

NovelYeast bv

Superior yeast as a target and a tool



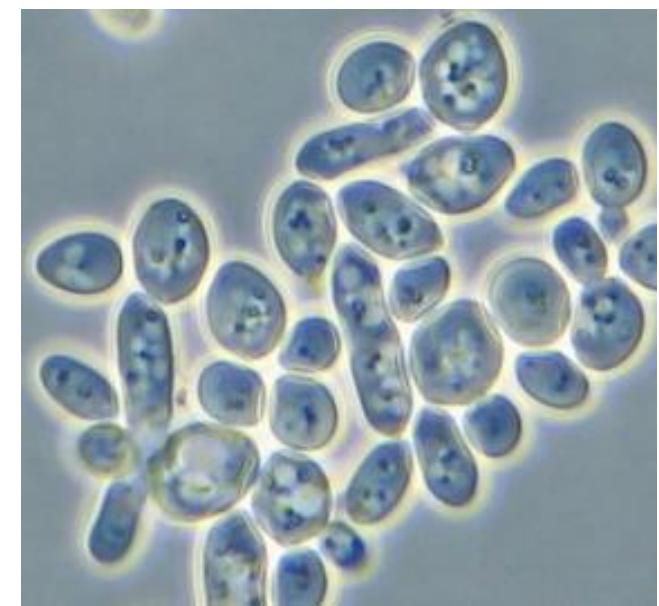
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Lab facilities: Bio-Incubator, BIO4, Gaston Geenslaan 3,
3001 Leuven-Heverlee, Belgium



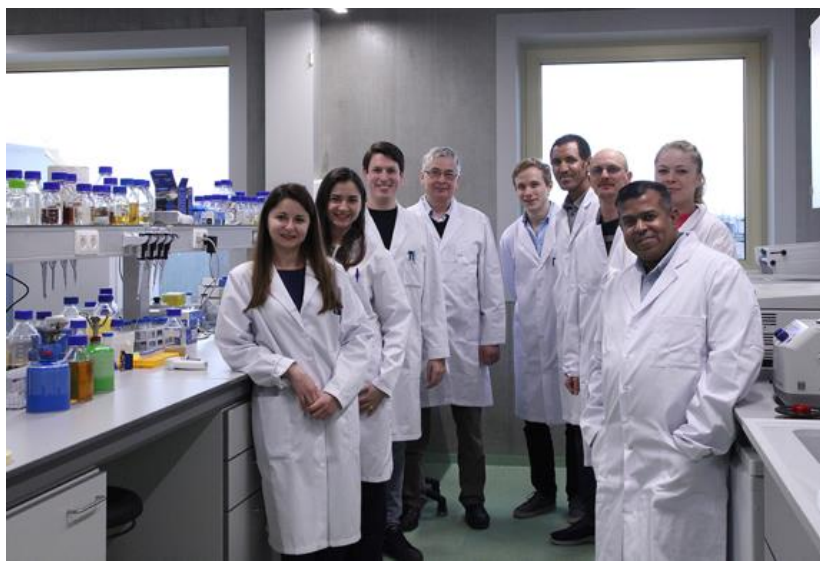
Origin Team

Spin-off company, founded by Em. Prof. Johan Thevelein, based on research output, expertise and IP from KU Leuven Lab of Molecular Cell Biology and VIB Department of Microbiology



- Dr. Johan Thevelein
Prof. Em. KU Leuven, Molecular Cell Biology. Former Dept. Director/Group leader VIB, Molecular Microbiology
± 45 years experience in basic and applied research on yeast, >300 publications, > 40000 citations, h-index: 109, 45 patents, 125 research projects of which 15 EU projects and 20 projects with companies worldwide, CSO GlobalYeast NV/SA
- Personnel
 - Dr. Arne Claes, 9 years experience in yeast research
 - Dr. Bruna T. Carvalho (20%), 10 years experience in yeast research and industrial experience
 - Dr. Mekonnen Demeke, 15 years experience in yeast research and industrial experience
 - Saju Varghese, PhD stud., 12 years experience in yeast research and industrial experience
 - Dr. Ana Subotic, 11 years of experience in yeast research and industrial experience
 - Dr. Stijn De Graeve, 18 years of experience in yeast research and industrial experience
 - Dr. Ward Vanthienen, 8 years of experience in yeast research and industrial experience
 - Dr. Steve Swinnen, 19 years of experience in yeast research and industrial experience
 - Bart Thevelein, PhD student, Baekeland fellowship, Master in Biochemistry and Biotechnology
 - Lian Bombeeck, PhD student, Master in Biochemistry and Biotechnology
 - Marie Wallays, technician, Bachelor in pharmaceutical and biological laboratory technology
 - Caroline Thevelein (30%), management and administrative assistant
 - Sophie Parent (50%) administrative assistant

Lab Facilities: Bioincubator BIO4, Gaston
Geenslaan 3, 3001 Leuven-Heverlee, Belgium





Mission

NovelYeast bv aims to exploit its deep knowledge and technical know-how with yeast research and the many industrial applications of yeast for the development and commercial implementation of **superior industrial yeast strains and the associated processes** for the production of biofuels, bio-based chemicals, healthy sugar and protein sweeteners, alcoholic beverages, bakery, nutraceuticals, proteins, enzymes and for other applications, as well as engaging in R&D services and projects for the utilization of yeast as a tool in industrial biotechnology, and in medical and agroindustrial applications.

