

# LEADING A TRANSITION TO MORE SUSTAINABLE PRODUCTS

SUSTAINABILITY  
& SOCIAL RESPONSIBILITY

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SUMMER 2019



# FROM THE CEO

I'm pleased to share Genomatica's first Sustainability and Social Responsibility report.

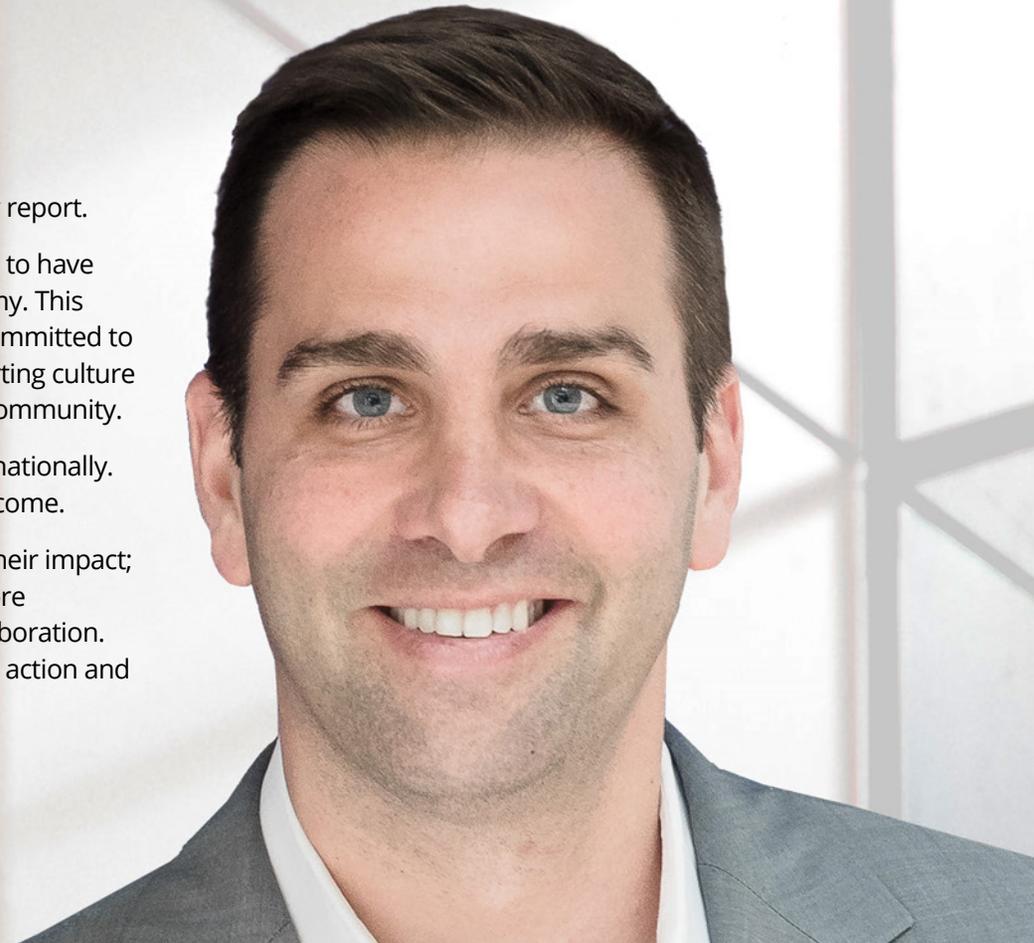
This document is meant to share who we are and what matters to us. We aim to have meaningful impact in moving the world to a more sustainable circular economy. This requires world class talent. More so, it requires world class people who are committed to being the best version of themselves, who collectively foster a positive supporting culture embodied by a diverse workforce that meaningfully contributes to our local community.

We strive to develop strong, values-driven partnerships both locally and internationally. And we hope to build a thriving business that will do good for generations to come.

This document contains information about our vision; our technologies and their impact; our great partners; and how we are working to accelerate a transition to a more sustainable world by sharing our knowledge and expanding our circle of collaboration. We close by talking about our people, including how they put their values into action and contribute to the community.

