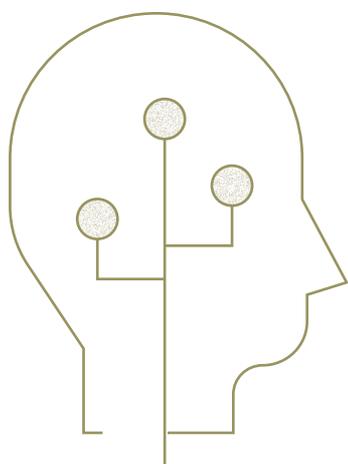
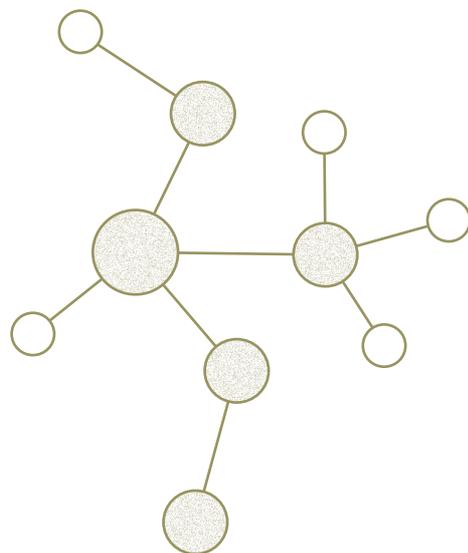


**Tailor-made solutions**

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# From biotechnology to commercial success

———— BRAIN combines a first-class technology portfolio with a unique proprietary BioArchive. Both the company's own business units and partners from industry benefit from this powerful combination of inhouse resources and the application of cutting-edge, high-tech methodology.



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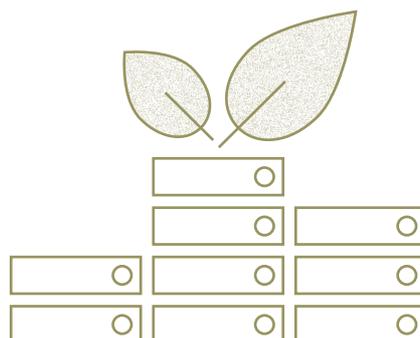
## Proprietary technologies and extraordinary creativity

BRAIN's extraordinary research-driven innovative capability reflects a **creative mindset geared to finding solutions** and to transcending approaches based solely on individual technologies. This approach is exemplified by BRAIN's **strong patent position** encompassing rights to proprietary technologies and natural components (microorganisms, enzymes and natural substances) in various application areas. Examples include successful pioneering achievements in the areas of human taste cell technology, the biological extraction of precious metals, industrial metagenome technology, biological wound management and bioactive antiperspirants.

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## Unique access to biodiversity

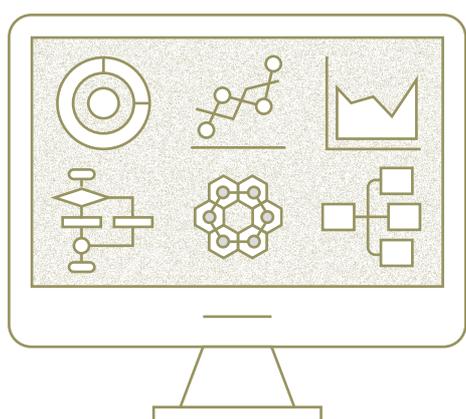
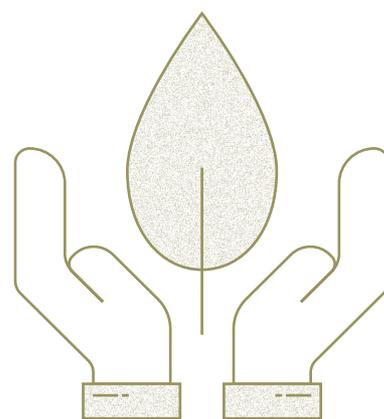
The BRAIN Group's proprietary BioArchive offers access to an **immense variety of new biological solutions** for sustainable industrial processes and bioactive ingredients. The BioArchive's information base is exploited by means of first-class, cutting-edge analytical processes. Creative, networked thought processes and in-depth research experience drive scientific breakthroughs and technological innovations.



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## Natural, healthy products

Consumers are making increasing demands of the quality of their food and personal care products. Natural origin is playing a key role here. At BRAIN, thousands of fully identified natural substances form the basis for **new, sustainably produced and biologically active ingredients**. BRAIN's portfolio of active product components is being continuously expanded in cooperation with business partners. One example is an active cosmetic ingredient that has a soothing effect on the skin and which represents a genuine breakthrough in sensitive skin care thanks to the ingredient's highly specific molecular mode of action.



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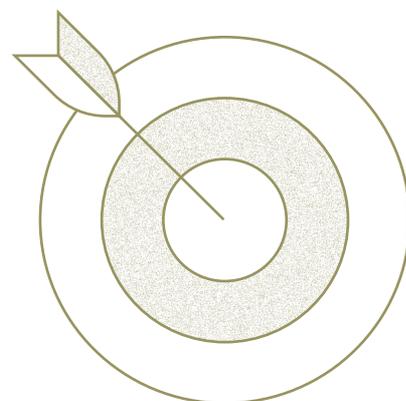
## Efficient and sustainable processes and products

Innovative industrial biotech processes harness the diversity of natural organisms and conversion processes. BRAIN realizes the targeted discovery, decoding and further development of enzymes, microorganisms and natural substances by means of **cutting-edge biotechnological processes** such as bioinformatics, high throughput sequencing, metagenome and big data analysis, protein engineering, genome editing, its own receptor cell lines or intelligent process optimization. This not only makes it possible to establish more sustainable biological processes, but also leads to products that benefit consumers and the environment in equal measure. Examples include detergent enzymes that offer excellent washing performance at low temperatures.

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## Economical production

Biotechnology can improve industrial production processes and shorten product development lead times, for instance. Candidates for tailor-made applications can be quickly and effectively identified by means of **precise assay planning, special technology platforms for concepts, and the selection and production of high-performance organisms**. Economical production utilizes production strains that offer the perfect "fit". One example is a production strain used to produce isomalt. This strain was optimized to significantly enhance its production efficiency, reduce the energy consumption of the overall process and thereby improve its sustainability.



# Facts & figures



>100

BRAIN can look back on over 100 **successfully completed R&D projects** with internationally operating groups.

312

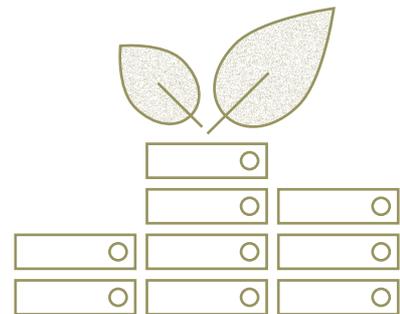
The BRAIN Group employed a total of 312 **staff** as of the end of its financial year in September 2019.<sup>1</sup>

50,000

BRAIN's BioArchive includes more than 50,000 **ready-to-use characterized microorganisms** from a wide variety of habitats.

>26

Over 26 years of **experience**: since it was founded in 1993, BRAIN has been a driver and high-tech pioneer in the industrial biotechnology and bioeconomy areas.



[www.brain-biotech.com/solutions](http://www.brain-biotech.com/solutions)

<sup>1</sup> Statements made here reflect the status in September 2019, including Management Board members, trainees and volunteers.