BRAIN Biotech AG

Creating a #BiobasedFuture

Investor Relations Presentation 2022

Zwingenberg, January 2022







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BRAIN at a Glance

~ €38m

'20/'21 Revenues

> 28

Years of Experience

~ 320

Employees

> 230

Specialty B2B Products

> 150

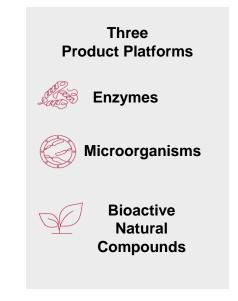
Industrial Partnerships

2016

Listed, Frankfurt Prime Standard

Creating Breakthrough Bioproducts & Solutions for Nutrition, Health and Environment





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)

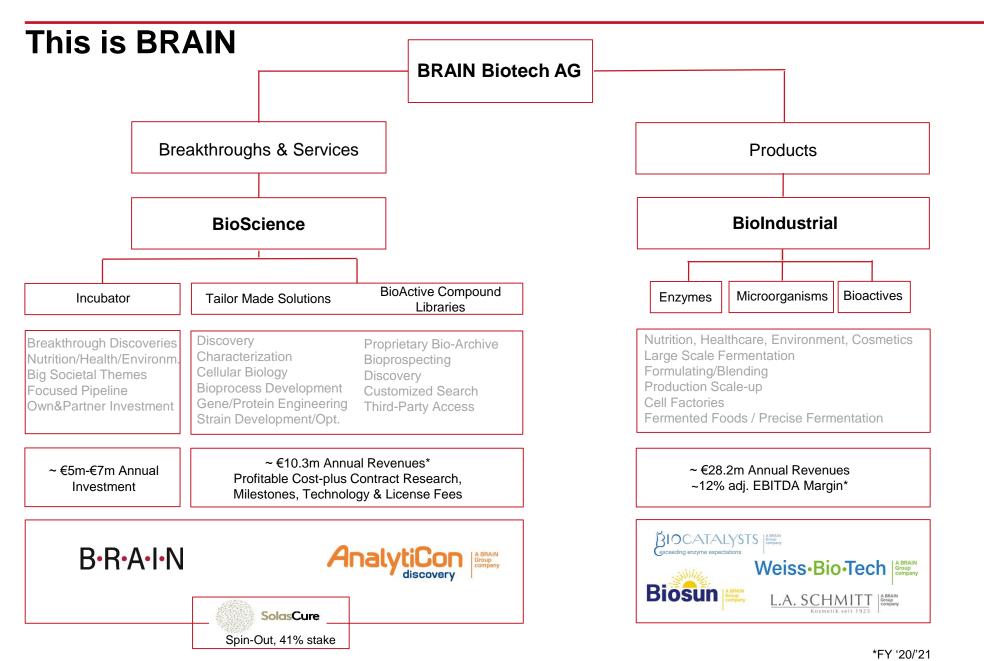
Biological Production:

Enzymes & Large Scale Fermentation

Making Waste Valuable:

Fermented Food from Side Streams Microbial CO₂ Usage

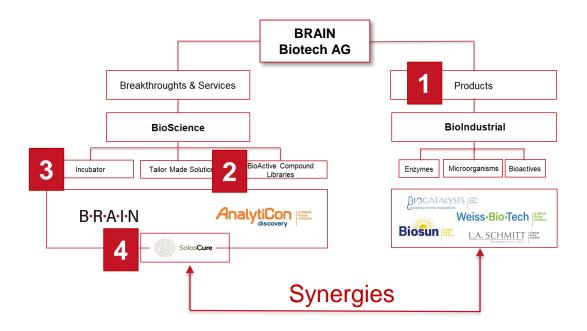




B-R-A-I-N

BRAIN Group

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



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



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



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



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SolasCure

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



B-R-A-I-N

Six Strong Reasons to Invest in BRAIN Biotech AG

- **Mega-trends / UN-SDGs:** our products address the big societal topics nutrition, health & the environment. We address at least 5 SDGs directly
- **Incubator products:** big upsides in our breakthrough inventions. BEC/BMC potential to be transformational.
- **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
- 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
- Value accretive M&A: space for bolt-on acquisition to accelerate growth with the possibility for transformational growth through larger M&A
- **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





Our Products & Solutions address at least five goals directly

 Natural compounds for food preservation

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

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.











