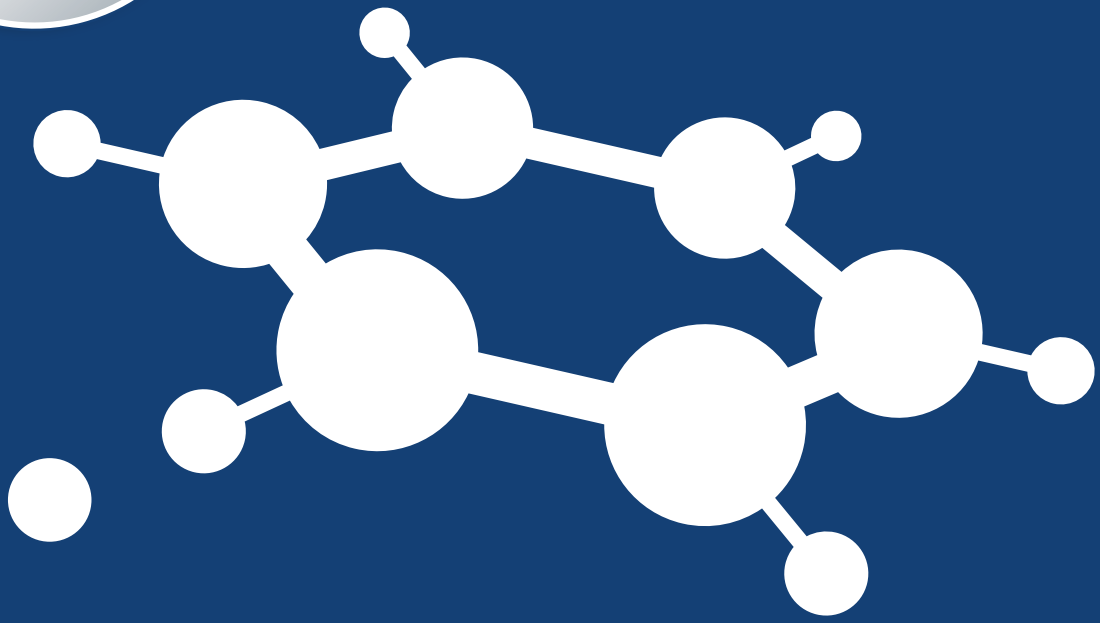
BIO NRW
The Home of Biotech

Company Directory



Spot on Biotechnology Business 2023

From Mind to Market:
Biotechnology Company Directory 2023
North Rhine-Westphalia

Preface

Dear Readers,

As a major centre of industry, North Rhine-Westphalia is amongst Europe's top business locations. The state boasts a wide variety of enterprises, including numerous large corporations, very successful family-owned private-sector operators and a vibrant start-up community.

For a long time, chiefly fossil resources covered industry's need for energy and raw materials. The current energy crisis is putting pressure on the sector to transform its resource base. This is even more true against the backdrop of the need for sustainability and climate action which makes it necessary to put economy and society on a whole new footing. This transformation creates sovereignty, helps protect our livelihood and ecosystems and ensures lasting international competitiveness.

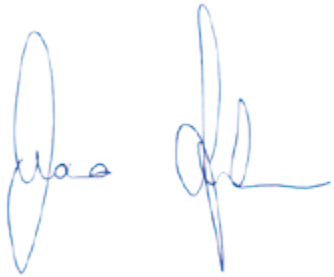
Not only is our state undergoing a process of transformation towards a climate-neutral industry hub; it also needs to embrace the challenges posed by a growing and ageing population. This is where, crucially, biotechnology comes in. As an enabling technology, it can work across sectors to come up with ways to make processes more sustainable. Biotech is also vitally important when it comes to the development of new types of treatment and diagnostics. It is therefore a crucial component of the medical well-being of the population. You might say that biotech applications help make us resilient and ready to deal with whatever the future throws at us.

North Rhine-Westphalia is one of Germany's leaders in life science and innovative biotechnology. The drivers of innovation include the biotech firms described in this publication. Next to the major players, it

is especially the start-ups and SMEs that develop new processes and products to help shape and manage the resource tranformation. This in turn contributes to North Rhine-Westphalia's continuing success as a leading industrial region.

To turn ideas into tangible solutions, innovation must be translated into application. With a view to speeding up the process of transferring research into products, the State Government has developed the ZukunftBIO.NRW programme. The programme calls for start-ups and SMEs in North Rhine-Westphalia to compete in three requests for applications (RFAs) in the forward-looking areas of cutting-edge medicine, infectious diseases and bio-based industries. The programme is designed to help bring biotech ideas to the market and thus push North Rhine-Westphalia forward as a top centre of biotech innovation and application.

Investing in the future is crucial to our biotech sector en route to a resilient, modern and climate-neutral NRW.



Mona Neubaur

Minister for Economic Affairs, Industry, Climate Action and Energy of the State of North Rhine-Westphalia

Greeting

Dear Readers,

The crises and problems of the 21st century should not be solved with force but with ideas. And ideas have always been at the heart of what biotechnology has to offer. The pioneering spirit and courage to turn innovative research findings into concrete applications remain crucial to resolving the most pressing issues of our time.

There are plenty of challenges such as demographic change towards an ageing society, climate change, and environmental degradation. Biotechnology has the potential to make important contributions to solving global challenges – including hunger, diseases, and environmental problems – in order to preserve our planet for future generations.

As a biotechnology network organization in the federal state of North Rhine-Westphalia (NRW), we at BIO.NRW aim to shed light on research and development in the field of biotechnology and to create links between key actors in the field.

We are not only represented at the German Biotechnology Days and The Greener Manufacturing Show but also at international events such as the BIO International Convention. The world's largest biotechnology trade fair, which takes place in the USA each year, provides a forum for entrepreneurs and founders to exchange ideas and information.

We are particularly committed to supporting start-ups. BIO.NRW provides support for start-ups from their academic beginnings right up to the foundation of a company. Start-ups from North Rhine-Westphalia, Germany, and the EU can present themselves to a unique circle of investors at the Business Angel Circle Meetings, which take place about five times a year. BIO.NRW also organizes the international Business Angel Congress each year. This congress is the largest exchange platform for investors in the field of life sciences, which gives them an opportunity to network with each other as well as with young companies.

As part of North Rhine-Westphalia's transformation process, we must use the opportunities of biotechnology to find sustainable solutions and play an active part in shaping NRW's future. In doing so, we should of course also keep the ethical aspects of biotechnology in mind and ensure that we address the great opportunities and pioneering developments offered by biotechnology in a responsible manner. This brochure aims to introduce some of the key actors in our field.

We look forward to tackling the challenges posed by NRW's transformation process together with you and to paving the way for an innovative future with regard to biotechnology and sustainability.

Your BIO.NRW Team

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About BIO.NRW

BIO.NRW - Business for Biotech

Biotechnology offers decisive approaches to solving the global challenges of our time. In order to drive the sustainable development of biotechnology in North Rhine-Westphalia (NRW), the players involved should be as well connected as possible. The BIO.NRW network acts on behalf of the state government, connecting entrepreneurs, scientists, investors, and the public. In addition, the network promotes cooperation at the state level as well as on a national and international level. BIO.NRW engages in location-based marketing, offers networking events, and supports young companies and start-ups in a variety of ways.

A particular strength of NRW is the many companies that are active in pharmaceutical biotechnology. With its focus area BIO.NRW.red, BIO.NRW covers a range of topics specifically tailored to the pharmaceutical biotechnology sector. Structural change and climate targets are catalyzing a shift in industry towards sustainable management and production. BIO.NRW addresses the topic of bioeconomy in its focus area BIO.NRW.eco. In doing so, BIO.NRW is further developing the strengths of North Rhine-Westphalia as a location for research and innovation and promoting the growth of the biotechnology business landscape.

Keeping a close eye on the NRW biotechnology scene

The biotech sector in North Rhine-Westphalia has developed rapidly over the past ten years, which is partly due to a number of advantageous location factors. BIO.NRW provides information on the prospects, strengths, and potential of NRW as a location for biotechnology and how the associated sectors are developing here. This includes the annually updated key figures that feature in this brochure. In addition, BIO.NRW provides an overview of current R&D activities in industry and academia. All this information is also available to everyone free of charge on the BIO.NRW homepage. Information about industry-relevant news and events are presented here. The BIO.NRW online databases provide a list of companies and scientific institutions that are active in the life sciences sector.

Supporting young professionals is our business

One of BIO.NRW's main concerns is to support young professionals in biotechnology. BIO.NRW organizes various events where young professionals and founders can get in touch with industry representatives. In addition, BIO.NRW is represented with joint exhibition stands at all major national and international trade fairs in the sector, giving SMEs and start-ups the opportunity to draw attention to their activities and make contact with potential business partners. BIO.NRW also arranges individual cooperation partners on request. The Business Angel Network BIO.NRW helps with the financing and promotion of biotech start-ups. It is a forum that brings together institutional investors, private investors, and business angels and it provides information on the current biotech scene in NRW. During workshops, BIO.NRW provides information on special funding measures tailored to the life sciences sectors. Funding opportunities from the EU, the federal government, and the state of NRW are also presented in these workshops.

We aim to support technology transfer

NRW is one of the most innovative regions in Germany. It is particularly important to bring new technologies to market and to put them into application.

Supporting technology transfer is one of BIO.NRW's key tasks. BIO.NRW initiates cooperation between the players in the value chain in order to turn ideas and scientific findings into forward-looking processes and marketable products more effectively. In addition, BIO.NRW organizes events and meetings that promote dialogue between companies, researchers, investors, and decision-makers in order to intensify cooperation.

Thematic focus area BIO.NRW.red

BIO.NRW.red is the thematic focus area for "red" pharmaceutical biotechnology in the BIO.NRW network. North Rhine-Westphalia (NRW) is a traditionally strong hub for the chemical and pharmaceutical industries with solid infrastructure in place, making it an ideal incubator for the development and expansion of new biotechnological applications. The federal state is considered a top location for the biotechnology industry.

