

BRAIN Biotech AG

Creating a #BiobasedFuture



Investor Relations Presentation 2022

Zwingenberg, February 2022



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BRAIN at a Glance

~ €38m

'20/'21 Revenues

> 28

Years of Experience

~ 320

Employees

> 230

Specialty B2B Products

> 150

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

Mission & Vision

“Mission is what an organization is or does. Vision is what an organization desires to become”

Mission

Creating Breakthrough Bioproducts and Solutions for Nutrition, Health and the Environment

Vision

We will be the **Industrial/White Biotech Specialists** in finding and exploring high-value niches in our products business and novel solutions in our science business. We will be much more agile than others and will always look to produce products in-house or with partners

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

Biological Production:
Enzymes & Large Scale Fermentation

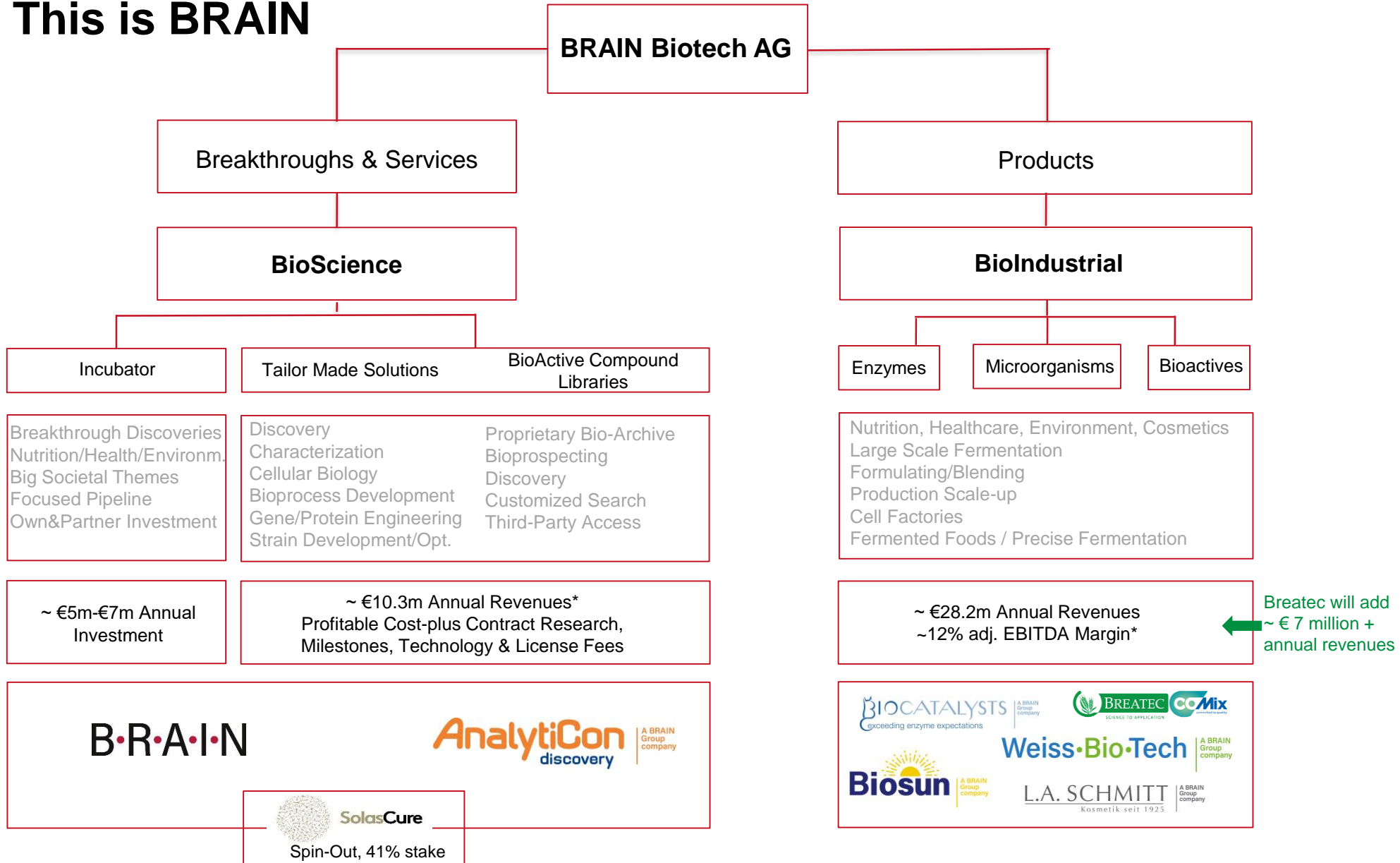
Environment

BioMining:
Sustainable Metal Extraction (Urban Mining)

Biological Production:
Enzymes & Large Scale Fermentation

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

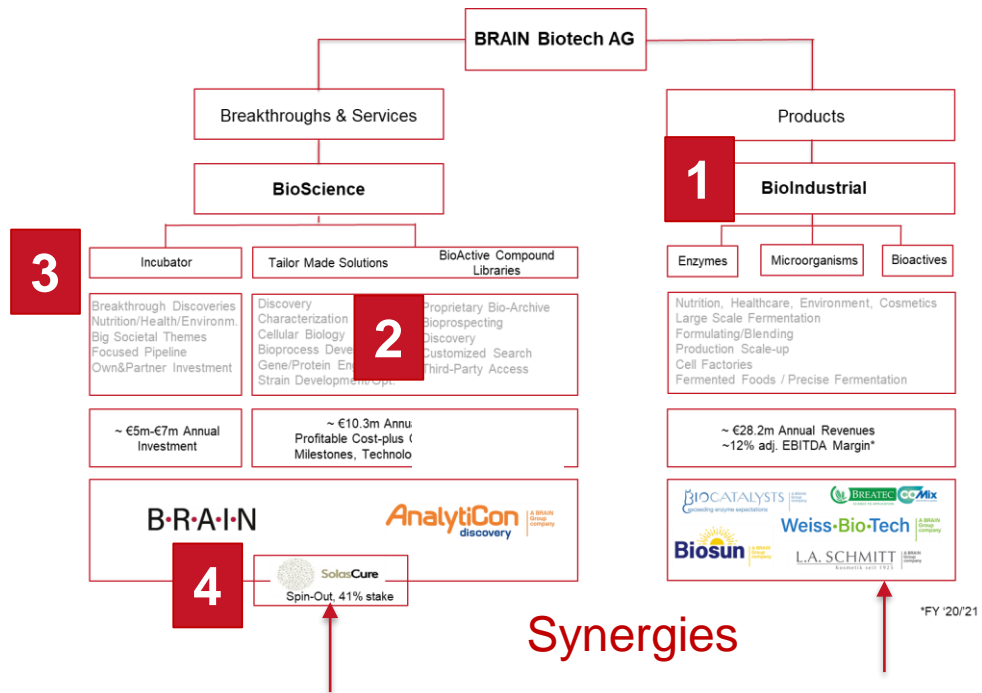
This is BRAIN



*FY '20/'21

BRAIN Group – Solutions Provider

Value Creation & Synergies



- Enzymes: integrated value chain from lab to production
- Industrial Scale-up and application know-how
- In-house strain optimization & development
- Customer strain development & Bio Process
- Variable scientist pool for internal/external projects
- TMS creates strong industrial partner network
- Utilize TMS knowledge for Incubator Projects and alternative use-cases
- Shared corporate services & financing

- 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; “CRISPR for You”
 - 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 stakeholding

Six Strong Reasons to Invest in BRAIN Biotech AG

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. BEC/BMC potential to be transformational.
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 driving Revenue and Margin Growth

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

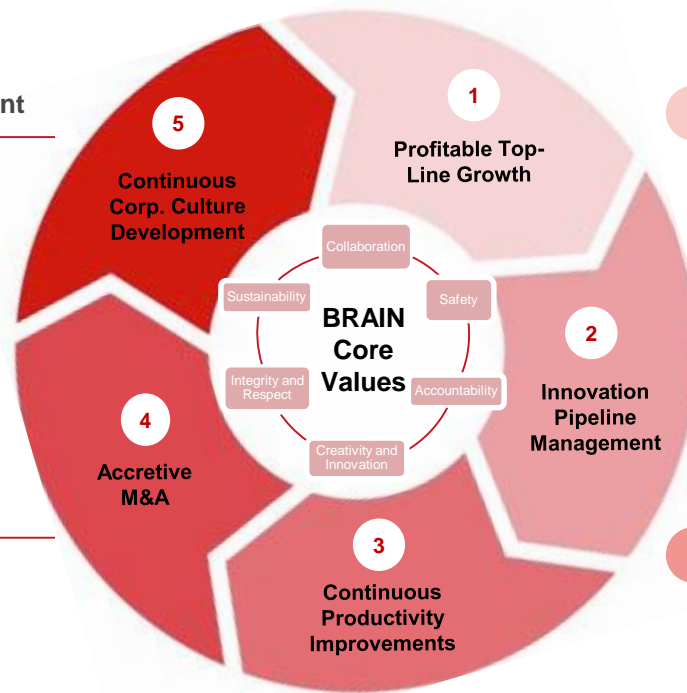
Five Strategic Initiatives Centered Around our Core Values

5 Continuous Corp. Culture Development

- Can do and high ethics culture
- Talent management
- Innovation is our passion
- Teamwork is our basis
- Sustainability as a guiding principal

4 Accretive M&A

- Successful track record of integrating acquired entities
- Further build with bolt-on acquisitions
- Transformational M&A in adjacencies



1 Profitable Top Line Growth

- Excel in specialty niches with high margins
- Selectively grow outside of Europe
- Always look for ways to produce ourselves

2 Innovation Pipeline Management

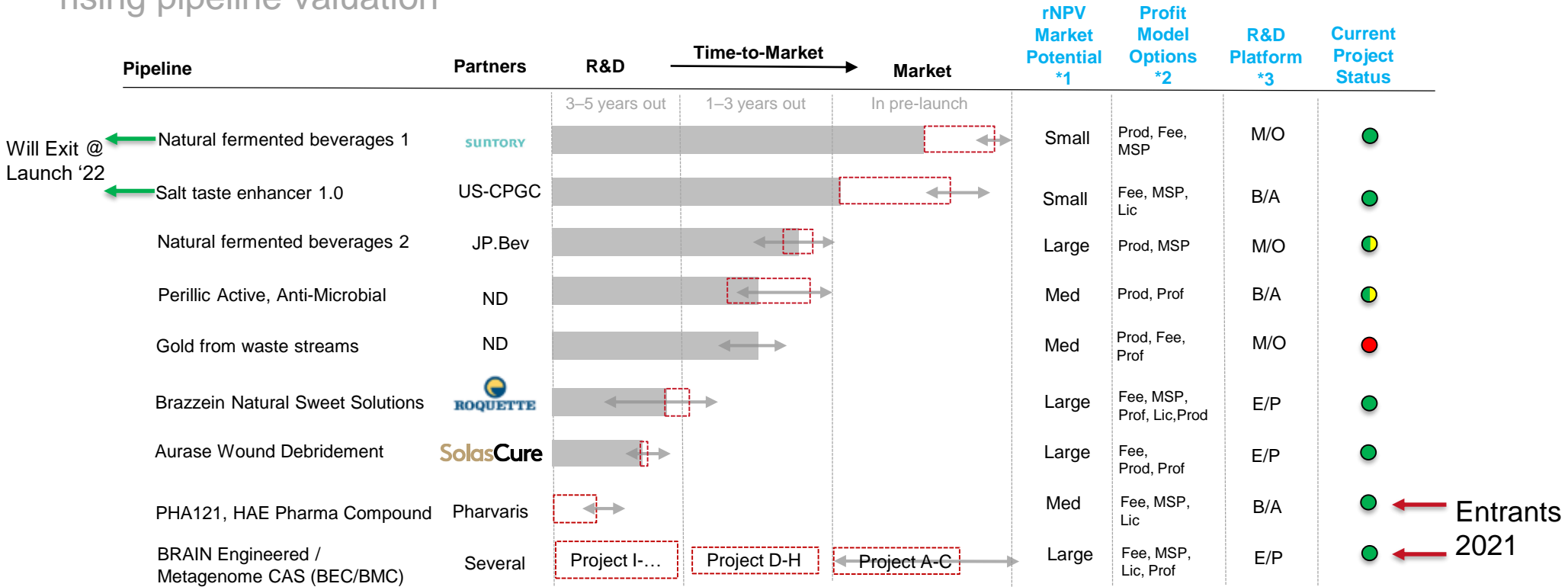
- Balanced portfolio across markets and technologies
- Breakthrough solutions for big challenges for accelerated growth
- Key customer and application focus

