

BRAIN Biotech AG

Creating a #BiobasedFuture



Seat11a Presentation

Michael Schneiders

Head of IR & Sustainability

Zwingenberg, July 2021



Safe Harbor Statement

This document may contain forward-looking statements. These forward-looking statements are subject to risks and uncertainties, as they relate to future events and are based on current assumptions of the Company, which may not occur at all in the future or may not occur as assumed. They do not represent a guarantee for future results or performance of the Company, and the development of economic and legal conditions may materially differ from the information expressed or implied in the forward-looking statements.

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This presentation speaks as of July, 2021. Neither the delivery of this presentation nor any further discussions of the Company with any of the recipients shall, under any circumstances, create any implication that there has been no change in the affairs of the Company since such date. The term "BRAIN", as used in this presentation means Brain Biotech AG and its affiliates, if not otherwise specified.

BRAIN at a Glance

Creating a #BiobasedFuture

~ **€38m**

'19/'20 Revenues

> **28**

Years of Experience

~ **320**

Employees

> **130**

Specialty B2B Products

> **100**

Industrial Partnerships

2016

Listed, Frankfurt Prime Standard

Creating Breakthrough Bioproducts & Solutions for Nutrition, Health and Environment

**Industrial Biotech
(white)**



**Three
Product Platforms**



Enzymes



Microorganisms

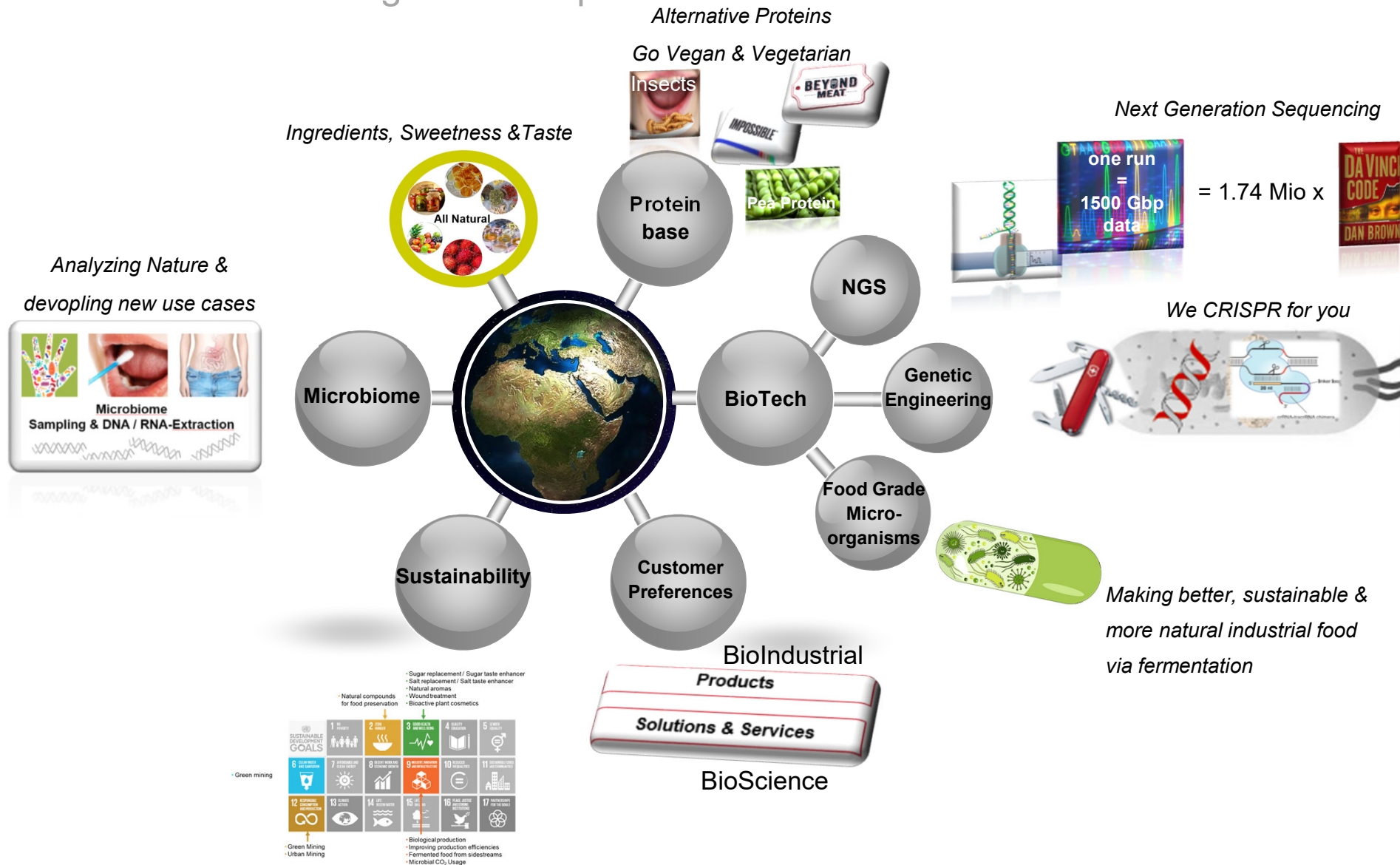


**Bioactive
Natural
Compounds**

From Lab to Production

Mega- Trends – Where BRAIN Can Make a Difference

Industrial Biotech: Making a Real Impact



When Should You #Think BRAIN? in the center of mega-trends

Health & Nutrition

Vegan & Vegetarian Food: Alternative Protein Base
(Precise Fermentation / Microbial Production Hosts)

Healthy & Better Tasting Beverages:
Natural Flavors (like NatBev 1 & 2)

All Natural Preservatives:
Perillic Active from Fermented Orange Oils

Calorie-Free Natural Sweeteners:
Plantbased Sweeteners (Brazzein, Sweet Box)

Healthy Food:
reduction of salt in foods (SALT-1)

Biological Wound Care:
Biological Wound Management (Aurase/SolasCure)

Creating a BiobasedFuture

Genome Engineering:
Novel Non-Cas9 Nucleases (BEC)

