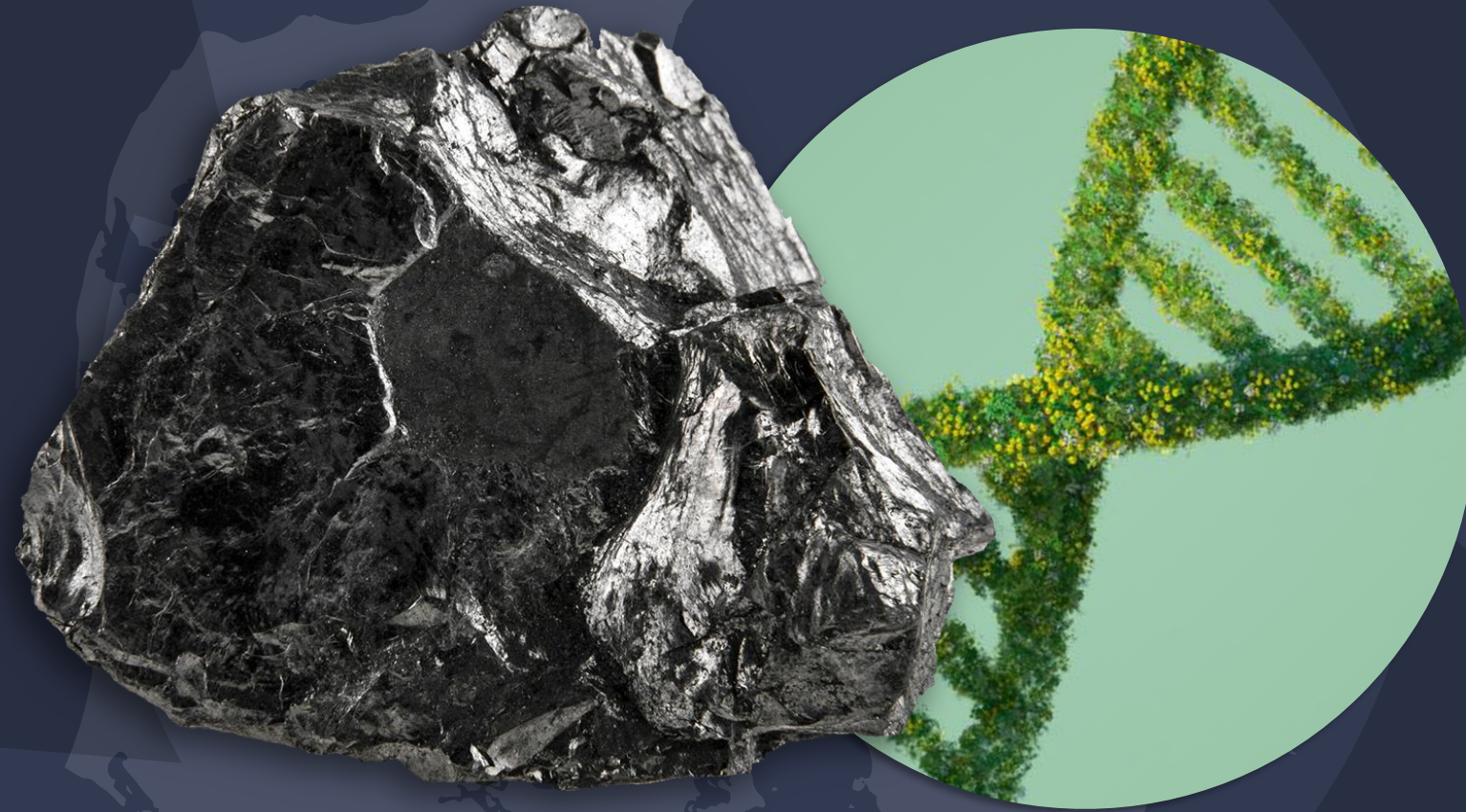


The Bio-based Challenge

Mads Krogsgaard Thomsen
CEO



Biology and biotechnology – what is possible?



