ALPO

Interreg
France-Wallonie-Vlaanderen

UNION EUROPÉENNE
EUROPESE UNIE

GoToS3
ALPO

Nouveaux Matériaux Polymères issus de la Biomasse Microalgue

Chef de file/Projectleider : UMONS Université de Mons

Nieuwe Polymeermaterialen via Bouwstenen uit Microalgen

Université de Lille 1 SCIENCES ET TECHNOLOGIES

UNIVERSITÉ DE REIMS CHAMPAGNE-ARDENNE

GHENT UNIVERSITY

KU LEUVEN kulak

AgroParisTech

Bioplastics from microalgae cultures

Laurent Dewasme and Jean-Marie Raquez

biosciences
INSTITUT DE RECHERCHE EN BIOSCIENCES DE L'UMONS

matériaux
INSTITUT DE RECHERCHE EN SCIENCE ET INGENIERIE DES MATERIAUX DE L'UMONS

UMONS Université de Mons

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GoToS3

GoToS3
Catalyseur d'innovation
Katalysator van innovatie

GoToS3 : « For clever specializations »

17 projects

R & D (13)

SME competitivity development (4)

95 partners : research, technology transfer, accompaniment, competitivity clusters, …

6 fields of **« S3 » common** to 3 regions

Health care

Agriculture and alimentation

Textile

Cultural and creative industries

Chemistry and new materials

Mechatronics and mechanical engineering

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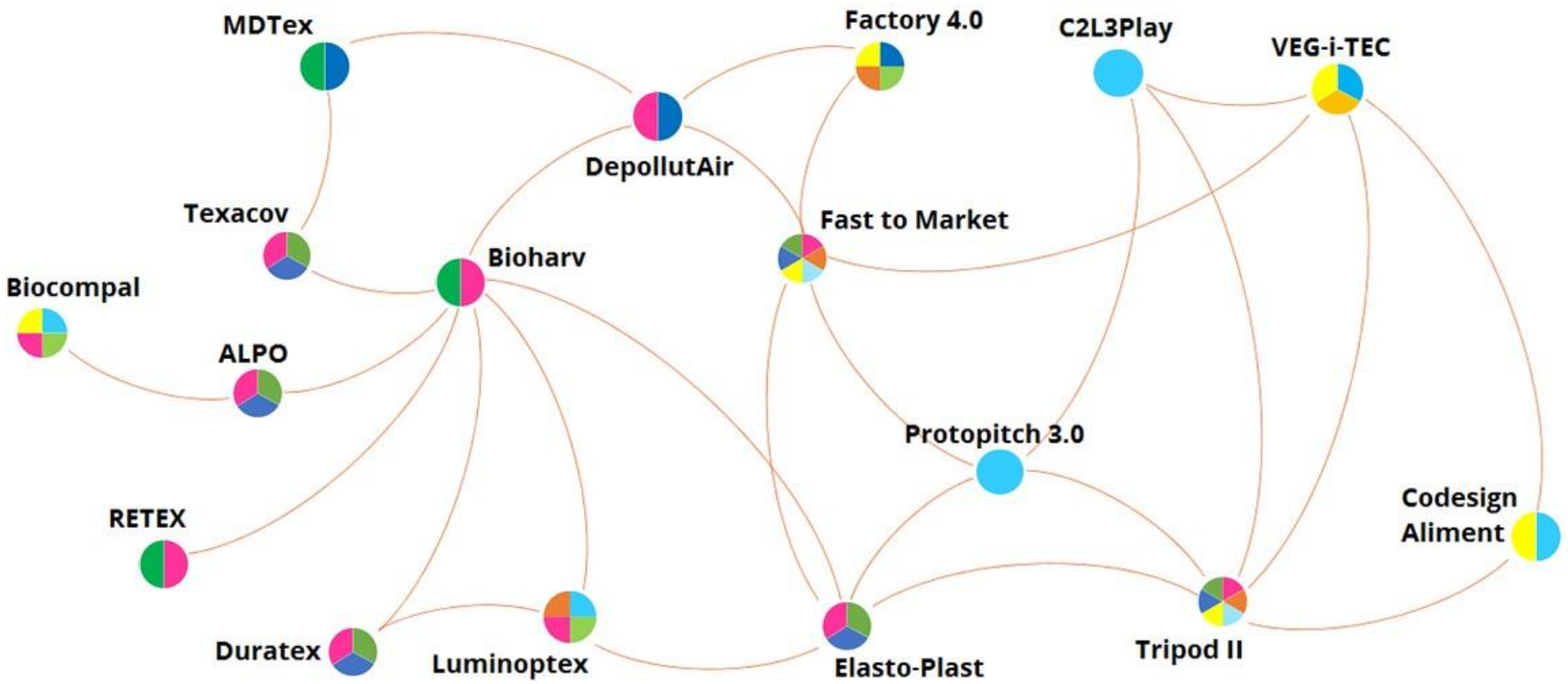