I look forward to your feedback.

You can reach me at [cschilling@genomatica.com](mailto:cschilling@genomatica.com).



*Christophe Schilling, CEO*

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# WHAT ARE WE PROUD OF?



2013



2016



2018



2019



**2008**

Produced first detectable bio-based chemical (BDO)

**2010**

Formed team to unearth our core values

**2013**

Genomatica wins Kirkpatrick award <sup>1</sup>

**2016**

Versalis and Genomatica produce bio-based rubber

Novamont opens world's first bio-based plant for a major intermediate chemical

Genomatica makes it through tough times with culture intact, gains strategic partnership with Ginkgo Bioworks and new investors

**2017**

ICIS Chemical Business readers rate Genomatica as #1 in sustainability technology

**2018**

Novamont compostable bioplastics used to replace hundreds of millions of single-use bags

Employees start GenoGives program, increasing our focus on giving back

**2019**

Commercial-scale shipments of Brontide for natural cosmetic products

Partner with Covestro to tackle more everyday products

Acquire technology to replace use of palm oil in cleaning products, partner with ExxonMobil

Publish first CSR report

<sup>1</sup> Awarded by *Chemical Engineering* magazine: recognizes "the most noteworthy chemical engineering technology commercialized anywhere in the world during the prior two years".

# OUR CORE PURPOSE

*Lead the irresistible transition to sustainable materials through our technology and, united with industry leaders, make our world a better place.*

In 2010, Genomatica's employees put words to our motivations and beliefs. Our core purpose is a description of why we exist:

**WE BELIEVE THE WORLD CAN, SHOULD AND MUST MOVE TO MORE SUSTAINABLE MATERIALS, PRODUCTS AND PRACTICES;**

that we can help drive that transition; that this change is "irresistible"; and that we should work with the people, companies and groups that not only want to drive change, but are taking action to make our world a better place.



# OUR CORE VALUES *define our people and our culture.*

## WE ARE REAL

Results count. Commitments count.  
Integrity and honesty are absolutes.

## WE ARE INNOVATIVE

We invent, experiment and create—across our entire business.  
We seek out and embrace differences, to help us think differently.

## WE ARE UNITED

We work better together. Shared mission. Shared accountability.  
Shared learning. Shared success.

## WE ARE RELENTLESS

We don't give up. We strive for excellence. Our passion flows from  
our shared vision.

*Genomatica conducts its business honestly and ethically. These values serve as a moral compass that guides our every action. They embody who we are and should be transparent to all that interact with Genomatica as partners, customers, suppliers, and colleagues in our ecosystem. We strive to improve the quality of our products and to maintain a reputation for honesty, fairness, respect, responsibility, integrity, trust and sound business judgment. Our policies to support these ideals are documented in an extensive employee handbook.*