3 Continuous Productivity Improvements

- Strain development
- Focus on working capital efficiencies, cost improvements and free cash flow
- Group revenue synergies
- Bio-Informatics

Our Incubator

rising pipeline valuation



- 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 10

Progress since CMD '20, update '08/21

- 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



Management & Employee Incentives

Since the IPO BRAIN Biotech AG's board as well as management compensation has been closely linked and aligned with shareholder interests

Executive Board

- fixed salary
- variable component based on individual quantitative & qualitative targets
- stock component, see ESOP

ESOP, Employee Stock Ownership Program

- Since June 2018
- Board, managers and employees
- Incentive and retainer
- Details: see appendix

CoPerBo, Corporate Performance Bonus

- Since FY 2015/16
- Applied for employees at BRAIN Zwingenberg
- Partially share prices based
- Details: see appendix

Specific Incentives at Daughter Companies

- See appendix

Financial Highlights 3M FY 2021/22 at a Glance

excellent start to the year in both divisions; solid adj. EBITDA improvement

(in € thousand)	3M 2021/22	3M 2020/21	Growth	Organic Growth	Q1 2021/22	Q1 2020/21	Growth	Organic Growth	Comment
Revenues	10,177	8,078	26.0%	18.6%	10,177	8,078	26.0%	18.6%	
BioScience	2,775	2,002	38.6%	38.6%	2,775	2,002	38.6%	38.6%	very dynamic start Milestones 35K 3M 21/22 Milestones 104K 3M20/21
BioIndustrial	7,414	6,134	20.9%	11.1%	7,414	6,134	20.9%	11.1%	WBT recovery continuous Solid BioCats
Total operating performance (1)	10,436	8,488	22.9%	15.9%	10,436	8,488	22.9%	15.9%	
Adjusted EBITDA (2)	-299	-1,428	79.1%	78.3%	-299	-1,428	79.1%	78.3%	(-) EUR 261K ESOP 3M (-) EUR 86K M&A Cost 3M
EBITDA	-646	-1,587	59.3%	58.6%	-646	-1,587	59.3%	58.6%	
EBIT	-1,623	-2,492	34.9%	35.0%	-1,623	-2,492	34.9%	35.0%	
Net Result	-2,330	-3,269	28.7%	28.8%	-2,330	-3,269	28.7%	28.8%	
Operating Cash Flow	-193	-2,132	91.0%	94.0%	-193	-2,132	91.0%	0.0%	stronger EBITDA & WC management
	31.12.2021	30.09.2021							
Cash	22,678	24,545	-7.6%	-8.6%					

	3M 21/22	3M 20/21	Growth	Organic Growth
Number of Employees	293	283	3.5%	-1.8%
Material Expense Ratio	40.9%	49.1%	- 8.2% PP.	- 10.1% PP.
Adj. Personnel Expense Ratio	46.4%	54.3%	- 8.0% PP.	- 6.4% PP.

➤ CRISPR investments @ 3M € 0.6 million

Major Events 3M '21/'22:

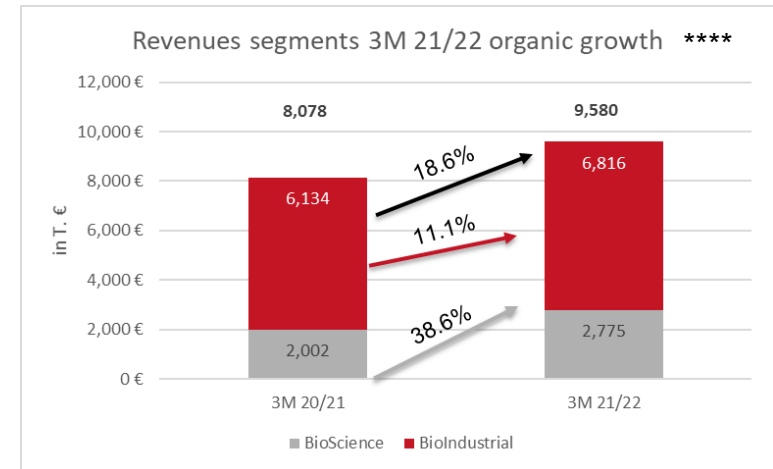
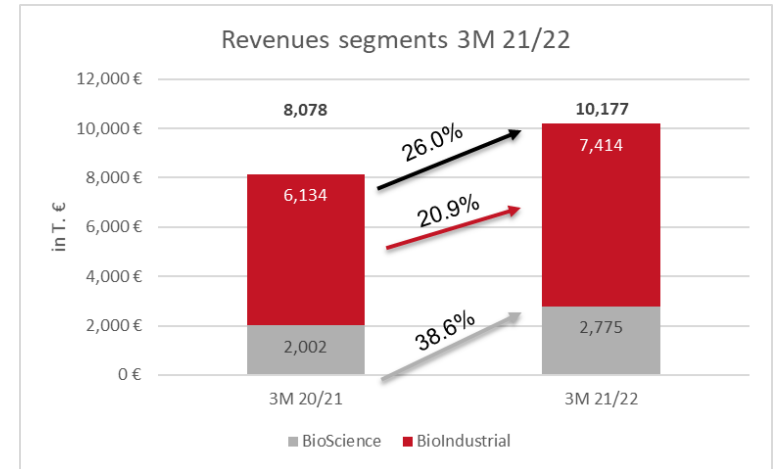
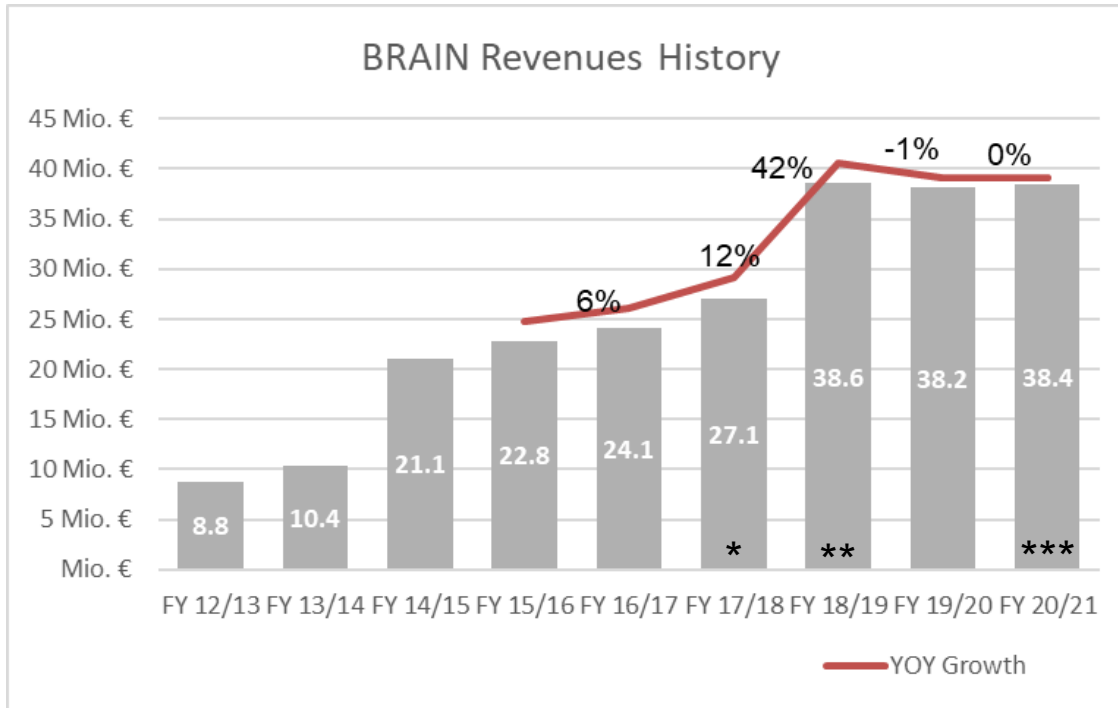
- **BioScience** strong Q1 '21/'22 after weak start '20/'21; strong growth trend of Q4 confirmed, lower milestones; solid order book also driven by “We CRISPR for You” business
- **BioIndustrial**: solid single digit growth in each group company plus WBT recovery leads to double digit divisional growth
- **WBT** 20% + growth, around EBITDA breakeven
- **Breatec**: will add to inorganic growth from Q2, consolidation for 8 Months

(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

Long-Term Revenue Growth Trajectory

Strong BioScience recovery, also driven by „We CRISPR for You“



- As stated: we expect to go back on the growth track in FY 21/22 – very strong start in Q1
- Breatec will add to growth from Q2

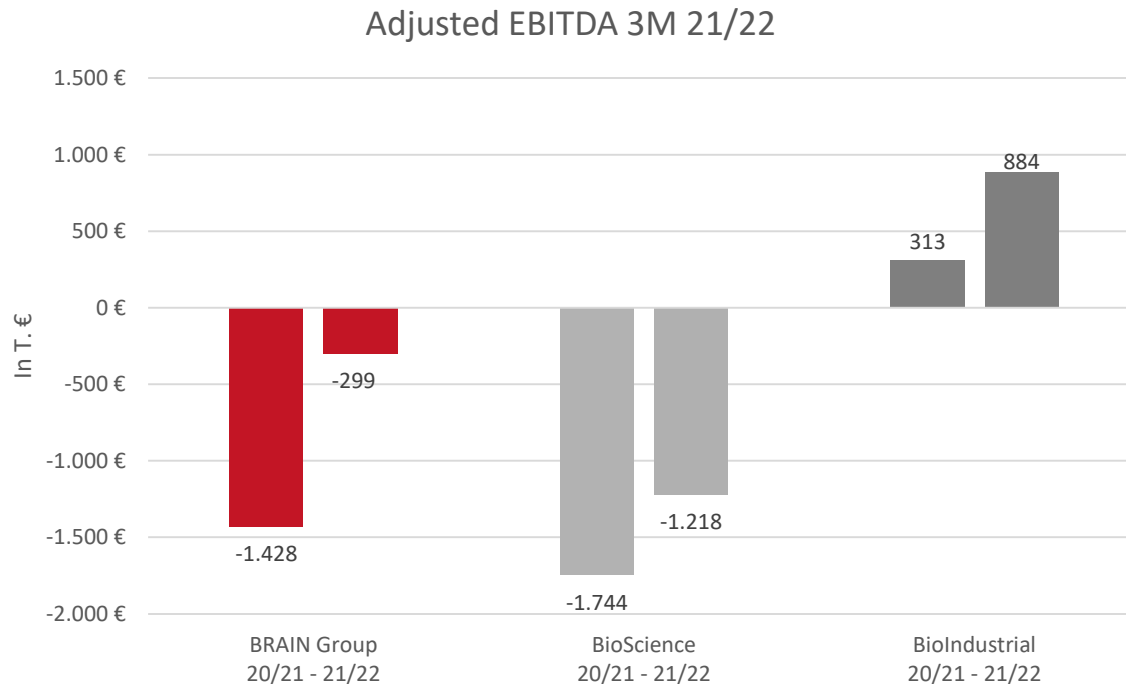
*purchase BioCatalysts Ltd. **divestment Monteil Cosmetics ***purchase BioSun

