VALORISATION OF MICRO-ALGAE

ALGOBIOTECH SAS, FRANCE | WWW.ALGOBIOTECH.COM

MICRO-ALGAE: SPIRULINA

AT THE CORE OF OUR ACTIVITIES

Amazing aquatic micro-organisms

Autotrophic aquatic micro-organisms

- drawing energy from the first link in the food chain

Cyanobacteria are the oldest known living organisms on earth

- Evolved from over 3.5 billion years ago

Ability to perform photosynthesis to release oxygen

- Key role in atmospheric oxygen balance

Benefits

Biomass from sustainable, eco-friendly production

Renewable

Rich biodiversity

Economically viable

ALGOBIOTECH'S JOURNEY

2014 Founded and setup in Genopole

Oct 2014 Deposited first patents with funding from Bpi France

Dec 2016 Awarded Genopole Research Grant

Apr 2017 Launched ENISSA range of skincare products

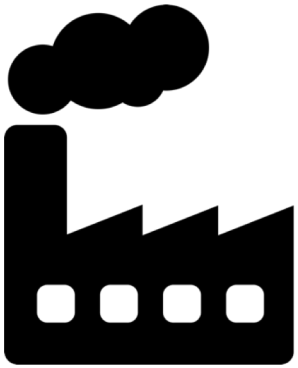
Nov 2017 Judged one of the 10 most innovative start-ups globally

GENOPOLE
VIVRE L'INNOVATION

bpifrance

Fi
Food ingredients Europe

MARKET PAIN POINT



Trend of substituting synthetic ingredients with natural products

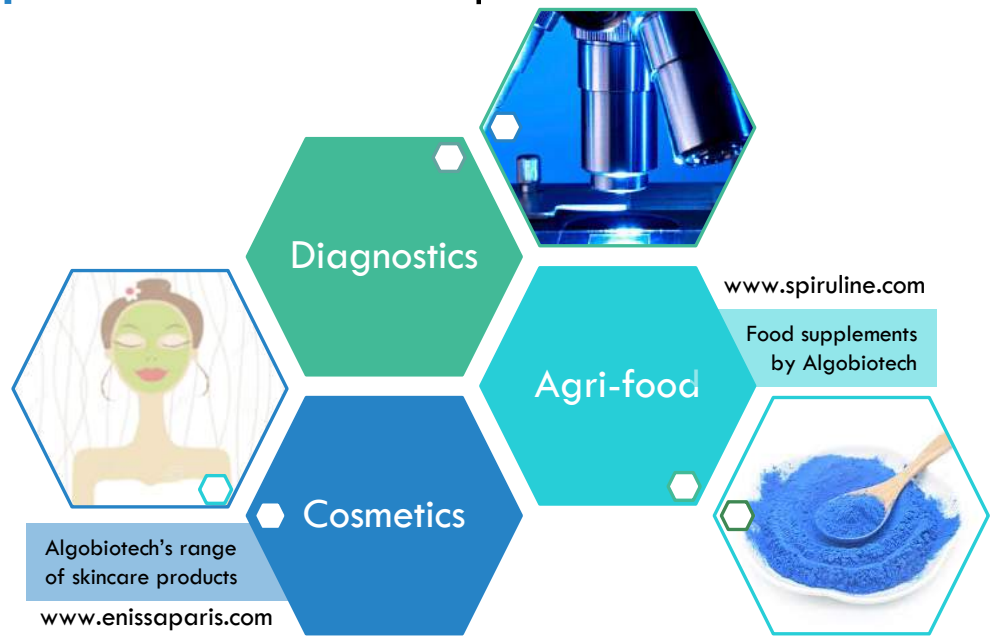
- Increase in consumer demand for natural, healthy and eco-friendly products

