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BIOOm

Mining tomorrow's Chemistry

Schweizerische Eidgenossenschaft
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Swiss Confederation

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GEBERT RÜF STIFTUNG
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ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Climate Launchpad

Climate-KIC

MASSCHALLENGE
SWITZERLAND
FINALIST

Today

Carbon is in almost every product around us.

Today, these products are derived from:
° **Crude oil** (majority)
° **Edible biomass** (minority)

In other words, there is **NO sustainable solution** for the most important chemical pillar of our society.

Tomorrow

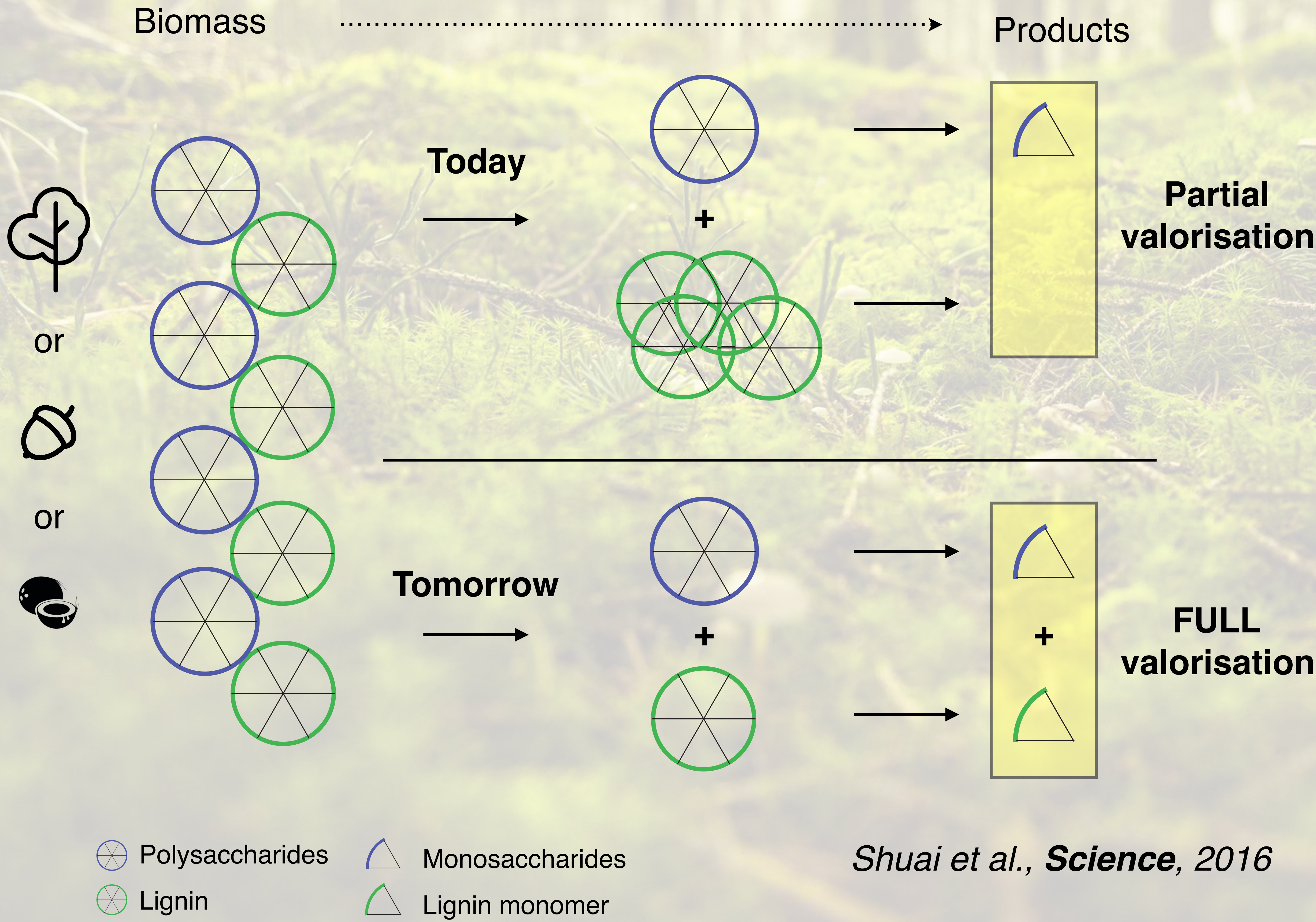
Non-edible biomass (e.g. agroforestry waste) is an **abundant source of carbon.**