3 GOOD HEALTH AND WELL-BEING







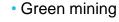




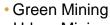
















- Biological production
- Improving production efficiencies
- Fermented food from sidestreams
- Microbial CO₂ Usage



Five Strategic Initiatives Centered Around our Core Values

5

Continuous Corp. Culture

Development

Accretive M&A

1

Profitable Top-

Line Growth

2

Innovation
Pipeline
Management

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
- 3 Continuous Productivity Improvements
 - Strain development
 - Focus on working capital efficiencies, cost improvements and free cash flow

BRAIN

Core Values

Continuous

Productivity

Improvements

- Group revenue synergies
- Bio-Informatics

Profitable Top Line Growth

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

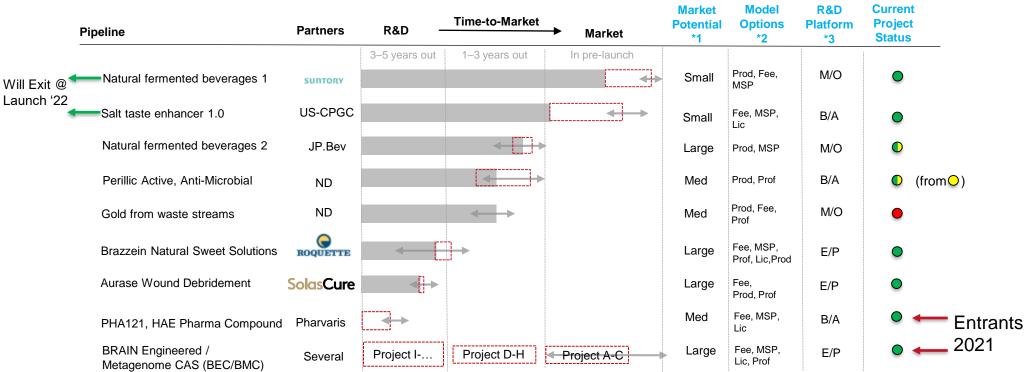
Innovation Pipeline Management

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



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

rNPV

Profit

- O 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

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ND: not disclosed

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^{*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

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

B-R-A-I-N



Financial Highlights 12M FY 2020/21 at a Glance

Strong BioIndustrial (ex WBT), sequentially improving BioScience

				Organic				Organic	
	12M	12M	Growth	Growth	Q4	Q4	Growth	Growth	Comment
(in € thousand)	2020/21	2019/20			2020/21	2019/20			
Revenues	38,389	38,225	0.4%	-5.2%	10,545	8,671	21.6%	15.1%	
									strong sequential improvement Milestones 680K 12M 20/21
BioScience	10,313	13,230	-22.1%	-22.1%	2,897	2,754	5.2%	5.2%	Milestones 1.2 Mio 12M 19/20
BioIndustrial	28,236	25,081	12.6%	3.9%	7,670	5,954	28.8%	19.4%	all solid growth, except WBT
Total operating performance (1)	40,731	39,238	3.8%	-4.1%	10,766	8,928	20.6%	4.7%	
									(-) EUR 989K ESOP 12M (-) EUR 313K M&A Cost 12M (+) EUR 858K Badwill
Adjusted EBITDA (2)	-2,089	-2,018	-3.5%	-10.5%	148	-1,465	110.1%	112.8%	
EBITDA	-2,533	-3,876	34.6%	8.9%	-472	-2,970	84.1%	56.5%	
EBIT	-6,548	-8,229	20.4%	8.7%	-1,539	-4,718	67.4%	50.7%	
Net Result	-4,680	-9,017	48.1%	37.4%	-1,738	-2,910	40.3%	13.3%	
Operating Cash Flow	-3,906	-4,767	18.1%	13.7%	-907	967	-193.8%	-179.4%	
	30.09.2021	30.09.2020							
Cash	24,545	18,943	29.6%	27.9%					

		Growth
288 279	3.2%	1.8%
3.9% 43.6%	0.3PP	-1.2PP.
8.2% 46.3%	2.0PP	3.6PP.
	3.9% 43.6%	3.9% 43.6% 0.3PP

CRISPR investments @ 12M ~€1.5 million (within guidance)

Major Events 12M '20/'21:

- BioSun now consolidated for three quarters, happy with development; team well integrated
- BioIndustrial total solid double digit growth excl. WBT
- WBT remains in restructuring, 12M sales ~ (-) 26%; Q4 stabilized
- BioScience strong sequential growth Q on Q but FY still suffering from very weak Q1 20/21 and high base Q1 19/20; lower milestones; order book keeps improving strongly, also driven by "We CRISPR for You" business
- Costs of BioSun purchase/ integration and other M&A cost EUR 313K

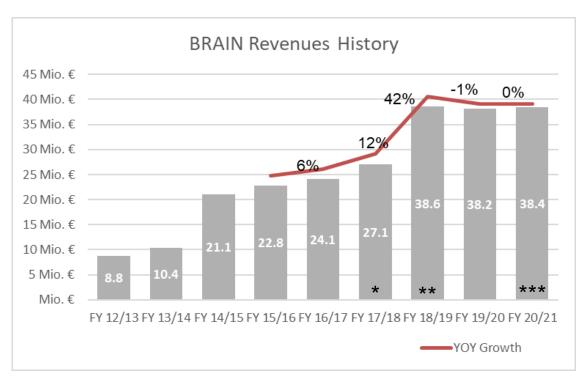


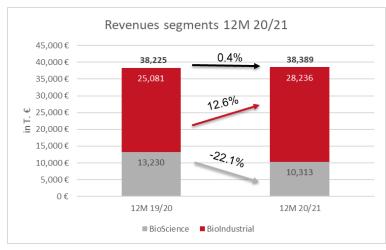
⁽¹⁾ Revenues + change in inventories + other income + R&D grants