According to the German Economic Institute in Cologne, the pharmaceutical industry is an innovation driver. Moreover, NRW is one of the largest research locations for the pharmaceutical industry in Germany.[1, 23]

Among the roughly 500 companies in the life sciences sector in the state of NRW, 118 are dedicated biotechnology companies. More than 42 % of these companies are engaged in developments in the field of pharmaceutical biotechnology.18 Internationally

renowned companies such as Bayer, Johnson & Johnson, UCB, Grünenthal, Henkel, and Evonik are testament to the hugely important role played by NRW in this field. In addition, the state is home to a large number of young businesses and start-up companies such as Qiagen, Miltenyi Biotec, AiCuris, BioEcho Life Science GmbH, Priavoid, and Abalos Therapeutics GmbH. These are just a few examples of the great diversity NRW has to offer.

The coronavirus pandemic has served to demonstrate what can be achieved through biotechnology. It is not without reason that it is also referred to as a key technology of the 21st century.

Last year, the Ministry of Economic Affairs, Industry, Climate Action and Energy of the State of North Rhine-Westphalia launched the ZukunftBIO.NRW funding competitions to ensure biotechnological innovations in NRW are brought to market more quickly. Small- and medium-sized enterprises as well as start-ups can participate in the funding competitions focused on future medicine, infectiology, and bio-based industry. Another round of funding has just been launched.[20]

The annual Biotech Report "Medical Biotechnology in Germany" compiled by the Boston Consulting Group and vfa.bio provides an economic analysis of medical biotechnology in Germany.[8]

Sales of biopharmaceuticals (pharmacy and clinical) increased by 10.2 % in 2021 compared to the previous year, amounting to € 16.1 billion. Its share of sales of the total pharmaceutical market (€ 51.4 billion) stands at 31.4 %, an increase of 10.2 % compared to 2020 (total market growth: 8.1 %).[8]

In 2021, 56 drugs with a new active ingredient, a biosimilar active ingredient, or a new combination of known active ingredients were approved in the EU. Of these new approvals, 26 alone were biopharmaceuticals, representing 46 % of all new approvals. Since 2005, the biopharmaceutical pipeline has more than doubled. In 2005, 256 clinical candidates were documented, a figure which rose to 669 (clinical phases I to III) by the end of 2021.

The positive employment trend has continued. The workforce increased in 2021 by 3.1 % to over 46,000 employees.

Biopharmaceuticals are a medical and commercial success story. The numbers back this up.[8]

Due to this hugely significant development and the potential of the market, the establishment of BIO.NRW.red as a thematic focus area was a logical step. Launched in 2010 as a strategic initiative by BIO.NRW, it has served as a platform for interdisciplinary exchange between experts from the pharmaceutical industry, biomedical research, health care, medicine, and pharmaceutical biotechnology ever since. BIO.NRW.red is now a stable and enduring network in NRW, with significant growth potential for experts from a wide cross-section of areas, such as medical diagnostics, drug development, regenerative medicine, and gene therapy.

Thematic focus area BIO.NRW.eco

Like other regions, North Rhine-Westphalia is faced with global societal challenges such as climate change, dwindling resources, a loss of biodiversity, urbanization, demographic and structural change. Solutions to these challenges are complex and require a comprehensive approach supported by society, the business world, and policymakers at state level. The bioeconomy can play a role in addressing some of these issues, as North Rhine-Westphalia offers good conditions for the establishment of a bioeconomy model region, such as a supply of biogenic raw materials, existing industrial value chains, a large quantitative and qualitative selection of side and waste streams, good infrastructure, and a highly innovative academic landscape. The fact that the European bioeconomy sector was worth € 2.4 trillion in 2019[17] serves to underline North Rhine-Westphalia's potential.

The bioeconomy refers to the knowledge-based production and use of renewable resources to provide products, processes, and services in all economic sectors within the framework of a sustainable economic system. To achieve this, the bioeconomy often, but not exclusively, uses biotechnological methods and processes.

To ensure that biotechnological methods and processes are used in the sense of a bioeconomy, a wide variety of actors from different value chains and often from different industries and economic sectors must work together. To ensure successful networking, BIO.NRW's thematic focus area BIO.NRW.eco supports actors from science, industry, politics, and society in collaborating to establish a sustainable economic system based on the model of the bioeconomy. BIO.NRW.eco organizes networking events on various different topics, provides information on funding opportunities for bioeconomy, and supports start-ups.

Spot on Biotechnology Business

Biotech Landscape in NRW

North Rhine-Westphalia (NRW) lies at the heart of Europe. This becomes particularly clear when you take into account the fact that 160 million people live within a day's journey of its state capital, Düsseldorf[2]. With almost 18 million inhabitants, NRW is Germany's most populous federal state[2]. More than 10 million people live in the Rhine-Ruhr region, Germany's largest and densest metropolitan area[3]. This population density is also reflected in the state's infrastructure: NRW has six international airports, Germany's densest rail network, and the world's largest inland port (the Port of Duisburg)[4]. It therefore comes as no surprise that NRW is an attractive location for businesses. And the numbers back this up: almost one-fifth of Germany's gross domestic product is generated in NRW[5] and one-fifth of foreign companies are based in NRW, compared to the rest of Germany (Figure 1). This puts NRW at the top of the ranking of German federal states[6]. If classified as an independent exporting nation, NRW would rank between the Netherlands and Saudi Arabia[5].

Traditionally, NRW is Germany's most important location for the chemical and pharmaceutical industry. Many large companies are represented here with their headquarters or business unit locations, including Bayer, Evonik, Henkel, Grünenthal, Johnson & Johnson, and UCB. On top of this, NRW has now become one of the top locations for the life sciences industry.

In the last 25 years, about 500 life sciences companies have settled in NRW[7], 118 of which are dedicated biotechnology companies (Figure 2). NRW has therefore also developed into a hotspot for the biotechnology industry. Innovative technologies are applied to major industry branches that serve health/medicine, chemicals, food, and environment biotechnology, thus ensuring that the biotechnology sector is growing rapidly. Among the major business areas covered are industrial, nano- and pharmaceutical biotechnology, and there is also a focus on enabling technologies and supporting services. Biotechnology in NRW now represents an active, multicentric network, which is setting the pace for the powerful pulse of the state's life sciences business.

Stimuli for Start-Up's

Numerous successful start-ups and spin-off companies are able to flourish alongside the strong chemical and pharmaceutical industries in NRW. This entrepreneurial excellence is supported by Europe's densest network of excellent academic institutions. It is therefore not surprising that many of to-day's successful biotechnology companies started out as university spin-offs. In order to promote start-ups from universities, the Ministry of Economic Affairs, Industry, Climate Action and Energy of the State of North Rhine-Westphalia supports the Excellence Start-up Center.NRW. The initiative is intended to strengthen the start-up culture and thus improve technology transfer. Six universities will receive funding of € 150 million over five years. There is also a rich and robust funding environment to support and promote the industry, including venture capitalists and business development organizations.

Many start-ups also benefit from technology or incubator centers in NRW. Incubators act as a catalyst for economic development and promote technology transfer all the way from mind to market. They promote business start-ups and subsequently support the start-ups to ensure their survival and growth. Specific services provided by the centers include renting affordable laboratory and office space, arranging business contacts, providing advice on financing options, and advising on starting or relocating a business.

At the time of writing, 155 biotechnology and life science companies were incubated by 22 technology centers (page 15).

The technology park BioCampus Cologne deserves special mention, as it is one of the largest of its kind in Germany. Across a total area of more than 25 hectares, it houses more than 30,000 square meters of office and laboratory space, including state-of-the-art S1 and S2 laboratories and industrial production facilities[10]. In 2022, the Cologne City Council approved funding for the design planning for

- 17.9 million inhabitants[5]
- NRW generates 20.5 % (€ 794 billion) of the German GDP[5]
- NRW generates 4.5 % of the European GDP (EU-27)[5]
- ~ 22,000 international companies are located in NRW[6]
- 22.7 % of foreign direct investment flowig into Germany ends up in NRW[8]
- € 465,047 million trading volume in 2021 (summing in- and exports)[9]
- 6 international airports[4]
- 6,000 km rail network[4]
- The Duisburg inland port handles 110 million tonnes of goods annually[4]

Fig. 1: NRW at a glance

two new laboratory buildings on the BioCampus Cologne site. The planned investment sum is around € 100 million. The new buildings are intended in particular for the life sciences and healthcare sectors[11].

The success of the favorable conditions for start-ups is also backed up by figures: almost 20 % of all German start-ups are based in NRW, which is the highest rate in Germany[12]. One of NRW's success stories is the start-up NUMAFERM. Founded in 2017, NUMAFERM has won several awards for the development of a platform technology for the biotechnological production of peptides of any length. The process is cheaper and more environmentally friendly than comparable chemical syntheses. The depletion of resources and climate change call for more sustainable production processes. The start-up b.fab, founded in 2018, has dedicated itself to this goal by using CO_2 as a raw material and converting it into higher value products using a combination of biotechnology and electrochemistry. The company SenseUp has developed a bioproduction process for fine chemicals using their natural evolution technology. Recently, SenseUp has been awarded a grant by the Federal Ministry of Education and Research to apply their platform technology to the production of pharmaceutical proteins and peptides. Another example of a successful start-up from NRW is Acus Laboratories. Using a unique forward genetic screening technology, Acus Laboratories can validate and predict drug targets as well as drug resistance. Founded in 2018, the company has since expanded its business to China. These are just a few examples of NRW's versatile start-up scene.

Academic Biotech Landscape

North Rhine-Westphalia offers the most extensive network of academic institutions in Germany. Five of the ten largest German universities (by number of students) are located in NRW[13]. More than a quarter of all students in Germany are enrolled at a higher education institution in NRW[14]. In the academic year 2019/20, 40 % of the students in NRW studied one of the STEM subjects (natural sciences, technology, engineering, mathematics)[15]. In the field of biotechnology, students have the opportunity to specialize in cell biology, (bio) medicine, biochemistry, genomics, proteomics, metabolomics, molecular biology, systems and synthetic biology, analytics/ microsystems, bioinformatics, and process engineering.