****BioSun integration from Q2 20/21



Adjusted EBITDA

BioScience: positive operating leverage & higher amount of Tech Access Fees



- **Group** adj. EBITDA strongly improving due to dynamic sales growth and positive operating leverage
- **BioScience:** strong YoY recovery; lower milestone payments 3M; Tech Access Fees up due to USP BEC/BMC; TMS backlog develops solidly
- **BioIndustrial** all group companies with organic growth; WeissBioTech with strong sales growth (20%+) and returning to positive EBITDA

➤ BioScience includes CRISPR investments @ 3M ~€ 0.6 million

Cash & Cash Flow

strong OCF, very solid cash position maintained

(in € thousand)	3M 2021/22	3M 2020/21	Growth	Q1 2021/22	Q1 2020/21	Growth	Comment
Gross Cash Flow	-1,573	-1,719	8.5%	-1,573	-1,719	8.5%	
Operating Cash Flow	-193	-2,132	91.0%	-193	-2,132	91.0%	Strong WC management
Investing Cash Flow	-1,556	-194	-702.0%	-1,556	-194	-702.0%	Capital Increase SolasCure
Financing Cash Flow	-247	-523	52.7%	-247	-523	52.7%	
Net change in Cash & Cash Equivalents	-1,996	-2,849	29.9%	-1,996	-2,849	29.9%	
	31.12.2021	30.09.2021					
Cash	22,678	24,545	-7.6%				
Equity	40,090	41,828	-4.2%				

- EUR ~3.7 million Breatec purchase price payment Q2
- NewCo formation will open additional financing optionalities
- EUR 7 million undrawn credit facility available on top

Covid, Rising Supply Chain Risks & Cost Inflation

pandemic effects vanishing, selected supply chain restraints

Summary:

BRAIN Group: negative Covid-19 effects from FY 20/21, especially on BioScience, are vanishing. Selected supply chain restraints hinder even more dynamic growth in BioIndustrial. Trying to pass on inflationary pressures.

Potential Challenges:

- Omicron: virus varieties might temporarily impose new economic insecurity and travel restrictions making deal making in BioScience again more challenging
- **Supply Chain**: managing supply chain shortages is becoming increasingly a larger risk factor starting from raw materials, logistics costs, over laboratory consumables to packing materials. All units are affected to different degrees and hindering an even more dynamic organic growth
- Cost Inflation: trying to pass on product cost inflation to customers. Still limited wage inflation but second round labor effects cannot be ruled out

Covid

Secure:

- Health aspects
- Supply chain
- Operating business
- Future pipeline

Targets:

- Safety of employees
- Business continuity
- Minimize disruptions
- Fulfill customer contracts

Measures:

- Vaccination @ work
- Booster @ work
- Covid-19 task force
- Hygiene concept
- Corona quick testing
- Masks on premises
- Air Filters
- Personal safety supplies
- Physical distancing
- Home office
- Travel restrictions
- Flex work
- Digitalize workflow

Our Targets

Guidance and Mid-Term Targets

FY 21/22 Guidance (ex Breatec)

(issued 3M, February 23rd, 2022)

Group sales: EUR 43-45 million

- BS: growth 15-25%
- BI: growth 10-15%

Adj. EBITDA

- around break-even (ex CRISPR)

CRISPR

- associated expensed investments: EUR 2.5-3.5 million

Group CAPEX

- 7.0-8.0 EUR million

Breatec, first indication*: CY 2022 Revenues ~ EUR 7.5 million, adj. EBITDA ~ EUR 0.55 million, integration and M&A costs ~ 400-450K EUR
*consolidation for 8 months

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)

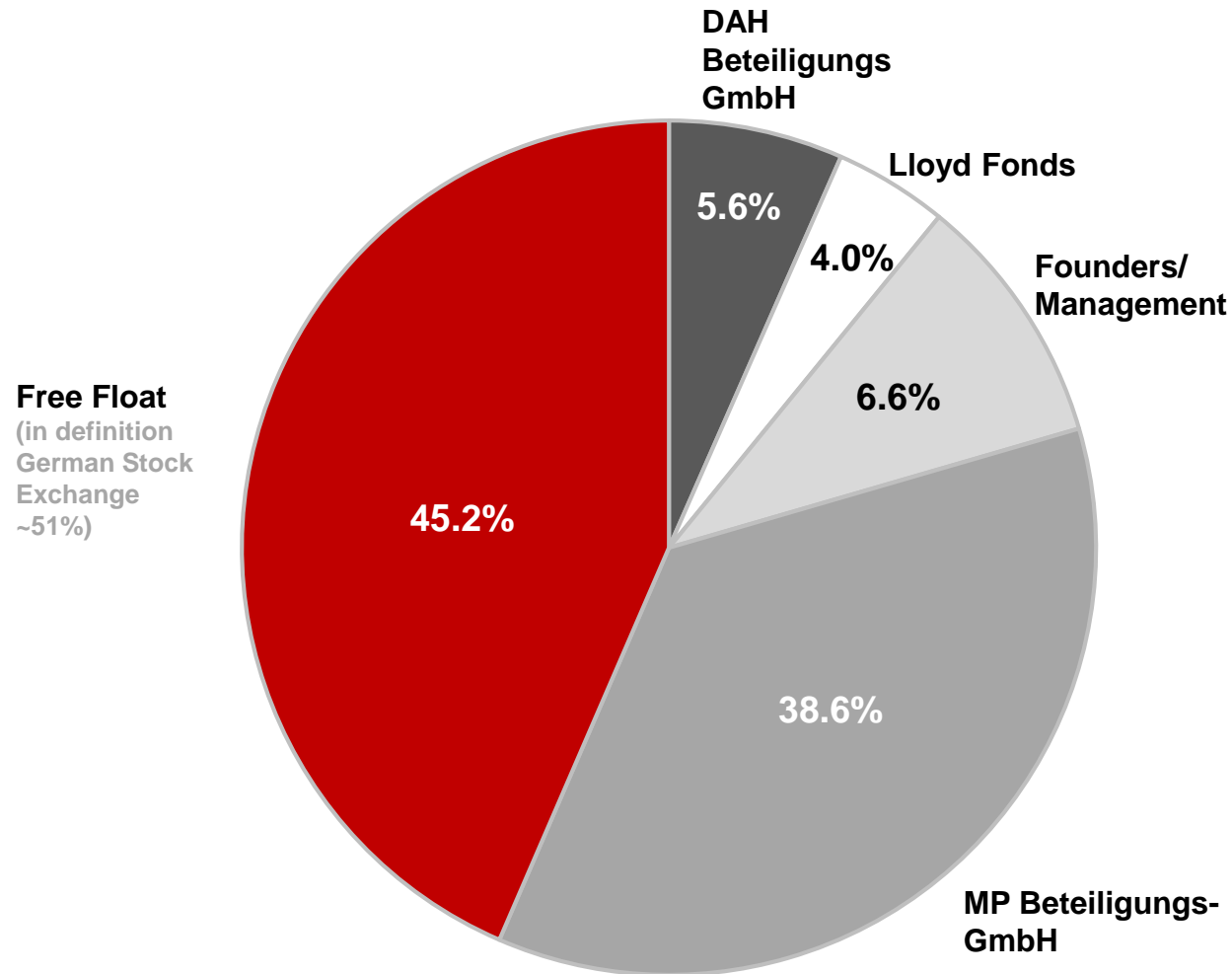
Group adj. EBITDA margin 15% (+/- 5PP)

- 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*



- Number of shares: 21,847,495
- Free float of ~ 45%
- Strong long-term investor base
- ~ 8,900 shareholders
- WKN 520394 / ISIN DE0005203947
- Symbol BNN
- Prime Standard; Frankfurt/M

*January 31st, 2022



Financial Calendar

AGM
2020/21

ANNUAL GENERAL MEETING (Virtual)
Annual General Meeting (FY 2020/21)
March 9th, 2022

6^M
2021/22

HALFYEAR STATEMENT
Publication of the half year report as of March 31st, 2022 (6M)
May 30th, 2022

9^M
2021/22

QUARTERLY STATEMENT
Publication of the quarterly statement as of June 30th, 2022 (9M)
August 29th, 2022

Thank you for your attention.

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BRAIN Biotech AG



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Strong Sustainability Contributions

BRAIN is empowering the biological transformation of the industry

- Industrial biotechnology is at the heart of the Bioeconomy
- Utilize natural raw materials efficiently
- Improve industrial manufacturing processes to become more efficient and natural
- Create new biobased products
- Make consumer goods healthier and more desirable
- Move away from fossil raw materials towards sustainably produced natural resources
- Safe energy compared to chemical processes (replace high by low energy processes)
- Significantly less CO₂ emissions
- Focus areas: **nutrition, health and the environment**
- Powered by **our proprietary BioArchive**, driven by our deep R&D and process knowledge

Selected products and solutions

- **Food:** Reduce calorie density in foods by natural sweeteners while maintaining the taste profiles; reduce the salt content in food
- **Good Health:** functional probiotics, replace chemicals in cosmetics by natural compounds; treatment of chronic wounds
- **Water/Sanitation:** replacing chemicals by biological metal extraction from e-scrap, incinerator bottom ash and other mineralic resources
- **Industry Innovation:** improving production efficiency; reducing CO₂ emissions and using CO₂ as a raw material
- **Responsible consumption:** reducing the perishability of food by bioactive antimicrobials to reduce food waste
- **Sustainable Production:** managing pollution, transforming waste streams into unprecedented value chains



Trends – Where BRAIN Can Make a Difference



Corporate Governance

Principles and policies defining BRAIN's responsible operations

- Dual German AG structure consisting of a management board and a fully independent supervisory board
- We comply with all statutory corporate governance regulations as well as the recommendations of the German Corporate Governance Code (DCGK) (exceptions specified and justified in the statement of conformity)
- BRAIN Biotech AG Code of Conduct
- BRAIN's Privacy Statement
- BRAIN's Disclosure Policy
- Quality, Health and Safety Policy
- Financial responsibility: BRAIN's operations produce added value to different stakeholders in the countries we operate
- Financial benefits are shared between, among others, suppliers, personnel, owners and the public sector
- Internal compliance: qualified internal compliance officer, permanent risk assessment, audit committee, internal audit team and risk reporting
- Monthly reporting and audit meetings with the subsidiaries
- Member of the following associations: Bio Deutschland, Dechema, IWBIO, VCI

BRAIN's most important responsibility themes: healthy & natural, product safety, responsible business conduct, workplace safety

High Barriers to entry

Our novel products & solutions are based on:

- Proprietary BioArchive with >450 person years to reproduce
- Extensive patent portfolio, around 175 patents granted and around 40 patent families
- Trade secrets
- Broad and deep technology know-how in enzymes, microorganisms and bioactive natural compounds
- Ability to express target compounds in bacteria, yeast or fungi
- Full process capabilities from the lab to production
- Strong industry partner network with over 100 partner collaborations successfully completed
- Strategic alliances for new business development
- Strong scientific and university network
- State-of-the-art technology portfolio
- Our people: first class scientists and process specialists