Biological Production:
Enzymes & Large Scale Fermentation

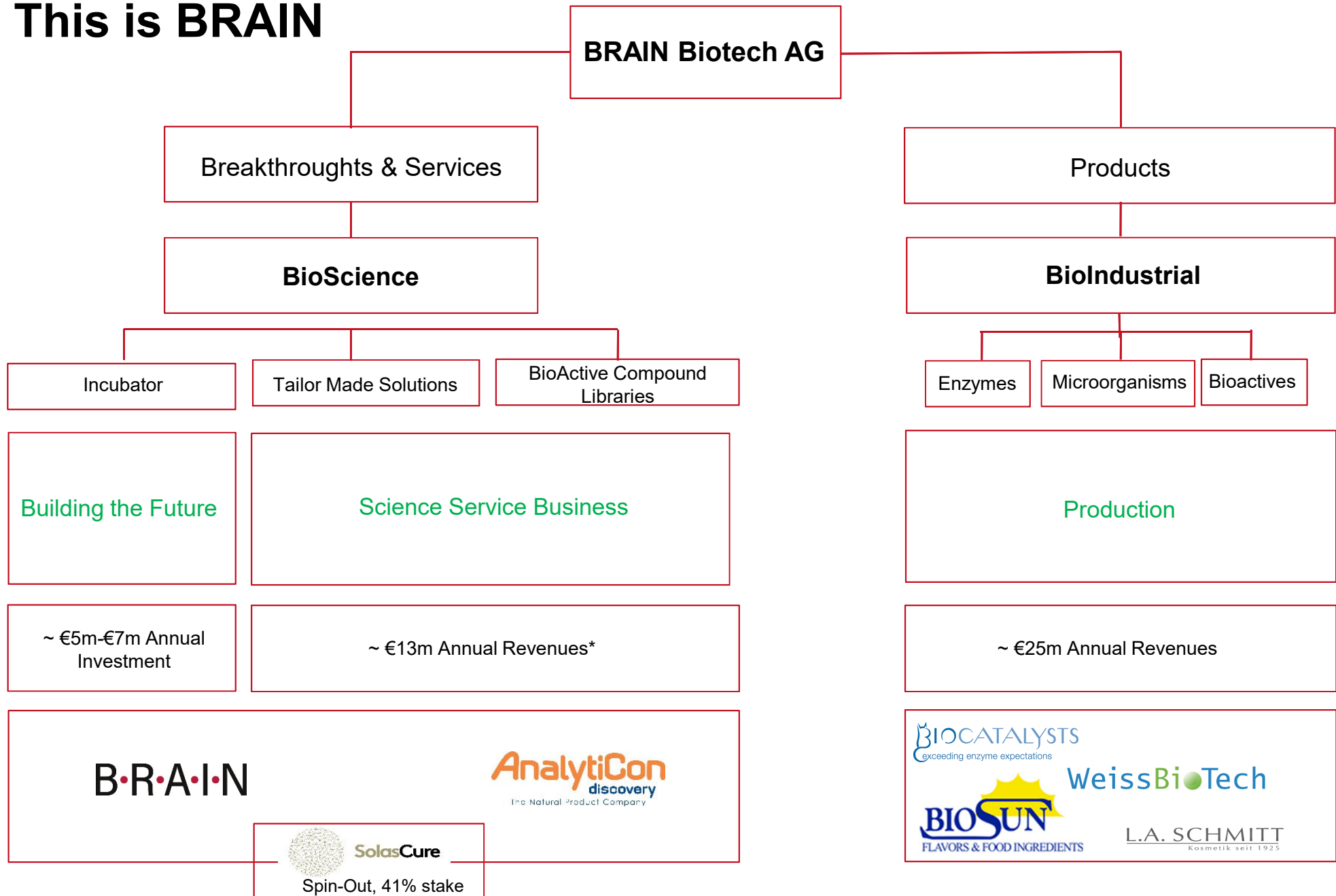
Environment

BioMining:
Sustainable Metal Extraction (Urban Mining)

Biological Production:
Enzymes & Large Scale Fermentation

Making Waste Valuable:
Fermented Food from Side Streams
Microbial CO₂ Usage

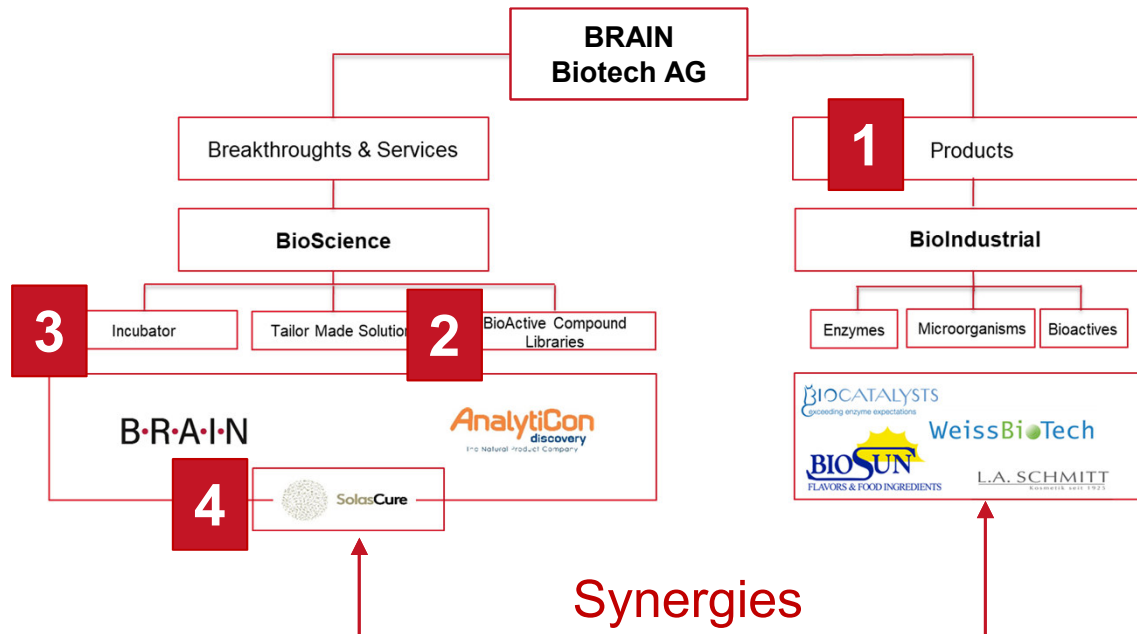
This is BRAIN



*FY '19/'20

BRAIN Group

Value Creation & Synergies



1

Products Business

- Focus on high-growth & high-margin niches
- Re-shape from a purchase for resale to an own production model
- Strong target markets with healthy sales and margin growth in F&B, healthcare and environment

2

TMS /Libraries Business

- TMS: longer term contract research programs (average duration 2 years); strong industrial partner network; rich pipeline of possible new projects
- Libraries: main customers from food, pharma & cosmetics industries. Access fees and upside from milestone payments / license income

3

Incubator

- Focus on breakthrough products with a strong societal impact
- Significant value creation from development to launch
- De-risk R&D with partners and public funding
- Dynamic pipeline: mature products marketed, new products will enter

4

SolasCure

- Innovative enzymatic wound care
- Spin-out, 41% participation
- IP for enzyme Aurase owned by BRAIN
- All options open to crystalize value from stake-holding

BRAIN: At the Heart of UN SUSTAINABLE DEVELOPMENT GOALS

Our Products & Solutions address at least five goals directly

WE SUPPORT



Since 2021 we have been committed to the UN Global Compact corporate responsibility initiative and its principles in the areas of human rights, labour, the environment and anti-corruption.

- Natural compounds for food preservation



- Sugar replacement / Sugar taste enhancer
- Salt replacement / Salt taste enhancer
- Natural aromas
- Wound treatment
- Bioactive plant cosmetics