RWTH Aachen University and the University of Bonn were awarded the rare "elite university" label as part of the Excellence Strategy in 2019. In addition, 14 Clusters of Excellence in Germany are funded in North Rhine-Westphalia[16]. Among them are five that deal with topics in the field of the bioeconomy or life sciences. In addition to the highest density of universities in Germany, the four major German research organizations – the Fraunhofer-Gesellschaft, the Helmholtz Association, the Leibniz Association, and the Max Planck Society – operate

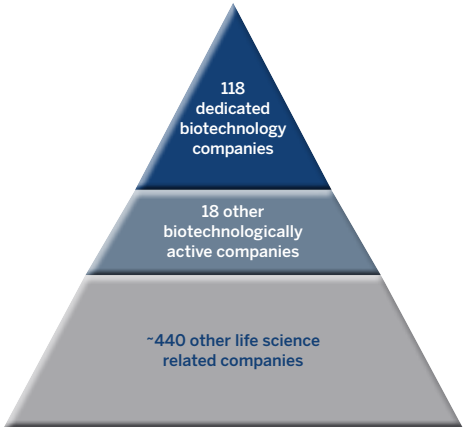


Fig. 2: Life science company landscape in North Rhine-Westphalia

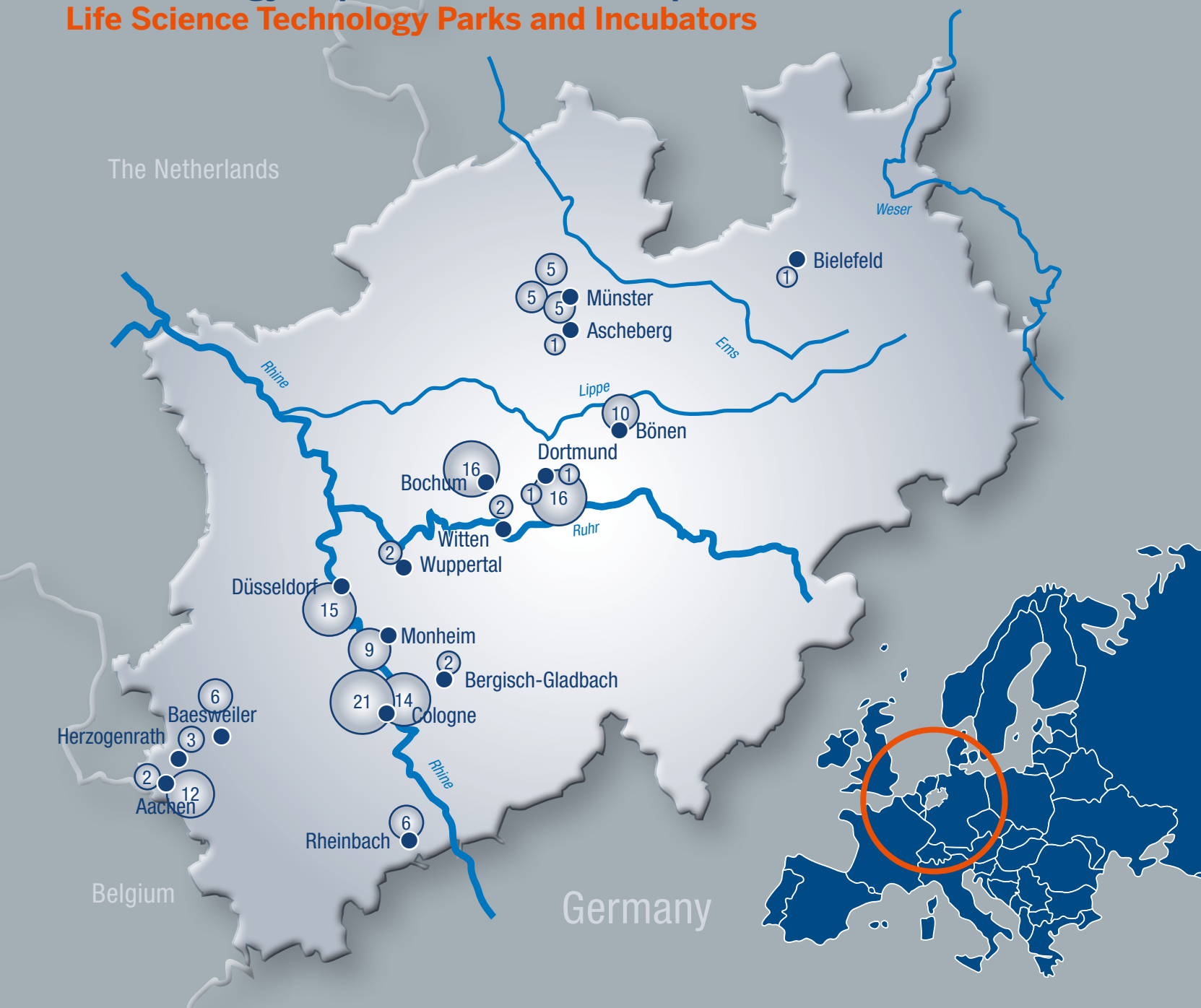
Tab. 1: Number of dedicated biotech companies

Business Year	NRW dedicated biotech companies	Germany (active companies)
2008	61	501
2009	68	531
2010	71	538
2011	77	552
2012	84	565
2013	87	570
2014	89	579
2015	95	590
2016	109	623
2017	108	647
2018	102	679
2019	106	n.d.
2020	112	736
2021	118	753

2008 - 2014 and 2018 - 2021 based on survey by BIOCOM AG; 2015 - 2017 based on survey by BIO Deutschland

Biotechnology Map of North Rhine-Westphalia

Life Science Technology Parks and Incubators



Name		City	Life Science companies	Homepage
1	ZBMT - Zentrum für Bio-Medizintechnik	Aachen	12	www.agit.de
2	TZA -Technologiezentrum am Europaplatz Aachen	Aachen	2	www.tza-aachen.de
3	INCA Technologiezentrum GmbH	Ascheberg	1	www.inca-technologiezentrum.de
4	its-Internationales Technologie- und Service-Center Baesweiler	Baesweiler	6	www.its-center.de
5	Technologiepark Bergisch-Gladbach	Bergisch-Gladbach	2	www.tbg.de
6	Technologiezentrum Bielefeld	Bielefeld	1	www.technologiezentrum-bielefeld.de
7	BMZ - BioMedizinZentrum Bochum	Bochum	16	www.bochum-wirtschaft.de/biomedizinzentrum-bochum
8	Bio-Security	Bönen	10	www.bio-security.de
9	BMZ - BioMedizinZentrum Dortmund	Dortmund	16	www.bmz-do.de
10	Technologiezentrum Dortmund	Dortmund	1	www.tzdo.de
11	Zentrum für Mikro- und Nanotechnologie	Dortmund	1	www.mst-factory.de
12	LSC - Life Science Center Düsseldorf	Düsseldorf	15	www.ditec-dus.de
13	TPH - Technologie Park Herzogenrath	Herzogenrath	3	www.tph.de
14	BioCampus Cologne Grundbesitz GmbH & Co. KG	Cologne	21	www.biocampuscologne.de
15	RTZ - Rechtsrheinisches Technologie- und Gründerzentrum Köln GmbH	Cologne	14	www.rtz.de
16	Creative Campus Monheim	Monheim	9	www.cc-monheim.de
17	Nano-Bioanalytik-Zentrum Münster	Münster	5	www.nanobioanalytikzentrum.de
18	Technologieförderung Münster GmbH	Münster	5	www.technologiefoerderung-muenster.de
19	CeNTech - Center for Nanotechnology	Münster	5	www.centech.de
20	Gründer- und Technologiezentrum Rheinbach	Rheinbach	6	www.wfeg-rheinbach.de
21	Forschungs- und Entwicklungs-Zentrum Witten GmbH	Witten	2	www.fez.de
22	Technologiezentrum Wuppertal W-tec GmbH	Wuppertal	2	www.w-tec.de
Total: 22			**155**	

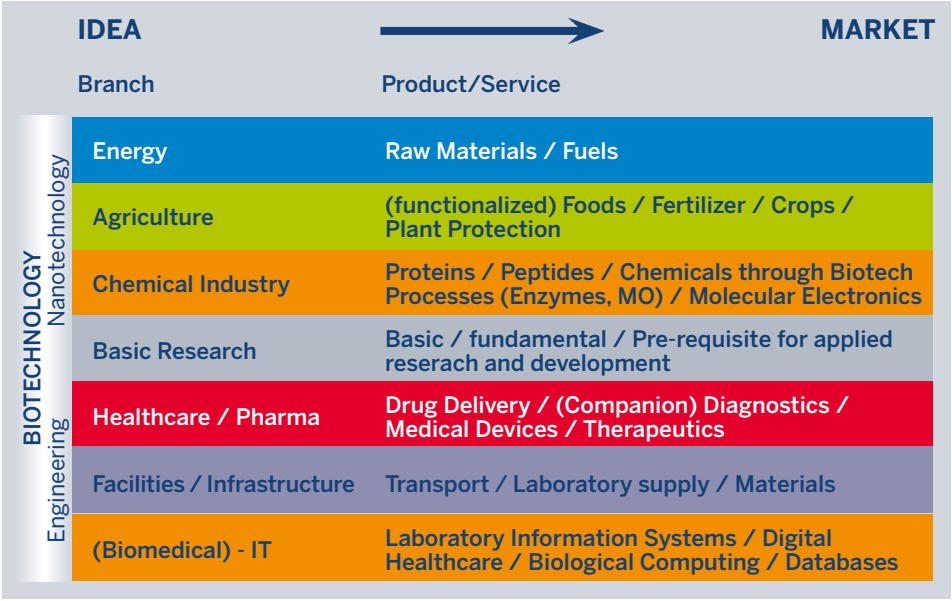


Fig. 3: Biotechnology is a strongly linked industry

several facilities with life sciences activities in the state.

