



Driving innovation.
Advancing sustainability.

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INTEGRATED DNA TECHNOLOGIES

custom oligos • qPCR • next generation sequencing • RNAi • genes & gene fragments • CRISPR genome editing

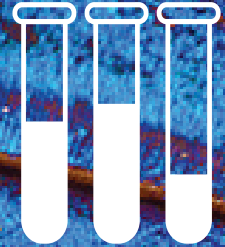
CHALLENGE

Preserving biodiversity

Biodiversity refers to the variety of all life forms and is used as a measure of the health of biological systems.

According to the International Union for the Conservation of Nature, which has been studying the decline of biodiversity for more than 50 years, species are now being lost at a rate 100 to 1000 times faster than before humans became a primary contributor to extinctions.

IDT products are being used to understand the symbiotic relationships between life forms and ecosystems.



Researchers use IDT products throughout the world to catalog the biodiversity of varied environments. These include crop lands; water from rivers, lakes, and oceans; subterranean water-filled caves; and unique geological areas that seep oils and gases. Organisms found in these environments help to maintain clean water and enrich the soil. They also contribute to regulation of climate and degradation of waste materials.

Experimental techniques using IDT products are being employed to understand microbes in the human body. This cutting-edge research indicates that the human microbiome is critical for digestion, metabolism, and other systemic functions that impact health.

CHALLENGE

Create clean and sustainable energy sources

With the world's population projected to grow from 7 billion to 9 billion by 2050, the demand for energy will continue to increase.

Stocks of traditional fossil fuels (coal, oil, natural gas) are finite, and their combustion has been estimated to produce approximately 60% of the greenhouse gases contributing to climate change.

IDT products are used by researchers working to create new biofuels that reduce fossil fuel consumption.

Organic biofuels are a good alternative to fossil fuels, in part because they are derived from renewable resources such as corn, sugarcane, and soy. Although biofuels produced from these sources are promising, diversion of diet staples away from the food supply may jeopardize the resources needed to feed the global population, which is expected to increase by 2 billion people by 2050.

Yeast and other widely available microbes have been recognized as potential alternative sources of biofuels. Microbes produce oils naturally, but not in the right form or in sufficient quantities to be effective as a biofuel. Scientists are using IDT products to modify the biochemistry of microbes, enabling them to become efficient "factories" capable of producing biofuels in an environmentally and economically sustainable manner.



Scientists are challenged to dig deeper, think differently, and experiment relentlessly as they discover new ways to solve problems. Integrated DNA Technologies enables such discovery by providing custom products for biological research.

Researchers in the life sciences are using IDT products to address global sustainability challenges such as preserving biodiversity, cataloging species, and biofuels production. IDT drives innovation and advances sustainability by providing researchers with more effective, accessible, and affordable tools.



CHALLENGE

Identifying the functions of microbiomes

A microbiome is all the microorganisms and their genetic material in a particular environment. Microbiomes exist everywhere, from within humans and animals to the land, oceans, and air.

Each microbiome contains numerous useful traits. For example, these traits may provide protection from disease or help clean an ecosystem.

IDT products identify genes that encode key functions of microbiomes.

Advances in genome sequencing allow scientists to more accurately and cost-effectively identify genes from microbes without the need to grow or see them. This information can be used to better understand how microbes affect individual health, food production, and the well-being of our planet.