Yet, its utilisation is **not cost-competitive** due to the **lack of efficiency** of traditional valorisation processes.

Bloom's Vision

Bloom has developed the most efficient process to mine biochemicals in plant material.

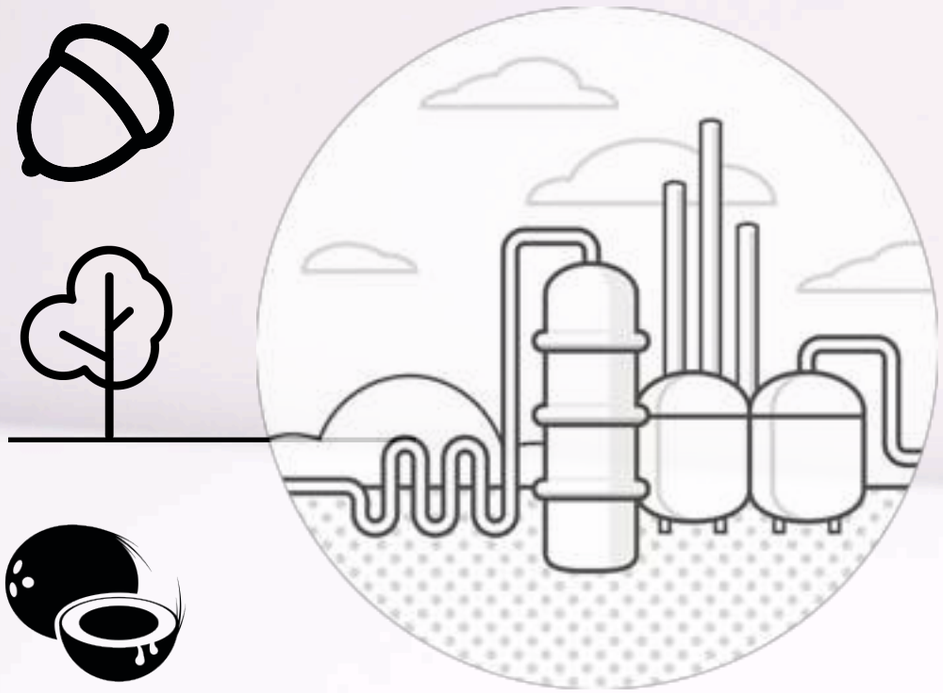
Solution



Shuai et al., ***Science***, *2016*

Value proposition

Potential application



Fragrance molecules

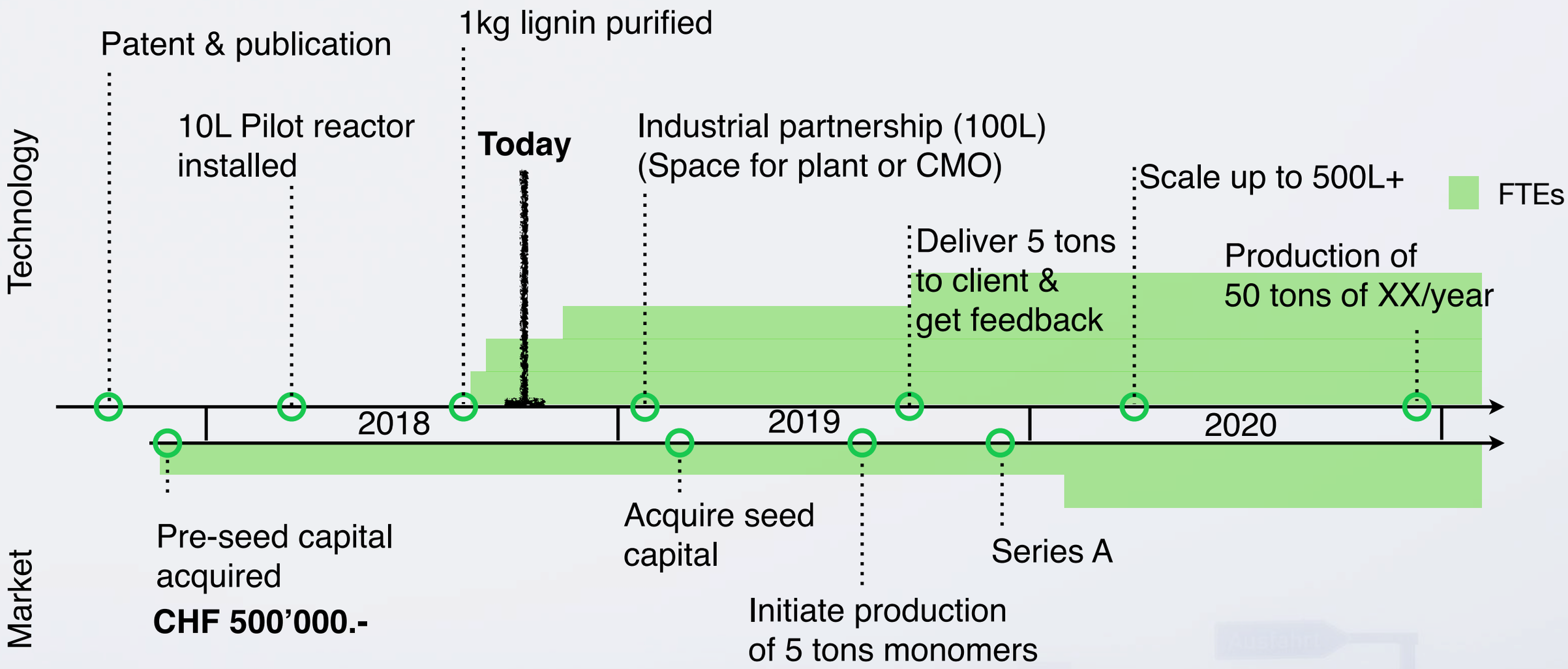
Margin
100-200%

CHF <10.-/kg

CHF <30.-/kg

Cost-competitive
Constant supply

Roadmap



Next key milestones

- Establish collaboration with production partner
- Seed funding for pilot-scale production (CHF 0.5 mio)
- Deliver 5 tons of product to confirmed customer
- Series A funding of CHF 15 million for industrial plant
- Produce 50 tons of product/year

Team

Executive

Dr. Remy Buser
CEO & co-founder

Dr. Florent Héroguel
COO & co-founder

Chloé Wegmann
Lab head

Jean Behaghel
CSO

Advisory

Prof. Luterbacher
EPFL - catalytic valorisation
co-founder

Dr. Martin Riediker
Director Innosuisse
Ex-Ciba

Matthias Waehren
Mentor
Ex-CFO Givaudan

Main needs for collaborations

What can we provide:

° State-of-the-art technology to valorise biomass
° Solid network in the field of lignin valorisation
° Experienced and dedicated team
° Connection to Swiss actors of the chemical industry

What we are expecting:

° Access to chemical equipment for the scale-up 500L+
° Take part in a consortium to integrate our process into a more complete structure with different partners
° Network of investors in the bio-based industry and circular economy
° Regional support to build a pilot plant
° International visibility