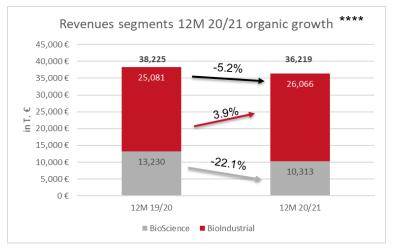
⁽²⁾ The full reconciliation from adjusted to unadjusted EBITDA can be found in the appendix

Long-Term Revenue Growth Trajectory

strong BioIndustrial driven by BioCats, L.A. Schmitt & BioSun integration







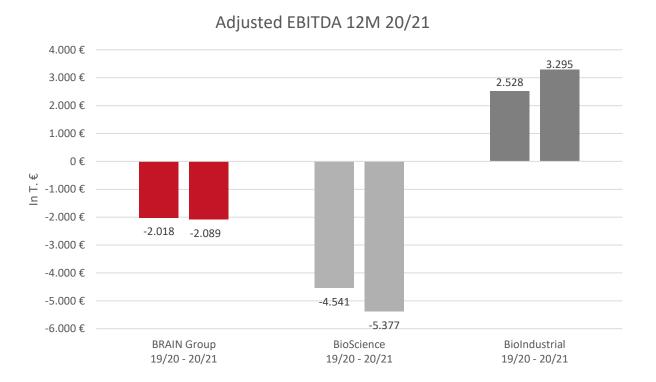
We expect to go back on the growth track in FY 21/22

*purchase BioCatalysts Ltd.

divestment Monteil Cosmetics *purchase BioSun

****BioSun integration from Q2 20/21

Adjusted EBITDA



> CRISPR investments @ 12M ~€1.5 million

- Group adj. EBITDA stable YoY; balancing effects of strong BioIndustrial and challenges at the BioScience segment (high YoY comparison base (especially in Q1), lower milestone payments and negative Corona effects), CRISPR investment
- BioScience: further sequential improvement
 Q on Q; last year large payments related to
 two projects in Q1; lower milestone
 payments 12M; TMS backlog keeps rising
 solidly
- BioIndustrial all group companies strong except WeissBioTech; WBT now stabilizing and new strong management team in place to revive sales growth



Cash & Cash Flow

improving OCF, lower investments as guided, solid cash position

(in € thousand)	12M 2020/21	12M 2019/20		Growth	Q4 2020/21	Q4 20	l 19/20	Growth	Comment
Gross Cash Flow	-5	250	-6,056	13.3	% -1	,189	-1,446	17.7%	
Operating Cash Flow	-3	906	-4,767	18.1	%	907	967	-193.8%	
Investing Cash Flow	-2	180	-4,469	51.2	%	-181	79	-329.4%	
Financing Cash Flow	11,	572	13,093	-11.6	% 18	,398	-821	2341.5%	(-) purchase BioCats minority ~€4.6 Mio (+) capital increase net proceeds ~€19 Mio
Net change in Cash & Cash Equivalents	5	485	3,857	42.2	<u>% 17</u>	,310	225	7586.0%	
	30.09.2	021 30	0.09.2020						
Cash	24	545	18,943	29.6	<u>~</u>				
Equity	41,	828	26,143	60.0	<u>%</u>				

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- September capital increase guaranteed solid cash position
- EUR 7 million undrawn credit facility available on top



Covid-19 Update

TMS backlog increasing solidly, BioIndustrial strong (ex WBT)

Summary:

R-R-A-I-N

BRAIN Group: some negative Covid-19 effects materialized on FY 20/21. Now very positive trend in the BioScience business development pipeline.

Current Disruptions: SolasCure is facing around 9 months delays in clinical trials as the relevant test centers have been closed for non Covid-19 patients. Phase 2a clinical trials (in human) started in May. Diversification of test centers started to mitigate ongoing effects of the pandemic. Lower sales volumes of enzyme products to ethanol and beer/wine producers at WeissBioTech.

Future Challenge: the Omicron variety might impose new economic insecurity and travel restrictions making deal making in BioScience again more challenging. Managing general operational challenges including selected supply chain shortages and the turnaround at WeissBioTech.