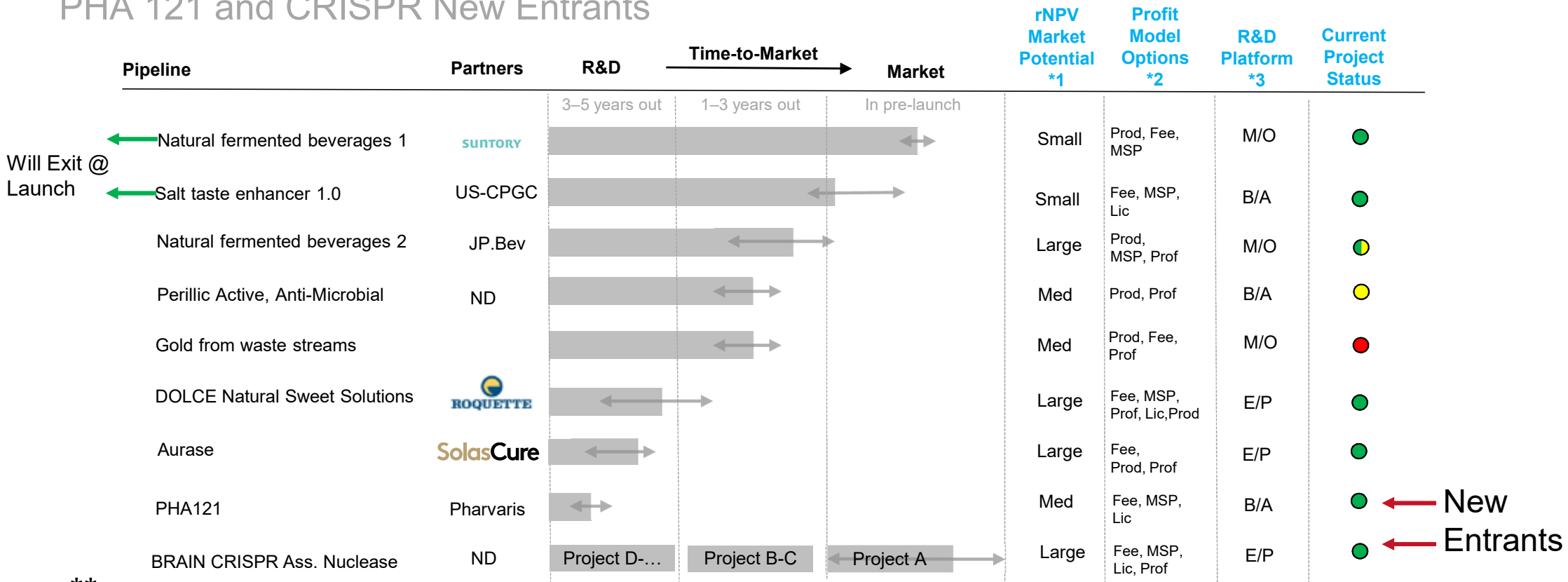
• Green mining

• Green Mining
• Urban Mining

- Biological production
- Improving production efficiencies
- Fermented food from sidestreams
- Microbial CO₂ Usage

Our Incubator: Focused New Business Pipeline**

PHA 121 and CRISPR New Entrants



**

- Projects Green Metal Mining, Sweet Taste Enhancer and CO₂ moved to TMS business, fully funded programs
- Projects Salt-E, Fresco shelved, searching for partners
- New enzymes now part of BioIndustrial regular product development, see page 12

- Programs without contractually bound partners are marked red by default
- Contractual, technology or registration hurdles still need attention
- Phase 1 has been successfully completed but contract negotiations for the next development phase are progressing but not yet finalized

*1: BRAIN-Group rNPV FCF+TV: **Small** < €5M, **Medium** €5M - €15M, **Large**: €15M+

*2: **Prod**: Product sales. **Fee**: Research fee income. **MSP**: Milestone payments. **Lic**: License/royalty payments **Tec**: Tech fees **Prof**: Entity formation or profit participation

*3: **B/A**: BioActives, **E/P**: Enzymes and proteins, **M/O**: Microorganisms/starter cultures

ND: not disclosed

Genome Editing – Made Simple & Effective

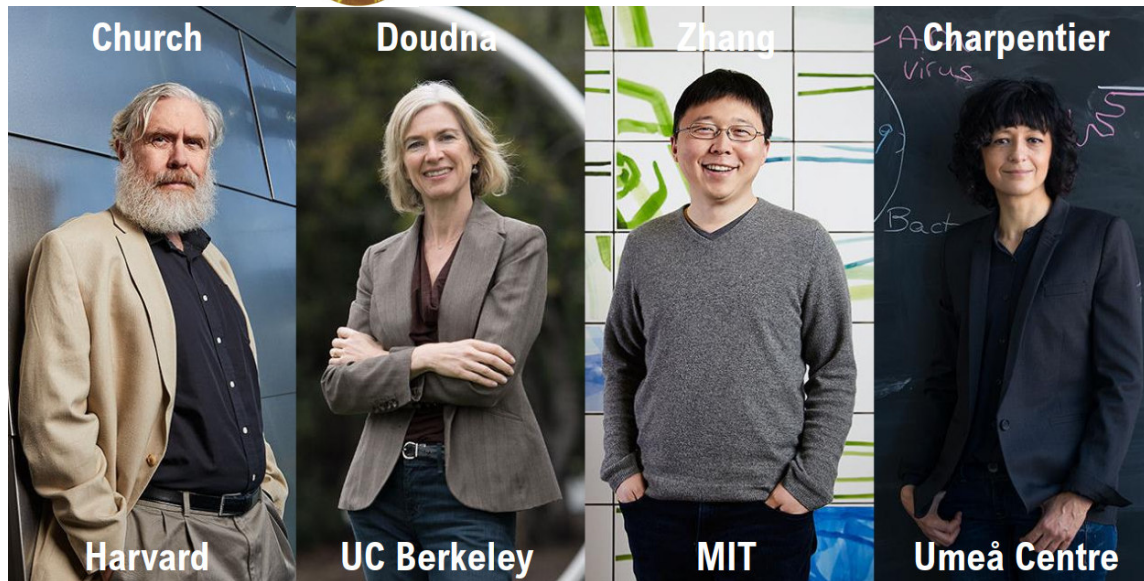
the CRISPR Cas9 Revolution



A simple guide to CRISPR, one of the biggest science stories of the decade

It could revolutionize everything from medicine to agriculture. Better read up now.

By Brad Plumer, Eliza Barclay, Julia Belluz, and Umair Ishaq Updated Dec 27, 2018, 2:45pm EST



Jun 25, 2018, 06:30am EDT

How CRISPR Gene Editing Is Revolutionizing Medicine And The Companies Who Invest In It

nature

NEWS • 07 OCTOBER 2020

Pioneers of revolutionary CRISPR gene editing win chemistry Nobel

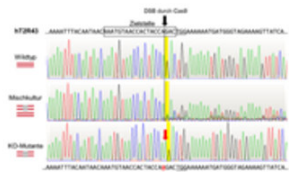
Emmanuelle Charpentier and Jennifer Doudna share the award for developing the precise genome-editing technology.



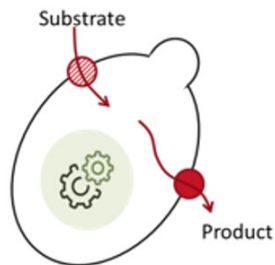
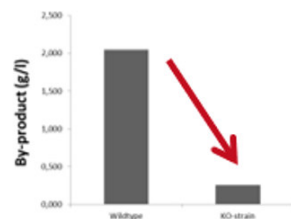
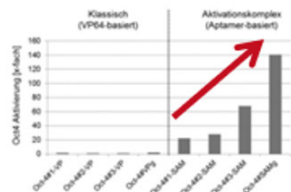
Novel CRISPR-Cas Genome Editing – developed by BRAIN

New Incubator Project, Technology Breakthrough

modified genome



phenotype



❖ **CRISPR = clustered regularly interspaced short palindromic repeats**

❖ **CAS = CRISPR associated sequence**



Genetic/DNA
Scissor

- **Novel** CRISPR Cas system developed using metagenomics sequencing and protein engineering
- **Non-Cas9** type genome editing nuclease
- **Scarless gene modification** at the single nucleotide level
- **In-house designed** application tools and strategies
- State of the art technology for the development of high performance **producer strains**