Contact us!
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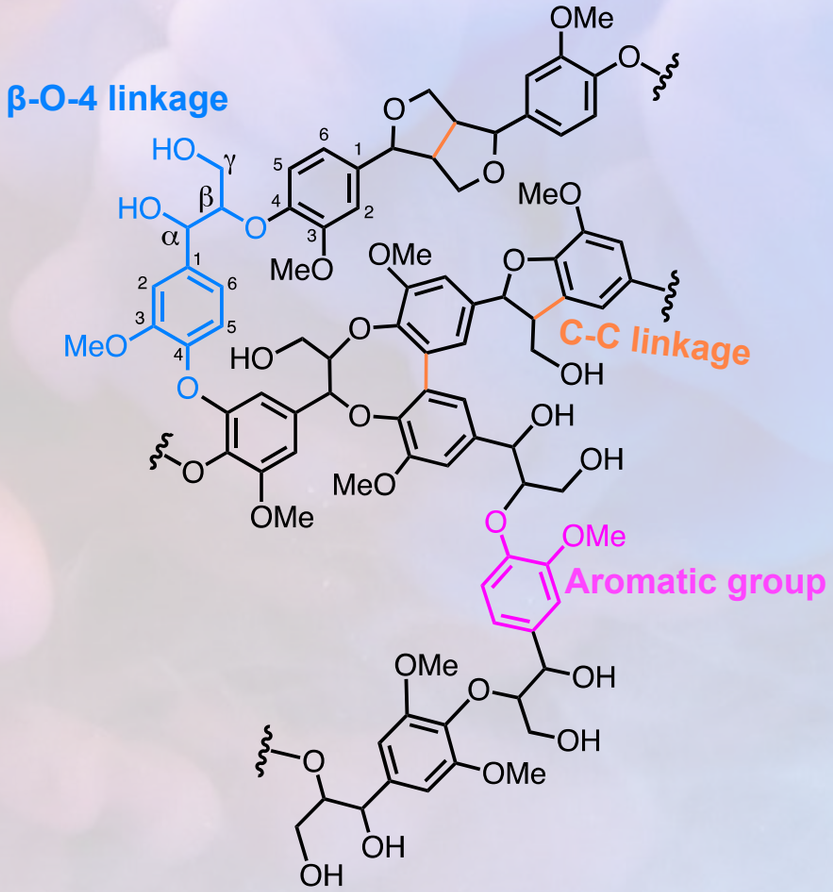
Technology in details

Shuai, Luterbacher et al. *Science, 2016*.



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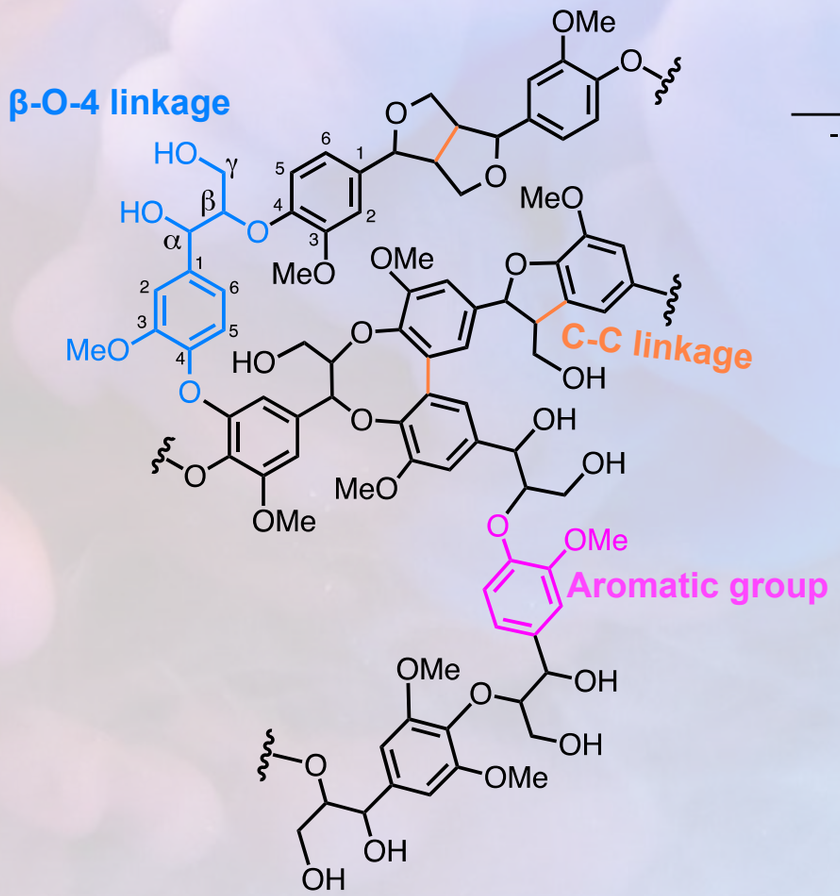