## HELPING CREATE A WORLD WITHOUT CANCER

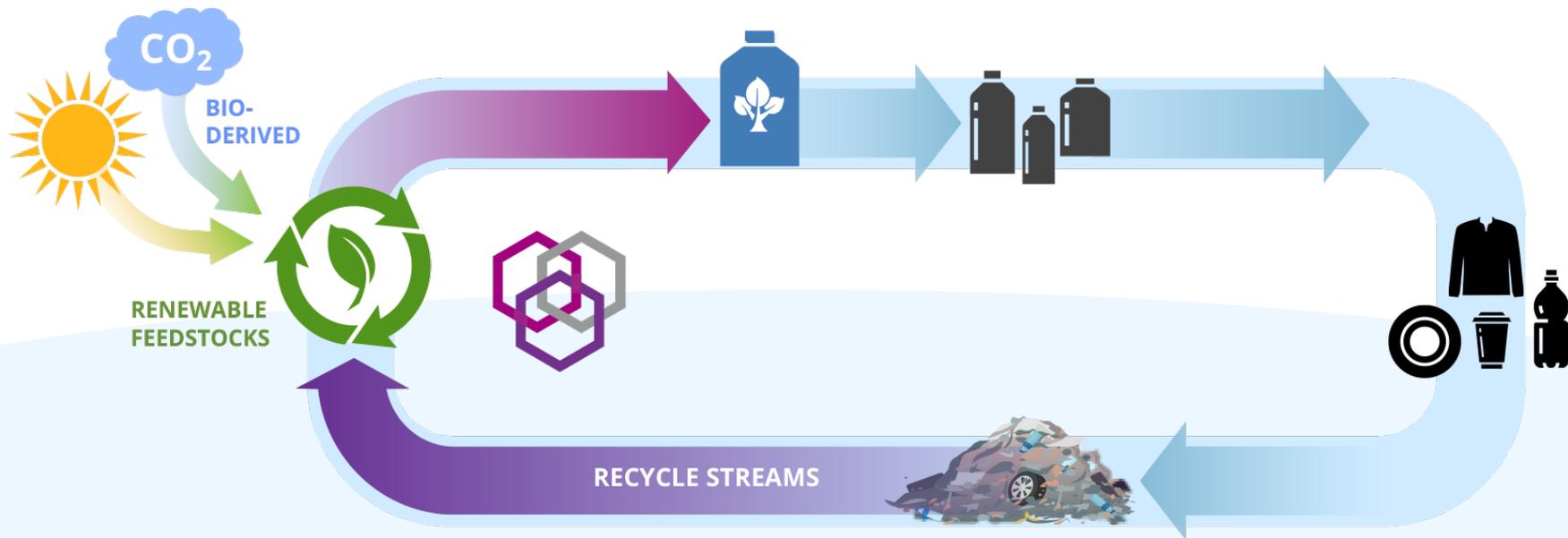
*Our people are committed to serving  
our local community*

# TOWARD A MORE CIRCULAR ECONOMY

We believe we are entering a new era of sustainability, where consumers will increasingly exercise their voices through the products they buy. This goes hand in hand with the growing understanding of the serious global challenges we face, including climate change, plastic waste, deforestation and more.

To address these challenges, we harness the power of biotechnology to create new sustainable material supply chains. Examples of these are well-described by the Ellen MacArthur Foundation in their reports on the new plastics economy and new textiles economy.

Our products and processes aim to help rethink plastics, apparel, cleaning, cosmetics, and even nutrition. Today, we primarily improve products at beginning-of-life, reducing their environmental footprint through use of renewable feedstocks and efficient bio-based processes. We are also working on innovations to “close the loop” through more effective use of recycle streams.



## VERGE18

*Christophe leading a discussion with brand owners and other stakeholders at the Circular Plastic Summit*

# REDUCING THE FOOTPRINT OF CHEMICAL PRODUCERS AND SUPPLY CHAINS WORLDWIDE

A primary way we support a circular economy is through our bioprocess technologies. These enable the production of widely-used chemicals from renewable feedstocks rather than oil, natural gas, or less sustainably-managed resources such as palm oil. Because the chemicals or ingredients made with our technologies are more sustainable, the everyday plastics, cosmetics, apparel or cleaning products made with these chemicals are more sustainable too.

## POTENTIAL FOR HIGH IMPACT

We have built technology to create multiple widely-used chemical building blocks using three proprietary product platforms. Using this technology, we have commercialized two bioprocesses to date. Our GENO BDO process has been licensed by Novamont and BASF, and Novamont built and operates a plant in Italy with a 30,000 ton per year capacity. We have been using our GENO BG process to produce commercial volumes of Brontide™ natural butylene glycol. We are working to develop a process to make 100% bio-based nylon-6, used in carpets and fibers, with multiple European partners. Our three platforms allow us to continue to grow our impact as we commercialize additional technologies.

### C4

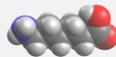


INGREDIENTS



COSMETICS • PLASTICS • STRETCH FABRICS  
COMPOSTABLE BAGS • TIRES

### C6

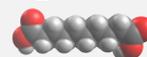


INGREDIENTS



CARPET TEXTILES • DESIGNER APPAREL  
PACKAGING FILM • AUTOMOTIVE

### Long-chain



INGREDIENTS



FLAVORS & FRAGRANCES  
CLEANING SOLUTIONS • DIESEL FUEL



# MEASURING OUR IMPACT

We engage outside firms to complete independent lifecycle assessments (LCAs) on the effectiveness of our technologies to deliver meaningful positive environmental impact and share the results publicly<sup>1</sup>.

