

Checkerspot WING™ Platform uses Geneious Prime to Design Bespoke, High-Performance Sustainable Materials, Starting at the Molecular Level

Checkerspot is a high-performance materials company that uses biotechnology to design sustainable materials starting at the molecular level.

Using Microalgae to biomanufacture polymer feedstocks for next-generation polyurethanes (PUs), the company is helping replace petroleum-based PUs in consumer goods like skis and those used in textile coatings and finishes.

Checkerspot's mission is to develop more sustainable materials while advancing environmental stewardship. Fabricators and designers use the created structural oils to improve product performance while avoiding the environmental impact of extracting and refining petroleum and other fossil fuels.

In 2019, Checkerspot demonstrated the usefulness of this technology by launching WNDR Alpine, their outdoor consumer brand that initially prototyped the materials into high performance, sustainable backcountry skis. They used biomanufacturing technology to replace petroleum-based



"Small changes can have massive impacts, and we think changing the materials that are in products is a great place to start."

Checkerspot CEO Charles Dimmler

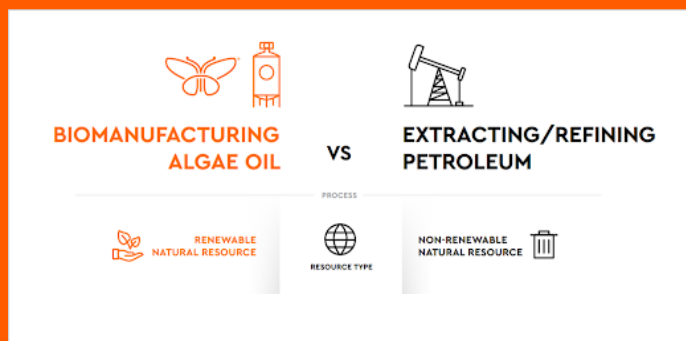
"Biomanufacturing unlocks the potential to create and commercialize new molecular building blocks for better-performing products."

*—Charles Dimmler, CEO and Co-Founder
Checkerspot, Inc.*



“Our Vision is one of empowerment: to deliver unique, inspiring technologies and materials into the creative hands of fabricators and designers, the makers that conceive the next generation of high-performance products.”

—Leon Parker, PhD, Vice President
of Molecular Biology & Strain Improvement,
Checkerspot, Inc.



plastics in skis, using a lightweight urethane-based composite (Algal Core) and a cast urethane (Algal Wall). The microalgae derived materials developed by Checkerspot’s WING™ Platform technology outperform traditional petroleum-based plastics. In 2020, WNDR Alpine was recognized for its superior performance and awarded Fast Company’s Innovation by Design Award in the Sports and Recreation category.

Checkerspot’s innovative materials have also attracted the attention of Gore, a leading manufacturer of high-performance materials and the makers of Gore-Tex. The partnership between Checkerspot and Gore, featured in Forbes Magazine, will explore how to make custom oils using synthetic biology for improving the performance of Gore-Tex clothing.

Geneious Prime: Facilitating Biotechnology Solutions

The comprehensive suite of molecular biology and sequence analysis tools provided by Geneious Prime are integral to the discovery, understanding, and use of new materials at the molecular level at Checkerspot.

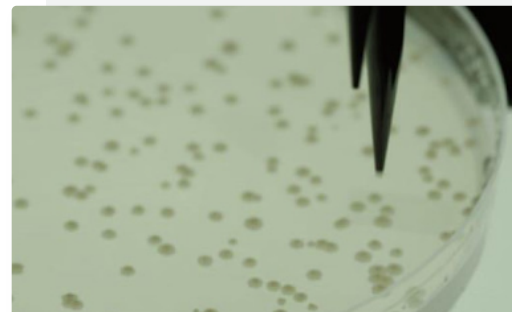
Geneious supports data from a variety of different biological origins including genomic DNA and RNA generated in-house, as well as publicly available data from DNA and protein databases. Additionally, Geneious provides a variety of different tools for assembly, alignment, relatedness, BLAST, annotation, and gene expression. This diverse functionality makes it a convenient centralized location to host the types of data and launch the different analyses that are required for Checkerspot to get more from their biological system.



Skis made with oil derived from microalgae

“There is a clear desire across multiple industries to utilize more sustainable inputs in the production of consumer goods and to reduce dependence on fossil fuels, especially in light of the growing impacts of climate change.”

—Charles Dimmler, CEO and Co-Founder,
Checkerspot, Inc.



Growing microalgae in the lab

"I have been using Geneious Prime since 2011 and always found it to be an excellent platform for the analysis and visualization of bioinformatics data."

—Leon Parker, PhD, Vice President of Molecular Biology & Strain Improvement, Checkerspot, Inc.



NGS analysis in Geneious Prime

Using Geneious, the scientists at Checkerspot collaborate on the mapping and annotation of transcriptomes from oil seed-producing plant species, promoting the discovery of novel enzymatic activities that can be deployed in the platform. Microalgae are then engineered to biomanufacture unique, custom oils, and production is scaled commercially.

By providing an easy-to-use suite of bioinformatics tools, Geneious Prime supports Checkerspot's mission to expand the palette of molecular building blocks for high performance and sustainable materials and products.

"I use Geneious to conduct analyses of high throughput NGS sequence data that helps me understand how our organism works and what doors we may be able to unlock to further the potential of our platform."

—Daniel Gates, Ph.D., Bioinformatics Scientist, Checkerspot, Inc.

"Understanding the genomics of microalgae allows us to connect the world of biotechnology to bespoke materials and high-performance consumer products."

—Scott Franklin, Chief Scientific Officer & Co Founder, Checkerspot, Inc.

Discover why Geneious is the world's leading bioinformatics platform and start a free trial at www.geneious.com