NBD Deep Dive, The Pipeline

Large Market Potential

Natural Beverage 2

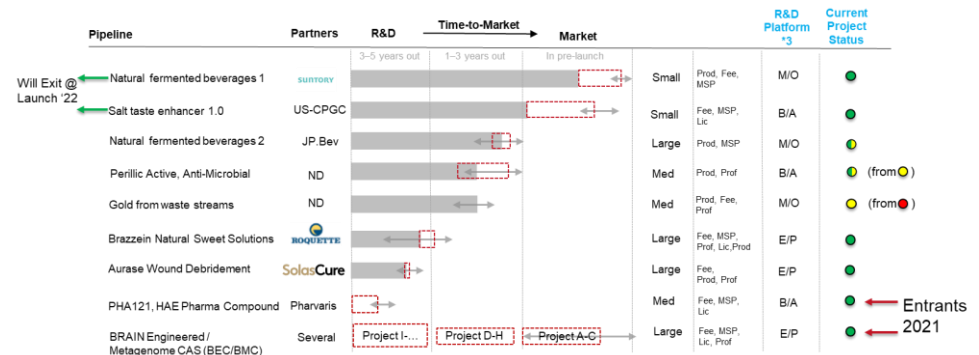
- Partners: Japanese Beverage Company
- Scope: undisclosed, confidentially agreement
- Exclusive to partner
- Technology Platform: microorganism
- Research Business Model: milestone payments
- Commercial Model: starter cultures, production, license fee, JV an option/profit share

Brazzein Natural Sweet Solution

- Partners: BRAIN, AnalytiCon Discovery, Roquette
- Scope: development, approval and commercialization of new natural sweet solution
- Based on access to our SweetBox and Human Tongue Cell technology derived sweetener candidates
- Technology Platform: BioActive and process development
- Research Business Model: tech access fee, success fees
- Commercial Model: initial production, licensing, royalties

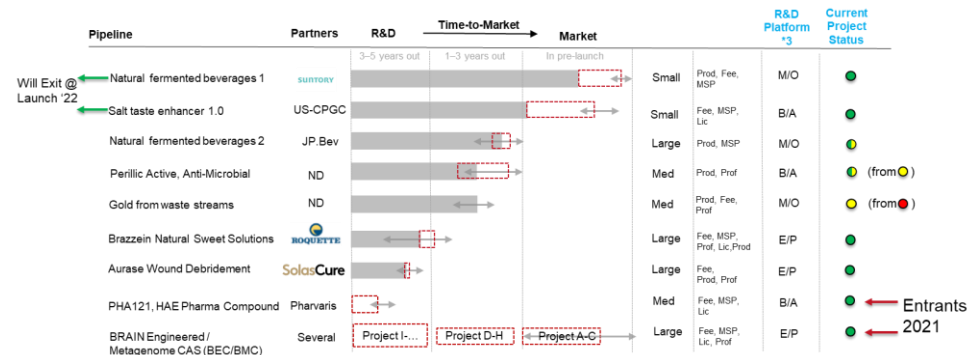
Aurase

- Partners: Spin-off SolasCure
- Scope: innovative wound debridement agent for the cleaning of chronic wounds
- Exclusive development through SolasCure, active enzyme 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



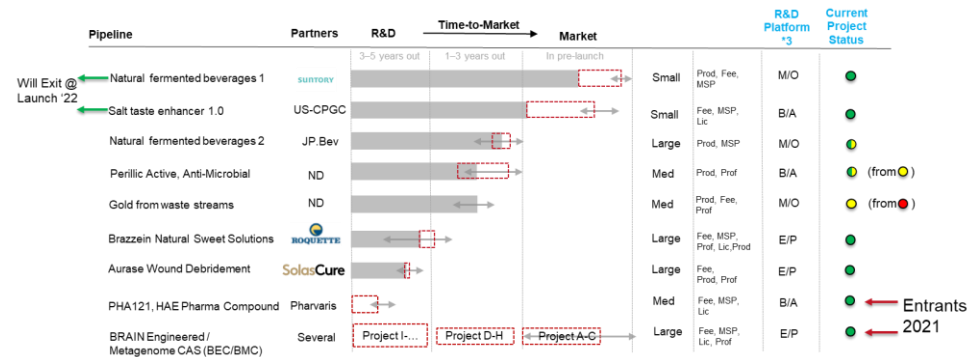
BRAIN CRISPR Non-Cas9 Associated Nucleases (BEC/BMC)

- **Genome Editing:** directed and precise change or use of a chromosomal target in a given organism; “the power to program cells”
- **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 options are still being evaluated, NewCo formation in 2022

➤ **If next development steps are successful could be transformational for BRAIN**

NBD Deep Dive, The Pipeline

Medium Market Potential



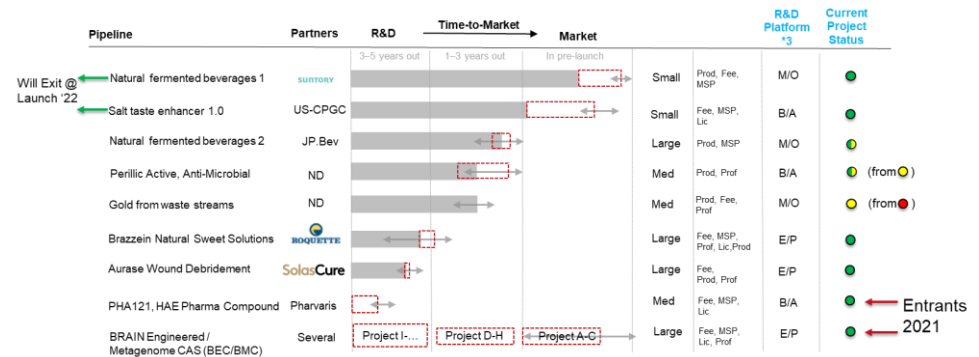
PHA 121 / Pharvaris N.V.*

- Is a clinical-stage discovery and development company, founded in 2015 (CH)
- IPO at the NASDAQ (phvs) on February 9th, 2021
- 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: TMS business /profit share via royalties
- 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

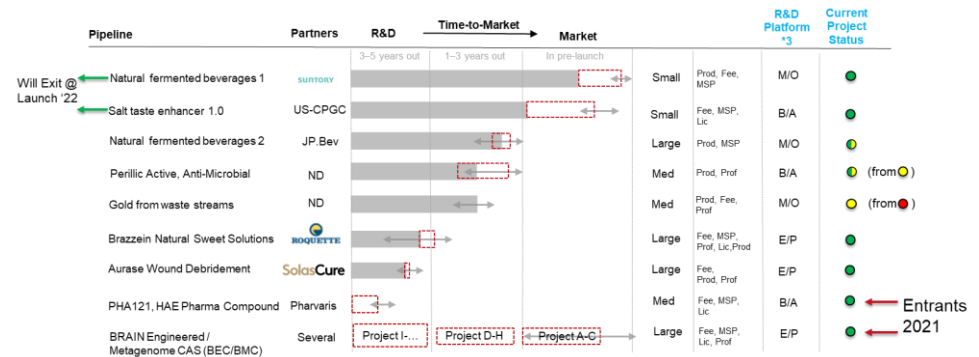
- Partners: US distribution partner contracted (non-disclosed); toll manufacturing
- Scope: nature based anti-microbial for food, feed, drinks and cosmetic applications, generated from industrial side streams; fermented orange oil
- US patent granted
- Technology Platform: BioActive
- Research Business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

Gold from Waste Streams / Urban Mining

- Partners: partner search actively running for scale-up; LOI in place; non-exclusive partnerships
- Scope: CO₂ efficient biological process for gold extraction from waste streams such as e-waste, today these valuable waste streams are deposited
- Technology Platform: microorganisms
- Research Business Model: own development, partially public funding, partner 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



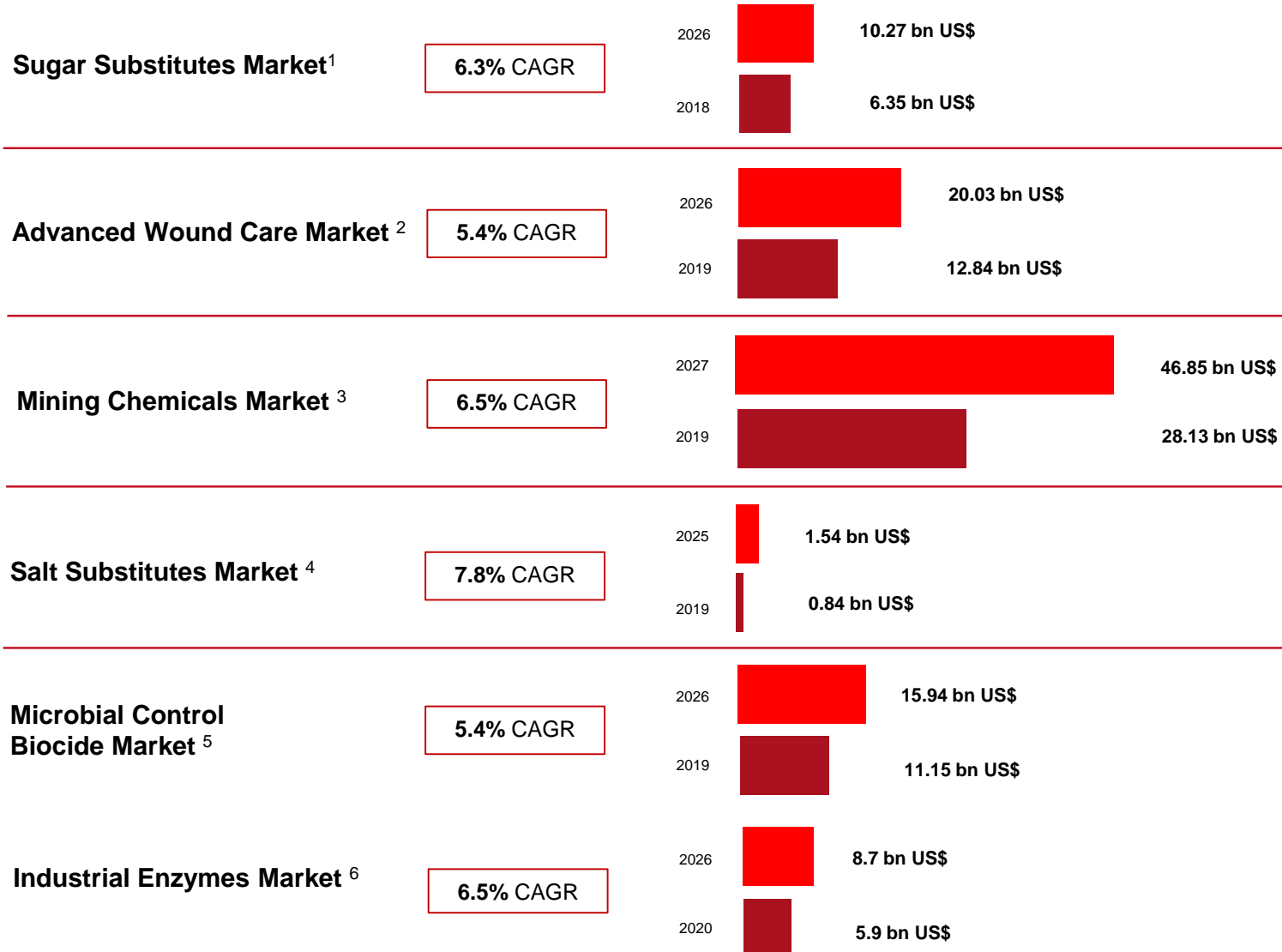
Natural Beverage 1

- 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
- In market pre-launch

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
- Launch expected 2022

NBD Deep Dive, The End-Markets



¹ Fortune Business Insights; 05/2020, ² Industry Research; 08/2020 ³ Coherent Market Insights; 08/2020 ⁴ Industry statsreport BMRC; 01/2020 ⁵ Global Market Insights, 07/2020 ⁶ Markets and Markets, PR Newswire, 04/2020



Service Business Deep Dive

Programs with industry partners

- BRAIN Biotech AG has a long track record with dedicated contract R&D programs
- Monetization: tech-access, fees and milestone payments, royalties or entity formation/profit participation
- **Non-cyclical service contract business with secular growth**

Tailor Made Solutions (TMS)

Novel natural products & solutions for the industry

- Partnered projects with the industry
- Active NBD sales approach
- Cost-plus contracts, milestones & license fees
- Cross selling of IP to non-exclusive areas
- Strong industry network with over 100 collaborations completed
- Deep and broad knowledge in enzymes, microorganisms and bioactive natural compounds
- Focus areas: nutrition, health and the environment
- From lab to production
- Multi-year contracts

Libraries Business

BioArchive – industry leading collection of natural resources and metagenome libraries

- MetXtra™: unique in silico enzyme selection (Biocatalysts)
- ABEL®: Activity-Based Expression Libraries (BRAIN Zwingenberg)
- LIL®: Large Insert Libraries (BRAIN Zwingenberg)
- METAGENOME®: substantial metagenome libraries (BRAIN Zwingenberg)
- CompActives®: easily scalable compounds for bioactivity screenings (BRAIN Zwingenberg)
- MEGx: world's most sustainable collection of purified natural products, isolated from plants (MEGxp) and microorganisms (MEGxm) (AnalytiCon Discovery)

↑ _____ Strong link & interaction _____ ↑

Partnerships „BRAIN Inside“












More than 100 exclusive partner collaborations successfully completed

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

Enzyme Production, Expression Hosts

For expression hosts, a wide variety of protein expression systems are available

Enzymes can be expressed in cell cultures of bacteria or yeasts.