## 1,4-BUTANEDIOL (BDO)

FOR COMPOSTABLE AND ENGINEERING PLASTICS, FIBERS



*Our LCA shows a 50% reduction in greenhouse gas emissions compared to petroleum-based processes<sup>2</sup>.*

## BRONTIDE™ NATURAL BUTYLENE GLYCOL

AN INGREDIENT IN PERSONAL CARE AND COSMETICS PRODUCTS



*"approximately 50% lower impact on GWP"*

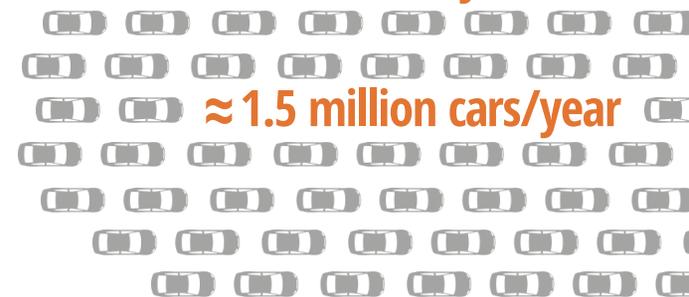
— SOFW Journal  
November 15, 2018  
summary of LCA report

## AN EXAMPLE

Today, over 2 million tons of BDO are produced per year, worldwide. If all BDO were produced using Genomatica's technologies, that would save over 7 million tons of greenhouse gases per year, or the equivalent of taking 1.5 million cars off the road.

### POTENTIAL GREENHOUSE GAS SAVINGS

**7** million tons/year



<sup>1</sup> Consistent with similar firms, we cannot publish the full reports as that would reveal proprietary information.

<sup>2</sup> An LCA report is based on multiple assumptions regarding plant location, feedstock availability and more. Because Genomatica's processes may be deployed at various locations worldwide, the specific results for a given plant may vary. In fact, Novamont, which licensed our BDO technology and built a plant in Italy, sees a 56% reduction in emissions for their facility, better than the findings in our LCA report.

# WORKING WITH PARTNERS

WE ARE DELIGHTED TO BE WORKING WITH MULTIPLE COMMITTED PARTNERS WITH VALUES ALIGNED WITH OURS. THEIR LEADERSHIP AND ACTIONS TURN OUR TECHNOLOGY INTO REAL IMPACT.

*Novamont built the world's first commercial-scale plant for a widely-used intermediate chemical using our GENO BDO™ technology. They estimate a 56% reduction in greenhouse gas emissions compared to a petrochemical plant.*

## PARTNER PROFILE



*Catia Bastioli, CEO*

Catia Bastioli is a champion of the bioeconomy and a leader in sustainable development, including through her support for a new model of territorial regeneration.

She was the first to license our BDO process technology, and invested 100 million euros to build the world's first commercial-scale bio-based plant for a major intermediate chemical, allowing Novamont to steadily increase the bio-based content of its products. Our ongoing collaborations also recently enabled commercial-scale production of our Brontide butylene glycol at their plant.

## PARTNER PROFILE

# Covestro

In 2019, we announced a long-term partnership with Covestro, one of the world's largest polymer companies, to research and develop high-performance materials based on renewable feedstocks. Covestro has consistently taken action to advance sustainability. Both partners aim to reduce the use of fossil-based resources such as crude oil, to help reduce emissions and close the carbon loop in another move towards a circular economy.



*The Novamont-Genomatica Partnership video*



*Novamont's Mater-Bi compostable bio-plastic is used by many stores in Europe to replace single-use plastic bags*

*"Being able to increasingly derive key materials from biomass is essential for making our industry less dependent on fossil raw materials"*

— Dr. Klaus Schäfer  
Chief Technology Officer

## PARTNER PROFILE



Giulio Bonazzi, CEO



Aquafil, a leading producer of nylon-6, has long been a leader in sustainability and innovation. Their ECONYL™ turns nylon waste into virgin quality nylon yarn.