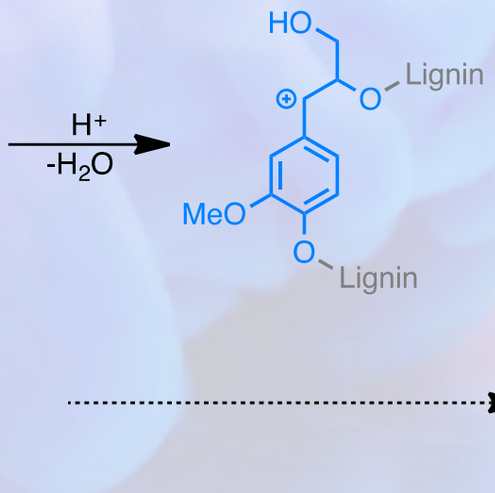

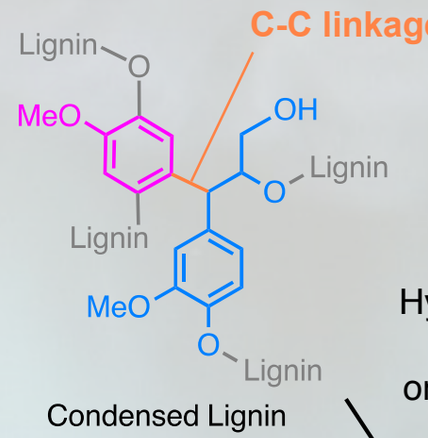

Hydrogenolysis
>200°C,
organic solvent

2-5%
monomer
yield

Technology in details

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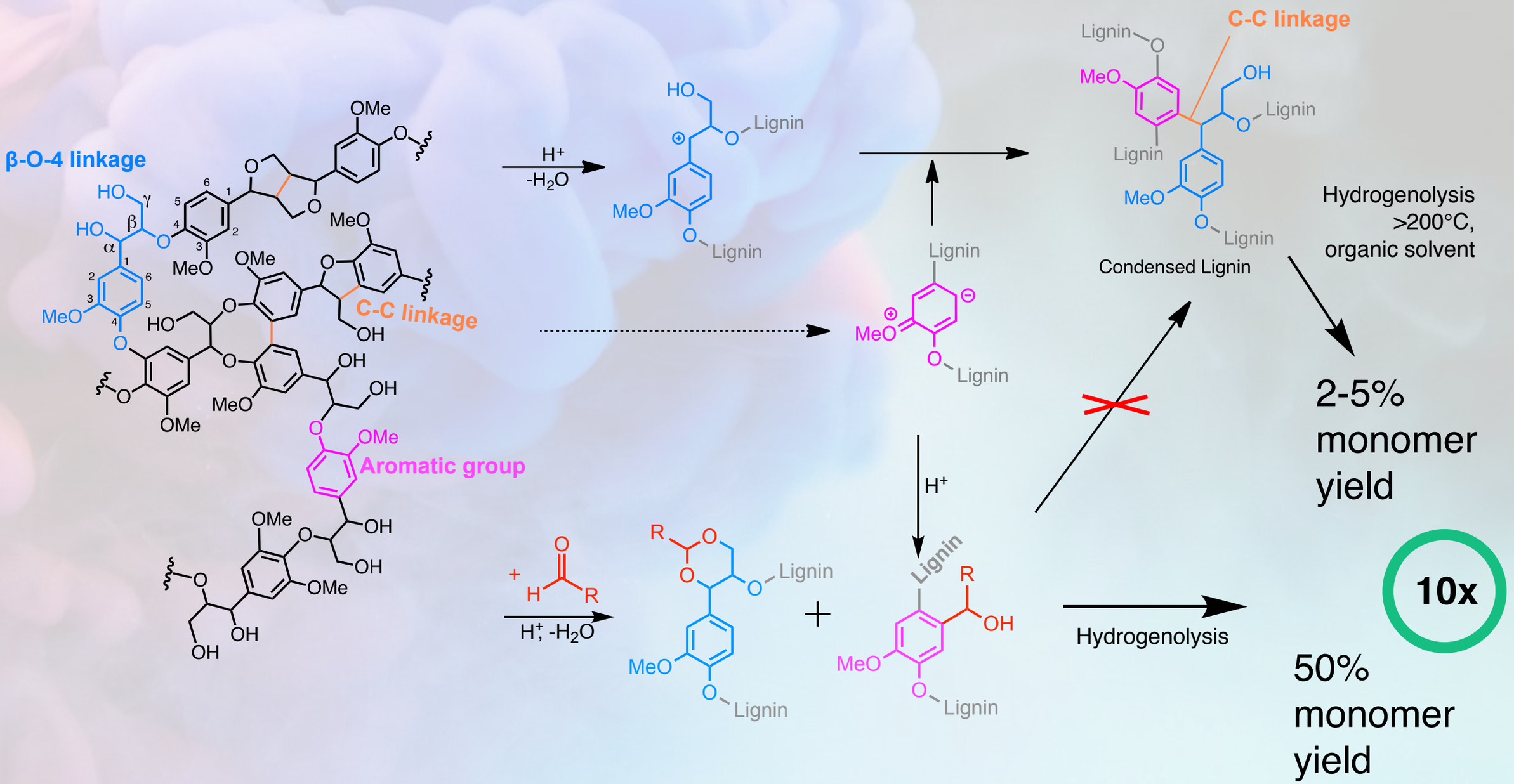
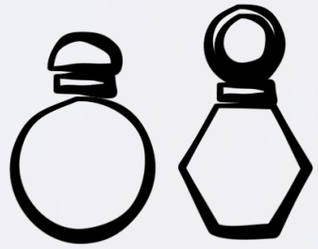


Market potential

A few example of fragrance markets

	 **Vanillin**	 **Eugenol**	 **Confidential**
Global	**CHF 395 million** revenue in 2016 CAGR 8%	**CHF 459 million** in revenue in 2017 CAGR 6.2%	**CHF 5 million** revenue in 2017
Accessible	Synthetic vanillin CHF 10-20.-/kg **CHF 5-10 millions**	Synthetic eugenol CHF 10-20.-/kg **CHF 30 million**	CHF <30.-/kg **CHF 1-2 millions** *pre-order received*

Growth potential

The long-term vision is to enable the **first biorefinery** that fully valorises all fractions of biomass.

Bioadhesives

Polymers (bioplastics)

Global market sizes

CHF 1.4 billion
revenue in 2016
CAGR 13%

CHF 21 billion
revenue in 2017
CAGR 18.8%

Technology IP

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Published:
— *with international search report (Art. 21(3))*