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
- Strict travel restrictions
- Flex work
- Digitalize workflow



Our Targets

Guidance and Mid-Term Targets

This FY Guidance

New guidance at the 3M '21/'22 reporting on February 23rd including:

- > Sales Growth indication
- Ebitda Growth indication (ex CRISPR)
- > Expected Growth Indication Divisions
- CAPEX guidance
- CRISPR associated costs

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)

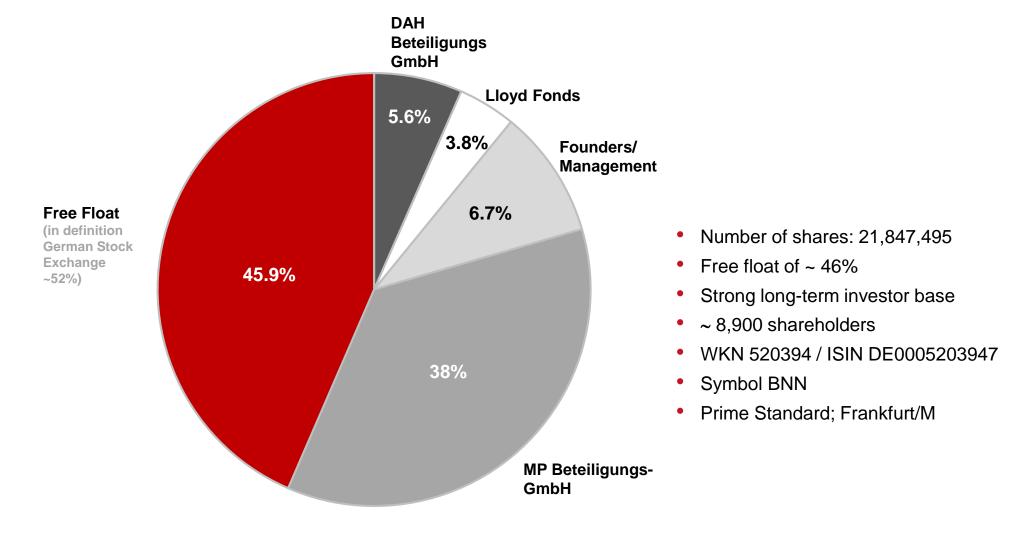
- Double digit fermentation production volume of customized novel enzymes
- Mid-single digit annual productivity improvements

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

Continuous innovation pipeline management



Our Share Ownership*



*November 30th, 2021



Financial Calendar



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 23rd, 2022**



ANNUAL GENERAL MEETING

Annual General Meeting (FY 2020/21)

March 9th, 2022



HALFYEAR STATEMENT

Publication of the half year report as of March 31st, 2022 (6M)

May 30th, 2022



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QUARTERLY STATEMENT

Publication of the quarterly statement as of June 30th, 2022 (9M)

August 29th, 2022

Thank you for your attention.

BRAIN Biotech AG

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Appendix

B·R·A·I·N

	Pag
Strong sustainability contributions	23
Where BRAIN can make a difference	24
Corporate Governance	25
High barriers to entry	26
NBD deep dive	27
Service business deep dive	33
Partnerships "BRAIN Inside"	34
Enzyme production, expression hosts	36
Enzyme value chain	38
SolasCure Ltd.	39
BioArchive	40
R&D/Technology Platforms	43
HR: People our core capital	43
Detailed management & employee incentives	44
Peers by business activity	45
Detailed financials	
Detailed adjusted vs. reported	46
Expenses Development	47
Adj. vs reported	48
Financial debt vs. financial liabilities	49
Balance sheet	50
M&A criteria & history	51
Management CV	52
Analyst coverage	54
Glossary	55



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 proprietory BioArchive, driven by our deep R&D and process knowledge

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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 chronicle 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 off 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



Large Market Potential

Natural Beverage 2

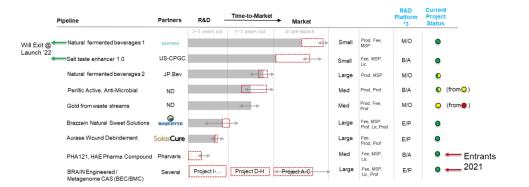
- Partners: Japanese Beverage Company
- Scope: undisclosed, confidentially agreement
- Exclusive to partner
- Technology Platform: microorganism
- Research Business Model: milestone payments
- Commercial Model: starter cultures, production, license fee, JV an option/profit share

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 Tounge 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

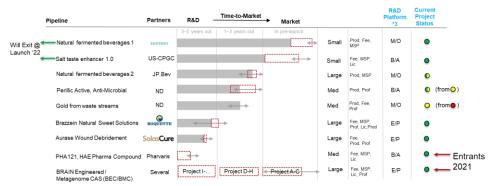
Aurase

- 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)