BIO.NRW provides detailed information and further developments of the academic life sciences landscape in NRW in its Spot on Biotechnology Science compendium. The brochure presents a total of 260 profiles of research institutes, centers, and facilities in NRW.

Biotech Business Landscape

In North Rhine-Westphalia, the biotechnology sector is a dynamic branch of the economy that has seen rapid development over the last 10 years. The number of biotechnology companies has almost doubled during this time (Table 1). NRW's advantageous industrial location promotes the establishment of companies. Several companies were newly established in NRW in 2021, including aimed analytics, LAMPseq Diagnostics, Tranquil Immune, Vincerx Pharma, and X-Zell Biotech.

Biotechnology has developed into a cross-sectional technology that is linked to various other industries, such as the chemical industry (Figure 3), and therefore also has a share in the economic success of other industries. For example, according to a report, the total turnover of the European bioeconomy industry in 2019 was more than € 2.4 trillion and a total of 17.6 million people were employed in bio-based industries[17]. The bioeconomy uses biotechnological processes to generate products from (renewable) raw materials. This example underlines the importance of biotechnology for the overall economy. In addition, other technologies are also applied within biotechnology, for example nanotechnology and engineering technology. All this makes biotechnology a complex industry that cannot be easily separated from other more "static" industries, and value chains cannot always be clearly assigned to one sector. To focus solely

	NRW *	Germany *	Percentage of NRW relative to Germany
Number of employees	5,780	30,280	19.1 %
Turnover bn €	2.86	26.49	10.8 %
R&D expenditure bn €	0.37	2.83	13.2 %
Biotechnology active companies	118	753	15.7 %

* data according to survey by BIOCOM AG

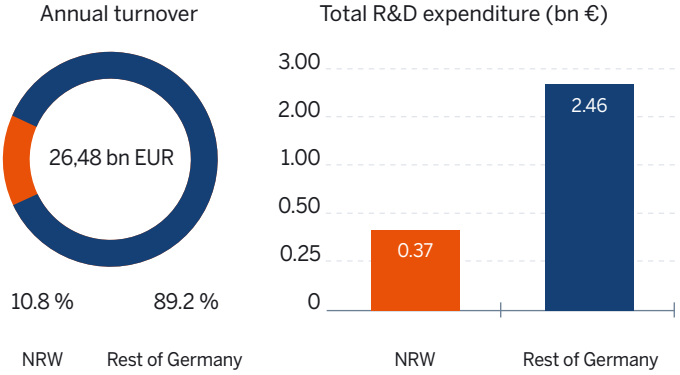


Fig. 4: Key biotechnology facts; NRW and Germany

on dedicated biotech companies is to underestimate the biotech industry's influence on the economy as a whole.

In order to monitor the biotech industry sector, BIOCOM AG annually carries out a statistical analysis of the German core biotech companies. This provides a more sophisticated view of the biotechnology landscape in Germany.

The framework of the analysis is also set by the OECD definition of a dedicated biotech company and biotech-associated companies (see page 76). Based on this definition, 118 dedicated biotech companies were operating in NRW in 2021. This means that more than 15 % of all German biotech companies are located in NRW (Figure 4)[18].

The business figures of the 118 NRW biotech companies are compared against the 753 German biotech companies[18].

In 2021, they generated a turnover of approximately € 2.86 billion, which corresponds to 10.8 % of annual turnover in the German biotech industry (Figure 4). This is a much lower share compared to previous years, where NRW's share of the overall German biotech industry was around 40 %. The lower share can be explained by extremely high turnover figures from the vaccine sales of the company BioNTech, which caused the total German turnover to shoot up to € 26.5 billion in 2021 (compared to € 6.7 billion in 2020). Taking out BioNTech's sales, the Germany-wide turnover of the biotech sector in 2021 would be € 7.5 billion[19]. In this case, the share of biotech companies from NRW would be approx. 38 %.

In NRW, 5,780 people (of about 30,280 nationwide) were employed by dedicated biotech companies in 2021[18]. The employee structure shows that the biotech sector in NRW consists mainly of SMEs. Approximately 98 % of the companies employ less than 250 people (Figure 5)[18].

Together, NRW biotech firms are investing high amounts in the R&D of innovative products. In total, 13.1 % of NRW's annual turnover in biotechnology (€ 374 million) was reinvested in R&D projects. The proportional expenditure in R&D of the NRW biotech companies is therefore higher compared to the rest of Germany.

The development of these key business figures underlines the consistent level of investments made by the dedicated biotech companies in NRW, which in turn will help to advance the future market position of biotech in NRW.

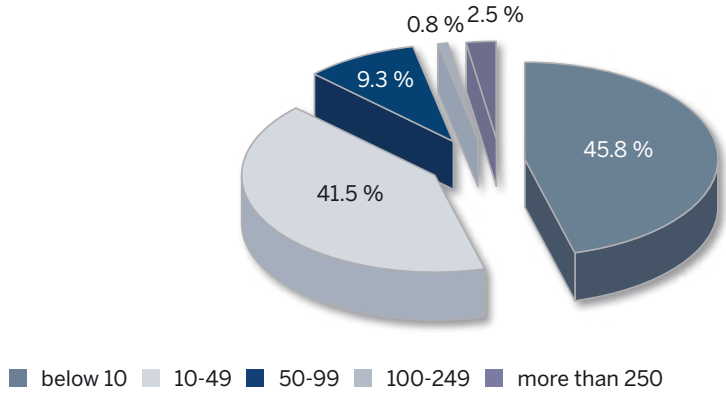


Fig. 5: Size of dedicated biotechnology companies by number of employees

The activities of the dedicated biotech companies were complemented by 18 other companies with a biotechnological commitment – mostly global players in the fields of pharmaceuticals, chemicals, or seed production. Since these companies are active in many diverse areas, their biotech-related business figures cannot be calculated exactly and are not included in the statistics. Nevertheless, it should not be overlooked that due to these companies and their biotechnological activities,

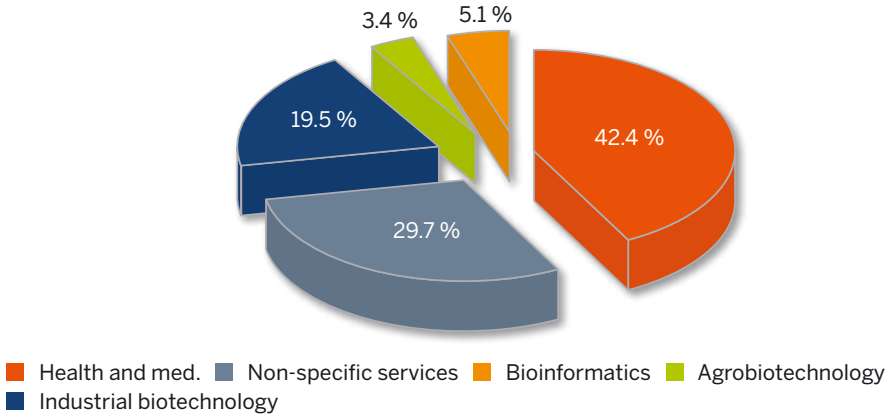


Fig. 6: Areas of activity (for definitions see page 76)

Indication	Number of Products
Neoplasms / cancer / oncology	32
Infectious and parasitic diseases / infectiology / parasitology	16
Diseases of the nervous system / neurology	13
Other	8
Digestive system / gastroenterology	4
Musculoskeletal system and connective tissue	3
Endocrine, nutritional and metabolic diseases / endocrinology	3
Skin and subcutaneous tissue / dermatology	2
Respiratory / pulmonology	2
Symptoms, signs abnormal clinical and laboratory findings, not elsewhere classified	1
Diseases of the eye / ophthalmology	1
Diseases of the blood and blood-forming organs & immune disorders / hematology / immunology	1
Total	86

Fig. 7: Drug development pipelines by indication

the economic importance of biotechnology in NRW is greater than the key figures suggest. Examples include Bayer AG and Evonik Industries AG, whose turnover in 2021 alone was € 44 billion[21] and € 15 billion[22], respectively. Even if only part of the turnover can be attributed to NRW locations and not all products are manufactured using biotechnological processes, these two examples clearly illustrate the significance of biotechnologically active companies for the economy in NRW.

The classification of NRW biotech companies by area of activity shows that 29.7 % of biotech companies are active in multiple branches (Figure 6). These biotech companies with "non-specific business activities" also include service providers and suppliers for the biotechnological sector. In total, 19.5 % of the biotech companies are active in industrial biotechnology. The classification includes firms that develop enzymes, biomaterials, or bioprocesses. However, the majority of NRW biotech companies (42.4 %) are active in the fields of health and medicine, including veterinary medicine[18].

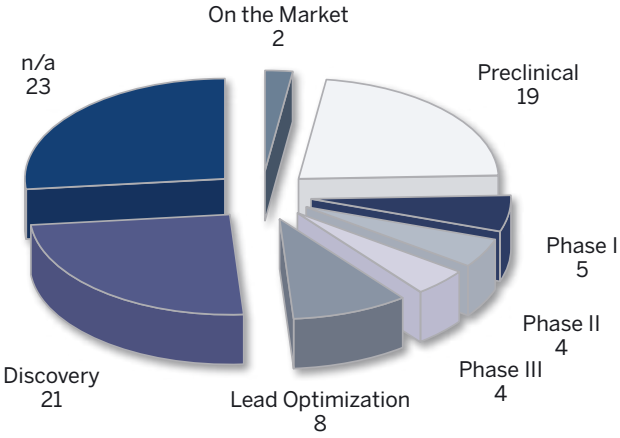


Fig. 8: Drug development pipelines by phase

At the time of writing for this brochure, according to information in the Biotechgate database, companies in the health and medicine sectors had built up a drug pipeline of 86 products and product candidates (Figure 7). The classification of the candidates according to indications shows that a large proportion of the candidates are being developed in the categories "oncology", "infectiology/parasitology", and "neurology". Overall, almost 71 % of the product candidates fall into these three categories. The "oncology" category has been the focus of product development for candidates for several years. The differentiation of drug candidates by phase shows that approximately 22 % of the candidates are in the preclinical studies phase and 15 % are in clinical study phases 1 to 3 (Figure 8)[7].