- Changing laws aimed at promoting natural products rather than synthetic ones

ALGOBIOTECH'S DNA

Drive the shift from synthetic ingredients **towards natural** alternatives

Diverse applications of isolated products



SPIRULINA MARKET

WIDE OPPORTUNITY

Global Spirulina market expected to reach €1.6bn by 2026

- Projected CAGR of 10% from 2016

Spirulina extracts to contribute over €220mn by 2025

- Europe at the helm, with an expected worth of €70mn

Food & Beverage segment to grow fastest among spirulina extracts

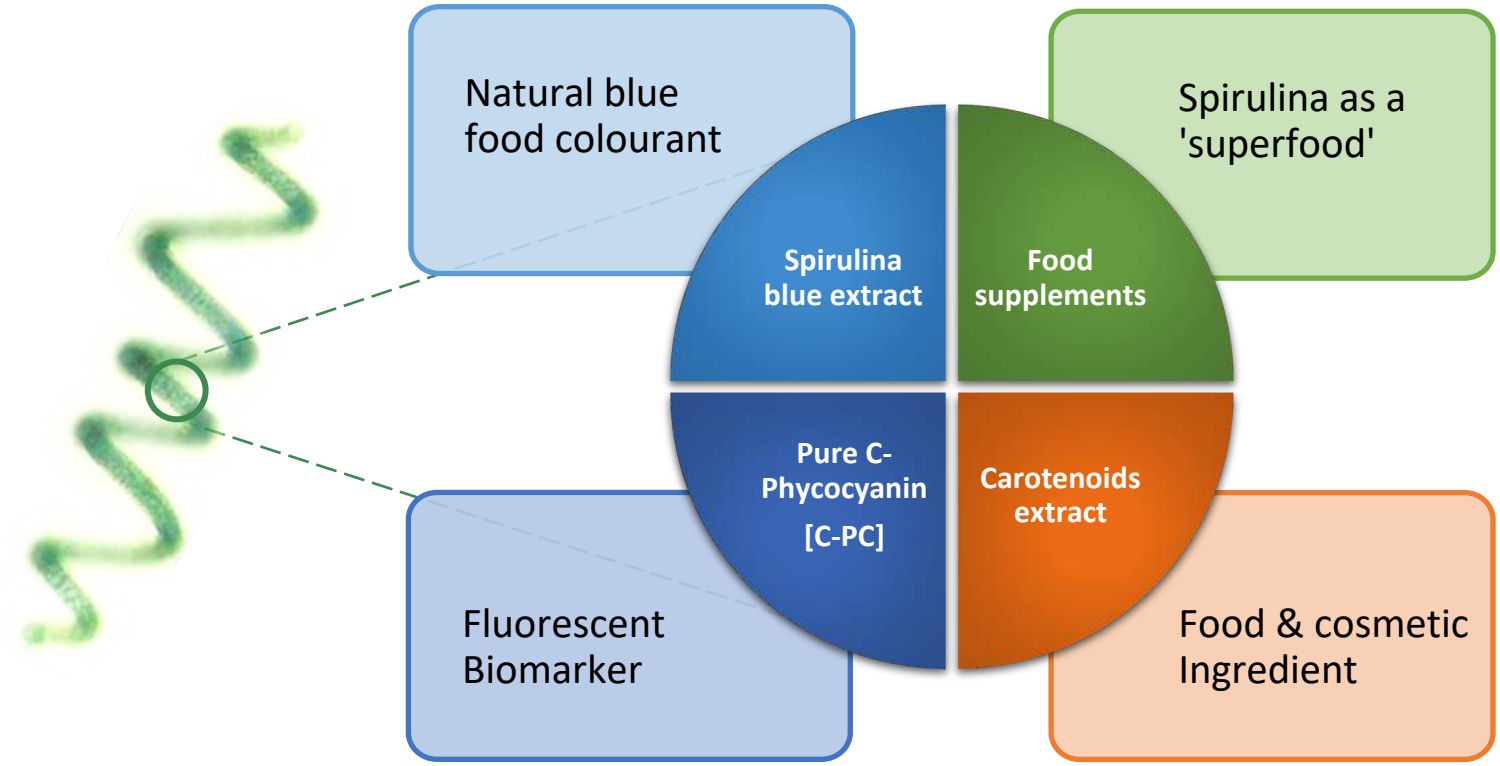
- Projected CAGR of 8.5% during 2017-2025