Large Market Potential

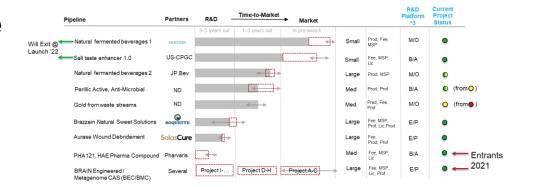


BRAIN CRISPR Non-Cas9 Associated Nucleases (BEC/BMC)

- 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 option are still being evaluated, NewCo formation in 2022
- > If next development steps are successful could be transformational for BRAIN



Medium Market Potential



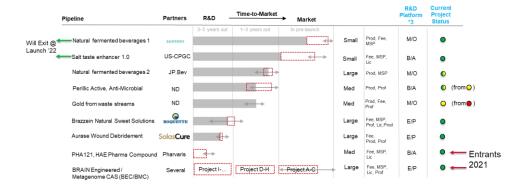
PHA 121 / Pharvaris N.V.*

- 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



Medium Market Potential



Perillic Active

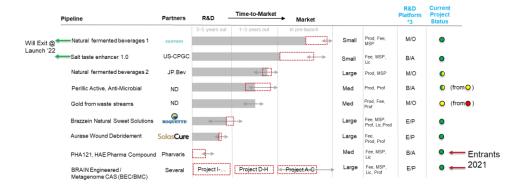
- Partners: US distribution partner contracted (non-disclosed); toll manufacturing
- Scope: nature based anti-microbial for food, feed, drinks and cosmetic applications, generated from industrial side streams; fermented orange oil
- US patent granted
- Technology Platform: BioActive
- Research Business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



Small Market Potential



Natural Beverage 1

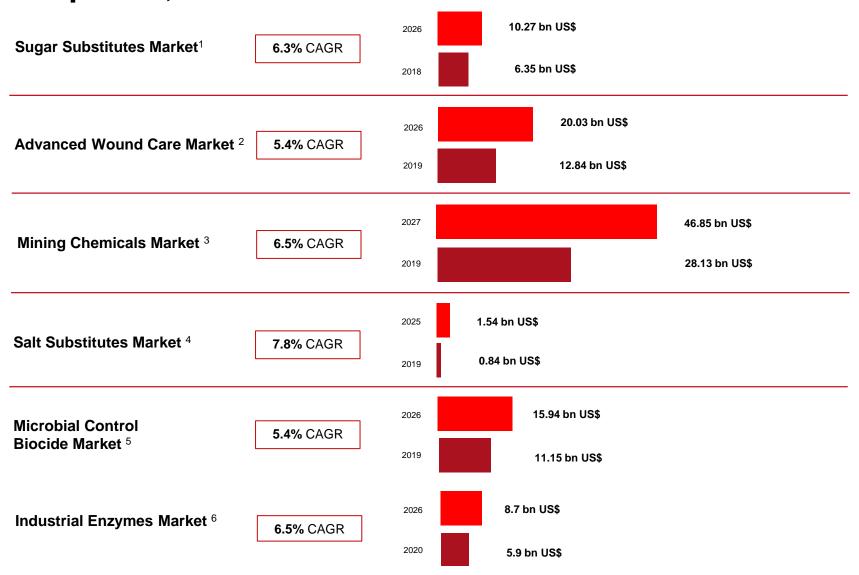
- Partners: Suntory
- Scope: nature based low calorie drink innovation through fermentation
- Exclusive to Suntory, in a certain field
- Technology Platform: microorganism/starter cultures
- Research Business Model: milestone payments
- Commercial Model: starter cultures, license fee, royalties
- In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

B-R-A-I-N

Libraries Business

BioArchive – industry leading collection of natural resources and metagenome libraries

- MetXtraTM: 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)





Partnerships "BRAIN Inside"

More than 100 exclusive partner collaborations successfully completed

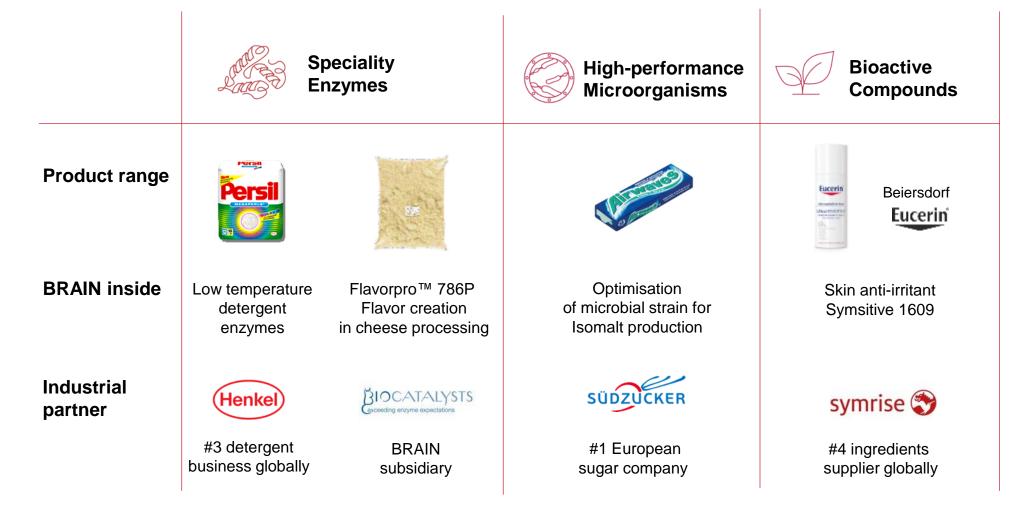


*confidential partnerships not disclosed



Partnerships "BRAIN Inside"