The companies listed in this brochure form the innovative core of biotechnological research and development. However, capital is needed to drive developments forward. Start-ups and SMEs in particular are innovative drivers of the industry that need support through funding and investment. In addition to the large community of business angels based in NRW, numerous (institutional) investors have settled on the Rhineland in recent years. These investors strongly support young biotech companies. Investment activities in life sciences companies are also supported by the state, for example through the "BIO.NRW Business Angel Zirkel" and the annual "Business Angel Congress".

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BIO Clustermanagement NRW GmbH
Merowingerplatz 1
40225 Düsseldorf, Germany

phone: +49 (0) 211 942 150 49
mail: info@bioclustermanagement.de
web: www.bioclustermanagement.de

Networks and Competence Clusters in NRW

Industrial Biotechnology – CLIB

CLIB (Cluster Industrial Biotechnology) is an international open innovation cluster of large companies, SMEs, investors, academic institutes, as well as other stakeholders, active in biotechnology and the circular bioeconomy as a whole. CLIB is a non-profit association, with its members shaping the cluster's interests and activities.

The cluster comprises over 100 organisations, with a core in Germany and about 25 % international members. The overall goal of CLIB is to network stakeholders along and across value circles and to identify new opportunities for innovation, projects, and business. Through this, the cluster develops cross-sectoral biotechnological solutions for sustainable processes and products in the circular bioeconomy. Pertinent project areas are identified by the CLIB team together with members in an iterative process.

The cluster organises several events throughout the year: the annual CLIB international conference (CIC), the member-exclusive CLIB Networking Day (CND), diverse forum events, online seminars, topic-specific workshops, and dedicated small partnering meetings.

CLIB's mission is to deliver value based on industrial biotechnology to all its members and other stakeholders via six strategic pillars. The cluster's members work together across disciplines, sectors, regions, and nations to create sustainable products and processes. Its six strategic pillars combine all necessary aspects to foster the establishment of a sustainable circular bioeconomy: Networking & Partnering, Improving Framework Conditions, Accelerating Tech Development, Facilitating Scale-Up, Developing Bioeconomists, and Fostering Entrepreneurship.

CLIB is active in several projects on state, national, and European level to pursue activities within these pillars, to extend the network, and to create new opportunities for its members to innovate.

Name	Cluster Industrielle Biotechnologie e.V.
Address	Völklinger Straße 4
Postal Code/City	40219 Düsseldorf
Fon	+49 211 418 737 27
Fax	+49 211 679 31 49
E-Mail	info@clib-cluster.de
Internet	www.clib-cluster.de

BioRegions in NRW

The biotechnology landscape in North Rhine-Westphalia is diverse and dense. Regional networks and initiatives have developed to support the industry. The various BioRegions that have emerged in this way are committed to business start-ups and technology transfer in biotechnology, network the sector and initiate cooperation between industry and science. The focus is on regional priorities and competencies. As the state organization, BIO.NRW acts as the umbrella organization for the BioRegions in NRW and through supra-regional cooperation the interests of the state are supported statewide. The BioRegions and networks with their different focuses and priorities are presented below and on the following pages.

Name	BioIndustry e.V.
Address	Otto-Hahn-Str. 15
Postal Code/City	44227 Dortmund
Fon	+49 238 3919 224
E-Mail	info@bioindustry.de
Internet	www.bioindustry.de

BioIndustry

BioIndustry e.V. is a regional life science cluster that is committed to the promotion of biotechnology in science, research and application. The cluster's regional focus is the Ruhr Metropolis and eastern Westphalia. This region offers a unique density of economic and scientific competence. BioIndustry synergizes the activities of local technology centers, companies and academic research groups to strengthen the field of Biotechnology and Bioeconomy and to generate product and process innovations through interdisciplinary transfer work.

Name	Gesellschaft für Bioanalytik Münster e.V.
Address	Mendelstraße 17
Postal Code/City	48149 Münster
Fon	+49 251 384 503 30
Fax	+49 251 384 503 31
E-Mail	info@bioanalytik-muenster.de
Internet	www.bioanalytik-muenster.de

bioanalytik-muenster
TECHNOLOGY FOR THE LIFE SCIENCES

The region Münster has, due to its long tradition in excellent analytic and bio-medical research, an international reputation in innovative nanoanalytics. The region's focus on nano-bioanalytics is a consequence of the international top research in the field of nanoanalytic and life science of the University of Münster, the Münster University of Applied Sciences and more than 30 companies in the region. On this basis and the long lasting experience of connecting partners from different life science technology fields as well as the expertise to develop regional innovation strategies for new technologies in the health care sector, Bioanalytic Münster focusses, as a local network of the region, on the topics of "bioanalytics" and "new technologies for the health sector".

BioCologne is the network to support bioengineering and bioscience in the region of Cologne. Companies, research institutions, investors, banks, consultancies, and technology parks are engaged to promote the region as a science location. BioCologne facilitates the transfer of ideas, knowledge, and technologies from the life-science field into practice. Thereby they promote start-ups in close collaboration with RTZ Köln GmbH.

BioCologne is national and international interlaced and offers synergies and international cooperation. BioCologne works for fairs, congresses, working groups, and questions regarding business routines close together with BioRiver Life Science im Rheinland e.V.

Name	BioCologne c/o RTZ Köln GmbH
Address	Gottfried-Hagen-Str. 60-62
Postal Code/City	51105 Cologne
Contact Person	André van Hall
Fon	+49 221 839 110
E-Mail	contact@biocologne.de
Internet	www.biocologne.de

BioRiver is the industry association for life sciences and biotechnology in the metropolitan area Rhineland. BioRiver's chairman Boris Stoffel, executive board member of Miltenyi Biotec, together with executives of world market leaders Bayer, Qiagen, Lonza and innovative firms of all sizes, excellent academia and stakeholders of the industry drive BioRiver's business. Member groups, networking events and seminars support the direct and equal exchange between experts of all levels. The start-up competition BioRiver Boost! is our platform for young entrepreneurs and their companies' development. We are happy to be a requested contact for the state ministries. Our member firms are active in the following fields: innovative products, technologies and services for research, development and production in biotechnology, life sciences and pharma.

Name	BioRiver – Life Science im Rheinland e.V.
Address	Merowingerplatz 1
Postal Code/City	40225 Düsseldorf
Contact Person	Dr. Frauke Hangen
Fon	+49 211 316 0610
Fax	+49 211 160 1953
E-Mail	bioriver@bioriver.de
Internet	www.bioriver.de

MedLife e.V. is the competence network of the life sciences and the BioMedTech industry in the Aachen region. The aim of the network is to strengthen the healthcare industry, medical technology, biomedicine and biotechnology. We promote dialogue and exchange between the sciences, the dissemination and implementation of knowledge and interdisciplinary networking in medicine and the life sciences. In our BioRegion, bio-driven innovations are not only developed by start-ups, institutes of the RWTH and the FH-Aachen, but are equally advanced with the know-how of the research centers DWI, Fraunhofer institutes and the FZ-Jülich. Our members produce innovative and digital products and technologies for biomedicine, medicine, healthcare and chemistry and are suppliers for biotechnological, medical and pharmaceutical production.

Name	MedLife e.V
Address	Aachener - und - Münchener - Allee 9
Postal Code/City	52074 Aachen
Fon	+49 241 47 583 486
E-Mail	info@medlife-ev.de
Internet	www.medlife-ev.de

From Mind to Market

This chapter provides an overview of the dedicated biotech companies and the biotechnologically active companies in North Rhine-Westphalia.

For simplicity, the companies are grouped into six areas according to their main activity:

- Non-specific Services
- Health and Medicine (including Animal Health)
- Industrial Biotechnology
- Agri/Agrobiotechnology
- Bioinformatics
- Other biotechnologically active companies

For a more comprehensive directory containing all life science and life science-related companies in NRW, please visit our company database at https://bio.nrw.de/en/companies-database/.

BIO.NRW invites you to discover the North Rhine-Westphalian biotechnology community!

Biotechnology Map of North Rhine-Westphalia

Dedicated and other biotechnologically active companies

Dedicated companies[1]