Tremendous market opportunity for innovative solutions

Data from Persistence Market Research report 2017

OUR INNOVATION

A POWERHOUSE OF ACTIVE MOLECULES

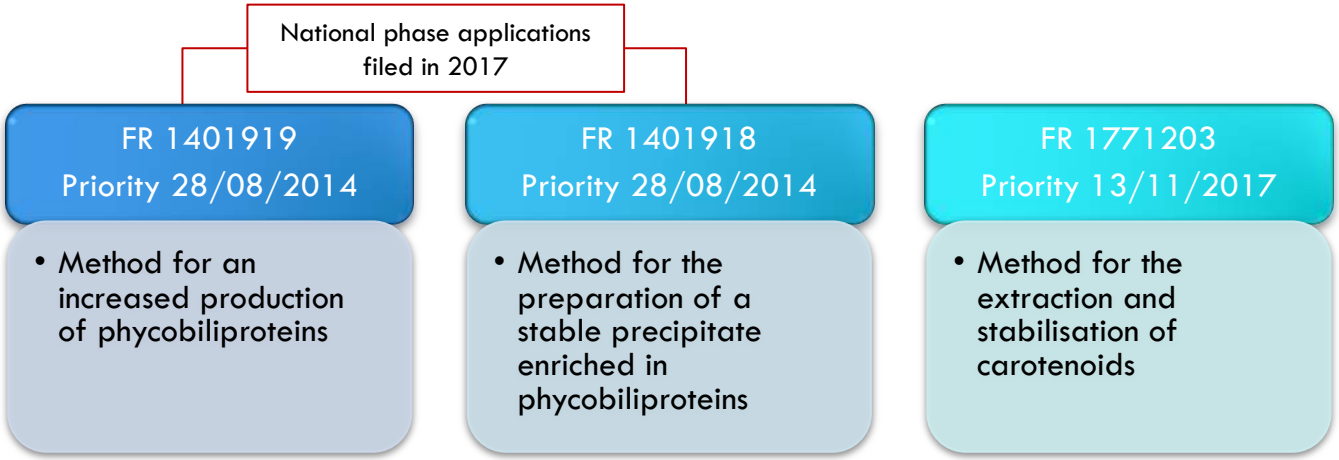


OUR INNOVATION

IP PORTFOLIO: PATENTS PIPELINE

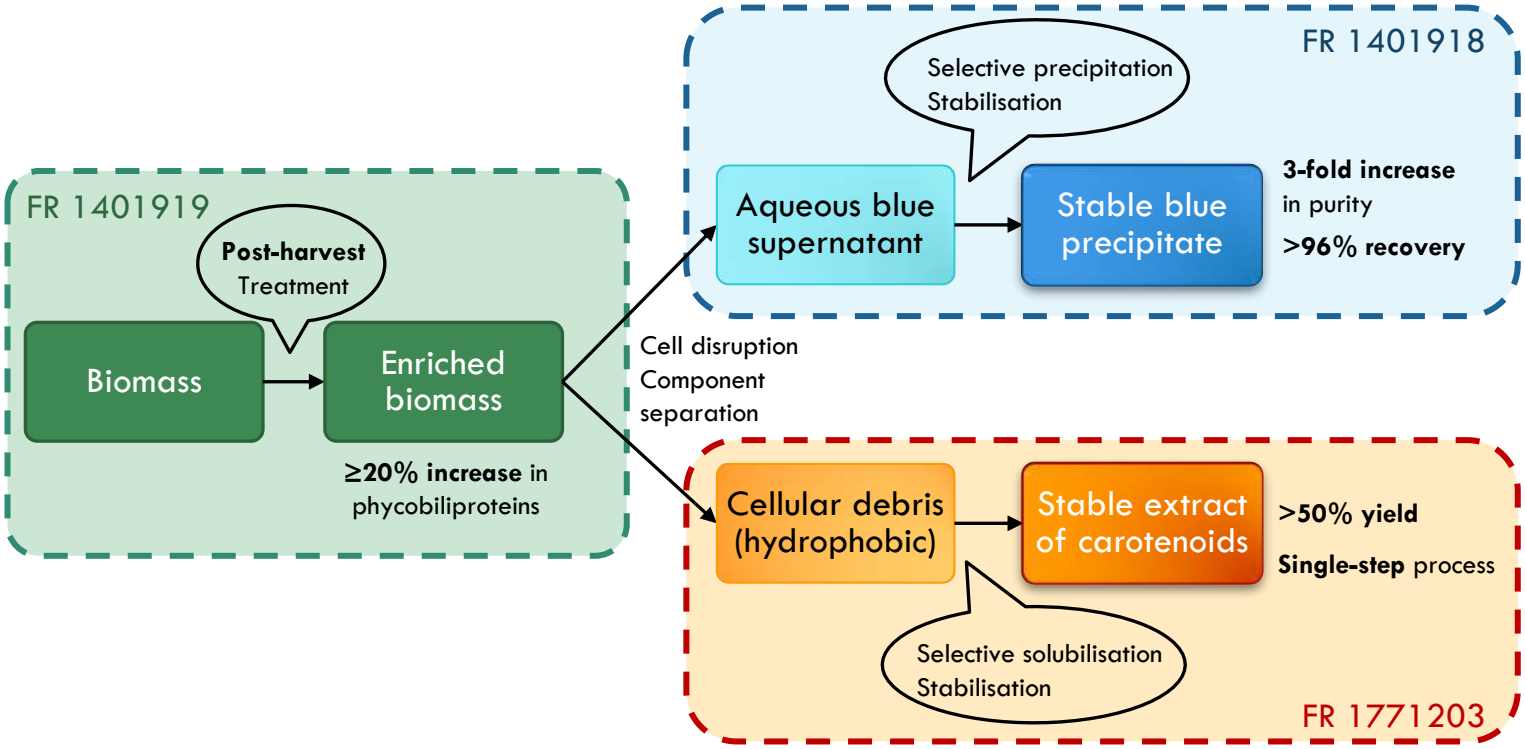
Three patent applications with international extension through PCT

Stable extraction of molecules from *Spirulina* (phycobiliproteins and carotenoids)



OUR TECHNOLOGY

CORE PROCESSES



OUR TECHNOLOGY

KEY DIFFERENTIATORS - USP

Integrated process

- Sequential extraction of C-Phycocyanin, carotenoids and chlorophyll from the same starting material
- Reduced processing times

Improved product stability

- High temperature & low pH tolerance
- Easy transportation and extended shelf life

Cost advantage

- Direct cost reduction from side-stream revenues
- Blue colourant production possible at 4-fold lesser cost than competitors

Agri-food

STABLE BLUE EXTRACT

Stable blue extract (food colourant)

- Improved stability and enhanced shelf life
- Optimised process for aqueous, viscous and paste preparations based on application