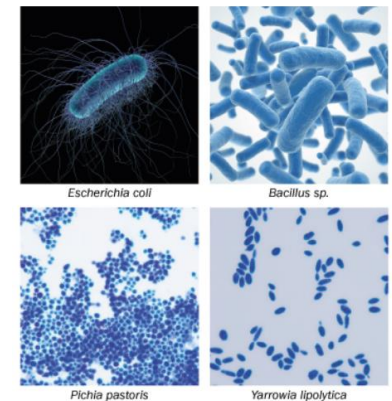
Factors for choosing an expression system

- Protein quality
- Functionality
- Regulatory
- Production speed and yield

Biocatalysts and WeissBioTech

- Use either bacteria or yeasts for the recombinant production of the enzyme being manufactured
- Have the ability to perform the fermentation process over a range from 250mL to 10m³ scale
- This makes it possible to efficiently optimize the production yield

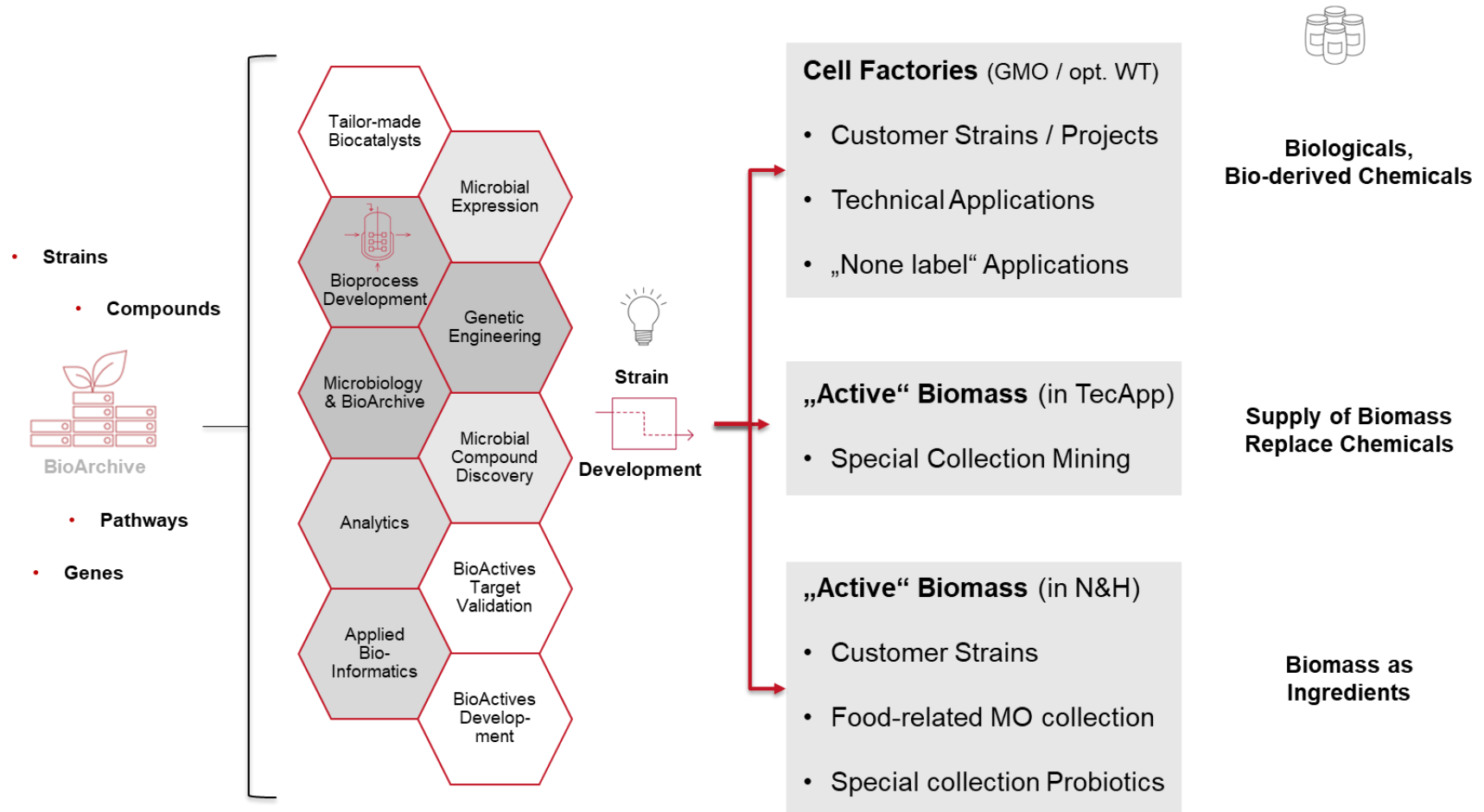
Ongoing development & optimization of our expression hosts is key for the cost competitiveness of our products. In-licensing is also under consideration.



*source: Biocatalysts

Enzyme Production, Expression Hosts

Strain Development: Setting the Scene



We Cover the Entire Enzymes Value Chain

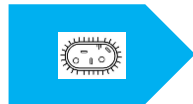
All steps are underpinned by strong customer application knowledge



Discovery



Protein and Enzyme Engineering



Expression/Secretion: Bioprocesses & scale-up



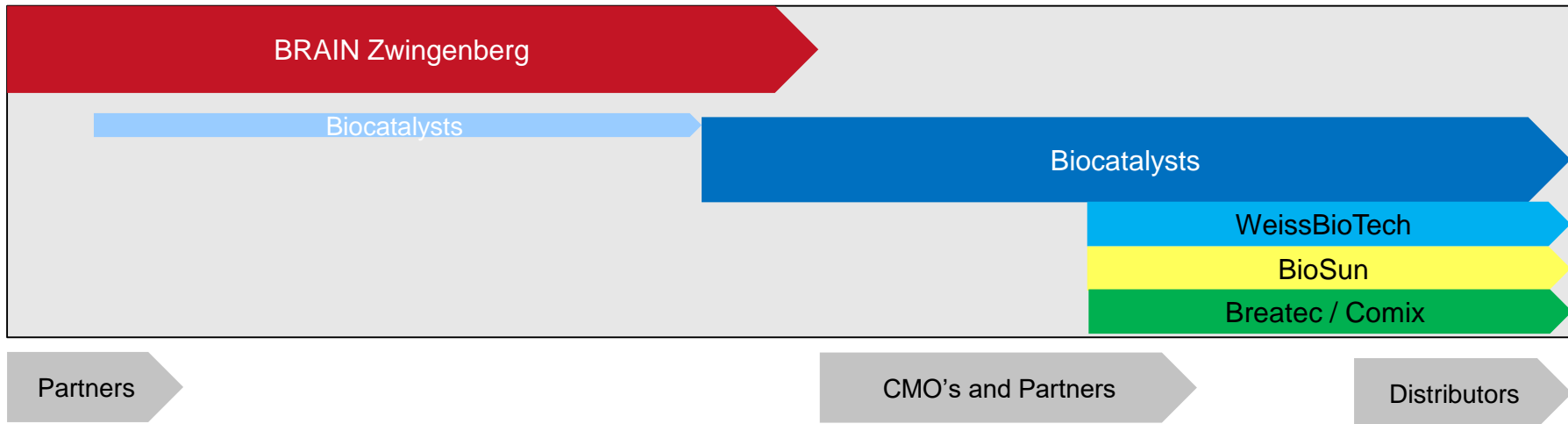
Large Scale Fermentation



Formulation And Blending



Marketing and Sales



Bolt-on M&A further strengthens our offering

SolasCure Ltd.

Revolutionizing Chronic Wound Care through Biomimicry



SolasCure

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:

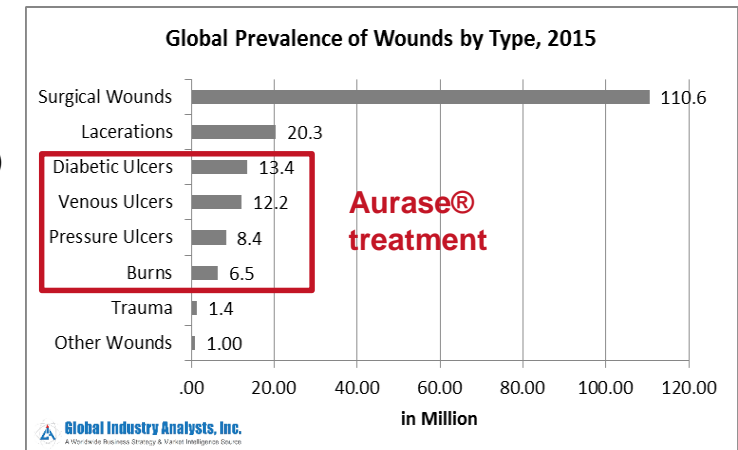
- Chronic wounds effect about 40mln people and consume about 10% of health care expenditures
- Advanced wound care market CAGR expected at 6,5% '18-26* (aging, diabetes and obesity are the main growth drivers)
- Alternative to ineffective and painful surgical or autolytic debridement
- Current target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

Latest Funding, Q1 '22

- GBP 3.7 Mio Series B1 in total
- BRAIN participated around pro-rata stake
- Pre-Money valuation +50% versus last capital injection
- BRAIN invested GBP 1.0 Mio cash
- New partner attracted



*allied market research '19



BRAIN BioArchive – Nature's Toolbox

~ 53,000

Characterized
Microorganisms

450

Habitat collections
and environmental
samples

464

Gene libraries
available for
screening

~ 13,000

Plant fractions
available for isolation
campaigns

~ 13,000

Plant fractions available
for isolation campaigns

~ 50,000

Natural and naturally
inspired compounds

54

Metagenome
libraries

231

Giga-bp DNA ready
to screen

~ 300 Mio.

