA
- Interior, EPA, IA
- Energy, DOE, ARPA-E
- Homeland Security, DHS
- Commerce
- Education, DOE
- Transportation, DOT
- Other, NSF, CPSC

# Aquatic Microbiome Mining as Surrogates to all Microbiomes to Accelerate & Efficiently Discover Critically Needed New Products



Near Shore Mobile Aquatic Harvester – **Fully Developed**



Microbiome Mining Factory - **Industrial Scale. Off the Shelf**



Marine Harvester – **Planning Stages**



## Pharmaceutical

New Product Leads  
Increase Efficiency  
Reduce Cost & Time  
Market\* = ~1.3 T



## Biotech

New Product Leads  
Increase Efficiency  
Reduce Cost & Time  
Market\* = ~ 100 B



## Agriculture / Food

New Products  
Increase Efficiency  
Reduce Cost & Time  
Market\* = ~ 1.0 T



## Cosmetics

New Products  
Increase Efficiency  
Reduce Cost & Time  
Market\* = ~ 50 B



## General Chemistry

New Product Leads  
Increase Efficiency  
Reduce Cost & Time  
Market\* = ~ 4.0 T

**Creation of Products, Database & Intellectual Property**