Application proof of concept established

- Fresh drink “Blue Detox”
- Soft launch in April 2018 with positive feedback

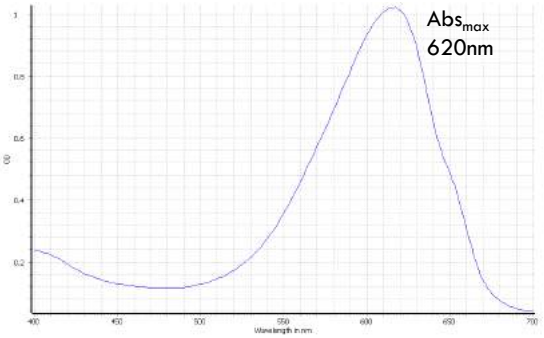
Agri-food

STABLE BLUE EXTRACT

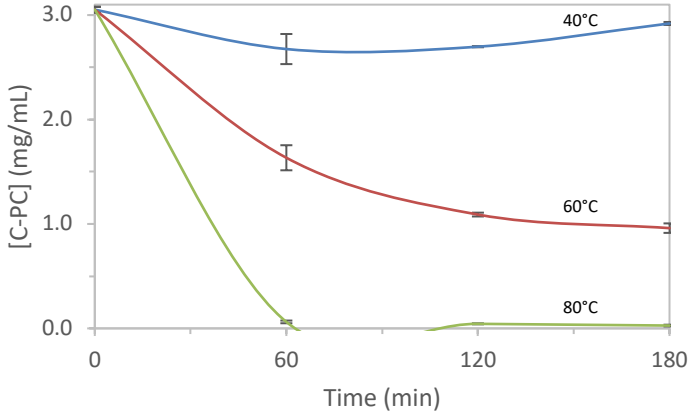
COMPETITIVE ADVANTAGES

Can withstand temperatures up to 60°C and pH down to 2.5

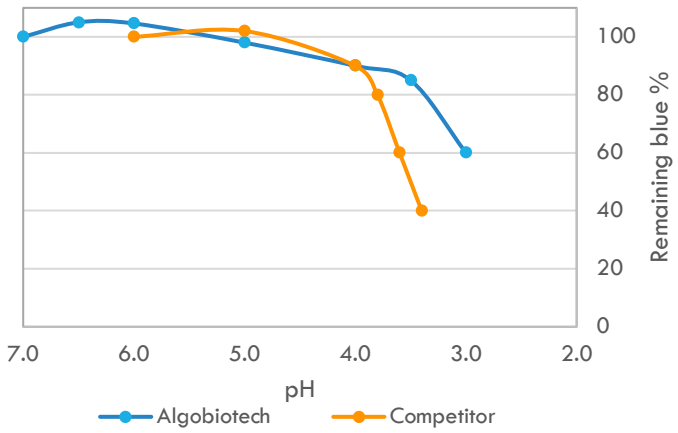
Two formulations possible (different viscosities)



Temperature stability



pH stability



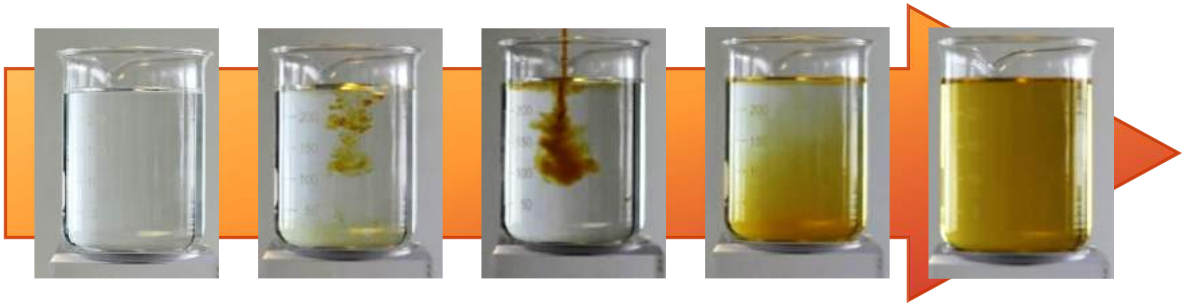
Agri-food

STABLE CAROTENOIDS EXTRACT

Extract rich in **β-carotene** (Vitamin-A precursor)

Natural solvent suitable for cosmetic and agri-food applications

Completely miscible with water & aqueous solutions within seconds



Diagnostics

MOLECULAR DIAGNOSTICS & THERAPEUTICS

C-Phycocyanin (C-PC) exhibits **higher affinity** to atherosclerotic plaques[1] and tumour associated macrophages[2]

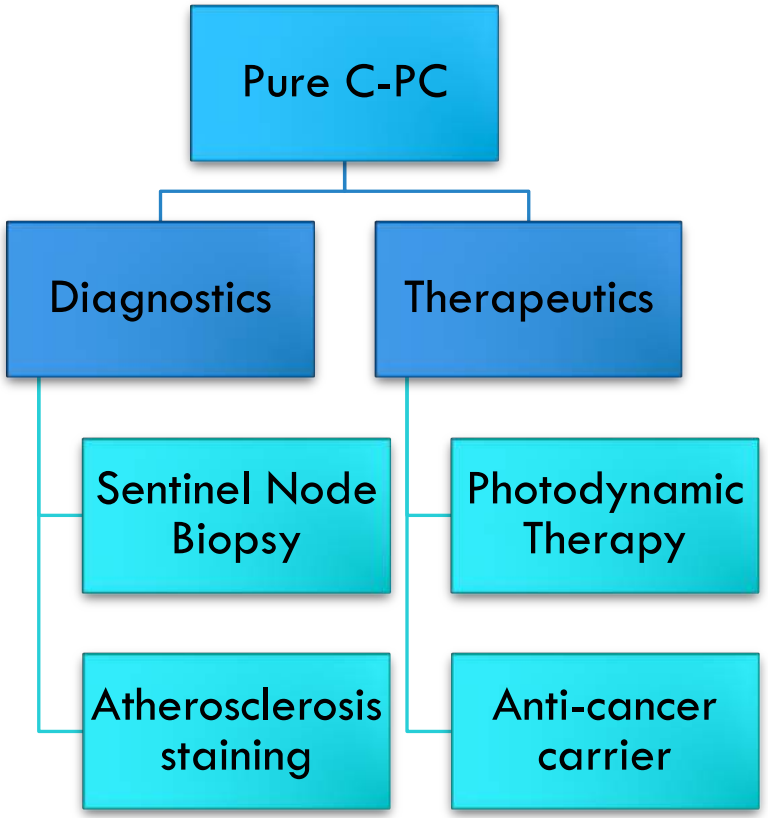
C-PC exhibits **no toxicity**[3]