Reusable ready-to-
screen Metagenome
clones

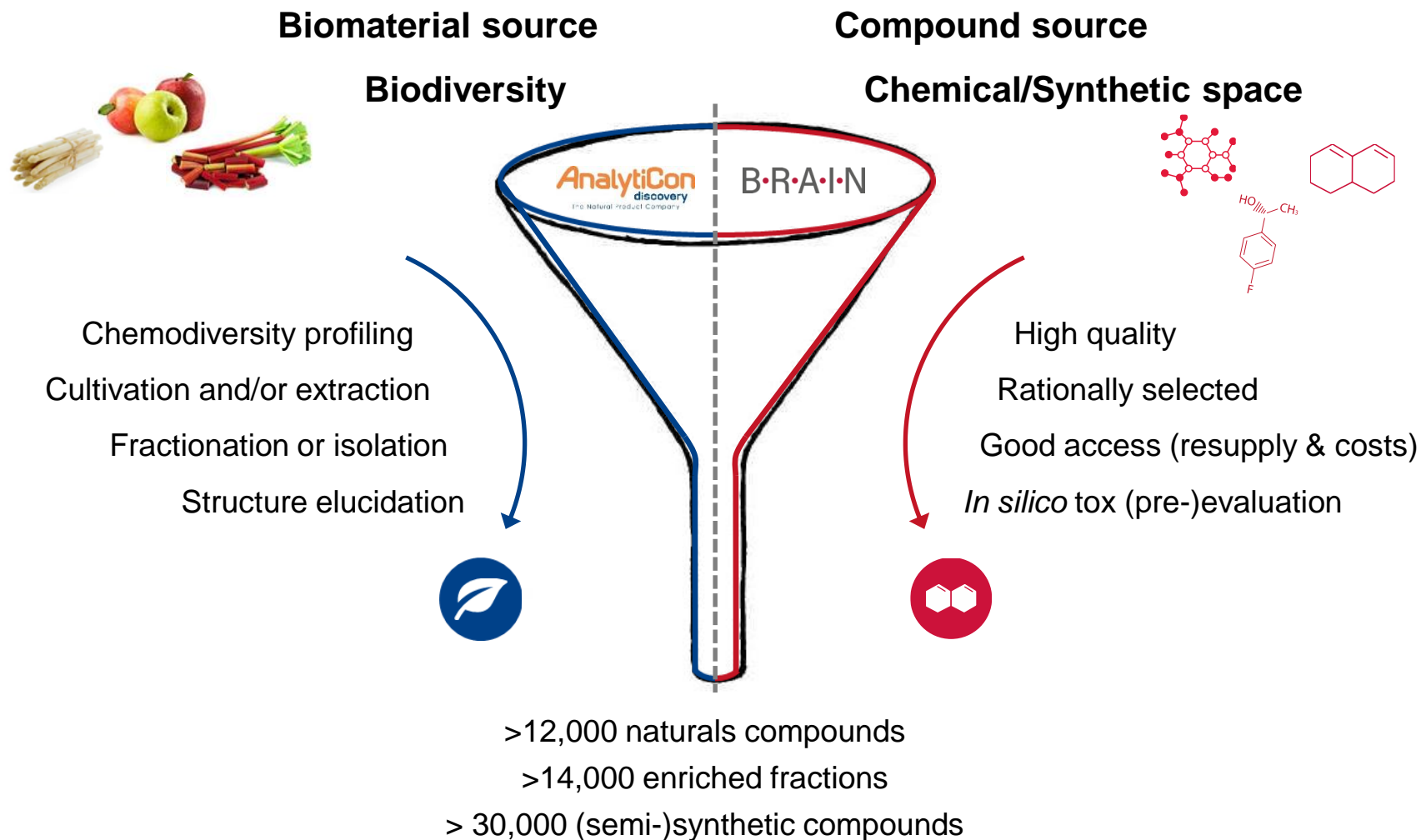


High Value:

- ✓ >450 person years to reproduce
- ✓ ~175 patents
- ✓ ~40 patent families
- ✓ Powering TMS, NBD & product sales

BRAIN BioArchive – Nature's Toolbox

A proprietary In-House Screening Resource



R&D / Technology Platforms – Industrial Biotechnology Toolkit



Bio-based resources

BioArchive – industry leading collection of natural resources and metagenome libraries

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- MEGx: world's most sustainable collection of purified natural products, isolated from plants (MEGxp) and microorganisms (MEGxm) (AnalytiCon Discovery)



Product development

Microbial expression – large set of pro- and eukaryotic expression strains, termed chassis, for the economic production of enzymes and biocatalysts

Microbial strain development – tailor-made designer strains based on conventional methodologies, plus engineering novel synthetic pathways and artificial operons for high-value industrial production

Gene and protein engineering – expression of genes and gene clusters for rationally redesigned production strains, including synthetic biology application, for customized enzymes and biocatalysts with optimized properties



Candidate discovery

High-throughput isolation – extraction and purification of natural products from variable biological resources (AnalytiCon Discovery)

Compound discovery – activity- and sequence-based screenings for application-driven research incl. biochemical and human cell-based assays

- screenline®: human cell-based receptor cell lines (BRAIN)

Structure elucidation – determination of molecular structure of (novel) natural compounds

Sample provision – rapid production of selected enzyme samples for customer testing

- Research Grade Sample (RGS): small volume enzyme sample production platform (Biocatalysts)
- Design for Manufacture (DFM): selection principles of enzyme candidates to maximise the probability for high expression in vivo and production scale-up (Biocatalysts)



Production scale-up

Process development – establishment of up- and downstream processes for efficient and cost-effective microbial production

Process optimization – identification of optimal parameters for superior production results

Product blending & formulation – superior knowhow for blending enzymes



Data evaluation

Analytics – state of the art equipment up to implementation of quality and stability control; covering proteins, metabolites and synthetic compounds

Bioinformatics – top-modern bioinformatic technologies for read-out of Next Generation Sequencing (NGS) results, Design of Experiments (DOE), big data analysis



HR: People – Our Core Capital*

BRAIN is a Knowledge Driven Enterprise

Innovation is our Passion & Teamwork our Basis

- Strong corporate culture
- Technology campus
- Global scientific and university network
- BRAIN alumni platform

~39

years average age

9

years average tenure

54%

female employees

8

trainees

55%

Academics

~ 7%

Average fluctuation since '04



strong support for PhD and
master theses

23%

PhDs



equal pay policy

* numbers refer to BRAIN Biotech AG



Detailed Management & Employee Incentives

- ✓ **Since the IPO BRAIN Biotech AG's board as well as management compensation has been linked and aligned with shareholder interests**

Executive Board

(Fix + performance based bonus)

variable component based on individual quantitative & qualitative targets
stock component, see ESOP

CoPerBo

Corporate Performance Bonus

- ❖ Since FY 2015/16
- ❖ For all employees without personal targets
- ❖ Annual bonus based on basic salary
- ❖ Three factors, 1/3 each
 - Total operation performance BioScience
 - Adj. EBITDA BioScience
 - Absolute share price performance in FY
- ❖ Payout range between 0-30% of basic salary

ESOP

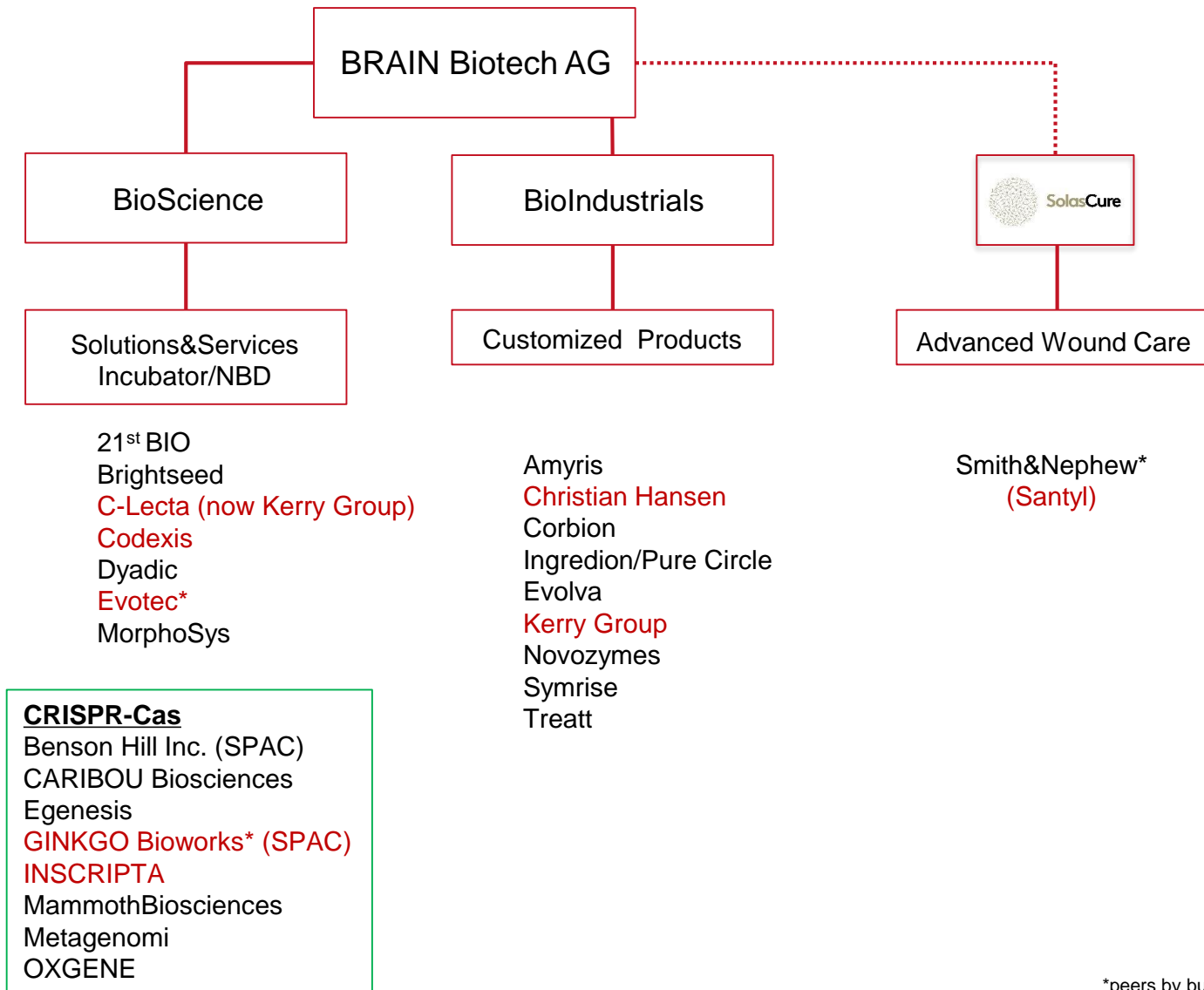
Employee Stock Ownership Program

- ❖ Since June 2018
- ❖ Board, managers and employees
- ❖ Incentive and retainer
- ❖ 1 Option = 1 Share at exercise price
- ❖ Strike price €20,67 and €10.64 from ESOP 2017 and 2018
- ❖ Beneficiary needs to still be employed
- ❖ Earliest exercise day, 4 years after grant
- ❖ Caps partially in place
- ❖ Monte Carlo model applied for fair value calculation
- ❖ 437,600 options outstanding as of Sept.30th 2019

Specific Incentives at Daughter Companies

- ❖ Growth equity program Biocatalysts Ltd.
 - Incentivize and retain managers
 - Share program without voting or dividend rights
 - Put option based on reporting Sept. 30th, 2022
 - Growth incentive with pre-defined EBITDA multiples
 - Cash settled, €17.07 value/share as of September 30th, 2019
- ❖ Employee share scheme, AnalytiCon Discovery
 - Put options for employees and management until February 2020
 - Remuneration in 3 tranches
 - Ownership now at 100%