Aachen Proteineers GmbH	Baesweiler	
Abalos Therapeutics GmbH	Düsseldorf	p. 41
Acus Laboratories GmbH	Düren	p. 31
AgroProtect GmbH	Aachen	p. 61
AiCuris Anti-infective Cures AG	Wuppertal	p. 41
aimed analytics	Bonn	
Algenion GmbH	Köln	
Algenium GmbH & Co. KG	Bielefeld	
Algiax Pharmaceuticals GmbH	Erkrath	p. 41
Alvotech Germany GmbH	Jülich	
aReNA Biotech GmbH	Jülich	
arrows biomedical Deutschland GmbH	Münster	p. 42
ARTES Biotechnology GmbH	Langenfeld	p. 31
attyloid GmbH	Düsseldorf	p. 42
b.fab GmbH	Köln	p. 55
BBT Biotech GmbH	Baesweiler	p. 31
beniag GmbH	Jülich	p. 32
Bex-Biotec GmbH & Co. KG	Bönen	p. 61
BIBITEC GmbH & Co. KG	Bielefeld	p. 32
BioCheck GmbH	Münster	p. 42
BioEcho Life Sciences GmbH	Köln	p. 32
Biofidus AG	Bielefeld	p. 33
Biofrontera AG	Leverkusen	p. 43
BioSolveIT GmbH	Sankt Augustin	p. 63
bitop AG	Dortmund	p. 55
Black Drop Biodrucker GmbH	Aachen	p. 43
BluCon Biotech GmbH	Köln	
BrainRepair UG	Bochum	
BSV Bioscience GmbH	Baesweiler	p. 55
Carpegen GmbH	Münster	p. 43
Catalent Düsseldorf GmbH	Langenfeld	
CellSytems GmbH	Troisdorf	p. 33
Cevec Pharmaceuticals GmbH	Köln	p. 44
Charles River Laboratories Germany GmbH	Erkrath	p. 33
Chembiotech	Münster	
Chimera Biotec GmbH	Dortmund	p. 34
Cilian AG	Münster	p. 44
Creative Therapeutics GmbH	Wuppertal	p. 44
Cube Biotech GmbH	Monheim	p. 34
Cygenia GmbH	Aachen	p. 45
Cysal GmbH	Münster	p. 56
Cytecs GmbH	Münster	
Detechgene GmbH	Köln	p. 45
Dynavax GmbH	Düsseldorf	
Emergence Therapeutics AG	Duisburg	
Enzymaster Deutschland GmbH	Düsseldorf	p. 56
Evotec SE	Köln	p. 45
evoxx technologies GmbH	Monheim am Rhein	p. 56
GEN-IAL GmbH	Troisdorf	p. 57
IFM Therapeutics GmbH	Bonn	
IIT - Institut für Innovationstransfer an der Universität Bielefeld GmbH	Bielefeld	p. 34
IMD Natural Solutions GmbH	Dortmund	
ImmunoQure AG	Düsseldorf	p. 46
InfanDx AG	Köln	p. 46
innoVitro GmbH	Jülich	p. 46
Isoloid GmbH	Düsseldorf	p. 35
LAMPseq Diagnostics GmbH	Bonn	
Lead Discovery Center GmbH	Dortmund	p. 47
LenioBio GmbH	Düsseldorf	p. 35
Life & Brain GmbH	Bonn	p. 47
Lonza Cologne GmbH	Köln	p. 35
Matricel GmbH	Herzogenrath	p. 47
MBBL Dr. Bartling GmbH	Bielefeld	
Miltenyi Biomedicine GmbH	Bergisch Gladbach	
Miltenyi Biotec B.V. & Co. KG	Bergisch Gladbach	p. 36
MLM Medical Labs GmbH	Mönchengladbach	p. 48
Mukocell GmbH	Dortmund	p. 48
multiBIND biotec GmbH	Köln	p. 57
Myriad International GmbH	Köln	p. 48
NEUWAY Pharma GmbH	Bonn	p. 49
Noscendo GmbH	Duisburg	p. 63
NUMAFERM GmbH	Düsseldorf	p. 57
OligoScience Biotechnology GmbH	Bönen	p. 58
Oncimmune Germany GmbH	Dortmund	p. 49
OneWorld Diagnostics GmbH	Düsseldorf	
PAIA Biotech GmbH	Köln	p. 36
PAION AG	Aachen	p. 49
Phytowelt GreenTechnologies GmbH	Nettetal	p. 58
PL BioScience GmbH	Aachen	p. 36
PlasmidFactory GmbH	Bielefeld	p. 37
Priavoid GmbH	Jülich	p. 50
PROSION GmbH	Köln	
ProtaGene GmbH	Dortmund	p. 37
Proteona GmbH	Köln	p. 37
QIAGEN GmbH	Hilden	p. 50
QITHERA GmbH	Heinsberg	p. 50
QLi5 Therapeutics GmbH	Dortmund	p. 51

qubeto GmbH	Münster	
Resolve BioSciences GmbH	Monheim	p. 63
Ridom GmbH	Münster	p. 64
Saaten-Union BIOTEC GmbH	Leopoldshöhe	p. 61
Sartorius Xell GmbH	Bielefeld	p. 38
SenseUp GmbH	Jülich	p. 58
Senzyme GmbH	Troisdorf	p. 59
Serengen GmbH	Dortmund	p. 38
SeSaM-Biotech GmbH	Aachen	p. 59
Singleron BioTechnologies GmbH	Köln	p. 38
Soluventis Nanotherapeutics GmbH	Bochum	p. 51
Squarix GmbH	Marl	p. 39
Syntab Therapeutics GmbH	Würselen	p. 51
Taconic Biosciences GmbH	Leverkusen	
Tranquil Immune GmbH	Bonn	p. 52
Transimmune AG	Düsseldorf	p. 52
TunaTech GmbH	Düsseldorf	
UGISense AG	Dortmund	p. 52
Vincerx Pharma GmbH	Monheim	
vivo Science GmbH	Gronau	p. 39
WeissBioTech GmbH	Ascheberg	
X-ZELL Biotech GmbH	Lennestadt	p. 53
XanTec bioanalytics GmbH	Düsseldorf	p. 39

Other biotechnologically active companies[1]

BASF Personal Care and Nutrition GmbH	Monheim	
Baxter Oncology GmbH	Halle/Westfalen	
Bayer AG	Leverkusen	p. 67
Bayer AG	Wuppertal	
BAYER CropScience AG	Monheim	
Beckman Coulter GmbH	Krefeld	
Cellex Cell Professionals GmbH	Köln	p. 67
Deutsche Saatveredelung AG	Lippstadt	p. 67
Evonik Industries AG	Essen	p. 68
Evonik Operations GmbH R&D	Halle/Westfalen	p. 68
Grünenthal GmbH	Aachen	p. 68
Henkel AG & Co. KGaA	Düsseldorf	p. 69
MEDIWISS Analytik GmbH Gesellschaft für angewandte in-vitro Analytik mbH	Moers	
Octapharma GmbH	Langenfeld	
OxProtect GmbH	Münster	
PerkinElmer chemagen Technologie GmbH	Baesweiler	p. 69
PHARMA Waldhof GmbH	Düsseldorf	p. 69
Syngenta Seeds GmbH	Bad Salzuflen	p. 70
Taros Chemicals GmbH & Co. KG	Dortmund	p. 70
UCB Pharma GmbH	Monheim	p. 70
W. von Borries-Eckendorf GmbH & Co. KG	Leopoldshöhe	p. 71

1 *Including companies that were established in NRW after 2021 and company sites that are not headquaters and thereby not included in the key figures of 2021. OECD definition on page 76*

Non-specific services

Acus Laboratories GmbH was founded in 2018 as a spin-off company from the Max Planck Institute for Biology of Ageing in Cologne. Based on unique forward genetic screening technologies. Acus offers services for deconvolution and validation of molecular drug target structures, identification of off-targets, and drug resistance prediction to pharmaceutical industry and biotech partners.

Acus mid-term vision is to uncover novel drug target structures that initiate collaborative 'first-in-class' drug development projects.

Name	Acus Laboratories GmbH c/o hauptcwartier coworking
Address	Philippstraße 27
Postal Code/City	52349 Düren
Fon	+49 22137970-446
E-Mail	info@acuslabs.com
Internet	www.acuslabs.com
Employees	<10
Founded (year)	2018

ARTES Biotechnology is an independent technology provider for the pharmaceutical industry. Our business focus is on:

- vaccine development (VLP technology)
- process development of biopharmaceuticals
- transfer of biosimilar processes

Our technologies have resulted in innovative products marketed worldwide. WHO recommendation, international registration, EMA resp. FDA approval and GRAS certification are achieved in international collaborations. Expression platforms include high yield yeasts and E. coli system for efficient protein production. Our unique chimeric virus like particle (VLP) platform METAVAX® is best suited for the development of highly immunogenic vaccines in human and animal health.

Our proprietary technologies ensure freedom-to-operate and reliable, competitive production of innovative targets marketed worldwide.

Name	ARTES Biotechnology GmbH
Address	Elisabeth-Selbert-Str. 9
Postal Code/City	40764 Langenfeld
Fon	+49 2173 27587-0
Fax	+49 2173 27587-77
E-Mail	info@artes-biotechnology.com
Internet	www.artes- biotechnology.com
Employees	25
Founded (year)	2002

BBT Biotech GmbH produces freeze-dried viable bacteria (probiotics like lactobacilli, bifidobacteria, yeasts) and metabolites not only in bulk but also in finished dosage forms to the pharmaceutical and health-food industry.

The fermenter capacity is up to 18.000 l. The downstream process is based on separators, filtration systems, chromatography and freeze dryers. On the basis of individual needs BBT Biotech GmbH also offers active pharmaceutical ingredients like thrombolytics (streptokinase, urokinase), fertility hormones (HCG, HMG, FSH), inhibitors (Aprotinin, UTI) and others (Hyaluronidase, Corticotrophin).

In addition we are offering a full service to our customer:

- early development
- manufacturing of the API under GMP conditions
- inclusive dossier writing in eCTD format.

Name	BBT Biotech GmbH
Address	Arnold-Sommerfeld-Ring 28
Postal Code/City	52499 Baesweiler
Fon	+49 2401 93 310-0
Fax	+49 2401 93 310-90
E-Mail	office@bbt-biotech.de
Internet	www.bbt-biotech.de
Employees	30
Founded (year)	1999

Name	beniag GmbH
Address	Huthmacherstrasse 20
Postal Code/City	52428 Jülich
Fon	+49 2461 616 734
	+49 1578 0393 499
Fax	+49 2461 613 907
E-Mail	info@beniag.com
Internet	www.beniag.com
Employees	< 10
Founded (year)	2013

beniag is a biotechnology company providing unique and highly efficient solutions to incorporate molecules into living cells and tissue in vitro. Based on membrane fusion as a completely novel and patented transfer mechanism, beniag liposomes offer an outstanding opportunity for customers to incorporate any type of molecule or aggregate with extremely high efficiency within a few minutes. The unique transfer mechanism allows manipulation of basically every mammalian cell type and incorporates molecules directly into the cytosol, to guarantee their immediate bioactivity.

beniag focusses on production and development of customer oriented solutions with cooperation partners distributing the product line “Fuse-It” worldwide.

Name	BIBITEC GmbH & Co. KG
Address	Westerfeldstr. 37
Postal Code/City	33611 Bielefeld
Fon	+49 521 430 602 40
E-Mail	contact@bibitec.de
Internet	www.bibitec.de
Employees	18
Founded (year)	2001

BIBITEC GmbH & Co. KG, a 100 % subsidiary of Nordmark Pharma GmbH, is offering an all-in-one solution for mammalian cell culture technology.