Specific advantage in diagnosis:

- Minimally invasive procedure for diagnosis of cancer malignancy
- Direct staining of atherosclerotic plaques

Potential for photodynamic therapy:

- Targeting molecule for other anti-cancer molecules



[1] Morcos et al., 1988 Lasers in Surgery and Medicine. **8**: 10-17
[2] Wan et al., 2017 Chemical Communications. **53**: 4112-4115
[3] Liao et al., 2016 Scientific Reports. 6: 34564

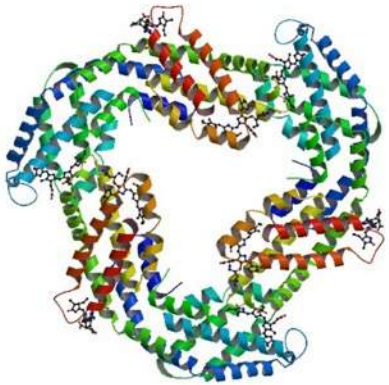
Diagnostics

PURE C-PHYCOCYANIN FOR DIAGNOSTICS & THERAPEUTICS

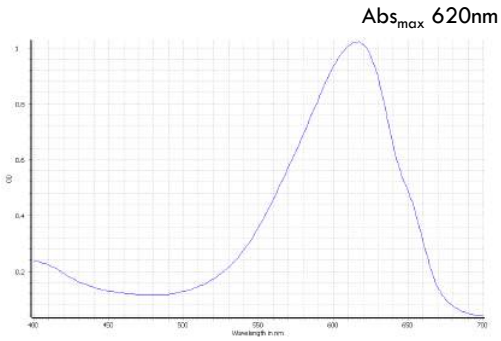
Ultra-pure C-Phycocyanin purified using chromatography for diagnostic & therapeutic applications

Single-step purification for cost-effective method

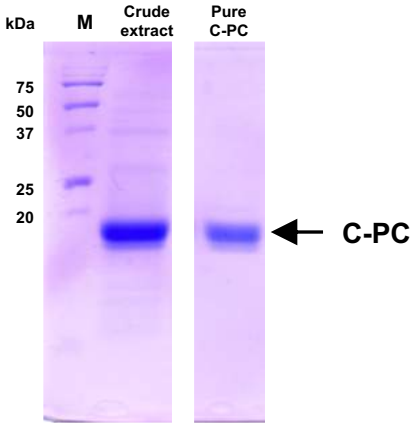
High purity ratio (A_{620}/A_{280} > 4.0), suitable for analytical applications



PDB: 3O2C



C-PC absorption spectra



12% SDS-PAGE analysis

Diagnostics

PHOTODIAGNOSIS

SENTINEL LYMPH NODE BIOPSY

Sentinel Lymph Node biopsy helps determine malignancy of cancer

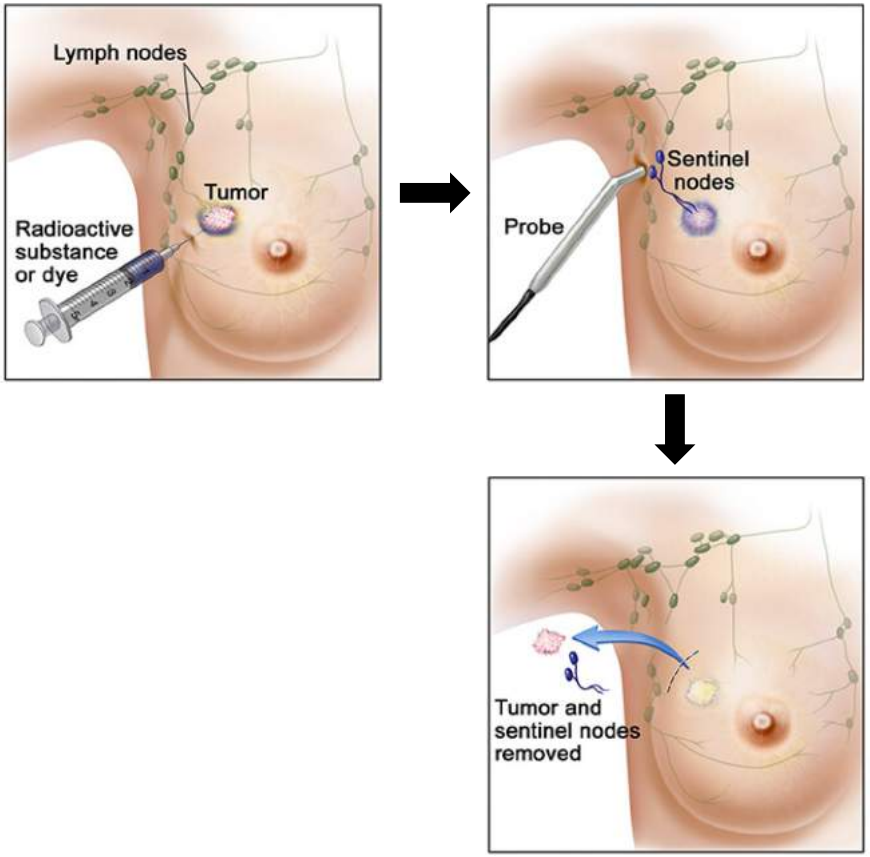
- Injection of dye in tumour
- Probing sentinel node for dye