Their CEO and visionary owner, Giulio Bonazzi, was the first to share our ambition and join our program to make bio-based caprolactam that is advancing toward 100% renewable bio-based nylon-6.



See Christophe speak about the program and our partnership. Watch "Remaking Nylon" video



Stella McCartney's Falabella Go bags are made of recycled polyester and Econyl, a nylon produced from recycled fishing nets, carpets and other such waste

## PARTNER PROFILE



Project Effective partners



Our work with both Novamont and Aquafil led to our involvement with Project EFFECTIVE. This program involves 12 firms, including brands like H&M, Vaude, Carvico and Balsan, working to commercialize better fibers and plastics. The effort is supported under the European Union's Horizon2020 program.

We are working with many other firms, large and small, including these:



# SHARING OUR KNOWLEDGE

Our technology enables a smaller environmental footprint. Our partners build plants using our technology that realize those reductions in footprint. The next step in leading a transition to more sustainable value chains is to share our ideas more widely, across more chemical producers, product-makers, brands and consumers. We do this by speaking at conferences, publishing thought leadership articles and videos, and sharing in-depth pieces about our technology.

We also contribute to multiple organizations to influence their programs and increase their impact. Our CEO, Christophe Schilling, is Chairman of Biocom, the largest advocacy organization for California's life sciences sector; serves on BIO's Industrial & Environmental Section Governing Board; and has served on the World Economic Forum Global Agenda Council on Biotechnology. He is also a member of YPO, an international leadership organization for chief executives. Priti Pharkya is a director of the Society for Industrial Microbiology and Biotechnology (SIMB).

Several of our team lead workshops, lecture and participate in advisory boards at UC San Diego, including Michael Japs, Bo Chen, Harish Nagarajan, Jason Crater, Kelsey Yee and Ben Griffin. Bo is on the organizing committee for Commercializing Industrial Biotechnology and the Department of Energy's Industrial Advisory Board; Harish was selected for a National Academy of Engineering symposium and will lecture at a National Science Foundation program; Kelsey is chairing a session at SIMB; and Jason and Connor Galleher have run programs at TU Delft.

We also share our thoughts via social media. We now have over 5,000 followers on LinkedIn and over 1,000 on Twitter.



## SUSTAINABLE BRANDS 2019

*Damien Perriman, SVP Specialty Products,  
speaking at Sustainable Brands*



## WORLD BIO MARKETS 2019

*Christophe speaking at World Bio Markets  
in Amsterdam*

# SHARING OUR KNOWLEDGE



## SYNBIOBETA

*Priti Pharkya presenting on our technology*



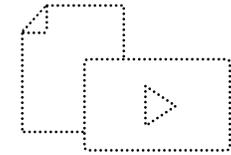
## LEAP HR

*Amy Buono, VP, People and Culture, has presented on building a purpose driven high trust culture*



## COMMERCIALIZING INDUSTRIAL BIOTECHNOLOGY

*Lisa Kennedy speaking on successful commercialization of our processes*



## TALKING TO BRANDS

WE'VE PUBLISHED A SERIES OF ARTICLES AND VIDEOS TO FURTHER DISCUSSIONS WITH BRANDS AND SPUR COLLABORATIONS:

**Brands: a pragmatic approach to bio-based chemicals**

**Five ways biotech supports the transition to a more circular economy**

**Turbocharging the green chemistry revolution**

**Global brands open up about the challenges and opportunities of sustainable products**

**Remaking nylon**



*"Remaking Nylon" video: Genomatica's program for more sustainable apparel and carpet*

# REDUCING OUR OWN FOOTPRINT

Accelerating the development, adoption and use of our technology provides the highest leverage for our positive impact on the environment, and therefore represents our primary focus. Still, we naturally want to reduce the footprint of our own operations, and we've been increasing our efforts here. Our internal programs aim to reduce, reuse and recycle materials, plus rethink how we do things. Recent examples include:

## 1. RECYCLING PLASTIC CONSUMABLES

We collect waste materials from laboratory experiments and send them to a recycling center. In addition, we have reduced the use of consumables: for example, we often use acoustic liquid transfer techniques rather than single-use plastic pipettes.