Big Data in agriculture



Bio-cement



Microorganisms
convert CO₂ to
methane



Plant-based proteins produced
by fungi and bacteria



“Biologicals” replace pesticides
and reduce fertilizers



Enzymes can boost
CO₂ capture

Overview of the Novo Nordisk Foundation's **2030 strategy**

Progress research and innovation in prevention and treatment of cardiometabolic and infectious diseases

Health

Sustainability

Advance knowledge and solutions to support the green transition in society



To improve people's health and the sustainability of society and the planet

The life science ecosystem

Invest in scientific research, education and innovation to enable a world class life science ecosystem

Population

9.8 billion

expected world population in 2050

CO₂ emissions

51 billion

tonnes per year in 2050
if we don't fix it



Food systems

30% of green-house gas emissions

75% of agricultural land supports livestock production

70% of freshwater consumption

80% of deforestation

80% of biodiversity loss

1/3 of all food is wasted

Theme #1

Sustainable and high-yield agriculture

Theme #3

High-impact climate change mitigation technologies

Sustainability

Advance knowledge and solutions to support the green transition in society

Theme #2

Sustainable food for healthy diets

Theme #4

Supporting society in the green transition



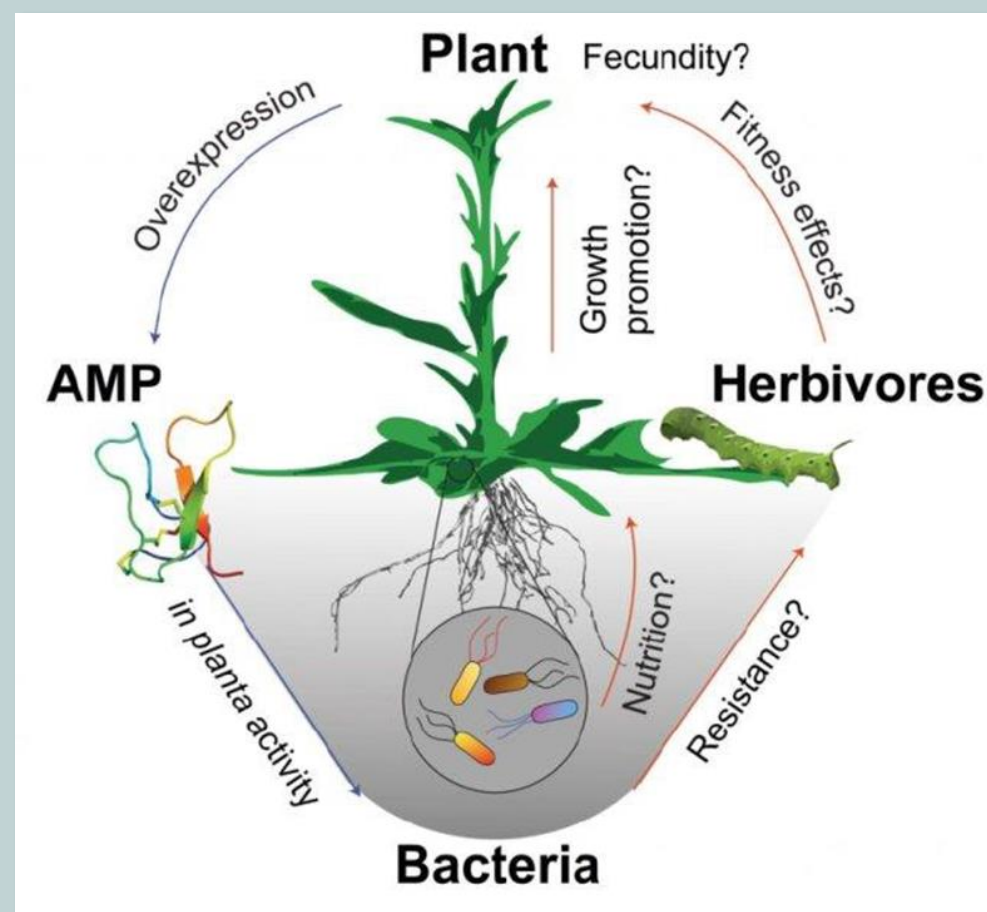
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Crop Resiliency Programme

Mission: To investigate the interaction between plants and microbes to be able to model and manage plant-microbe interactions to enhance crop resiliency.