Present methods involve radioactive agents and/or dyes

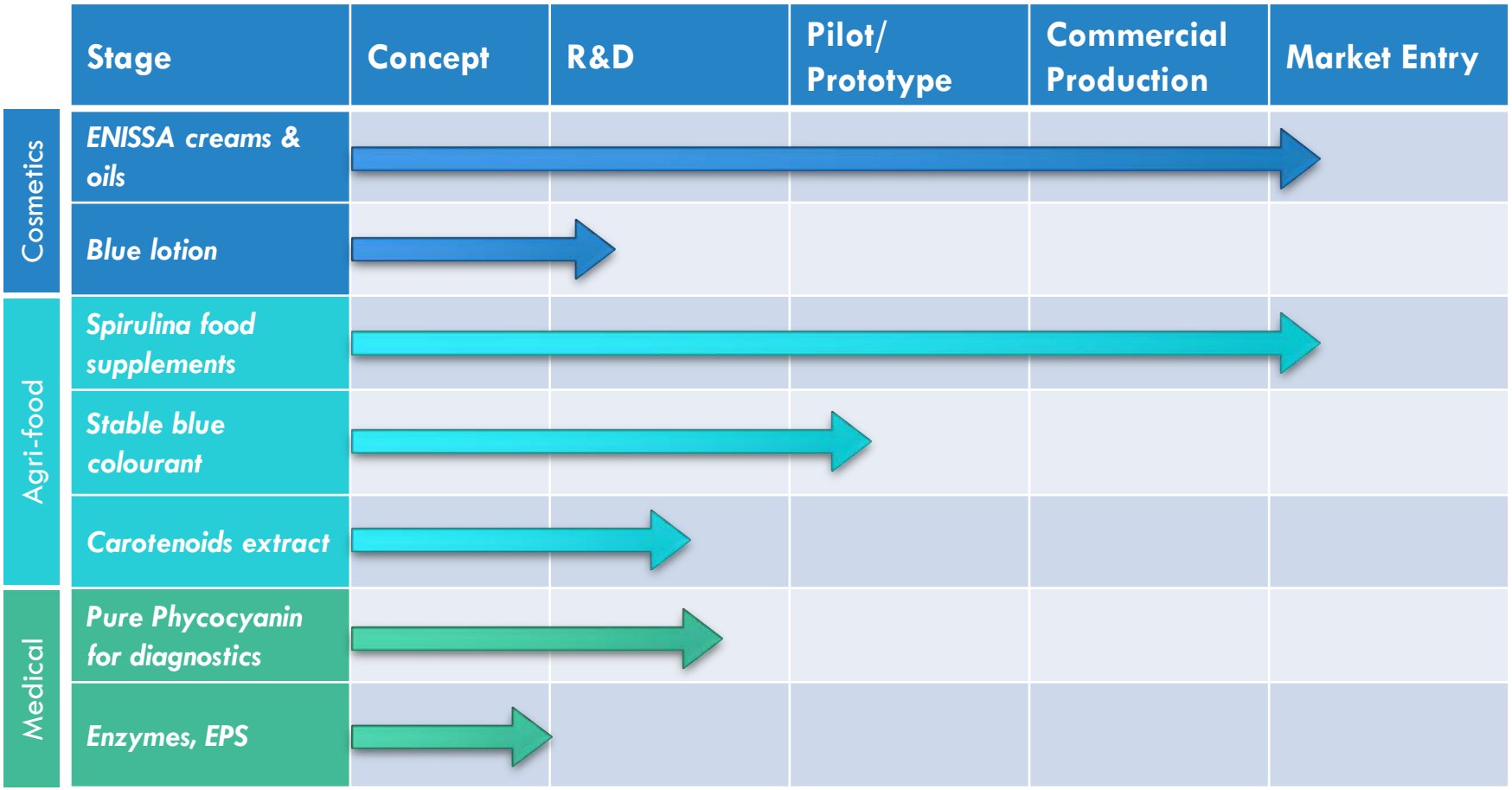
- Reduced ability to distinguish tumour cells from normal cells