Together with qualified partners, BIBITEC is able to cover the entire value chain from cell line and process development, analytics, GMP production of API and finished drug product up to regulatory affairs and market production. Our value added services also include pharmaceutical development, ICH conform stability and viral safety studies.

Our project manager is your primary contact and is responsible for steering the entire process. With our customized project support BIBITEC is the partner of choice for biotech companies with individual needs.

Name	BioEcho Life Sciences GmbH
Address	Nattermannallee 1
Postal Code/City	50829 Köln
Fon	+49 221 9988 97-0
Fax	+49 221 9988 97-29
E-Mail	contact@bioecho.de
Internet	www.bioecho.de
Employees	74
Founded (year)	2016

BioEcho Life Sciences is a specialized solution provider for the extraction and analysis of nucleic acids. We create disruptive technologies, products, and workflows that make downstream processing of nucleic acids easier and faster, significantly increase throughput, and deliver reliable results. Our EchoLUTION technology enables the fastest DNA and RNA extraction on the market - in just one single step. It reduces the associated plastic consumption by up to 70 %. Customers in molecular diagnostics, academic and biopharmaceutical research, plant, and animal breeding rely on our products: ready-to-use kits, high-throughput solutions for automation platforms, nucleic acid extraction services and process optimization for molecular biology laboratories. BioEcho is certified according to ISO 9001 and ISO 13485. BioEcho. The Nucleic Acid Experts.

Biofidus is an analytical company located in Bielefeld, Germany. Its services include a wide variety of (bio)analytical methods such as spectroscopic, chromatographic, mass spectrometric and cell-based assays focused on structural and functional characterization of proteins as well as small molecules. Biofidus is specialized in the characterization of biopharmaceuticals or biosimilars, including but not limited to monoclonal antibodies, Fc-fusion proteins, enzymes, and ADCs. Additionally, Biofidus offers spent media analysis for fermentation and cell culture technology, which includes the analysis of amino acids, metabolites, and vitamins in culture media. Besides proteins and small molecules, Biofidus is also supporting studies focusing on the characterization of cell and gene therapeutics such as AAV vectors.

Name	Biofidus AG
Address	Morgenbreede 1
Postal Code/City	33615 Bielefeld
Fon	+49 521 89 739 060
E-Mail	info@biofidus.de
Internet	www.biofidus.de
Employees	20
Founded (year)	2015

CellSystems GmbH markets a comprehensive portfolio of more than 10,000 high-quality products and services for life sciences and biotherapeutic research, such as enzymes for tissue dissociation, a wide range of human primary cells and optimised cell culture media, cell culture reagents (e.g. cytokines, growth factors) and extracellular matrix proteins for 2D and 3D cell cultures. CellSystems is also a reliable partner for induced Pluripotent Stem Cell (iPSC) research, offering a state-of-the-art portfolio of iPSC cell lines, feeder-free culture and differentiation media, as well as gene editing services (i.e. CRISPR/Cas9). In addition, CellSystems is a leading provider of plasma proteins, bovine proteins, angiostatins and custom reagents for haemostasis research.

CellSystems – your dependable supplier of life science products for over 30 years.

Name	CellSystems GmbH
Address	Junkersring 5
Postal Code/City	53844 Troisdorf
Fon	+49 2241.25515-0
Fax	+49 2241.25515-30
E-Mail	info@cellsystems.de
Internet	https://cellsystems.de
Employees	10
Founded (year)	1992

With more than 50 years of experience and proven regulatory expertise, the Charles River Biologics group can address challenging projects for biotechnology and pharmaceutical companies worldwide.

Offering a variety of services such as contamination and impurity testing, protein characterization, bioassays, viral clearance studies and stability and lot release programs, we support clients throughout the biologic development cycle, from the establishment and characterization of cell banks through preclinical and clinical studies to marketed products.

Whether clients need stand-alone services, a unique package of testing, or insourced support, our Biologics group can create a custom solution to suit their needs.

Name	Charles River Laboratories Germany GmbH
Address	Max-Planck-Str. 15A
Postal Code/City	40699 Erkrath
Fon	+49 211 9255-300
Fax	+49 211 9255-333
E-Mail	askcharlesriver@crl.com
Internet	www.criver.com
Founded (year)	1993

Name	Chimera Biotec GmbH
Address	Emil-Figge-Str. 76a
Postal Code/City	44227 Dortmund
Fon	+49 231 9742-840
Fax	+49 231 9742-844
E-Mail	info@chimera-biotec.com
Internet	www.chimera-biotec.com
Employees	20
Founded (year)	2000

chimera biotec
ultra sensitive immunoassays

Chimera Biotec is your GLP-certified CRO for ultra sensitive and technically demanding immunoassays since 2000. For over 20 years, Chimera Biotec has provided large-molecule GLP/GCP-compliant bioanalytical support for all phases of drug development in accordance with guidelines (FDA, EMA, ICH10).

We provide bioanalytical support on several platforms, including ELISA, MSD™, Simoa® and Imperacer®, our proprietary Immuno-PCR technology. Chimera has the expertise and technical capabilities to identify the ideal platform technology based on and run according to your pharmacological and regulatory requirements. Our services include assay development, method validation, technology evaluation and bioanalytical support for quantifying large molecule targets in virtually any biological matrix.

Name	Cube Biotech GmbH
Address	Alfred-Nobel-Str. 10
Postal Code/City	40789 Monheim
Fon	+49 2173 99373-0
Fax	+49 2173 99373-99
E-Mail	contact@cube-biotech.com
Internet	www.cube-biotech.com
Employees	27
Founded (year)	2012

Cube Biotech

The Cube Biotech team serves the biotech and pharmaceutical community with its expertise on expression, purification, stabilization and functional/structural characterization of proteins. Our projects focus on the pharmaceutically relevant class of membrane proteins. Both products and services are offered: A broad range of products for the affinity chromatography of proteins and stabilization of proteins are manufactured in house at high quality. The product offering is complemented by reagents such as detergents, cell-free expression lysates, nanodisc scaffold proteins, and patented membrane protein crystallization plates. Some particularly relevant membrane proteins (GPCRs) are available as fully characterized preparations.

Our services cover the expression, purification, stabilization and crystallization of soluble and membrane proteins for applications like cryo electron microscopy, antibody generation, crystallization and assays.

Name	IIT BioTech - Institut für Innovationstransfer an der Universität Bielefeld GmbH
Address	Universitätsstr. 25 University of Bielefeld
Postal Code/City	33615 Bielefeld
Fon	+49 521 106 8756
Fax	+49 521 106 89041
E-Mail	service@iit-biotech.de
Internet	www.iit-biotech.de
Employees	14
Founded (year)	1995

IIT Biotech

The Institut für Innovationstransfer GB Biotech (IIT Biotech) offers integrated genomic services. Since some years the main provided service is the “next generation sequencing”.

The high-throughput techniques performed by Illumina HiSeq and MiSeq or by IonTorrent PGM can be offered combined with a powerful lab & bioinformatic pipeline providing full service tasks like genomic assembly, gap closure and annotation.

Furthermore we offer individual solutions for the bioinformatic evaluation of project data. This includes construction of draft-genomics, storage/care of genome projects, analysis in resequencing and metagenomics and development/customization of analysis-software.

ISOLOID

AMYLOID PROTEINS AND PEPTIDES

High-purity samples of amyloid proteins and peptides are a key prerequisite for research and development on many severe diseases, such as Alzheimer's, Parkinson's and Diabetes mellitus type 2. However, the biotechnological production of these proteins turned out to be challenging due to harmful effects on the producing organisms.

Based on an innovative and proprietary technology Isoloid GmbH overcame this challenge to offer high purity protein samples and labeled derivatives to your lab.

As a joint spin-off from Heinrich-Heine-University Düsseldorf and Forschungszentrum Jülich we build on a strong expertise and plenty years of experience in structural biology and biophysics to promote your research project.

Name	Isoloid GmbH
Address	Erkrather Str. 401
Postal Code/City	40231 Düsseldorf
Fon	+49 211-81 15143
E-Mail	info@isoloid.de
Internet	www.isoloid.de
Employees	<10
Founded (year)	2015

LenioBio

LenioBio is a life science biotech offering a novel protein expression technology. We enable the discovery, development, and large-scale manufacturing of difficult-to-express proteins. We have developed a eukaryotic cell-free protein technology, AliCE, that is scalable and will change the way proteins are produced today; across all industries. We believe that every person deserves an equal chance to lead a healthy life. This begins with access to effective and affordable medicines wherever they are needed. Born from our dream to produce enough Ebola vaccines quickly after the 2015 Ebola pandemic, when 1,000 people were dying every month. Manufacturing of 3000 doses of the ZMapp vaccine in plants would have required 40,000m^2 of greenhouse and taken 90 days. LenioBio has one goal. To simplify manufacturing and speed up the delivery of drugs to the patient. Our technology has the potential to level the playing field. Any biotech company with great purpose, regardless of its size or location, can now soon bring its product to the market.

Name	LenioBio GmbH
Address	Erkratherstr 401
Postal Code/City	40231 Düsseldorf
Fon	+49 211 890940300
E-Mail	info@leniobio.com
Internet	www.leniobio.com
Employees	31
Founded (year)	2016

Lonza

The Lonza Cologne site develops, manufactures and markets a comprehensive product portfolio of life-science research tools around cultured cells, including non-viral gene transfer products for primary cells and hard-to-transfect cell lines.

These products support scientists worldwide, enabling more efficient identification of new targets for pharmaceuticals and therapies. Additionally Lonza Cologne GmbH offers customized services, e.g. transfection services, proliferating cell services and cell modification services.