(54) Title: PRODUCTION OF MONOMERS FROM LIGNIN DURING DEPOLYMERISATION OF LIGNOCELLULOSE-CONTAINING COMPOSITION

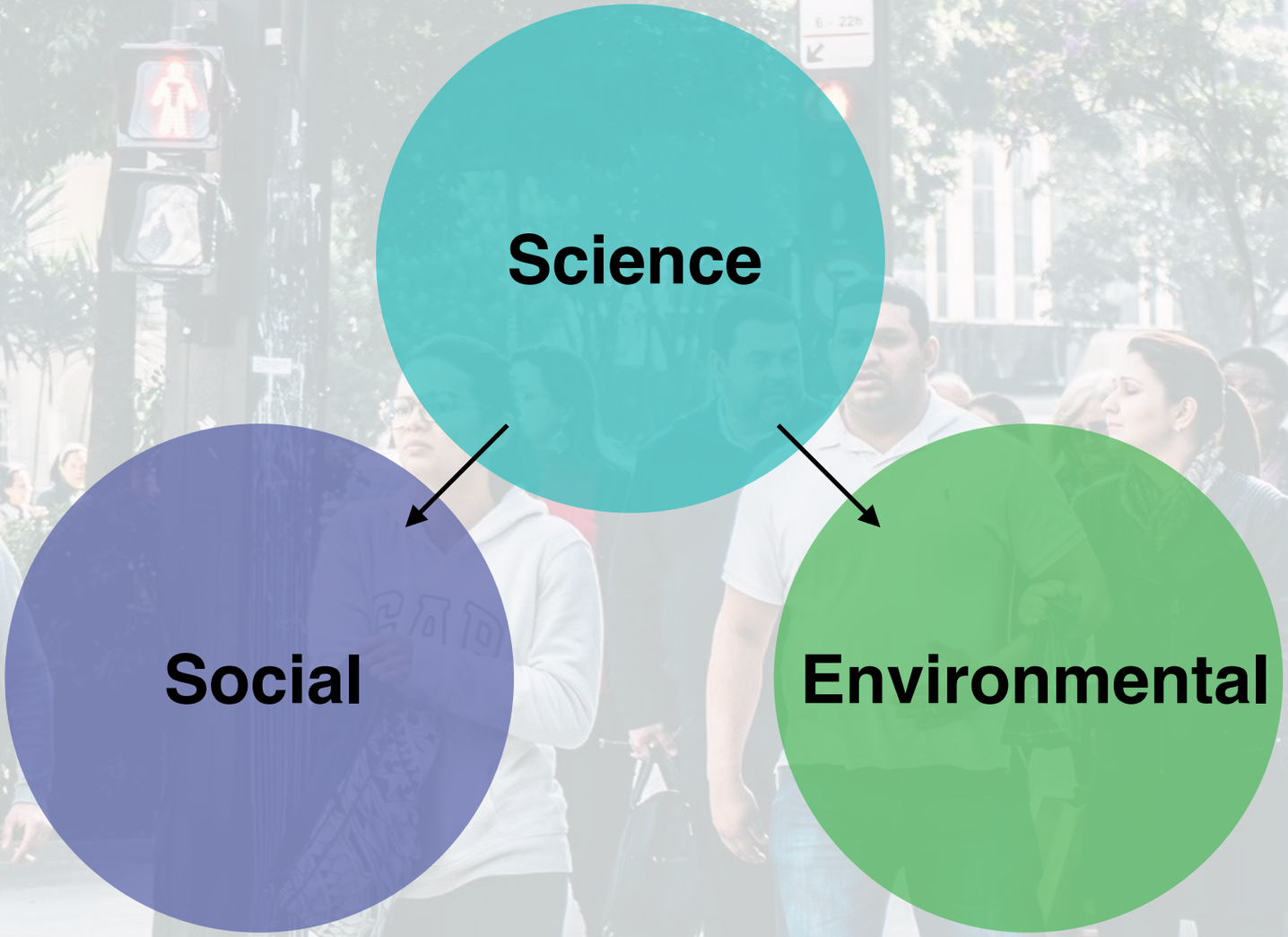
The Bloom technology is internationally protected and we have a strong patent strategy in place (applications)

Competition landscape

	other biomass conversion processes					
	Kraft/Water-based	Organosolv	Enzymatic	Lignin first	Ball milling	**Bloom**
Global usage	*>95%*	*<5%*	*<1%*	*R&D*	*R&D*	
Full value				✓	✓	✓
High selectivity				✓	✓	✓
Low temperature			✓	✓	✓	✓
Fast	✓	✓				✓
Scalable	✓	✓	✓	✓		✓

Impact

Bloom leverages science to maximise impact.



We generate more value from any type of lignocellulosic biomass and offer a unique solution of the increasing demand in bio-based materials.