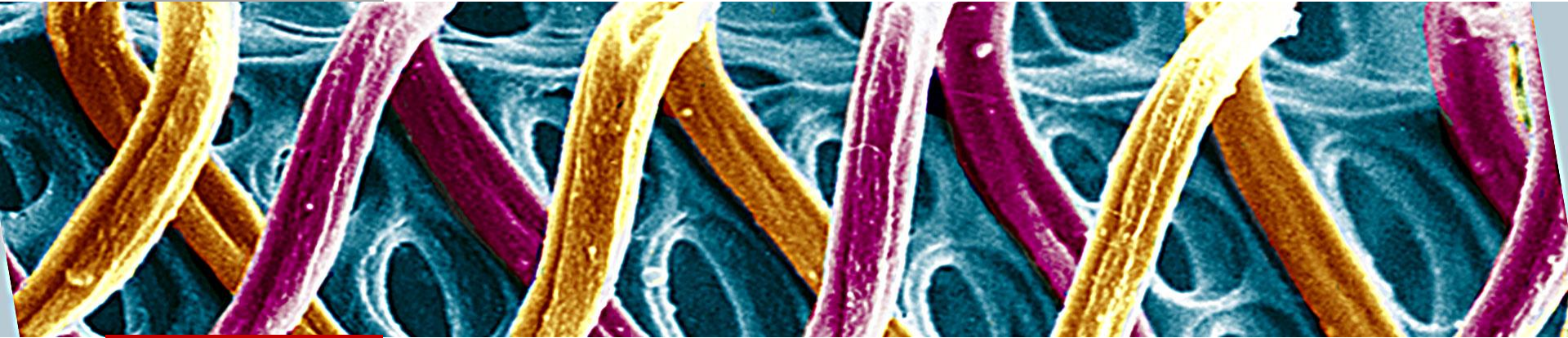




Glyco@Alps
Univ. Grenoble Alpes



**The two faces of carbohydrates
driving diversity in sugar-based innovations**
Grenoble Applied Economics Lab (GAEL)

Aurélie Level
24th January 2019



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GRENOBLE APPLIED ECONOMICS LAB - GAEL



- ▶ Main focus: microeconomics of **sustainable innovation and consumption** applied to **the energy and the agro-industry**.
- ▶ Size: 70 people, including 40 researchers and engineers, 10 supporting staff and 20 PhDs and post-docs.
- ▶ **Glyco@Alps project**: A team of economists specialised in economics of innovation, public-private partnerships and biotechnology firms organisation.

OBJECTIVES

- **To link economic analysis and glycosciences:**
 - ▶ Define “glycoeconomics” borders.
 - ▶ To understand the various supply chains:
 - *Products*: from extraction or production to final glyco-based products.
 - *Firms*: organisation of firms along the supply chain.
 - To what extent are glycosciences a source of innovation?
 - Main innovation bottlenecks and drivers along the supply chain.

MAIN RESULTS: 3 SUPPLY CHAINS

Properties

Physicochemical

Biological

Regional biomass

- *Products:* sugar, starch, wood etc.
- *Firms:* mature industries
- *Challenges:* different along the supply chain - extraction, standardisation, new catalyser, substitution vs new product vs new functionalities
- **Process innovation/product innovation**

Glycomics

- *Products:* kit, enzymes, reagent and instruments
- *Firms:* a concentrated market, emergence of start-ups
- *Challenges:* metrology, pharmaceutical firms should acquire “glyco” competences
- **Disruptive innovation: new demand, new products**

Dual biomass

- *Products:* pectin, guar, chitin, alginates, etc.
- *Firms:* mature industries based on old products
- *Challenges:* synthesise new molecules
- **Product innovation: new product based on dual properties**

CONCLUSION

- **High level of diversity in terms of innovation.**
- **Large companies / SMEs as providers of new technologies.**
- **Characteristics of transversal aspects:**
 - ▶ **Regulatory and intellectual properties aspects.**
 - ▶ **Development of white biotechnology at different levels of the value chains.**
 - ▶ **Metrological challenges.**

Thanks!

For comments and/or questions :
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