## 2. BIOTECH WASTE IS CONVERTED TO ENERGY

Some of our consumables have biological materials in them, which cannot be processed through standard plastic recycling. We participate in the Emerald Energy program: we separate all non-hazardous, non-infectious material from other waste, and instead of going to a landfill, our waste material is incinerated to produce energy and the remaining ash is used in asphalt.

## 3. MAKING MANY OF OUR OWN SUPPLIES

Genomatica makes our own growth media and puts it into reusable glass bottles rather than having it shipped to us in disposable plastic.

## 4. PACKAGING IS REUSED

For many of the larger items we receive, we're able to send the packaging back to our vendors for reuse.

**SAFETY** *is absolute  
is everyone's responsibility  
is continuously improved  
means we can prevent all injuries*



**THE SAFETY OF OUR PEOPLE  
AND OUR PARTNERS  
IS A TOP PRIORITY:  
WE AIM FOR ZERO HARM**

	2018	2017
<b>RECORDABLE INCIDENTS</b>	2	0
<b>LOST WORKDAYS</b>	0	0
<b>EMPLOYEES</b> (WEIGHTED AVERAGE)	93	80

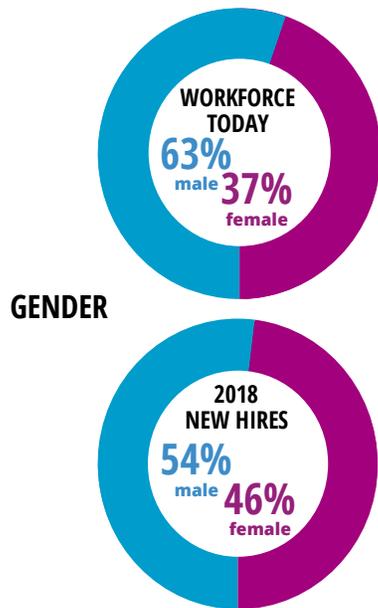
*We conduct regular inspections and safety drills, and track our internal accident rates*

# OUR PEOPLE

As of June 30, 2019, Genomatica had over 130 employees, including many that joined following our acquisition of certain assets from REG's Life Sciences division. While the majority are based in our San Diego Innovation Center, we also have several team members in Europe and across the U.S.

We believe in diversity and inclusion. We are proud to see improvement in the gender and ethnic representation across our company, including the addition of two women to the leadership team. Currently, 37% of our employees are female and 63% are male. In 2018, 46% of our new hires were female and 54% were male. We are making progress in diversifying our workforce and plan to work even harder to ensure a more inclusive environment leveraging our Core Values team and external partners to assist us.

We also believe in creating a culture based on strong purpose, high trust and emotional intelligence. We know that when you do things of significance with people that are significant to you, it leads to greater personal fulfillment and engagement and overall higher performance. We are encouraged by the results so far, which include a low turnover rate and high acceptance of employment offers. We plan to further our efforts to elevate our collective EQs.



RACE/ETHNICITY <sup>1</sup>	%
HISPANIC OR LATINO	13
WHITE	52
BLACK OR AFRICAN AMERICAN	2
ASIAN	24
NATIVE HAWAIIAN OR OTHER PACIFIC ISLANDER	0
AMERICAN INDIAN OR ALASKA NATIVE	0
TWO OR MORE RACES	9

<sup>1</sup> Categories based on Equal Employment Opportunity Commission (EEOC) reporting requirements



## BIOCOM EARTHDAY 2019

*Christine Gallup, Brontide communications specialist speaking at BIOCOM panel on diversity*



## AICHE DIVERSITY PANEL 2019

*Lisa Kennedy, Director of Business Development speaking at AICHE Fireside Chat on Diversity*

➔ Please join us in recognizing these team members for their accomplishments this year

#### GENO PROFILE



### **Connor Galleher, EVN Innovation Award**

Connor is the inaugural winner of Genomatica's top award, for championing disruptive new technologies and ideas with high impact.