Health care

Agriculture and alimentation

Textile

Cultural and creative industries

Chemistry and new materials

Mechatronics and mechanical engineering

ALPO Project

Environmental and societal challenges (including global warming)

→ Use of renewable raw materials starts being generalized in the plastic field

→ New biodegradable plastic presenting interesting and well performing properties

Development is somewhat lagging in FWVL INTERREG

ALPO Project

Interreg France-Wallonie-Vlaanderen

GoToS3 ALPO

Partners

- ✓ UMONS (Project Head)
- ✓ Université de Lille 1
- ✓ Universiteil Gent
- ✓ KULAK (Katholieke Universiteit Leuven afdeling Kortrijk)
- ✓ Université de Reims Champagne-Ardenne
- ✓ AgroParisTech - Reims
- ✓ GreenWin
- ✓ AQUIMER
- ✓ Matikem
- ✓ IAR pole
- ✓ POM West-Vlaanderen
- ✓ PCG asbl
- ✓

Budget

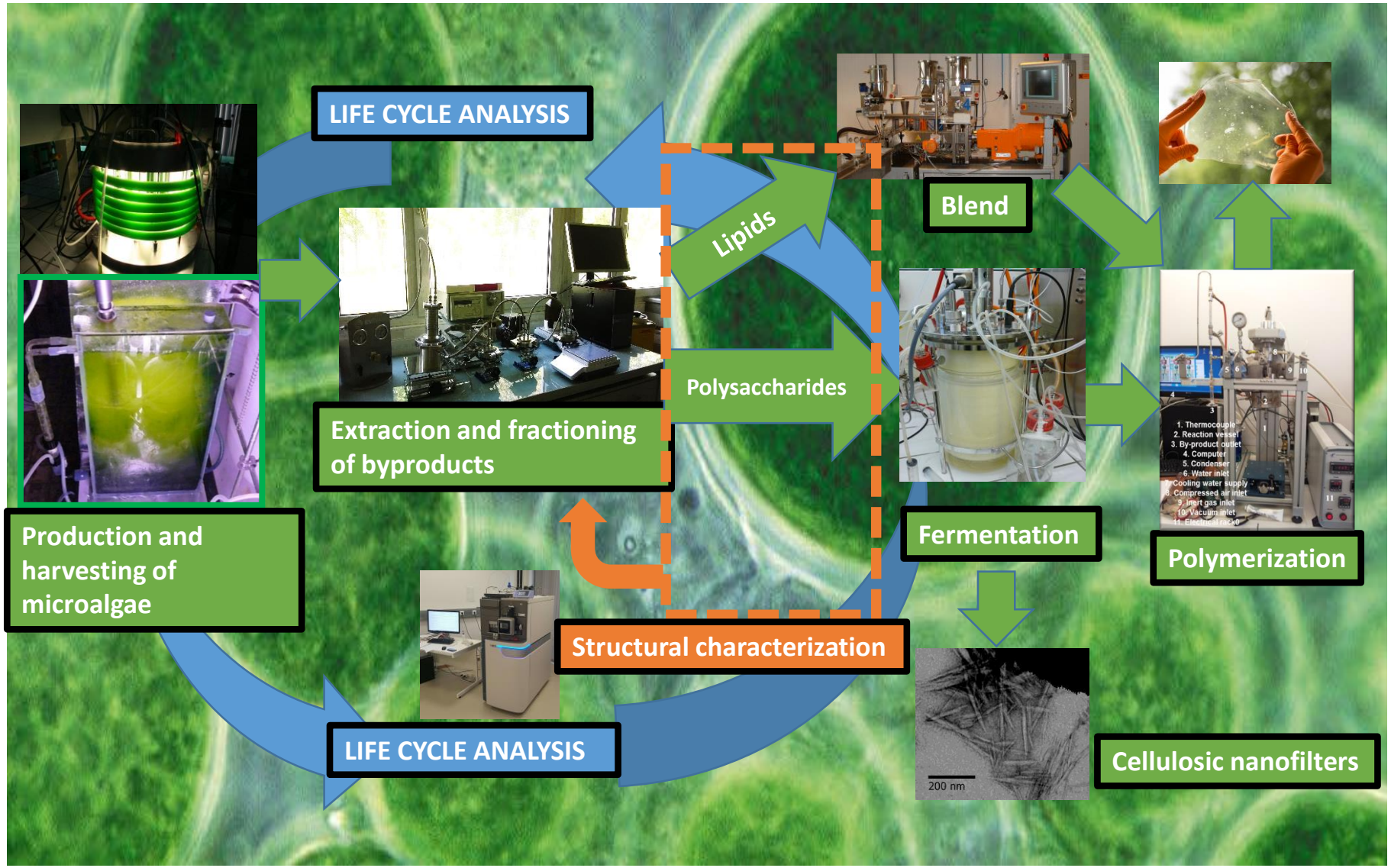
3.492.104 €

Contact UMONS

Research Institutes matériaux INSTITUT DE RECHERCHE EN SCIENCE ET INGENIERIE DES MATERIAUX DE L'UMONS biosciences INSTITUT DE RECHERCHE EN BIOSCIENCES DE L'UMONS