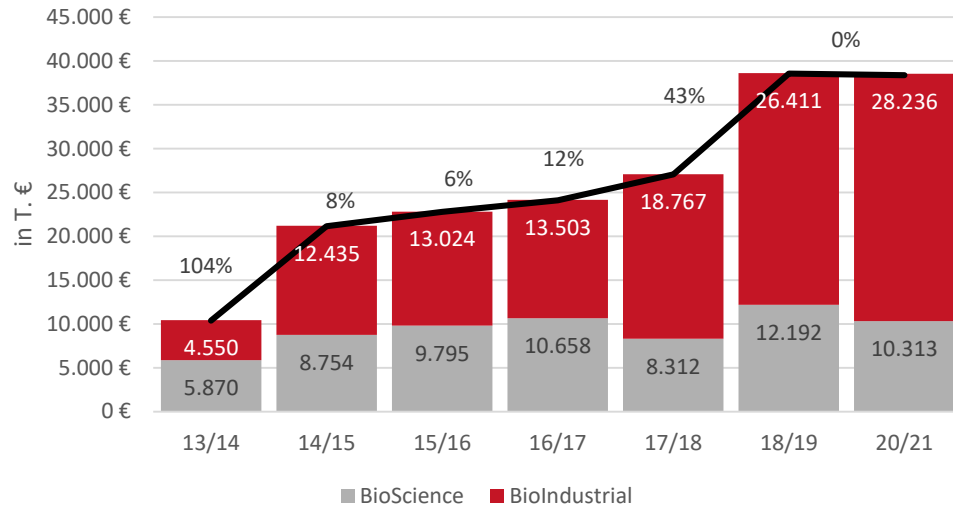
Peers by Business Activity



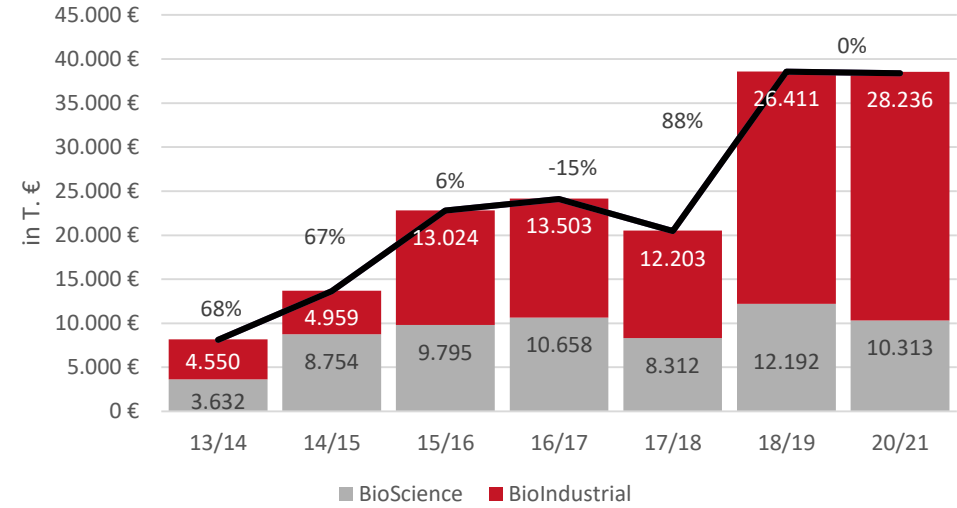
*peers by business model

Detailed Financials – Organic vs. Reported

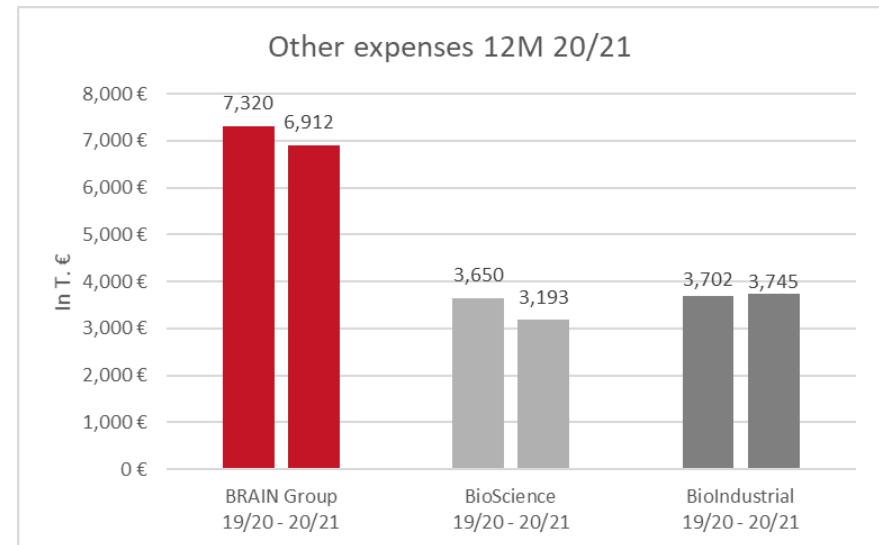
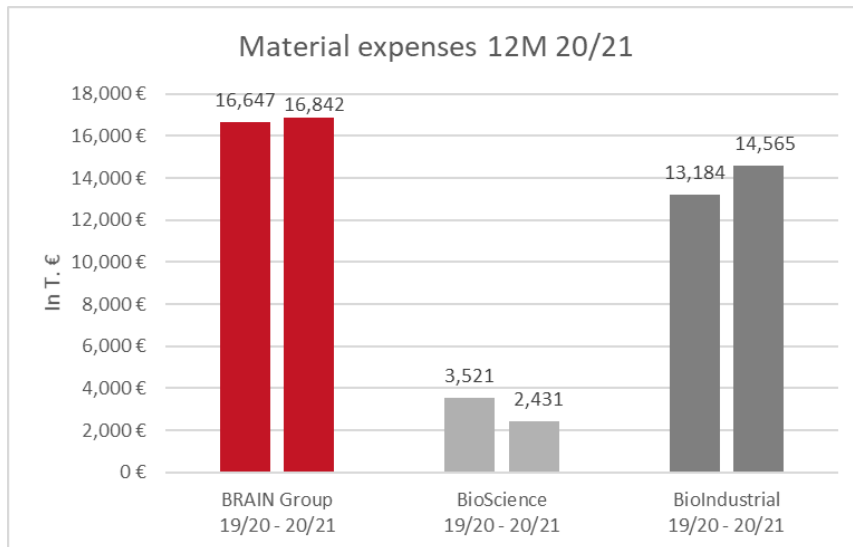
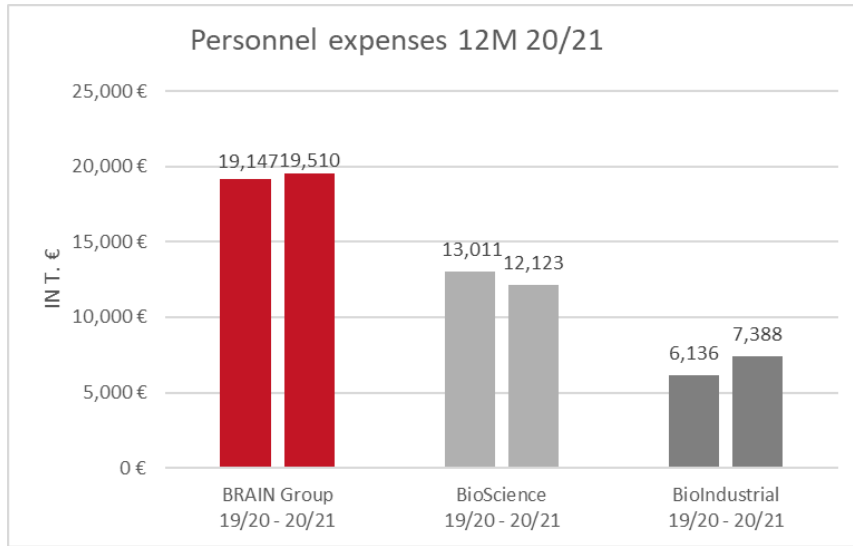
Long-term reported revenues per segment



Long-term organic revenues per segment



Detailed Financials – Expenses Development



Detailed Financials – Adjusted vs. Reported

For a like-for-like comparison BRAIN Biotech AG adjusts its EBITDA for its employee stock ownership program, performance based numeration in daughter companies, acquisition & integration costs

(in € thousand)	12M 20/21	12M 19/20
EBITDA	-2,533	-3,876
Gain on bargain purchase	858	0
Share-based employee compensation	-989	-629
Acquisition and integration costs incurred in the expansion of the BRAIN Group	-313	-222
Board Changes & Corona Bonus	0	-1,007
Adjusted EBITDA	-2,089	-2,018

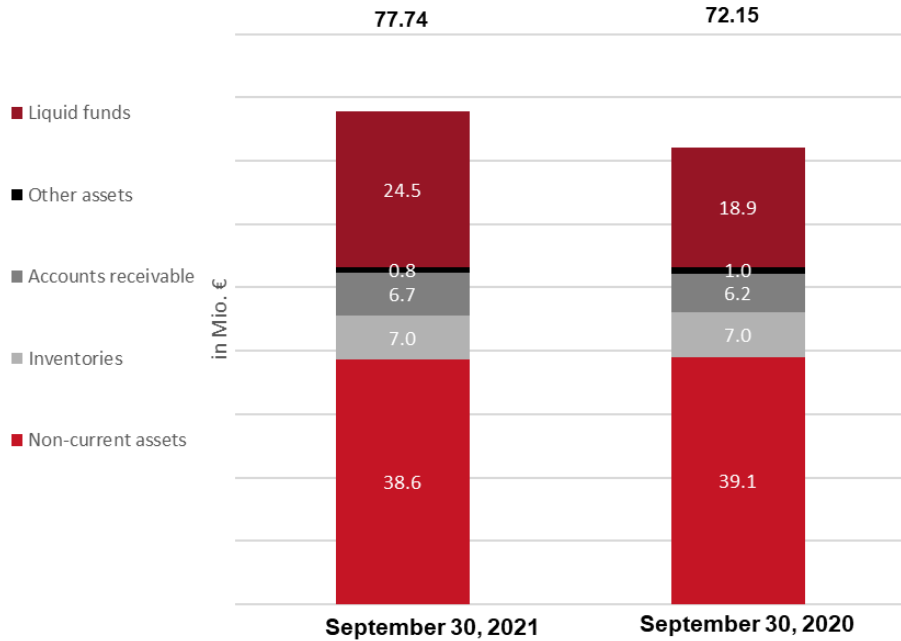
Detailed Financials – Financial Debt vs. Financial Liabilities

For or a detailed analysis of our EV calculation, our financial liabilities include:

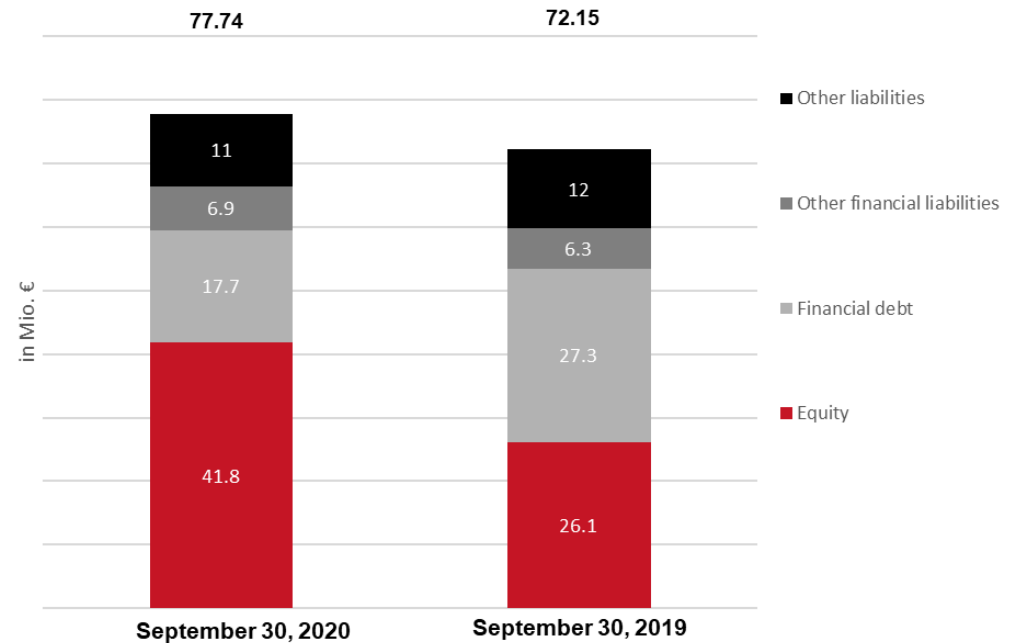
€thousands	Sept 30th, 2021	Comment
Liabilities from put option rights	4,401	Biocatalysts Ltd. Call/Put options '23/'24, earlier exercise possible, currently 80.65% ownership
Non-controlling shareholders' put option rights	6	
Contribution by silent partners	4,526	€1.5mln Hessen Kapital I GmbH, €3.0mln Hessen Kapital II GmbH, Hybrid Instruments (silent participation)
Sum I	8,933	
Loans	4,721	€2.5mln secured by Brain AG, Biocatalysts & L.A. Schmitt land charges
Finance Lease Liabilities	6,655	mostly plant & equipment
Derivatives	0	mostly FX hedging
Other	9	
Sum II	11,385	
Total	20,318	
Cash, 12M	24,545	