**BRAIN has extensive practical experience with
Genome-Editing Technologies**

Genome Editing – developed by BRAIN

BRAIN's CRISPR-Cas, Status Quo

Status Quo

- Today validated as a **genome editing tool** in selected bacteria, fungi and yeast
- Today **demonstrated DNA targeting activity** in selected bacteria, fungi and yeast
- Technology **already employed** in internal projects
- Activity in **plants** has been achieved but still needs to be validated
- **International Partner** for plant cells involved since the beginning of the program (non disclosed)
- Genome editing activity tests ongoing for additional applications incl. mammalian cell lines
- **First IP application** to protect the BRAIN developed CRISPR associated nuclease (BEC) sequence is already submitted

Genome Editing – developed by BRAIN

Significant Economic Potential

Genome editing developed by BRAIN has significant economic potential

- Speed up own strain and product development
- Become a TMS partner of choice for genome editing, harvest additional TMS business
- Freedom to operate in genome editing
- Omit license fees for own development and TMS business
- Tech access and license potential for TMS business
- Significant license/x-license upside if technology can be validated for further plant and especially in mammalian cell lines
- All options open for commercialization model

**Has entered our incubator as a project with “Large” rNPV potential,
if next development steps are successful could have very large potential**

Our Targets

Guidance & Ambitious Mid-Term Targets

This FY Guidance, Detailed

(excluding CRISPR investments)

- **CRISPR** associated nuclease investments will be detailed and separately reported in the next quarters
- **Group Sales** EUR 37-40 million
- **YoY EBITDA improvement**
- **BioScience** below previous year as guided
- **BioIndustrial** slower growth than expected due to COVID-19 impacts and operational challenges at WeissBioTech; other BioIndustrial companies performing to or above plan

Mid-Term Targets, Unchanged

(issued 09/20, 4-5 year targets)

(excluding CRISPR)

Double group revenue from base '18/19

- Double digit topline product CAGR
- Accretive M&A
- Contract research "TMS" proportionally reduced (excl. milestones)

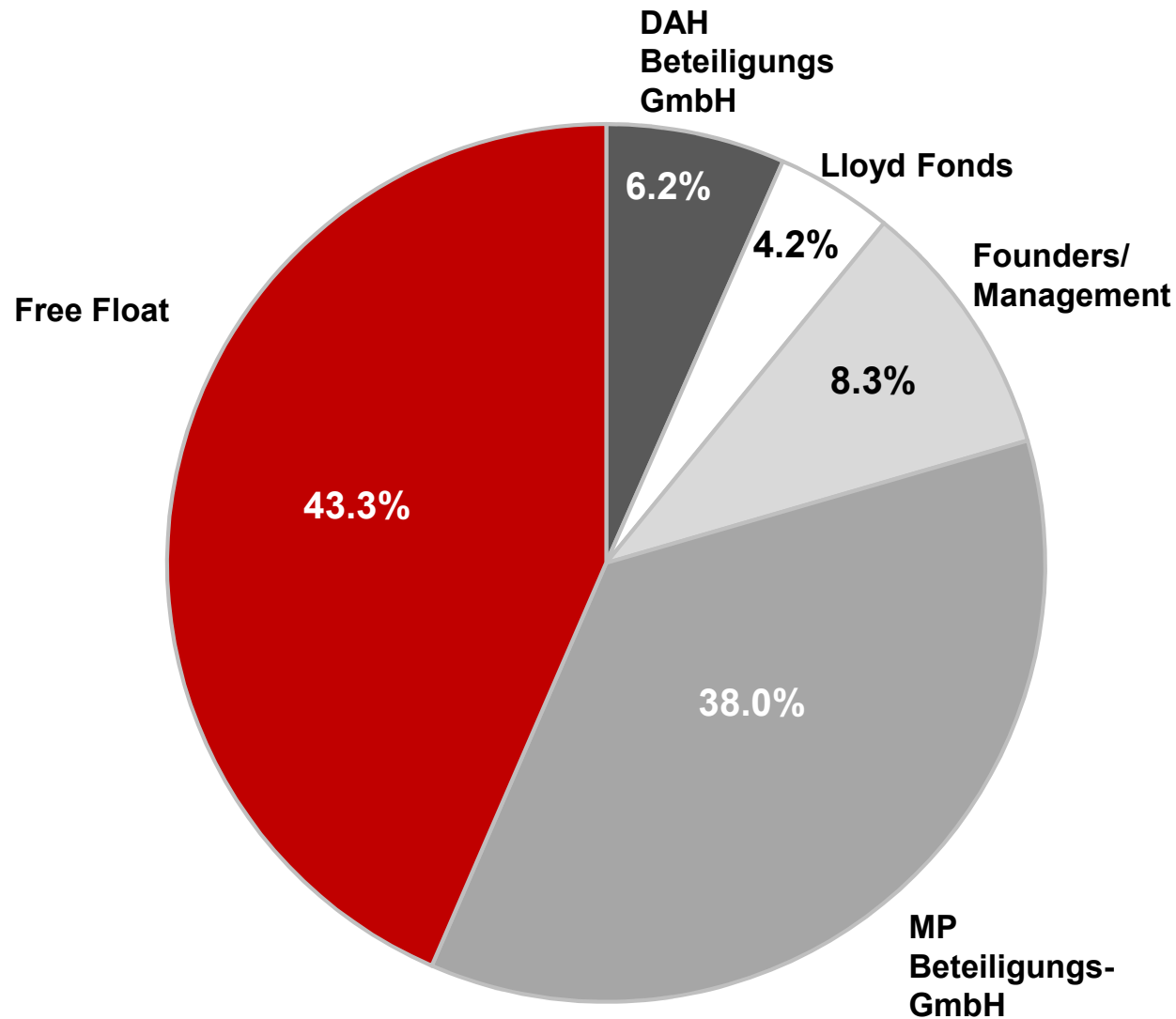
Group adj. EBITDA margin 15% (+/- 5PP)

- Double digit fermentation production volume of customized novel enzymes
- Mid single digit annual productivity improvements

Proportion of new product sales: ~30% of total revenues

- Continuous innovation pipeline management

Our Share Ownership*



- Current number of shares: 19,861,360
- Free float of ~ 43%
- Strong long-term investor base
- ~ 8,700 shareholders
- WKN 520394 / ISIN DE0005203947
- Symbol BNN
- Prime Standard; Frankfurt/M

*March 31st, 2021

Six Strong Reasons to Invest in BRAIN

1. **Mega-trends / UN-SDGs:** our products address the big societal topics – nutrition, health & the environment. We address at least 5 SDGs directly
2. **Incubator products:** big upsides in our breakthrough inventions
3. **BioIndustrial:** BRAIN is very well positioned to capture high-growth and high-margin niches in its products businesses. We will re-shape our BioIndustrial business and move from a purchase for resale model to an own production model, this creates significant margin and therefore value upside
4. **Strong target markets:** solid target markets for our services & products with CAGRs above GDP and strong EBITDA margin levels also allow BRAIN to harvest healthy sales and margin growth
5. **Value accretive M&A:** space for bolt-on acquisition to accelerate growth with the possibility for transformational growth through larger M&A
6. **R&D:** ability to fund research with partners and from governmental grants to de-risks our own R&D effort and preserve valuable cash

Six Major Triggers for strong Revenue and Margin Growth

Thank you for your attention.