Unusual start-up

- No VC capital
- Small capital from founder (Johan Thevelein: 100% shareholder) + research projects taken over from VIB/KU Leuven (Start: aug. 2019) → Profitable from the start
- New projects with multiple partner companies worldwide
- New grants (EU, CBE-JU, VIB, VLAIO, EUROSTARS, B-RESILIENT, FIT, ...)
- Up to now: short-term income from bilateral projects and grants
- Goal: recurrent long-term income (licensing of yeast strains; sales of Active Dry Yeast, partner in commercial production)
- Diverse applications: diverse sources of income → more financial robustness



Problems addressed

Development of superior industrial yeast strains

Production of biofuels, bio-based chemicals, sugar and protein sweeteners, flavor compounds, alcoholic beverages, proteins, enzymes

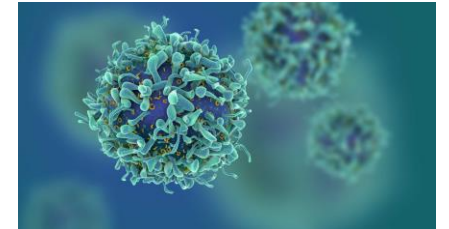
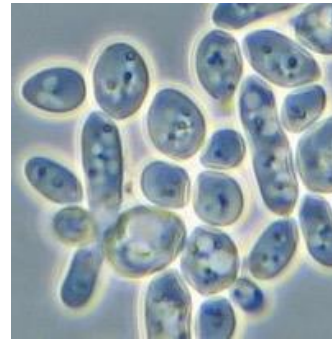
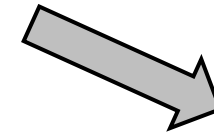
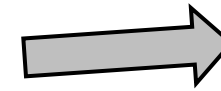
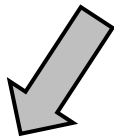
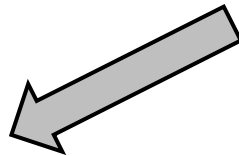
Yeast



Sustainable
biofuels



Sustainable
bio-based
chemicals



Cancer
drugs



Alcoholic beverages
brewers' yeast



Wine production
wine yeast



Healthy sugar and
protein sweeteners



Intestinal diseases
probiotics

Baking
bakers' yeast



Ongoing projects

Biofuels

- Bioethanol. 1G: Brazil (several ethanol plants). 2G (sugar cane bagasse, paper sludge, forestry residues, bamboo, Napier grass, rice straw, agave): Guatemala, India, South Africa, Finland, Brazil
- Isobutanol. 1.5G & 2G: USA, India, Belgium. EU-Horizon project → SAF

Bio-based chemicals

- Lactic acid (Guatemala) (Food applications and PLA)
- 2,3-butanediol (India, Sweden) (synthetic rubber)

Healthy sugar sweeteners (Eurostars project with Bioxytol, Spain; Flanders Food)

- Isomaltulose (from sucrose)
- Allulose (from fructose, glucose, starch)
- Erythritol (from glucose, fructose, sucrose, starch)
- Cellobiose (from sucrose, starch) Confidential sweetener (from glucose) (USA)

Xylitol (from lignocellulose fibers → hemicellulose → xylose stream → xylitol) (Estonia, Belgium, India)

Protein sweetener

- Brazzein (with Sainc Energy, UK)

Flavoring agent

- Vanillin (from Ferulic acid, Portugal)

Plastic recycling

- Polyurethanes (Belgium/USA)

Lignin valorization (CBE-JU)

- Monoaromatics → muconic acid

Cosmetics

- Olefins (USA)

Wine yeast

- Low-alcohol yeast (Belgium)

NewCo → plant in Flanders

- Production of sugar sweeteners with starch-rich side-streams from Flemish food industry → allulose



Specific partnerships for internationalisation

Brazil: Cerlev (Prof. Rogelio Brandão, UFOP)

- Submission of applications at CTNBio for deregulation of cisgenic GMOs
- Initiation and maintenance of contacts with sugar/ethanol plants and industry organizations, 2G ethanol plants
- Portuguese language essential

India: BEST Associates Ramakrishna, Biofuel responsible at Ministry of Petroleum and Natural Gas

- Initiation and maintenance of interaction with sugar/ethanol plants, 2G ethanol plants

Unique selling points

- World-leading technical expertise in industrial yeast strain development
- World-leading pioneering innovativity in basic and applied yeast research: persistent problem-solving approach
- Extensive world-wide network with companies active in a large variety of applications with yeast
- Small-scale, highly cost-competitive projects and services
- Complete focus on yeast applications and closely associated processes

Main interest

- Matchmaking with partner companies
 - Development of superior yeast strains and associated processes
 - Development of specific cell factory yeast strains
 - Licensing of superior yeast strains
 - Offtake agreements for products
 - Valorisation of side streams from food industry (rich in sugar/starch) and forest/wood industry (lignocellulosic biomass)



Many thanks for your attention !

