

Seeking fermentation technologies in the biomaterial and bioplastic spaces, and technologies in the bio-based pigments or plastic additive spaces

Ourobio is a young synthetic biology, biomaterials, and circular economy company. We develop fermentation technologies to turn industrial byproducts into biomaterials and work with brands to identify biomaterial blends best-suited for their intended use. Our microbes are unique in their ability to non-competitively produce two complementary biomaterials in a single fermentation process. Initially, our proprietary strains are being engineered to use dairy industry byproducts to co-produce a class of naturally-occurring biodegradable plastic alternatives called polyhydroxyalkanoates (PHAs) and non-toxic, bio-based pigments. Each of these products individually provides a safe, healthy alternative and presents a measurable reduction in emissions and environmental toxicity relative to its synthetic counterpart. By producing both a bio-based colorant and PHA resin simultaneously, our approach simplifies the value chain to offer additional cost, energy, and water use reduction compared to traditional plastic dyeing methods.

R&D challenges and priority areas:

- High-yield production of polyhydroxyalkanoates or other biopolymers from waste-based feedstocks
- New low-sterility fermentation methods that utilize extremophiles to produce PHAs or other value-added products
- Production of plastic additive molecules (i.e. plasticizers, pigments, impact modifiers) using fermentation
- Improved utilization of lactose (from whey) for the production of valuable bio-based materials and chemicals



Specific opportunities and approaches of interest:

We are looking for fermentation technologies in the biomaterial and bioplastic spaces, alongside technologies in the bio-based pigments or plastic additive spaces. Approaches that utilize waste to accomplish these tasks are of specific interest. Otherwise, we are generally agnostic of the particular fermentation method used to accomplish this. Additionally, methods that can utilize aqueous-based methods to extract and purify biopolymers and other bio-based plastic additives are of specific importance and interest.

Out-of-scope:

Methods to synthesize bio-based plastic additives or materials that do not utilize fermentation or a combined fermentation and chemical approach are generally out of scope for our research needs. Extraction and purification methods that utilize chemical solvents are generally out of scope for our production needs.

Stages of development preferred

A minimum of TRL 5-6 is preferred for any licensable technology. Ideally, we would like to see the technology at a TRL of 6-7.

Types of collaboration preferred:

We would like to license or develop a collaborative development agreement to pilot the technology using our waste streams, or introduce our co-production approach.

[SUBMIT OPPORTUNITIES](#)