BRAIN Biotech AG

Darmstädter Straße 34–36
64673 Zwingenberg, Germany

+49 (0) 6251-9331-0
www.brain-biotech.com

Your contacts:

Michael Schneiders, Head of IR & Sustainability

+49 (0) 6251-9331-86
MiS@brain-biotech.com

Martina Schuster, IR

+49 (0) 6251-9331-69
MS@brain-biotech.com



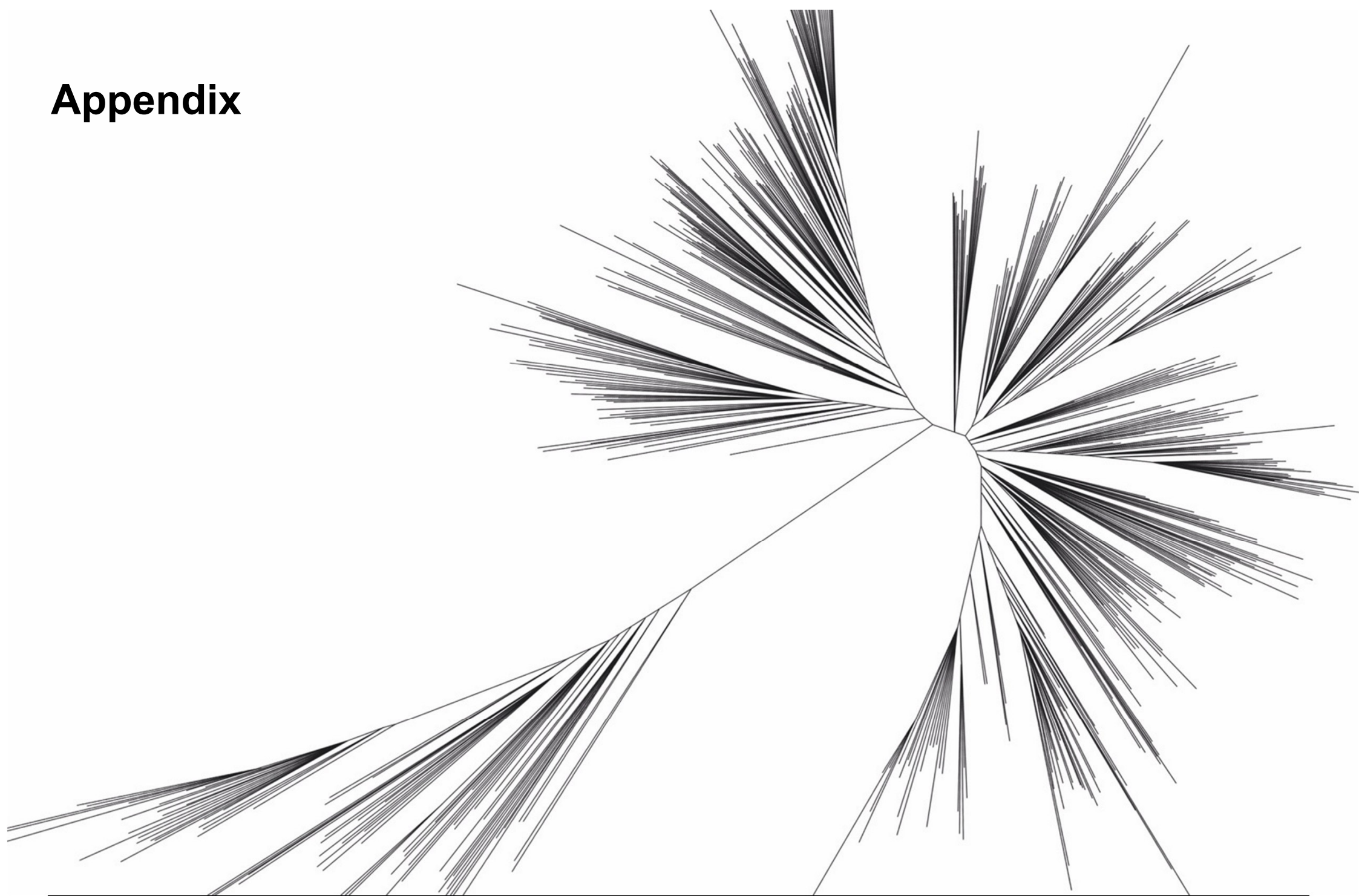
@BRAINbiotech



BRAIN Biotech AG



Appendix



Financial Highlights at a Glance

(in € thousand)	6M 2020/21	6M 2019/20	Growth	Organic Growth	Q2 2020/21	Q2 2019/20	Growth	Organic Growth	Comment
Revenues	18,001	19,930	-9.7%	-14.0%	9,923	9,607	3.3%	-5.6%	first consolidation BioSun
BioScience	4,674	6,833	-31.6%	-31.6%	2,671	2,812	-5.0%	-5.0%	Milestones 615K 6M 20/21
BioIndustrial	13,408	13,102	2.3%	-4.2%	7,274	6,800	7.0%	-5.6%	Milestones 913K 6M 19/20
Total operating performance (1)	19,799	20,190	-1.9%	-10.4%	11,311	9,799	15.4%	-2.1%	Strong BioCats, Weak WBT
Adjusted EBITDA (2)	-2,014	-714	-182.1%	-192.4%	-587	-488	-20.3%	-35.4%	(-) EUR 302K ESOP 6M (-) EUR 108K M&A Cost 6M (+) EUR 858K Badwill 6M
EBITDA	-1,566	-869	-80.3%	-187.5%	21	-556	103.8%	-63.7%	
EBIT	-3,452	-2,608	-32.3%	-68.1%	-960	-1,422	32.5%	-33.0%	
Net Result	-1,040	-4,553	77.2%	56.7%	2,229	-2,319	196.1%	155.9%	
Operating Cash Flow	-4,156	-4,141	-0.4%	-5.8%	-2,024	-3,567	43.3%	36.9%	
	31.03.2021	30.09.2020							
Cash	11,952	18,943	-36.9%	-36.9%					

	Q2 20/21	Q2 19/20	Growth	Organic Growth
Number of Employees	287	281	2.2%	2.2%
Material Expense Ratio	46.7%	40.4%	06% PP.	05% PP.
Adj. Personnel Expense Ratio	51.5%	45.2%	06% PP.	08% PP.

Major Events 6M '20/'21:

- First time consolidation BioSun
- BioIndustrial strong excluding WeissBioTech
- BioScience sequential growth QoQ but still suffering from very weak Q1 20/21 and high base Q1 19/20
- Gain on Bargain Purchase BioSun EUR 858K
- Costs of BioSun purchase/ integration EUR 108K
- Solid Cash Position

(1) Revenues + change in inventories + other income + R&D grants

(2) The full reconciliation from adjusted to unadjusted EBITDA can be found in the appendix

NBD Deep Dive, The Pipeline

Large Market Potential

Natural Beverage 2

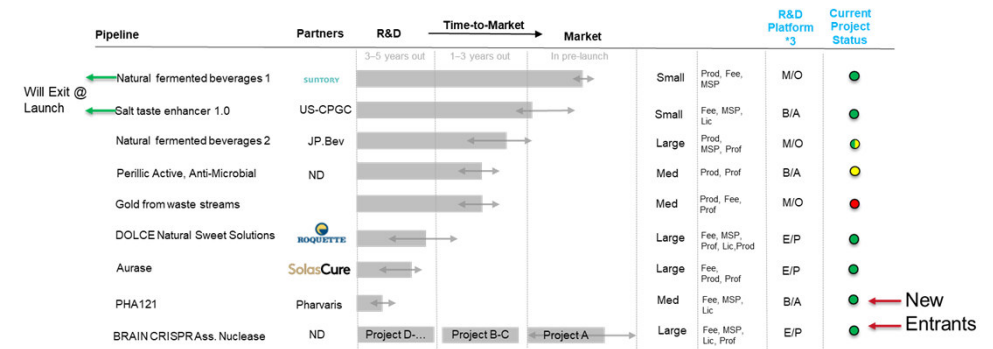
- Partners: Japanese Beverage Company
- Scope: undisclosed, confidentially agreement
- Exclusive to partner
- Technology Platform: microorganism
- Research Business Model: milestone payments
- Commercial Model: starter cultures, production, license fee, JV an option/profit share