Detailed Financials – Balance Sheet

Balance sheet September 30, 2021 vs September 30, 2020



Balance sheet September 30, 2021 vs September 30, 2020



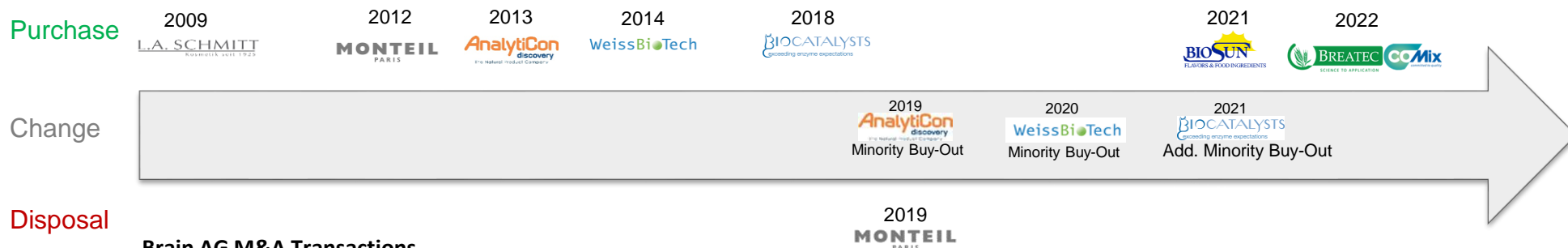
M&A Criteria & History

Qualitative mid-term M&A criteria

- B2B only
- Clearly focused on the product business
- Niche applications and producers
- Europe focused, US an option

Quantitative mid-term M&A criteria

- Bolt-on character
- Profitable or at least break-even
- Value accretive within 1-2 years post synergies
- Realize economies of scale



Brain AG M&A Transactions

Purchases

Target	Time	Description	Comment
L.A.Schmitt	2009	B2B cosmetics	
Monteil Cosmetics	2012	B2C cosmetics	
AnalytiCon Discovery	2013	Library, TMS, R&D, nature-based	
WeissBioTech	2014	distributor, formulator and blender	
Biocatalysts	2018	enzyme design & production	65.55% owned, put/call options in place
BioSun	2021	distributor, formulator and blender	
Biocatalysts	2021	enzyme design & production	stake increased to 82.2%, put/call options in place
Breattec/Comix	2022	extension into baking enzymes	62% owned, put/call options in place

Disposals

Asset	Time	Description	Comment
Monteil Cosmetics	2019	B2C cosmetics	refocus of Brain on the B2B segment

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, Provdis 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	20.50 €	Buy
	Falko Friedrichs/Jan Koch	13.00 €	Buy
	Dr. Mohamad Vaseghi	14.00 €	Buy
	Damien Choplain	12.50 €	Buy
	Dr. Christian Ehmann	23.00 €	Buy

Glossary I

Aurase®	Enzymatic agent as part of an innovative gel-based medical device for the biotherapeutic treatment of chronic wounds
Bioactive natural compounds	Used to develop products for the food, beverages, skin care, cosmetics and chemical industries
Bio-based	Bio-based products are goods manufactured from renewable raw materials
Biocatalysts	Enzymes that act as catalysts to accelerate (bio)chemical reactions
Biocatalysts Ltd. and Biocatalysts Inc	BRAIN subsidiaries based in UK (headquarters in Cardiff, Wales) and subsidiary in US (Illinois); global distributor network e.g. Korea, Australia, New Zealand. Key player in the specialty enzyme business
Bioeconomy	Concept for a biobased economy; mega-trend that encompasses the transformation from industries based on fossil raw materials to a more sustainable form of economic activity that mainly utilizes biological resources and processes
BioIndustrial	One of BRAIN's two business segments: development and marketing of the company's own products along the value chain
Biologization of industry	Application of biological processes in an industrial setting with the aim of creating a more sustainable economy
Biorefinery	<p>Technology for the sustainable processing of biomass into marketable products (e.g. food, feed, materials, chemicals) and energy (fuels, electricity, heat).</p> <p>Integrated biorefineries combine various such technologies with the aim of greater flexibility and cost reduction. Integrated biorefineries facilitate the use of byproducts and waste, and enable the production of high-quality products (e.g. fine chemicals) combined with low-quality products (e.g. bioenergy).</p>
BioScience	One of BRAIN's two business segments: cooperation business established with globally operating industrial partners

Glossary II

Biotechnology	Application-oriented sub-sector of biology; includes insights and methods from microbiology, genetics, biochemistry, technical chemistry and process engineering; utilizes biological processes e.g. for industrial applications
BEC	BRAIN Engineered Cas: BRAIN's first proprietary non-Cas9 genome editing nuclease
BioXtractor	BRAIN demonstration plant for next-generation metal extraction in the areas of green and urban mining based on microorganisms
BRAIN Bioarchive	In-house collection consisting of around 53,000 comprehensively characterized microorganisms (including "chassis microorganism" strains for the development of production organisms) and the BRAIN libraries: an enzyme library, a metagenome library and a substance library with numerous isolated natural compounds (see also BRAIN libraries)
BRAIN Libraries	<p>BRAIN Group collections of enzymes, DNA sequences or natural substances</p> <p>Enzyme library: up to 500 isolated and pre-characterized enzymes and DNA coding for enzymes introduced into expression vectors</p> <p>Metagenome library: screenable DNA library with metagenomes from different habitats; collection serves to identify previously uncharacterized enzymes and metabolic pathways</p> <p>Substance library: collection of natural substances with sub-libraries of specific, well-characterized groups of substances</p>
BMC	BRAIN Metagenome Cas: BRAIN's second proprietary non-Cas9 genome editing nuclease
Bulk enzymes markets	Volume-driven mass markets for enzymes sold in large volumes. This stands in contrast with the high-margin business with specialty enzymes
Business-to-Business (B2B)	Form of the market in which the supply and rendering of services is realized by companies to companies (= business relations between at least two companies)
Cas	CRISPR associated sequence

Glossary III

Circular bio-economy	Term derived from the fusion of the two concepts of the “bio-economy” and the “circular economy”; circular bio-economy focuses on the sustainable, resource-efficient utilization of biomass in integrated production chains (e.g. biorefineries) while BRAIN demonstration plant for next-generation metal extraction in the areas of green and urban mining based on microorganisms simultaneously utilizing residual and waste materials; the sequential use (cascade use) of biomass resources for different purposes ensures value optimization.
Circular economy	Concept for the complete recovery of raw materials utilized, beyond a commodity’s life cycle, through to new production processes; component of the bioeconomy
Clone	Genetically identical organisms, created by natural division or reproduction, or artificially created
Compliance	Alignment of companies with laws and directives, as well as voluntary codes
CRISPR	Clustered regularly interspaced short palindromic repeats
CRISPR-Cas	systems have enabled genome editing in multiple species and provided genetic tools with speed as well as simplicity that were previously unavailable
Development pipeline	Total number of BRAIN Group development projects for New Business/Product Development
Development projects	R&D projects of the BRAIN Group for New Business/Product Development
DNA	Deoxyribonucleic acid: biomolecule that carries genetic information (genes)
DOLCE	Strategic partnership initiated by BRAIN for the development of natural sweeteners and sweet taste enhancers
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

Glossary IV

Enzymes	Proteins that accelerate biochemical reactions in their function as biocatalysts; play an important role in the development of biobased products; BRAIN identifies and develops optimized enzymes and biocatalysts for complex process and application requirements
FRESCO	BRAIN development program for freshness and product stability utilizing natural bioactive substances; suitable for the food and feed industry, for medical products, paints, cleaning agents and other household products
Genome Editing	Directed and precise change or use of a chromosomal target in a given organism; “the power to program cells”
Giga-bp DNA	Length of a DNA sequence, indicated by the number of base pairs (1 Giga bp = 1,000,000,000 base pairs); common metagenomics measure
GRAS status	Generally Regarded as Safe status: declaration of safety for the use of substances (e.g. microorganisms) to manufacture foodstuffs; GRAS organisms can be utilized without restriction in biotechnological production
Green mining	Sustainable mining, e.g. ore treatment to extract gold, silver or copper using microorganisms rather than chemicals
Habitat	An organism’s natural environment
High-performance microorganisms	Biotechnologically optimized microorganisms that serve as microbial “cell factories”
HTC technology	Human Tongue Cell Technology; in vitro test system based on human tongue cells, established and patented by BRAIN to test substances for their sweetening power
Industrial biotechnology	Also known as white biotechnology; drives innovation for a paradigm shift away from petroleum-based towards biological processes and bioeconomy products
Metagenome	All the genomic information present in all the microorganisms of a specific community
Metagenomics	Genomic analysis of a community of organisms by gene sequencing; genetic material is extracted, sequenced and analyzed directly from environmental samples, which saves the previous cultivation of microorganisms

Glossary V

Microorganism	Microscopically small unicellular or multicellular organisms, e.g. bacteria, algae, fungi or viruses
New Business Development (NBD)	Systematic further development of existing and development of new business opportunities including e.g. R&D and marketing activities
New Product Development (NPD)	R&D activities that aim to develop product candidates for the BRAIN Group's own market offerings
Peptides	Linear, sometimes ring-shaped chain of molecules consisting of two or more amino acids; long polypeptide chains are called proteins.
Product sales	Sales of products in the fso known as white biotechnology; drives innovation for a paradigm shift away from petroleum-based towards biological processes and bioeconomy productsorm of merchandise, technologies or biotechnological system solutions; can be achieved via the BRAIN Group's direct B2B business or through joint product developments with industrial partners and corresponding licensing agreements; scalable-product business option offered by the BRAIN Group (see also R&D cooperation partnerships)
R&D	Research and development
SALT-E	BRAIN development program for healthier foods through salt reduction
SDG-UN	United Nations Sustainable Development Goals
Specialty chemicals	Specific chemical products with a broad range of activities on which a large number of other industrial sectors depend
Synthetic Biology	Area of biology in which organisms are modified to develop new, useful abilities
Specialty enzymes market	Markets for high-margin specialty enzymes business

Glossary VI

Tailor-Made-Solutions TMS	Dedicated contract R&D programs for the development of tailor-made solutions for industry
Urban mining	Sustainable extraction of valuable substances from secondary raw materials and waste flows in order to retain them in value chains in the long term
White Biotechnology	Includes the application of modern biotechnology in industrial production processes. Chemical starting materials are converted by enzymes and cells into products suitable for further processing. Also known as industrial biotechnology