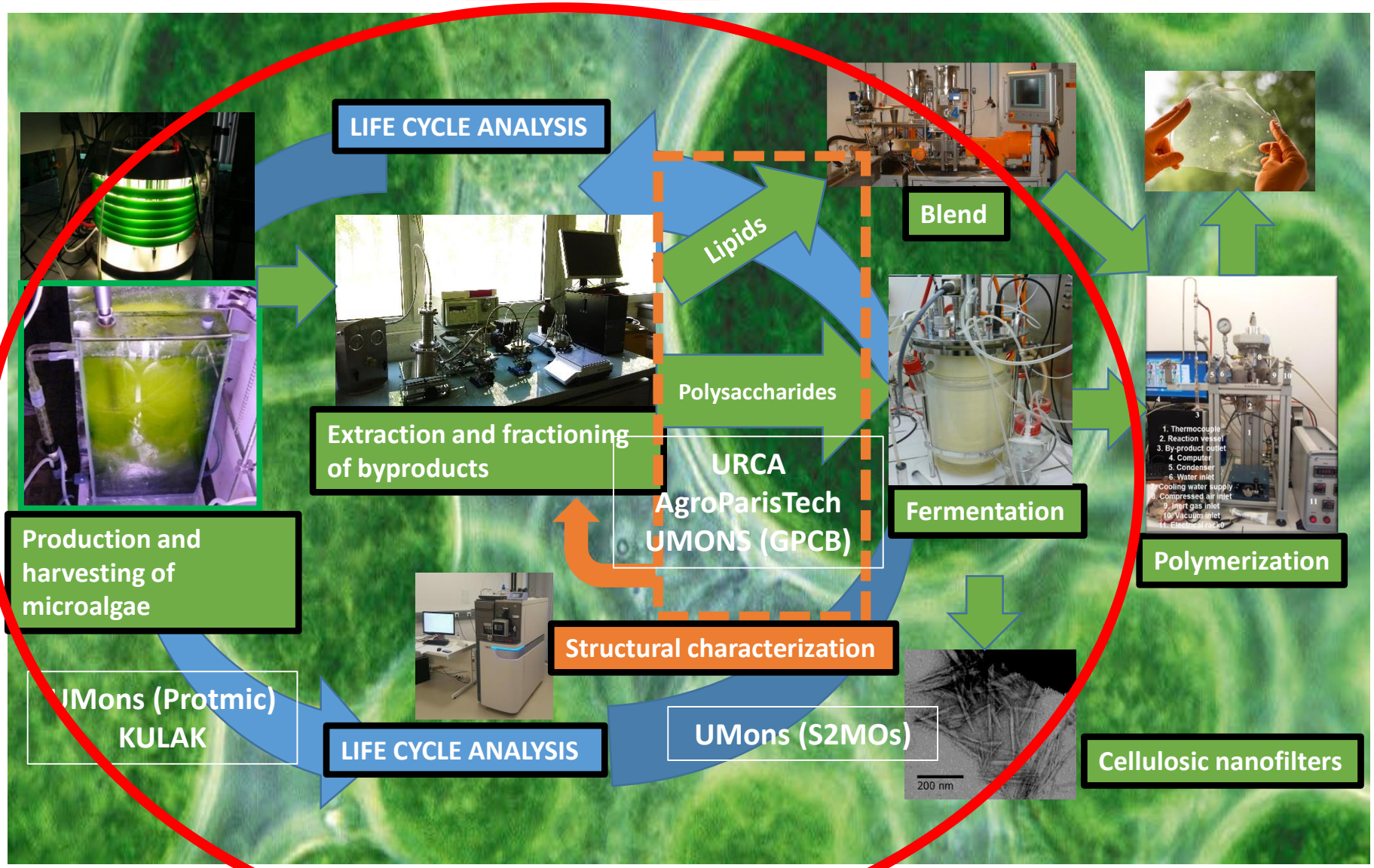
Jean-Marie Raquez and Laurent Dewasme

ALPO Project



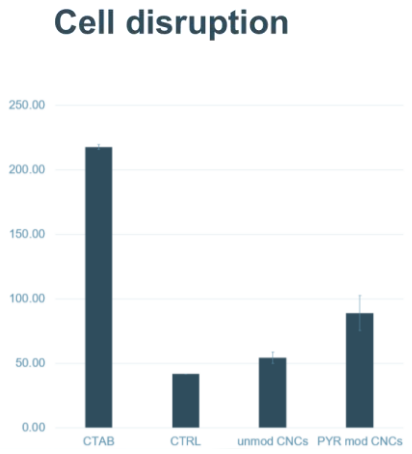
ALPO Project

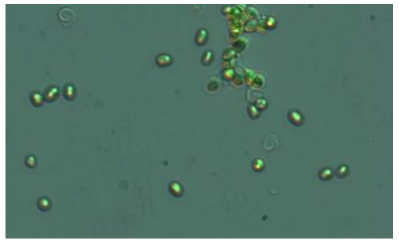
1st Workpackage

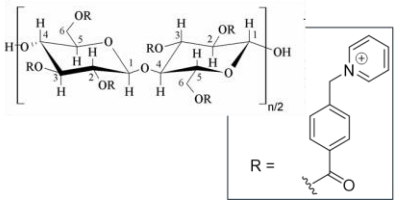


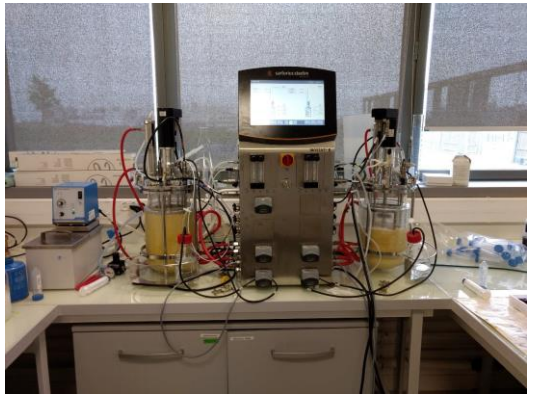
ALPO Project

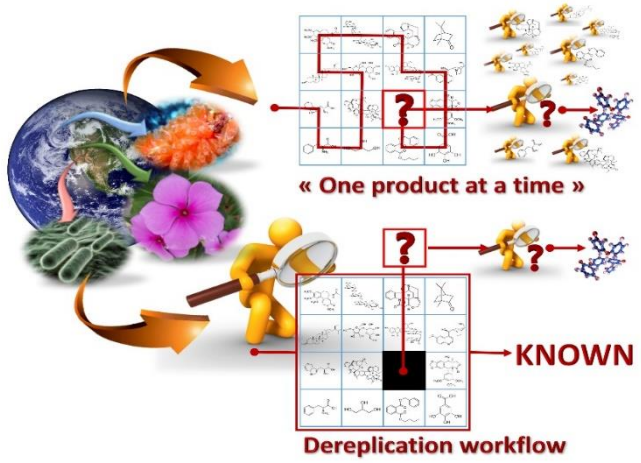
- WP 1 – Microalgae production and biorefinery (UMONS, KULAK, AgroParisTech, URCA)
- 1) Valorization potential analysis (sugars, lipids)
- 2) Culture operating condition optimization to produce building blocks
- 3) Biorefinery process development (optimization of lipids using Y. lipolytica)
- 4) Use of biorefinery and white biotech to produce building blocks from microalgae