Connor was recognized because his work had a multiplier effect on our R&D productivity, specifically by improving how we develop overall bio-processes. Further, he boosted internal productivity and team communications through improvements to our project sites. His strong interpersonal skills gained broad support for his ideas and adoption across the organization.

#### GENO PROFILE



### **Nicole Johnson, Core Values in Action Award**

Nicole is the most recent winner of this bi-annual award, for those that best embody our core values of being real, innovative, united, and relentless.

Nicole has been the driving force behind our GenoGives charitable giving program, directly shaping an important part of our culture. She has helped define the program, attracted team members, orchestrated creative events and coordinates with charities. This has become a focal point for many of us in giving our time and resources. Nicole also revived our softball team!

## GENO PROFILE



## Rachel Pacheco, Thomas NextGen for Industry Award

Rachel was recognized by Thomas, a leader in information and tools for industry, as one of the young professionals driving industry into the future with innovative new ideas, exceptional thought leadership, and meaningful contributions – and Rachel hits the mark on all counts. She joined Genomatica nine years ago as a fermentation associate and has earned multiple promotions, most recently to Senior Manufacturing Manager. Earlier this year she managed our first commercial-scale Brontide production campaign in Italy.

## OUR CORE VALUES TEAM

After we surfaced and captured our core values in writing, we formed our core values team (CVT). This team of annually-elected volunteers has helped Genomatica preserve our values during good times and persevere in difficult times — the true hallmark of a strong culture. The CVT is a conduit for employees to voice what is “working well” and what could be “even better if” at Genomatica. They’ve driven surveys to take the pulse of the team, enhanced our new employee onboarding experience, significantly expanded our charitable outreach and improved our workplace interactions.



# PART OF THE COMMUNITY

We believe we have a moral duty to give back to the community with our time and resources. In 2018 we started GenoGives to formalize the many charity and volunteer activities that we had been doing as a company and as individuals.

GenoGives is led by a group of employees that plan and execute charitable actions that tie to our core purpose of sustainability and/or STEM education and the passions of our team. We select long-term, ongoing activities (see Community Profile, next page) as well as a range of causes and charities chosen throughout the year by our employees. For us it's about having local impact, both financially, and even more importantly through our time and effort. Employees regularly comment about the personal fulfillment aspects of giving back to the community.

2018 **\$16,000**  
**230 hours**

Volunteer time and cash donations

## ORGANIZATIONS WE'VE SUPPORTED



*Geno-man represents us at a science fair at Petco Park*



*We're supporting The San Diego Rescue Mission in transforming the lives of those experiencing homelessness*



*We're supporting I Love a Clean San Diego in building a zero waste, litter-free, environmentally-engaged San Diego region*



*Feeding San Diego strives to provide hunger relief through nutritious meals to create a hunger free San Diego*



*Our participation in Padres Pedal the Cause raises funds for local cancer research*

## COMMUNITY PROFILE



In 2018, we began a long-term collaboration with the Ocean Discovery Institute. ODI aims to empower young people from underserved communities to transform their lives and the world as scientific and environmental leaders. They focus on the ethnically and racially diverse City Heights community, where 34% of its population are foreign-born and 43% live at or below the federal poverty level. Our goal is to share an example of how a sustainability-driven company works and support them with direct access to our people. We're working with ODI:

- as mentors, to guide students through college and financial aid applications;
- at their Career Discovery Days at ODI facilities;
- at ODI's Open House, to discuss the students' projects, stories and plans;
- and with tours and open houses at Genomatica twice per year, including hands-on activities.

We are targeting several hundred hours of volunteer work in 2019 that will collectively impact hundreds of students.



*We encourage students to discover science and unlock their potential at our Innovation Center tours and open houses*



# STAYING IN TOUCH



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Feedback or questions?

Please email [info@genomatica.com](mailto:info@genomatica.com)

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GENOMATICA



BRONTIDE