Novel Solutions with high value added for our partners



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B-R-A-I-N

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

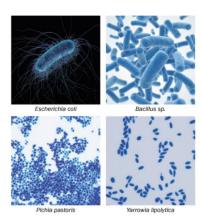
- Protein quality
- Functionality
- Regulatory
- Production speed and yield

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.



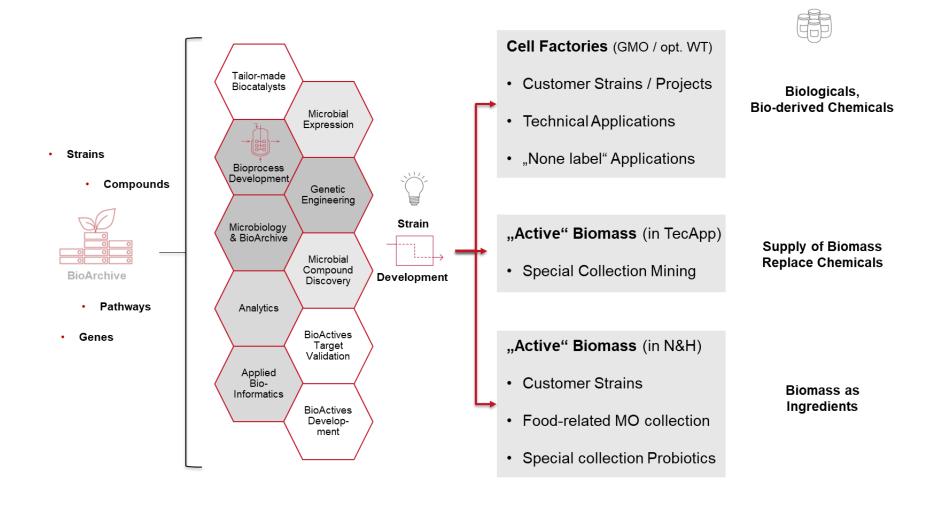


*source: Biocatalysts



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





Protein and Enzyme Engineering



Expression/Secretion:
Bioprocesses & scale-up



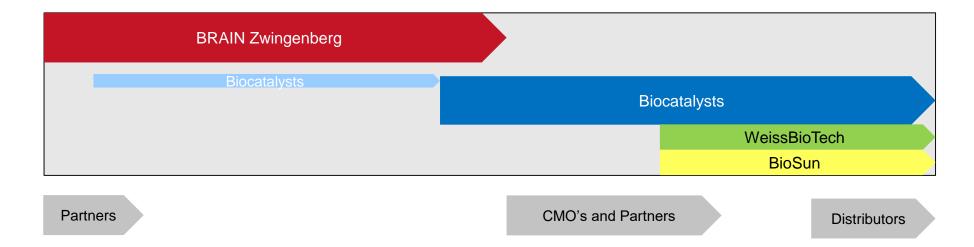
Large Scale Fermentation



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:

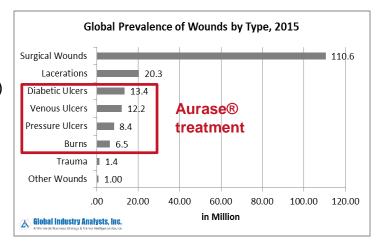
- Aurase® is a hydrogel containing a safe, active, highly specific enzyme
- The enzyme has been isolated and cloned from medical maggots (green bottle fly)

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- 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 '21

- 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



B-R-A-I-N



^{*}allied market research '19

BRAIN BioArchive – Nature's Toolbox

~ 53,000

~ 13,000

54

Characterized Microorganisms

Plant fractions available for isolation campaigns

~ 13,000

Metagenome libraries

450

Plant fractions available Habitat collections and environmental for isolation campaings 231

Giga-bp DNA ready to screen

464

samples

Gene libraries available for screening

~ 50,000

Natural and naturally inspired compounds

~ 300 Mio.