Source: Max Planck Institute for Chemical Ecology 2017

Collaboration partners:

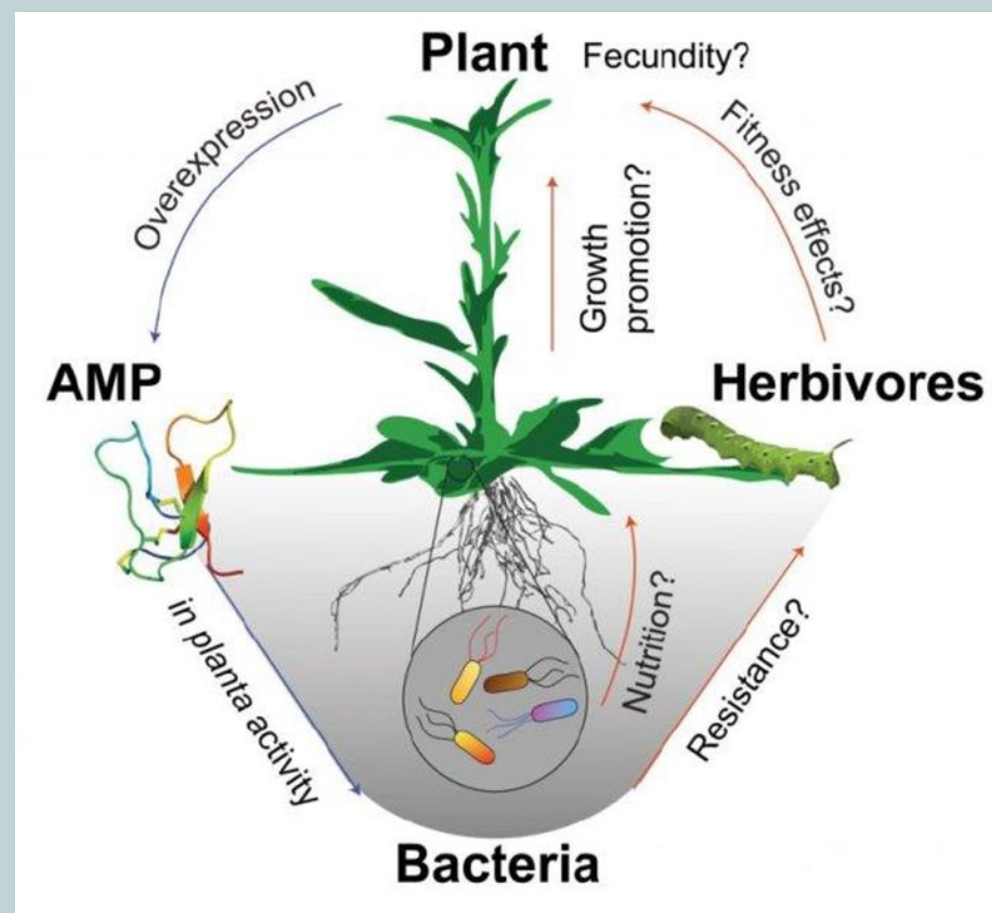




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Collaboration partners:



UNIVERSITY OF COPENHAGEN

CO₂ Research Center (CORC)

Sustainability

Mission: To enable climate change mitigation by discovering and exploring innovative technologies for carbon capture, sequestration, and utilisation. The activities of the Center should support Danish and international goals on reducing CO₂ emissions



Novo Nordisk Foundation Center for Biosustainability

Aim: To develop new knowledge and technologies to support the transformation from conventional, and unsustainable industrial production methods to a sustainable bio-based industry.

ново
nordisk
fonden
Benefiting people and society

DTU
Technical
University of
Denmark

Designing the next generation of cell factories using big data generation and analysis, synthetic biology, machine learning and AI.

CfB research contributes to developing:

- Sustainable Chemicals
- Natural Products
- Microbial Food



Sustainability

Funding:

DKK 2069 million (EUR 280 million)
Established 2010



Denmark can become a global leader in biotechnology & biomanufacturing for agriculture, food and climate change mitigation



It takes world class science, education, dedicated policies, a strong and visionary industry and an engaged civil society



Biology works in ecosystems. We need integration of biology and the use of big data, analytics and automation



Urgency requires an updated regulatory framework that considers benefits as well as risks