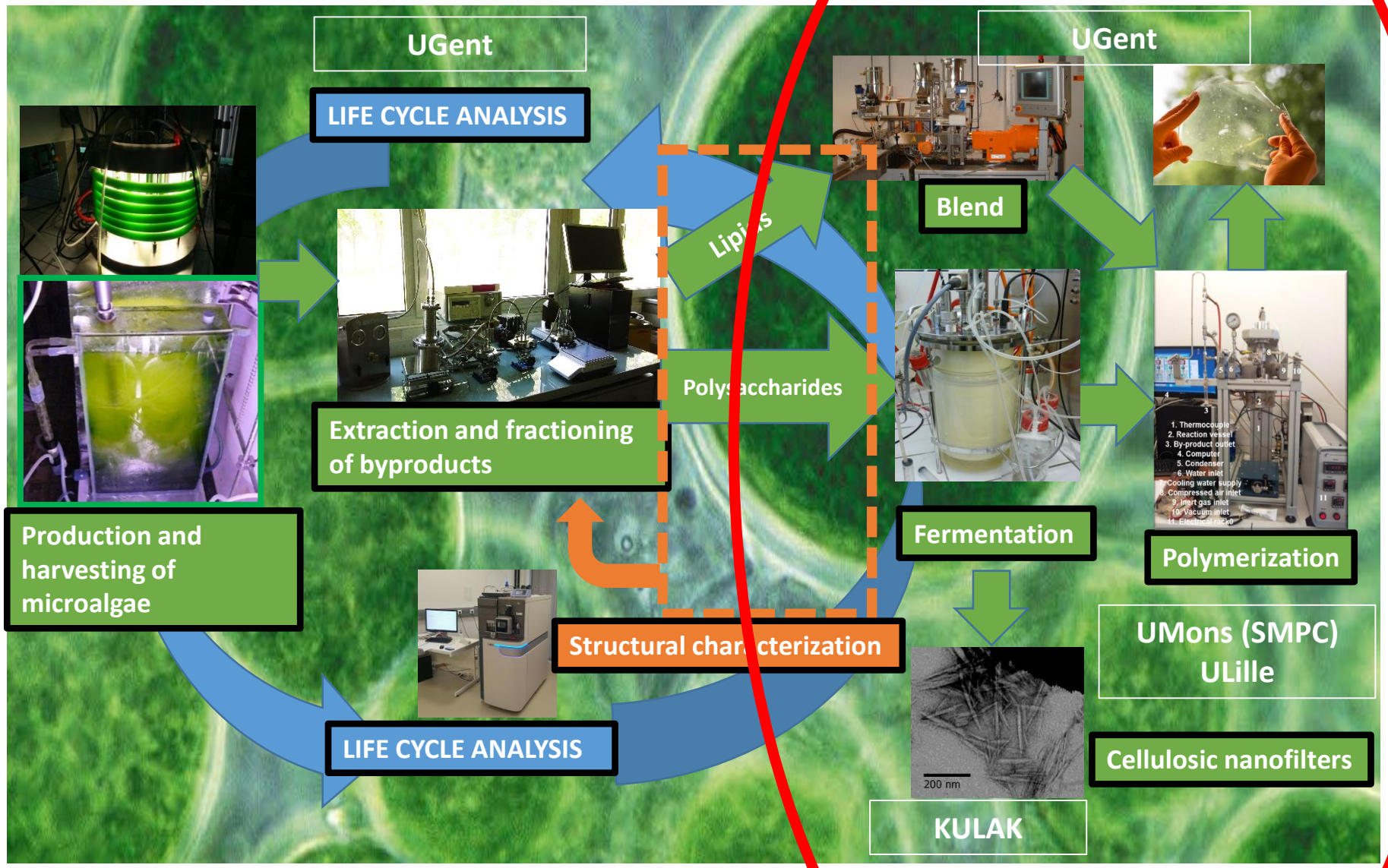






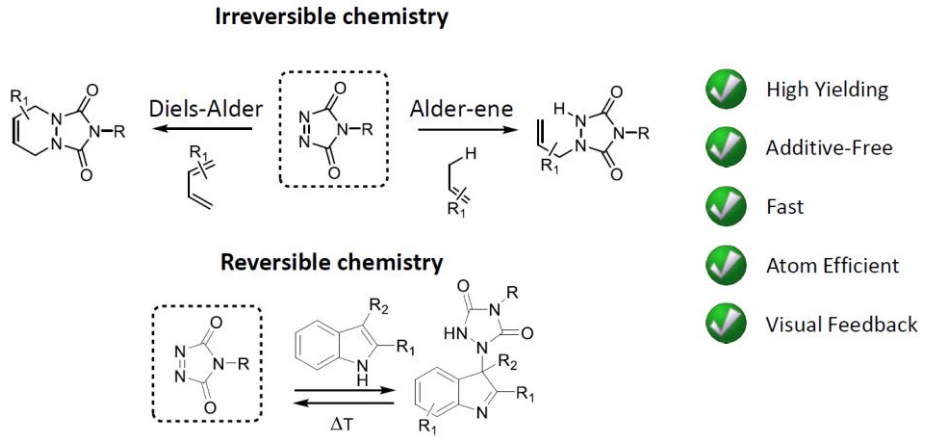
ALPO Project

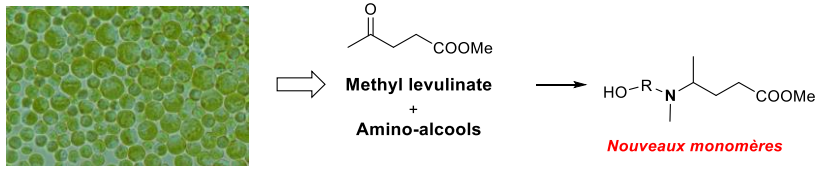
Second Workpackage

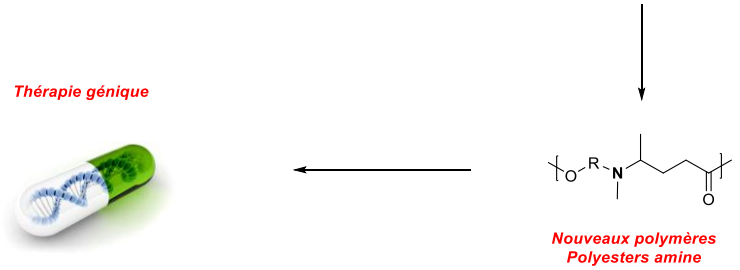


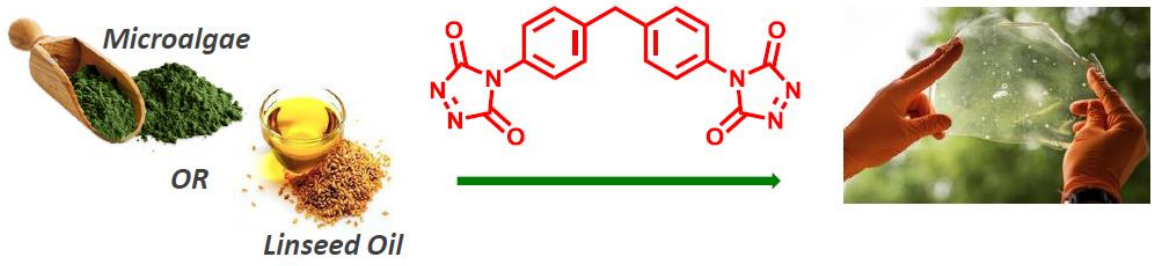
ALPO Project

- WP2 – Bioplatic development starting from microalgae byproducts (UMONS, ULILLE, UGENT)
- 1) Lipid exploitation (reticulation using bis-TAD)
- 2) New polyester synthesis (levulenic acid)
- 3) Bioplastic additivation using microalgae byproducts
- 4) Bioplastic characterization