Dolce Natural Sweet Solution

- Partners: BRAIN, AnalytiCon Discovery, Roquette
- Scope: program for the discovery, development, approval and commercialization of new natural sweet solution
- Members get first-hand access to desired application and access to our SweetBox and Human Tounge Cell technology derived sweetener and sweet taste enhancer candidates
- Technology Platform: BioActive and process development
- Research Business Model: tech access fee, annual membership fee, success fees
- Commercial Model: currently in negotiations

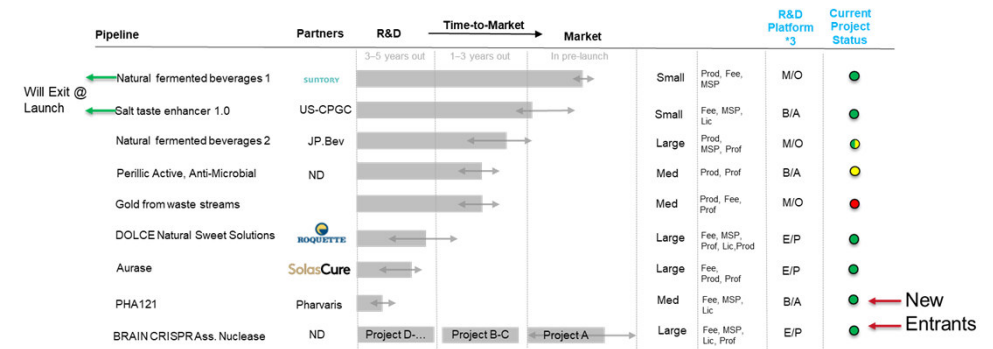
Aurase

- Partners: Spin-off SolasCure
- Scope: innovative wound debridement agent for the cleaning of chronic wounds
- Exclusive development through SolasCure, IP at BRAIN
- Technology Platform: enzyme/proteins
- Research Business Model: fees, technology transfer
- Commercial Model: spin-off, exit optionality, production through BRAIN (independent from owner)



NBD Deep Dive, The Pipeline

Large Market Potential

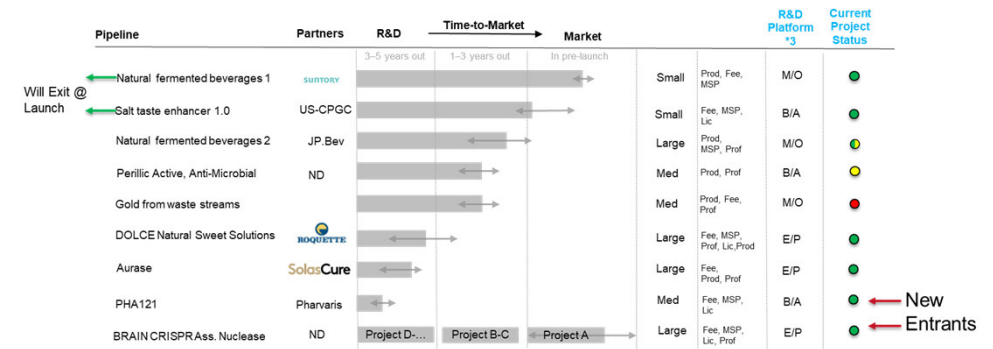


BRAIN CRISPR Non-Cas9 Associated Nuclease

- **Genome Editing:** directed and precise change or use of a chromosomal target in a given organism
- **CRISPR** = clustered regularly interspaced short palindromic repeats
- **CAS** = CRISPR associated sequence
- **CRISPR-Cas** systems have enabled genome editing in multiple species and provided genetic tools with speed as well as simplicity that were previously unavailable
- **Editing** requires only two components (1. Cas nuclease 2. programmable guide RNA), and can be multiplexed for simultaneous modification of multiple sites in a single transformation event
- Novel BRAIN CRISPR Cas system developed using metagenomics sequencing and protein engineering
- Non-Cas9 type genome editing nuclease
- Scarless gene modification at the single nucleotide level
- In-house designed application tools and strategies
- Development of customized screening cells for target identification / validation or bioactive product development / identification
- State of the art technology for the development of high performance producer strains
- Business Model: all option are still being evaluated
- **If next development steps are successful could have very large potential**

NBD Deep Dive, The Pipeline

Medium Market Potential



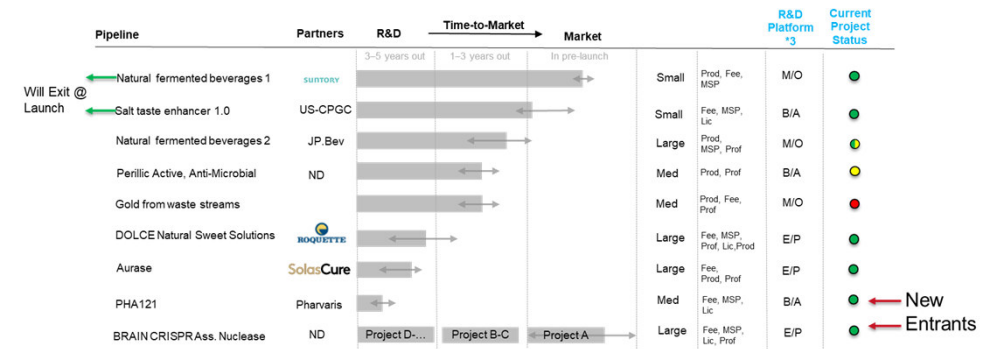
Pharvaris N.V.*

- Is a clinical-stage discovery and development company, founded in 2015 (CH)
- IPO at the NASDAQ (phvs) on February 9th
- Focus: treatment of hereditary angioedema (HAE)
- **HAE:** medical disorder caused by gene mutation, which results in recurrent attacks of severe swelling (every 2-4 weeks without treatment), swelling caused by excess level of bradykinin
- **New Treatment:** novel oral bradykinin B2-receptor antagonists (PHA121)
- **Phase 2** clinical development: for on-demand HAE treatment: PHVS416 a softgel capsule formulation containing PHA121
- **Preclinical:** PHVS416 softgel capsule prophylaxis HAE and PHVS719 XR tablet prophylaxis HAE, FDA acceptance of IND application granted on April, 21st
- Commercial Model: JV/profit share
- Milestone payments based on clinical development, regulatory events and sales development (up to EUR 11.4 million)
- Tiered Royalty Agreement: low to medium-single digit on direct and/or indirect net sales