C-PC a potential alternative

- High affinity to tumour cells
- Exhibits no toxicity



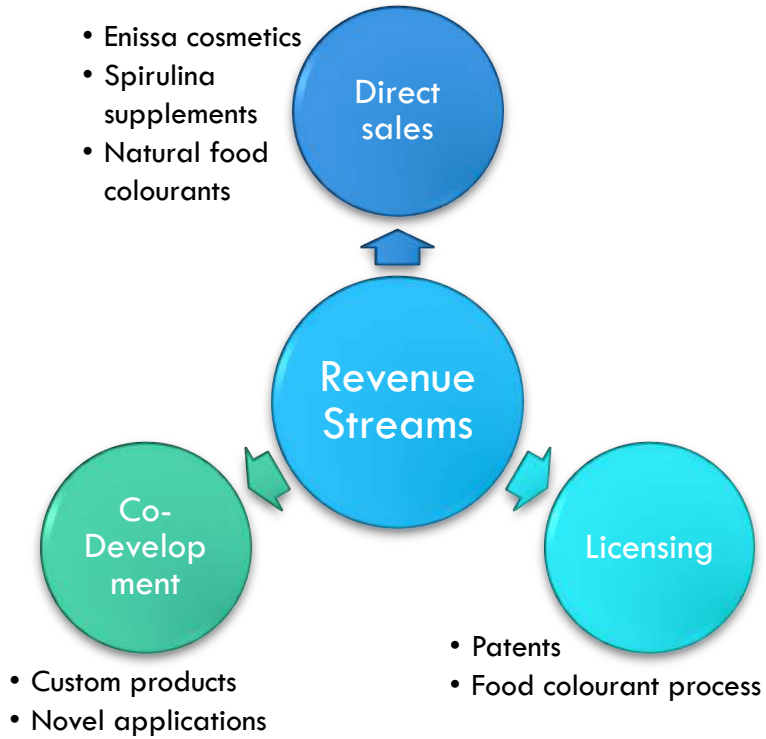
PRODUCTS PIPELINE



ALGOBIOTECH'S STRENGTHS

BUSINESS MODEL

Revenue Channels



Mid-term strategy

Direct sales from cosmetic, agri-food lines to fuel further technology development

Technology licensing through strategic investment from industrial players

Active R&D development of long-term project (diagnostic applications of C-Phycocyanin)

EARLY TRACTION

Developmental Collaboration

Keen interest in technology from industry leaders

CHR HANSEN
Improving food & health

GNT

MARS WRIGLEY confectionery

Cott Beverages Ltd

DDW The Colour House

Pitch Competitions

Finalist at Fi-Europe's Start-up Innovation challenge 2017 (Germany)

Fi Food ingredients Europe

Part of Global Top500 start-ups in Hello Tomorrow Challenge 2017 (France)

hello tomorrow CHALLENGE

Start-Up Stadium contestant at Bio-2018 (Boston, USA)

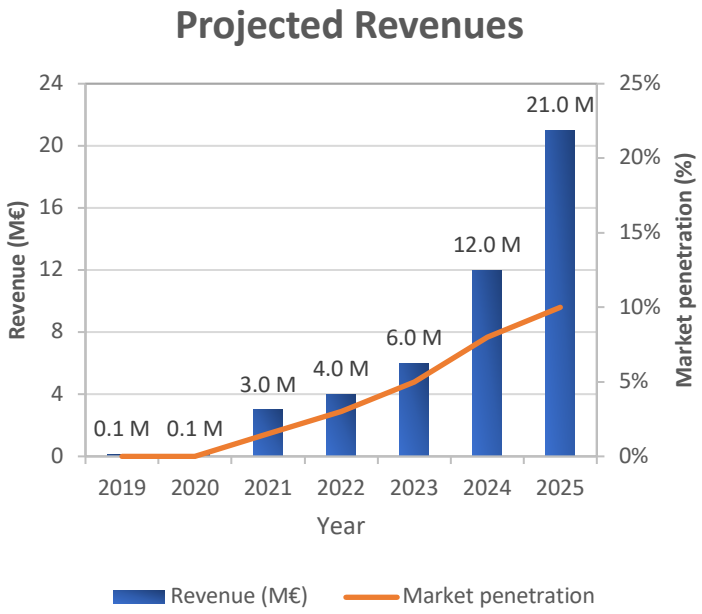
REVENUE PROJECTIONS (K€)

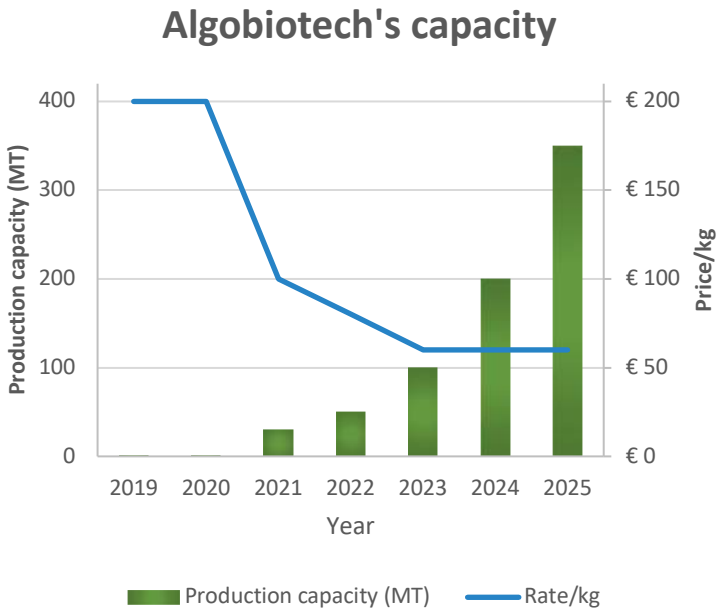
	2018	2019	2020	2021	2022	2023	2024	2025
Cosmetics	95	744	1 867	3 490	4 700	4 900	5 000	5 000
Agri-food		100	100	3 000	4 000	6 000	15 000	21 000
Diagnostics							18 180	39 670