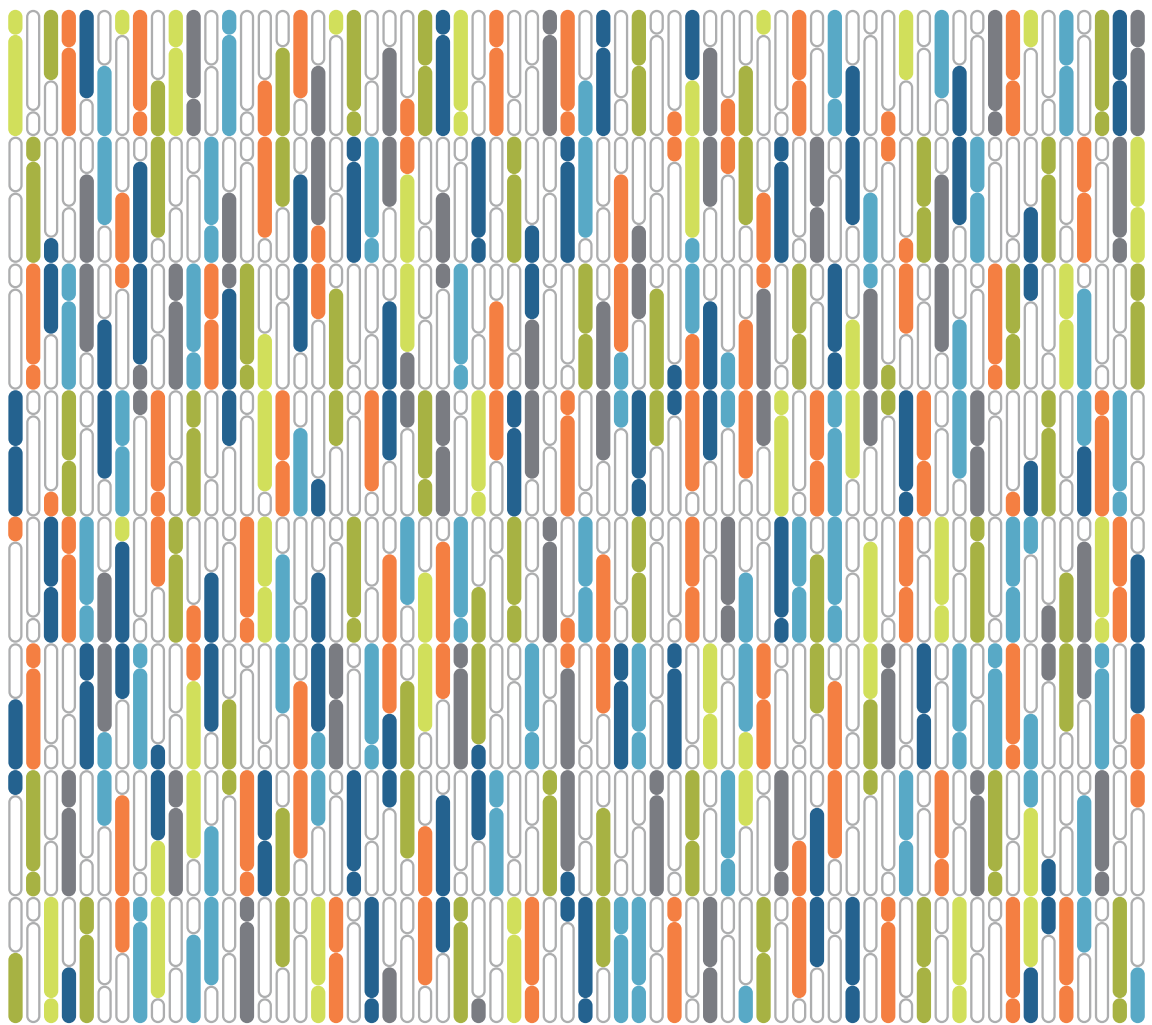
IDT's support for biodiversity research

The IDT Sustainability Award Program provides funding and recognition for novel research projects with the potential to impact worldwide biodiversity.

Now in its third year, the award is intended to facilitate advances in medical, environmental, and agricultural innovation. Past award-winning research includes the role of methane oxidizing bacteria in limiting greenhouse gases, the importance of sustaining biodiversity in groundwater and seed banks, and studies on the microbiomes of birds.

The 2017 Sustainability Award Winners' projects represent a broad array of studies that rely on IDT nucleic acid products in key genomic applications of Next Generation Sequencing, CRISPR Genome Editing, and Synthetic Biology. Through these projects, IDT products are empowering studies that contribute to worldwide efforts to minimize biodiversity loss, address environmental threats to plant life, and understand the influence of the microbiome on human health.





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For more information, visit www.idtdna.com/sustainability.

Please direct questions, comments, or suggestions
regarding the IDT Sustainability Award Program to:
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