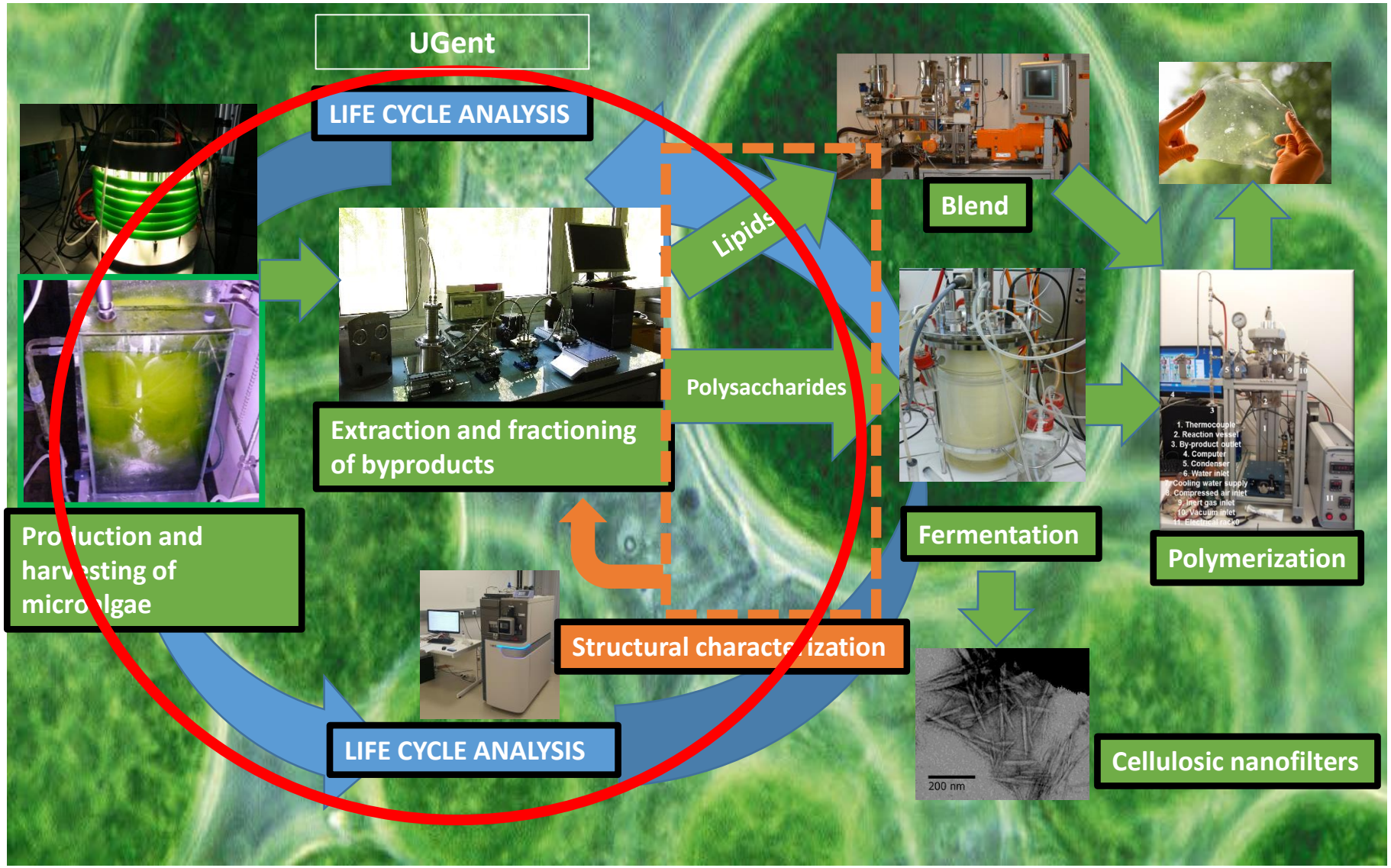






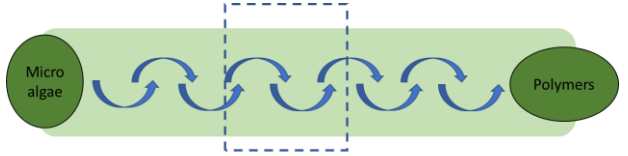
ALPO Project

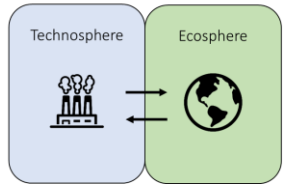
Third workpackage

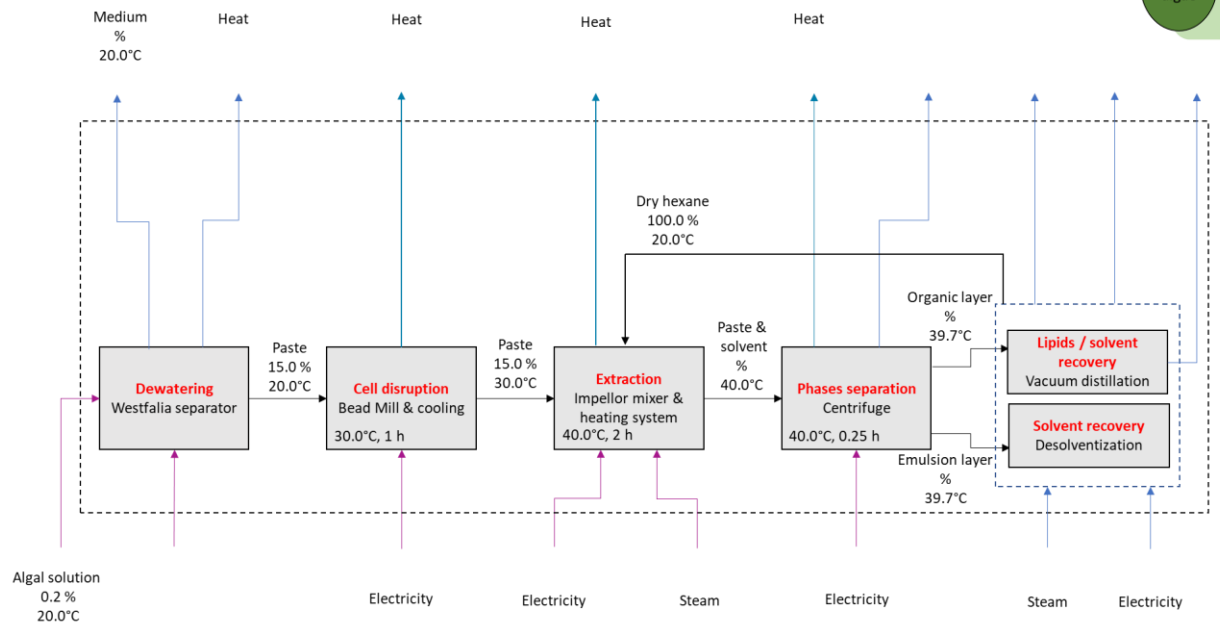


ALPO Project

- WP3 - Validation and transfer to industries from FWVL INTERREG border regions







- 1) Life Cycle Analysis
  - Scenarios
  - Strain compositions
- 2) Support of industries
  - Vandeputte S.A.
  - SPADEL
  - Presentations during cluster events (Espresso Wagralim, Greenwin, …)

ALPO Project

- WP 4 – Training (all partne
- Workshops and Summer schools
  - Last event in UMons, Mons, Belgium (13-14/09/2018)
  - 4 sessions:
    - Production and biorefinery of microalgae (4 academics and 2 industrials)
    - Bioplastics from renewable building blocks (1 academic and 2 industrials)
    - Microalgae bioproduct characterization (2 academics, 1 researcher and 1 industrial)
    - Bioplastics from microalgae: LCA (2 academics and 1 industrial)
  - Industrial support (training, service delivery,…)
  - Industrial sensitization (newsletters, web dissemination: www.alpo-interreg.eu, www.getes3.eu)

ALPO Project

- WP 4 – Training
  - **Next one-day workshop announcement**:
    - **Who?** Collaboration between ALPO, BIOCOMPAL and BIOHARV, all from GoToS3 portfolio
    - **When?** By the end of 2019
    - **Where?** Mons, Belgium
    - **About?** Composite, multifunctional and biobased materials

ALPO Project

- Several scientific perspectives
  - Cationic modified cellulose in downstream microalgae processing (harvest, disruption) (WP1)
  - Characterization of microalgae cell wall (sugar quantification) (WP1)