*Source: Pharvaris corporate presentation

NBD Deep Dive, The Pipeline

Medium Market Potential



Perillic Active

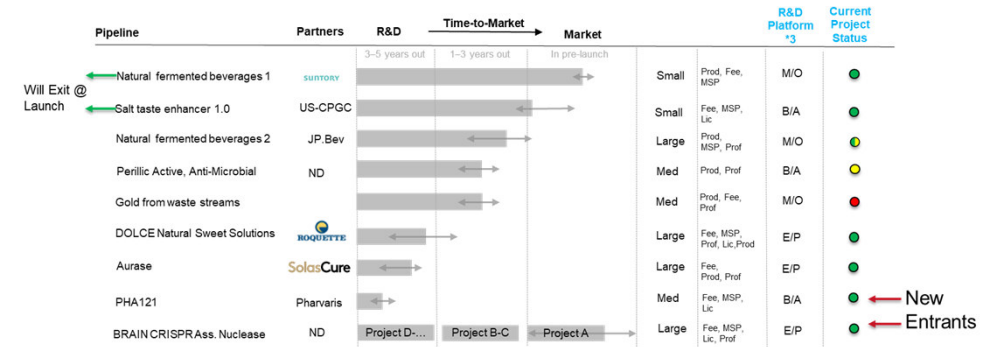
- Partners: US distribution partner contracted (non-disclosed); toll manufacturing
- Scope: nature based anti-microbial for food, feed, drinks and cosmetic applications, generated from industrial side streams
- Exclusive development with partners
- Technology Platform: BioActive
- Research Business Model: fee
- Commercial Model: JV/profit share

Gold from Waste Streams / Urban Mining

- Partners: partner search actively running; LOI in place; non-exclusive partnerships
- Scope: CO₂ efficient biological process for gold extraction from low-grade waste streams, today these valuable waste streams are deposited
- Technology Platform: microorganisms
- Research Business Model: own development, partially public funding
- Commercial Model: flexible, dependent on partner and options for BRAIN (options: royalty, license, JV or franchise system)

NBD Deep Dive, The Pipeline

Small Market Potential



Natural Beverage 1


- Partners: Suntory
- Scope: nature based low calorie drink innovation through fermentation
- Exclusive to Suntory, in a certain field
- Technology Platform: microorganism/starter cultures
- Research Business Model: milestone payments
- Commercial Model: starter cultures, license fee, royalties

Salt Taste Enhancer 1.0

- Partners: US-Consumer Packed Goods Company
- Scope: salt reducing taste enhancement via taste modulation
- Exclusive development with partner for one identified molecule
- Technology Platform: BioActive
- Research Business Model: fee, milestone payment (research phase finalized)
- Commercial Model: royalties

Partnerships „BRAIN Inside“













More than 100 exclusive partner collaborations successfully completed

	 Speciality Enzymes	 High-performance Microorganisms	 Bioactive Natural Compounds
Industrial Partner*	          	                 	              

*confidential partnerships not disclosed

Partnerships „BRAIN Inside“

Novel Solutions with high value added for our partners

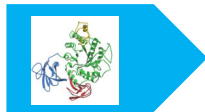
	 Speciality Enzymes		 High-performance Microorganisms	 Bioactive Compounds
Product range	 			 
BRAIN inside	Low temperature detergent enzymes	Flavorpro™ 786P Flavor creation in cheese processing	Optimisation of microbial strain for Isomalt production	Skin anti-irritant Symsitive 1609
Industrial partner	 <p>#3 detergent business globally</p>	 <p>BRAIN subsidiary</p>	 <p>#1 European sugar company</p>	 <p>#4 ingredients supplier globally</p>

We Cover the Entire Enzymes Value Chain

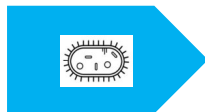
All steps are underpinned by strong customer application knowledge



Discovery



Protein and Enzyme
Engineering



Expression/Secretion:
Bioprocesses & scale-up



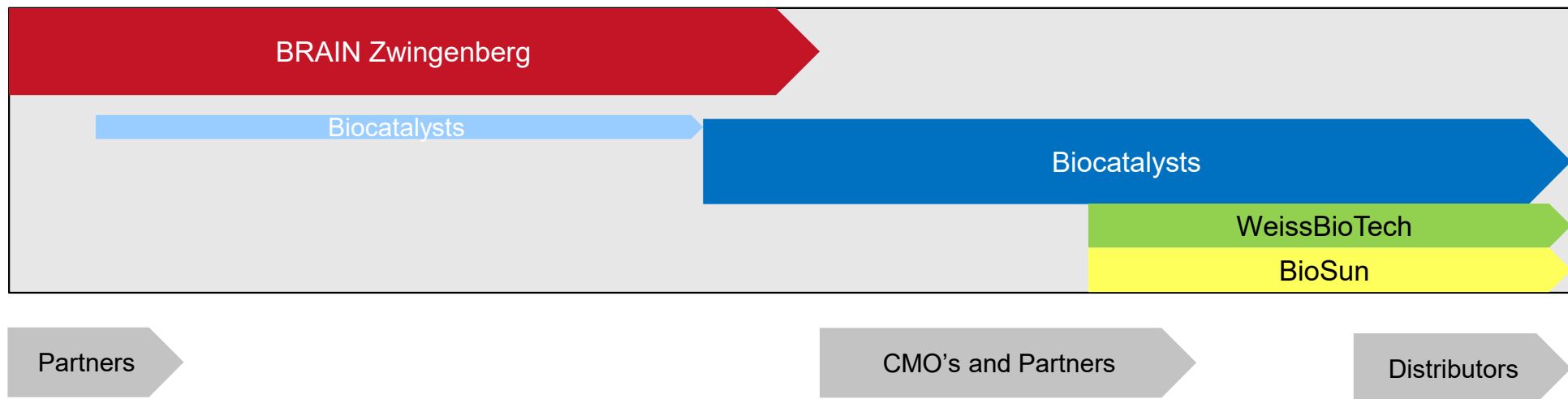
Large Scale
Fermentation



Formulation
And Blending



Marketing and
Sales



Bolt-on M&A can further help strengthen our offering

SolasCure Ltd.

Revolutionizing Chronic Wound Care through Biomimicry



For BRAIN:

- Discovering a unique technology and spinning it out in 2017 as a separate company
- 41% shareholding of BRAIN Biotech AG, at equity consolidated
- Created a targeted team at SolasCure Ltd.
- Share the commercialization financing burden with new investors
- Allows monetization at exit (e.g. IPO, Strategic Investor, PE)
- Aurase® IP stays with BRAIN Biotech AG, (patent estate, WO 2010/099955)

The Market:

- Chronic wounds effect about 40mln people and consume about 10% of health care expenditures
- Advanced wound care market CAGR expected at 6,5% '18-26* (aging, diabetes and obesity are the main growth drivers)
- Alternative to ineffective and painful surgical or autolytic debridement
- Current target market size ~€600mln

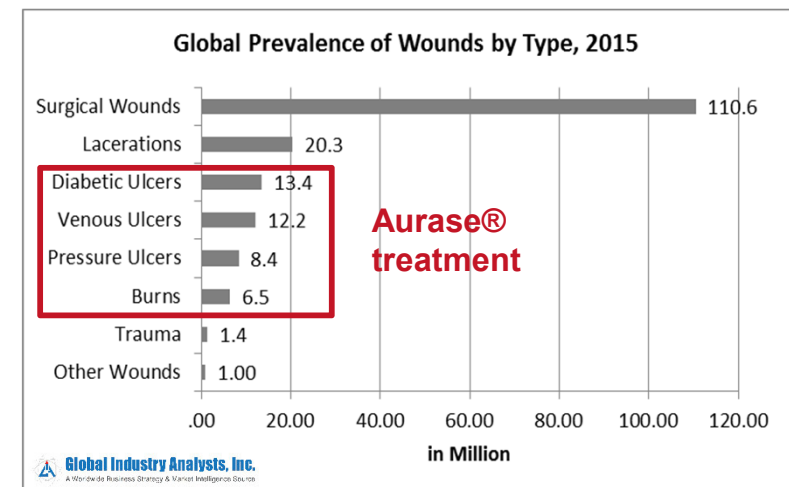
The Product:

- Aurase® is a hydrogel containing a safe, active, highly specific enzyme
- The enzyme has been isolated and cloned from medical maggots (green bottle fly)
- Currently phase 2 of clinical trials
- Aurase® to be produced in a GMP biotechnological process
- Santyl® of S&N is currently the market leading drug for non-surgical wound debridement

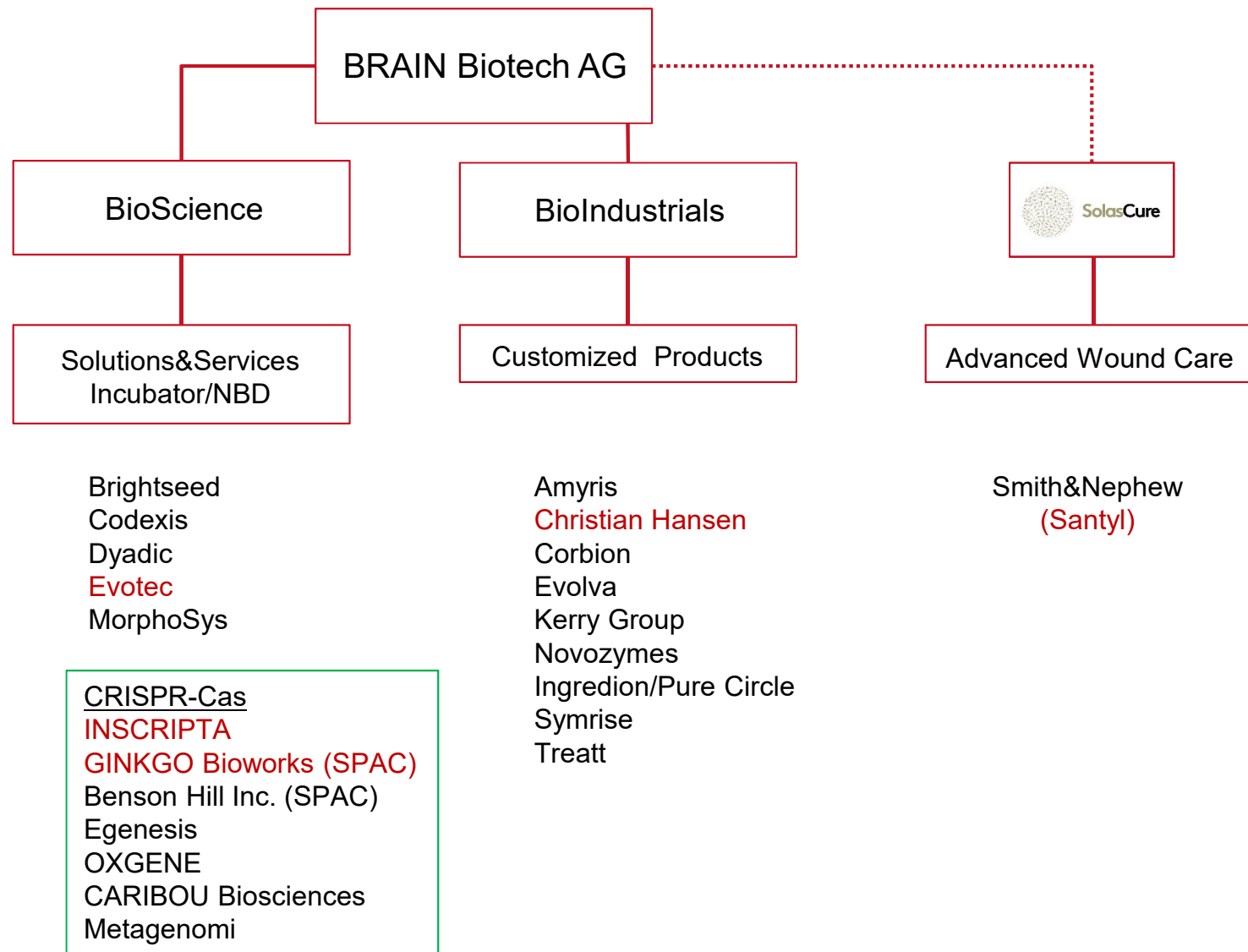
*allied market research '19

Latest Funding, Q1

- GBP 3 Mio in total
- New investor attracted: Seneca Partners (VC) with Seneca Growth Capital VCT
- BRAIN participated below pro-rata stake
- Pre-Money valuation +20% versus last capital injection
- BRAIN invested GBP 0.5 Mio
- New partner attracted
- Valuation keeps rising despite Covid-19 related delays



Peers by Business Activity



Financial Calendar



QUARTERLY STATEMENT

Publication of the quarterly statement as of June 30th, 2021 (9M)

August 30th, 2021



FISCAL YEAR STATEMENT

Publication of the annual report as of September 30th, 2021 (12M)

January 17th, 2022



QUARTERLY STATEMENT

Publication of the quarterly statement as of December 31st, 2021 (3M)

February 25th, 2022



ANNUAL GENERAL MEETING

Annual General Meeting (FY 2020/21)

March 9th, 2022

Management CV – Executive Board



Adriaan Moelker (CEO)

- Master of Business Administration
- Year of birth 1964
- Joined BRAIN in 2020
- 20+ y of professional experience in industrial biotechnology innovation
- Successful in terms of innovation & revenue
- Extensive global experience in all key industrial enzyme segments



Lukas Linnig (CFO)

- B.S. in Economics, CFA
- Year of birth: 1993
- Joined BRAIN in 2015
- 7+ y leadership experience in finance, controlling and legal
- Successful in implementing finance controlling systems
- Prior to BRAIN: VC and consulting
- Advisor during the IPO

Management CV – Selected Senior Management



Dr.-Ing. Ute Dechert
(VP HR & Processes)

- Doctor of Engineering (Biochemistry)
- Joined BRAIN in 1996
- 20+ y of professional experience in project management, grant management, HR, organization & processes
- Active ASIIN e.V., Bergstrasse HR Network, University of Esslingen, Provdix University



Dr. Michael Krohn
(EVP, Head of R&D)

- PhD Molecular Biology
- Joined BRAIN in 1997
- 20+ y of leadership experience in BioActives, functional ingredients, contract research, business development
- Coordination NatLifE 2020
- Since 2013 member of the BRAIN Biotech AG executive committee



Dr. Martin Langer
(EVP, Head of Business Development)

- PhD, Molecular Biologist & Biochemist
- Joined BRAIN in 1995
- 25+ y of professional experience in business development, marketing, communication and VC
- Since 2013 member of the BRAIN Biotech AG executive committee

Analyst Coverage

Bank	Analyst	Target Price	Recommendation
	Markus Mayer	17.50 €	Buy
	Falko Friedrichs	12.00 €	Buy
	Peter Spengler	10.00 €	Hold
	Dr. Mohamad Vaseghi	15.00 €	Buy
	Paul de Fromment Damien Choplain	12.50 €	Buy
	Dr. Christian Ehmann	13.00 €	Buy
	Dennis Berzhanin	10.50 €	Buy