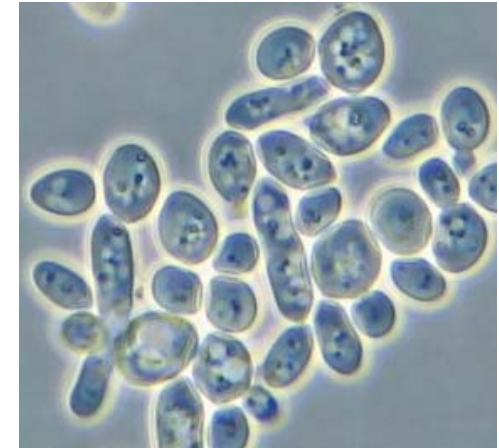




**NovelYeast**

*Founder and Managing Director*

***Prof. Johan Thevelein***



***Lab of Molecular Cell Biology  
KU Leuven***



Superior industrial yeast strains for bio-based economy

- 1G & 2G bioethanol production
- 1G & 2G production of bio-based chemicals
- Other applications with yeast

***New Delhi, 2 March 2020***

# Demonstration plant in upstart

- Renasci NV: demonstration plant in harbor of Ostend, Belgium; fully operational in Q2 2020
- Recycling of Municipal Solid Waste: all fractions recycled; 120,000 ton/year

## Fermentation unit in design

**Organic fraction: mainly paper/cardboard (35,000 ton/year)**

→ ± 5 million L ethanol/isobutanol

- Conversion to ethanol, established (fed-batch, partial SSF, 8-10% v/v)
- Conversion to isobutanol, 2G isobutanol strain under development



Isobutanol → Isobutene → + Glycerol (from biodiesel production) → GTBE  
(Glycerol Tertiary Butyl Ether: valuable fuel additive for diesel and gasoline that improves engine performance and lowers harmful exhaust emissions)



# Innovative aspects of technology platform

- **Proprietary industrial 2G bioethanol yeast strain** with high xylose fermentation capacity and high inhibitor tolerance
- **Proprietary industrial 2G isobutanol yeast strain** with high xylose fermentation capacity and high inhibitor tolerance in development
- Fed-batch, partial SSF, paper pulp → bioethanol process → **strong reduction enzyme load**
- **2G yeast strain secreting 7 lignocellulolytic enzymes** → further reduction enzyme load
- Powerful **polygenic analysis platform** for complex traits of industrial importance
  - inhibitor tolerance, thermotolerance, xylose utilization, low glycerol production, etc.
  - proprietary superior alleles for targeted strain improvement
- **Whole-genome transformation** → thermotolerance, acetic acid tolerance, inhibitor tolerance
- Extensive collection of **>3500 *Saccharomyces cerevisiae* strains** for hunting superior alleles
- Extensive experience with metabolic engineering for construction of **yeast cell factories**
  - Proprietary industrial 2G bioethanol yeast strain:  
**glucose + xylose → lactic acid, muconic acid, 2,3-butanediol**