  - Quantification of lipids and polysaccharides in liquid and solid phases (bead mill tests) (WP1)
  - Chemical profiling (WP1)
  - Antioxydant properties of microalgae extract under analyses (WP2)
  - New polymers from microalgae (WP2)
  - Finishing data inventory of different route scenarios for LCA (WP3)

ALPO Project

Thank you for your attention!

Chef de file
Projectleider

UMONS Université de Mons

Opérateurs
Partners

AgroParisTech

KU LEUVEN kulak

Universiteit Gent

Université de Lille 1 Sciences et Technologies

Université de Reims Champagne-Ardenne

Cofinanceurs
Medefinanciers

Wallonie

west-vlaanderen de gedreven provincie

provincie Oost-Vlaanderen

Opérateurs associés
Geassocieerde partners

POM maakt werk van West-Vlaanderen

pcg

IAR Pôle de compétitivité Industries & Agro-Ressources

aQUimer Le pôle des produits aquatiques

GREEN WIN Chemical Engineering & Materials in Wallonia

matikem De l'idée au marché

Interreg France-Wallonie-Vlaanderen
UNION EUROPÉENNE EUROPESE UNIE
GoToS3

X–innovation

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Catalyseur d'innovation
Katalysator van innovatie

Prochain évènement :
Mardi 21 mai 2019 à Douai

Design X Plastics

Comment le DESIGN peut-il offrir de nouvelles perspectives à la PLASTURGIE?

2 tables rondes :

Recyclage plastique et démarche écodesign

Smart-plastic et innovation par le design

HDFID HAUTS-DE-FRANCE INNOVATION DEVELOPPEMENT
Région Hauts-de-France

POM maakt werk van West-Vlaanderen

Sowalfin PARTENAIRE FINANCIER DES PME

Suivez-nous : **www.gotos3.eu** **@interreg_gotos3**

Avec le soutien du Fonds européen de développement régional
Met steun van het Europees Fonds voor Regionale Ontwikkeling