ESTIMATIONS ON GROWTH

FOOD COLOURANT MARKET PENETRATION

Target: to become a leader in spirulina extracts production by 2025 by capturing 10% market share[1]





[1] Persistence Market Research report 2017

ESTIMATIONS ON GROWTH

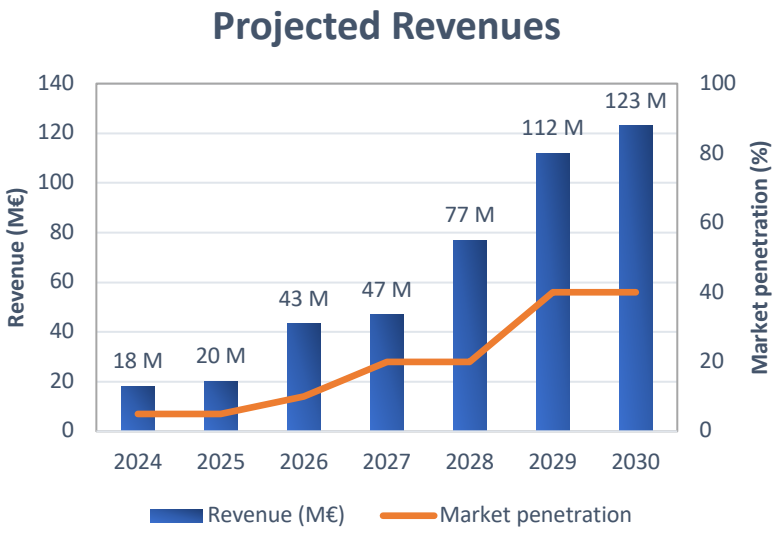
DIAGNOSTICS MARKET PENETRATION

Breast cancer the most common cancer in women

- Over 500 000 new cases expected to be diagnosed in 2020[1]
- Molecular diagnosis market to grow at 9.1%[2]

Target: to capture 10% market share by 2024

Estimated revenues of 250M€ in by 2029 only from Breast Cancer diagnosis



[1] WHO estimates

[2] Seo et al. Biomaterials Research (2018) 22:2

INVESTMENT SOUGHT

Estimated short-term financial need: 2.5M€ to support our development and growth (2018-19):

- Expansion of overall R&D activities
- Separate ENISSA as an affiliate entity (to be 100% owned by Algobiotech)
- Setting up initial pilot plant for production of food colourants
- Preliminary pre-clinical animal studies for diagnostic applications

Additional funding of 5M€ required to setup commercial production facility for colourants (by 2020)

- Establishment of a full-fledged production capacity of 50MT per year
- Upgradation of pilot facility for future R&D validation

SENIOR MANAGEMENT TEAM

Hajer Artigue

Founder & CEO

hajer-artigue-a7434718

Hajer fell in love with micro-algae over her decade-long experience. She created Algobiotech in 2014 to unleash their extra-ordinary potential!

Vignesh Janakiraman

Chief Technology Officer

vigneshjvn

Vignesh, a protein purification specialist, holds a PhD in Biochemistry from uBordeaux and a BFC from INSEAD, Paris. He drives the scientific developments at Algobiotech.

Stephan Hassid

Commercial Operations & Packaging

stephan-hassid-9743793

Stephan is a packaging expert, who's behind all our beautiful designs. He also liaises the commercial activities for our Enissa range of creams & oils.

Lisa Phomveha

Communication & Marketing

lisa-phomveha-457887

Lisa is a experienced marketing specialist. She takes care of all our online/offline marketing activities. Lisa also teaches part-time at HEC in Paris.

STRATEGIC ADVISORY BOARD

BOARD UNDER EXPANSION

Paul Nuber

paul-nuber-4217068a

Paul Nuber is the CEO of Beverage Partners Worldwide. Prior to this role, Paul had numerous positions within Nestlé, including Vice President at their head office.

Peter van Bladeren

peter-van-bladeren-7b9830a

Prof. Peter van Bladeren is a veteran food scientist, who is on the boards of numerous companies including EIT Food and Mérieux Nutrisciences. Peter has had a long career with Nestlé including his role as the Global Head of Regulatory & Scientific Affairs.

Antoine Bruno

antoine-bruno-24125933

Antoine Bruno is an entrepreneur and a share-holder in Algobiotech. He has over 20 years of B2B sales & marketing expertise in luxury goods.

Algobiotech is further expanding its advisory board with strategic members

Hajer ARTIGUE

hajer.artigue@algobiotech.com

Genopole Campus 1
5 rue Henri Desbruères
91030 EVRY Cedex
Tél. : +33 (0)1 60 91 78 86
www.algobiotech.com

SAS capital 32 567€
Siret : 800 670 291 RCS Évry
TVA : FR79800670291
IBAN :FR76 1020 7000 5221 2148 5868 570