Reusable ready-to-screen Metagenome clones





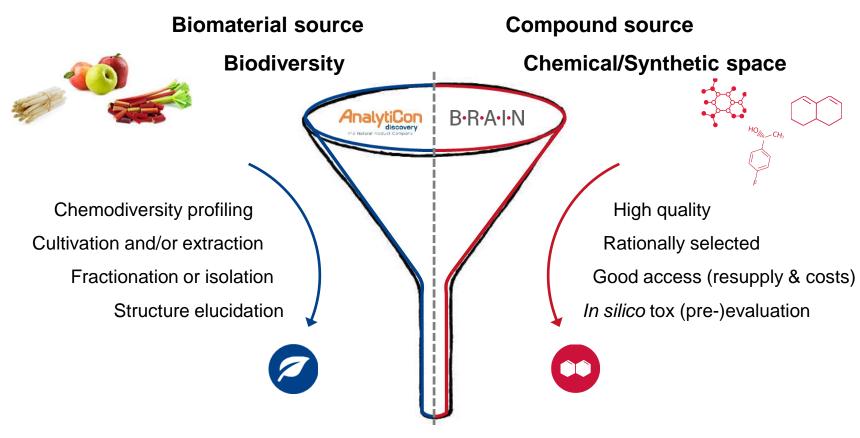
High Value:

- ✓ >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



>12,000 naturals compounds
>14,000 enriched fractions
> 30,000 (semi-)synthetic compounds



R&D / Technology Platforms – Industrial Biotechnology Toolkit



Bio-based resources

BioArchive - industry leading collection of natural resources and metagenome libraries

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- ABEL®: Activity-Based Expression Libraries (BRAIN Zwingenberg)
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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

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

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

<u>Gene and protein engineering</u> – 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

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

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

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

<u>Structure elucidation</u> – 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

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

<u>Process optimization</u> – identification of optimal parameters for superior production results Product blending & formulation – superior knowhow for blending enzymes



Data evaluation

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

<u>Bioinformatics</u> – 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

54% female employees

~ 7% Average fluctuation since '04

equal pay policy

years average tenure

trainees

strong support for PhD and master theses

55%

Academics

23% **PhDs**

* 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

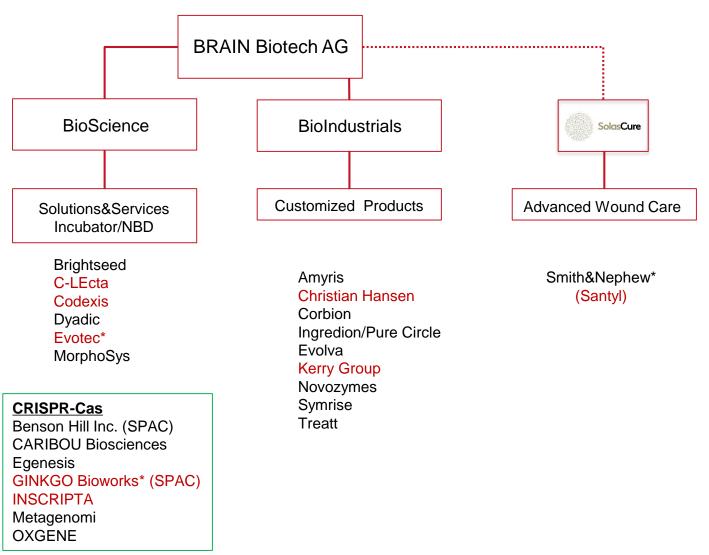
- ❖ Since June 2018
- Board, managers and employees
- Incentive and retainer
- ❖ 1 Option = 1 Share at exercise price
- Strike price €20,67 and €10.64 from ESOP 2017 and 2018
- Beneficiary needs to still be employed
- Earliest exercise day, 4 years after grant
- Caps partially in place
- Monte Carlo 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%



