

Harnessing the power of photosynthesis to mitigate climate change

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## From robust production strains to edited algae cells and ultimately to biomass feedstock We have defined the technology set at meaningful scale



## Viridos has pioneered a suite of proprietary algae engineering capabilities biotechnology Over a decade and a half leadership in synthetic biology Viridos algae biofuels breakthroughs Viridos synthetic biology breakthroughs Lipid switch discovered Over 2,000 salt and temperature ExxonMobil tolerant algae species isolated **Collaboration** starts 2015 2009 2013 2014 ( 2007 2008 2010 2011 2012 1<sup>st</sup> synthetic cell 1<sup>st</sup> genome 1<sup>st</sup> bacterial New DNA assembly transplanted method discovered genome synthesized Check for updates Unrestrained markerless trait stacking in Nannochloropsis gaditana through combined genome editing and marker recycling technologies n Verruto", Kristie Francis", Yingjun Wang", Melisa C. Low", Jes Viridos secures Algae biofuel third consecutive breakthrough: Advances in trait Algae biofuels collaboration Markerless algae **EPA approval** for stacking through marker doubled oil Strain 15 engineering in robust goes to CAAF to grow algae in Open pond genetically recycling **published** in productivity selected algae host strain enables 95% crop open ponds simulators engineered algae **PNAS** infinite trait stacking success rate at CAAF 2017 2018 2019 2020 2021 2022 2023 2016 90% oil Groundbreaking open pond algae oil extraction productivity (9.1 g/m<sup>2</sup>/day) efficiency CAAF = California Advanced Algae Facility

## Viridos algae biofuels: commercial productivity threshold is in reach



Fuel productivity per unit of land

2022 Viridos algae oil productivities in open ponds are **7-fold higher** than best wildtype algae and our starting point in 2018

Viridos Strain 15 has been successfully grown at up to acre scale for several years in CA

Viridos trait stacking capabilities provide the foundation for further productivity improvements

Targeting 15g/m<sup>2</sup>/day algae oil by end of 2024 commercialization threshold

**Long run** oil productivity target is  $25 \text{ g/m}^2/\text{day}$ . That will translate into producing low carbon fuels at current fossil fuel prices

Algae yields are extrapolated estimates

Ethanol converted to gallons of diesel equivalent