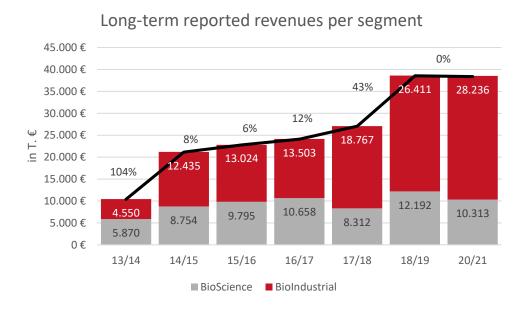
Peers by Business Activity



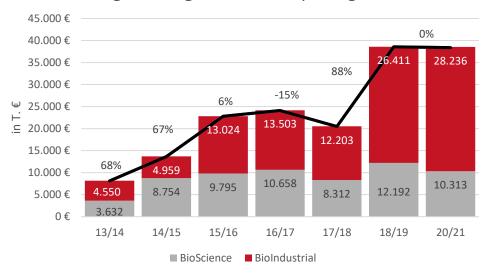
*peers by business model



Detailed Financials - Organic vs. Reported

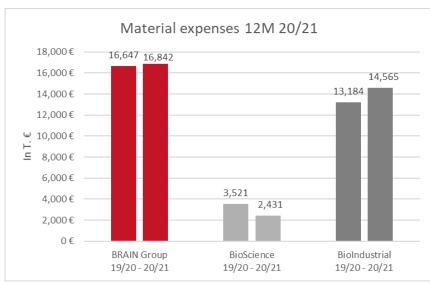


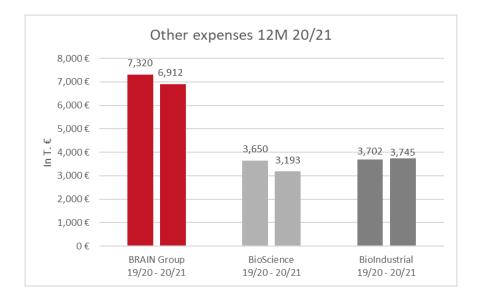
Long-term organic revenues per segment



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	-2,53	3 -3,876
Gain on bargain purchase	85	8 0
Share-based employee compensation	-98	9 -629
Acquisition and integration costs incurred in the expansion of the BRAIN Group	04	000
Group	-31	3 -222
Board Changes & Corona Bonus	1	0 -1,007
Adjusted EBITDA	-2,08	9 -2,018



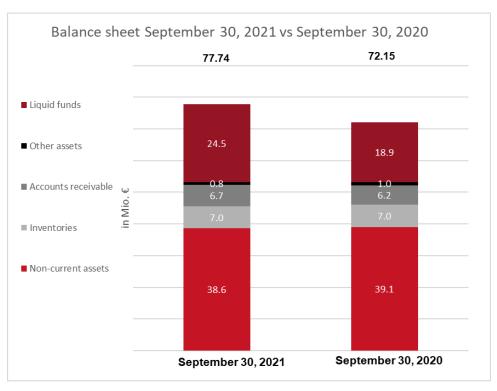
Detailed Financials – Financial Debt vs. Financial Liabilities

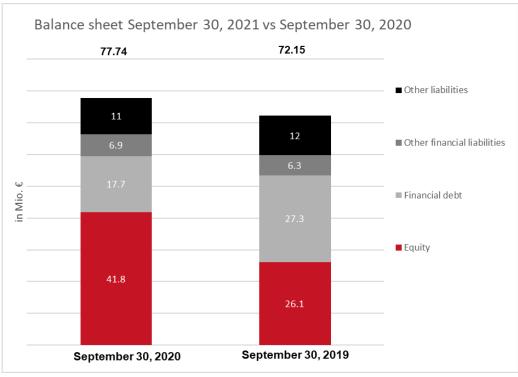
For or a detailed analysis of our EV calculation, our financial liabilities include:

€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







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 might be 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

Purchase	2009 L.A. SCHMITT	2012 MONTEIL	2013 AnalytiCon discovery The Malved Houseld Connects	2014 WeissBi⊕Tech	2018 BIOCATALYSTS Groeding entyre espectations		BIO	O21 WOOD INGREEENIS	
Change						2019 AnalytiCon discovery Minority Buy-Out	2020 WeissBioTech Minority Buy-Out	2021 BIOCATALYSTS Add. Minority Buy-Out	t
Disposal	Dunin AC MAS A Tun					2019 MONTEIL			

Brain AG M&A Transactions

Purchases

1 0110110000			
Target	Time	Description	Comment
L.A.Schmitt	2009	B2B cosmetics	
Monteil Cosmetics	2012	B2C cosmetics	
AnalytiCon Discovery	2013	Library, TMS, R&D	
WeissBioTech	2014	enzyme design & production	
Biocatalysts	2018	enzyme design & production	65.55% owned, put/call options in place
BioSun	2020	distributor, formulator and blender	
Biocatalysts	2021	enzyme design & production	stake increased to 82.2%, put/call options in place

Disposals

Asset	Time		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
/BAADER /	Markus Mayer	20.50 €	Buy
	Falko Friedrichs/Jan Koch	13.00 €	Buy
FMR Frankfurt Main Research AG	Dr. Mohamad Vaseghi	15.50 €	Buy
Kepler Cheuvreux	Damien Choplain	12.50 €	Buy
M.M. WARBURG & CO	Dr. Christian Ehmann	22.00 €	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	Technology for the sustainable processing of biomass into marketable products (e.g. food, feed, materials, chemicals) and energy (fuels, electricity, heat).
	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).
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	BRAIN Group collections of enzymes, DNA sequences or natural substances Enzyme library: up to 500 isolated and pre-characterized enzymes and DNA coding for enzymes introduced into expression vectors Metagenome library: screenable DNA library with metagenomes from different habitats; collection serves to identify previously uncharacterized enzymes and metabolic pathways Substance library: collection of natural substances with sub-libraries of specific, well-characterized groups of substances
ВМС	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