Name	Lonza Cologne GmbH
Address	Nattermannallee 1
Postal Code/City	50829 Köln
Fon	+49 221 99199-190
E-Mail	info.cologne@lonza.com
Internet	www.bioscience.lonza.com
Employees	113
Founded (year)	1998

Name	Miltenyi Biotec B.V. & Co. KG
Address	Friedrich-Ebert-Str. 68
Postal Code/City	51429 Bergisch Gladbach
Fon	+49 2204 8306-0
Fax	+49 2204 85197
E-Mail	macsde@miltenyi.com
Internet	www.miltenyibiotec.com
Employees	4,000
Founded (year)	1989

Miltenyi Biotec develops products and services that advance biomedical research and cell therapy. Our technologies inspire scientists in basic and translational research, and support clinical applications. Our integrated solutions enable sample preparation, cell separation, cell sorting, flow cytometry, cell culture, imaging, and molecular analysis. Over 50,000 scientific publications and the manufacture of more than 100,000 cell products for clinical use demonstrate the profound trust scientists and clinicians have in MACS® Technology.

Miltenyi Biotec has been at the forefront of immunology, stem cell biology, cancer research, and neuroscience, as well as the clinical areas of hematology, graft engineering, and apheresis, for nearly 30 years. About 4,000 employees in 28 countries are passionate about our cell and gene therapy solutions.

Name	PAIA Biotech GmbH
Address	Gottfried Hagen Str. 60-62
Postal Code/City	51105 Köln
Fon	+49 221 1686 2380
E-Mail	info@paiabio.com
Internet	www.paiabio.com
Employees	10
Founded (year)	2014

PAIA Biotech GmbH offers assays for the rapid quantification of antibodies and proteins as well as glycosylation assays based on its proprietary technology. This technology uses proprietary 384-well microplates that drastically simplify the workflow of bead-based immunoassay with fluorescence detection. The assays are amenable to automation and run on fluorescence plate readers or microscopes. PAIA Biotech focuses on products for screening applications with limited sample volume and high throughput requirements, e.g. in early cell line development.

In addition to off-the-shelf products PAIA Biotech GmbH also offers custom assay development.

PAIA Biotech GmbH was founded in 2014 and is based at the RTZ in Cologne.

Name	PL BioScience GmbH
Address	Dennewartstraße 25-27
Postal Code/City	52068 Aachen
Fon	+49 241 95719-100
Fax	+49 241 95719-109
E-Mail	info@pl-bioscience.com
Internet	www.pl-bioscience.com
Employees	15
Founded (year)	2015

PL BioScience is an Aachen-based life science company committed to cell expansion in safe conditions. PL BioScience was founded in 2015 as an RWTH Aachen University spin-off. The company's mission is to enhance the advances in cellular research and therapy with one forward-looking Technology: ELAREM™. The ELAREM™ Platform unites tailored cell culture supplements based on Human Platelet Lysate. The human origin combined with a rich growth factor content not only supports cell growth, but also enables various applications: The products comply with the highest safety guidelines for cell expansion, and thus cover all needs for cell expansion in academic research, pre-clinical research, and cellular therapy. This ensures seamless transitions in regenerative medicine – from lab to patients in need.

The better way to DNA – PlasmidFactory is the leading contract manufacturer of plasmid and minicircle DNA and the driving force in the development of non-viral vectors for gene therapy and genetic vaccination. PlasmidFactory's research, development and the complete service are located in Bielefeld, Germany. PlasmidFactory's individual manufacturing service is frequently used by researchers from the fields of transfection and drug delivery, virus production, nano-biotechnology, gene therapy, cell or tumor therapy, and RNA or DNA vaccination. All products are offered in several quality grades: Research Grade and ccc Grade qualities for research purposes and pre-clinical applications, High Quality Grade as starting material for e.g. GMP production of RNA, viral vectors and CAR-T cells. In Stock products e.g. reporter genes and AAV Helper & Packaging vectors are also provided.

Name	PlasmidFactory GmbH
Address	Meisenstr. 96
Postal Code/City	33607 Bielefeld
Fon	+49 521 2997-350
Fax	+49 521 2997-355
E-Mail	info@plasmidfactory.com
Internet	www.plasmidfactory.com
Employees	33
Founded (year)	2000

ProtaGene (PGN) is a world leading CRO and recognized expert in analytical services in protein science and gene therapy products. 25 years of market experience and the comprehensive spectrum of validated analytical methods ensure the highest quality for customers in the phar-maceutical, biotech and life science industry. The company is an excellent partner for the biopharmaceutical industry worldwide to benefit from the most advanced, integrated and complete analytic services capabilities and platforms in biopharmaceutical development, from clone selection through drug approval to commercialization. In working together with their pharmaceutical partners, the PGN teams generate best-in-class analytic data packages and provide scientific, technical and regulatory support to advance, derisk and accelerate all stages of biopharmaceutical development by all-in-one-hand service with complete documentation and outstanding project management to gain market success.

Name	ProtaGene GmbH
Address	Otto-Hahn-Straße 15
Postal Code/City	44227 Dortmund
Fon	+49 231 9742-6100
E-Mail	contact@protagene.com
Internet	www.protagene.com
Employees	220
Founded (year)	1997

Proteona is a biomedical company in Germany, Singapore and the US that is pioneering the use of single cell proteogenomics to improve clinical outcomes in cancer. Using a combination of innovative single cell assays and AI-assisted bioinformatics, Proteona provides a comprehensive sample to answer service that enables users to phenotype cells using standard protein markers and gain a deeper understanding of cell activity based upon their gene expression profiles. Proteona is leading an international alliance to develop neutralizing antibodies against coronaviruses including SARS-CoV-2. In addition, Proteona supports partners developing COVID-19 therapies and vaccines with single cell immune profiling services.

Name	Proteona GmbH
Address	
Postal Code/City	50931 Köln
E-Mail	info@proteona.com
Internet	https://proteona.com
Employees	10-20
Founded (year)	2017

Name	Sartorius Xell GmbH
Address Postal Code/City	Waldweg 21 33758 Schloss Holte-Stukenbrock
Fon	+49 5207 9597-200
Fax	+49 5207 9597-201
E-Mail	info@xell.de
Internet	www.xell.de
Employees	60
Founded (year)	2009

Xell is now part of Sartorius

Sartorius Xell is an innovative partner for the biotech and pharma industry, providing efficient solutions in cell culture technology. Sartorius Xell offers culture media and feeds for all commonly used cell types (CHO, HEK, Hybridoma etc.) and applications (biopharma and viral vector-based production). Our chemically defined products are animal component free and GMP compliant. Reliable analytical services (e.g., amino acids, vitamins, or polyamines) are served for various matrices with unmatched timelines for the biopharma, biotech, and R&D industries. We also offer cell and process services at BSL-1 and BSL-2 labs to optimize production processes. Since 2019, Xell has extended its capabilities for large-scale production of liquid (up to 220,000 L/a) and powder (up to 140,000 kg/a) media and related solutions at its own facility. In July 2021, a new chapter full of opportunities began with the acquisition by Sartorius.

Name	Serengen GmbH
Address Postal Code/City	Emil-Figge-Str. 76a 447227 Dortmund
Fon	+49 231 999 50 901
Fax	+49 231 999 50 999
E-Mail	info@serengen.com
Internet	www.serengen.com
Employees	3
Founded (year)	2019

SERENGEN
Next Generation DELs

Unbiased screening of chemical compounds remains the most valuable approach to identifying hits in drug discovery. However, as it is resource and time intensive, it is currently only used for selected projects in large companies.

Our unique DNA-encoded library (DEL) technology is the fastest and most economical method for hit identification, allowing invaluable serendipity. For the first time, unbiased sampling of chemical space for hit identification becomes affordable for any drug discovery project in any organisation.

Our breakthrough technology removes the existing limitations of DNA-compatible chemistry. Our DELs consist exclusively of biologically relevant, druglike molecules. Consequently, our hits can be fed directly into your drug discovery process without the need for expensive transformation of DEL hits into tractable hits.

Name	Singleron Biotechnologies GmbH
Address Postal Code/City	Gottfried-Hagen-Straße 60 51105 Köln
Fon	+49 221 16824777
E-Mail	info@singleronbio.com
Internet	www.singleronbio.bio
Employees	over 600
Founded (year)	2018

Singleron

Singleron Biotechnologies, an innovative, fast-growing company, is dedicated to applying groundbreaking single cell analyses to clinical research, diagnostics, and drug development. The company was incorporated in January 2018 in China and the US and opened its European branch in Cologne, Germany in early 2021. More than 600 single cell sequencing experts worldwide work together to accelerate research and clinical progress with their advanced and proprietary multi-omics single cell technologies. Their focus on clinical applications addresses the need of researchers to translate the deep insight of diseases into guidance for medical practice.

Singleron offers a one-stop shop solution for high-throughput single cell analysis comprising consumables, instruments and software as well as sequencing services with extensive bioinformatic analysis.

Squarix GmbH is a privately-held primary manufacturer of high purity Discovery Chemicals and Immunoreagents. Since 1992, Squarix produces a broad product line of compounds that include innovative building blocks, reactive intermediates, natural products and derivatives, screening compounds for drug discovery industry and reagents for life science applications comprising antibodies, metabolic intermediates, fluorescent dyes & probes and different affinity matrices for proteins and cells. Moreover, Squarix is a custom producer of polyclonal and monoclonal antibodies for biomedical research and offers all type of immunoanalytical services in the field of antibody technology.

Name	Squarix GmbH
Address	Elbestr. 10
Postal Code/City	45768 Marl
Fon	+49 2365-20400-0
Fax	+49 2365-20400-60
E-Mail	info@squarix.de
Internet	www.squarix.de
Employees	9
Founded (year)	1992

vivo Science is a GLP/GMP certified service company for the pharmaceutical industry (CRO) offering in vivo toxicology studies and is specialized in the testing of immunotoxicity (ICH-S8) and immunogenicity (ICH-S6) of new drug candidates, especially if derived from biotechnology. By merging with the international Texcell Group with subsidiaries in Europe, Asia and North America, vivo Science has expanded its portfolio and now acts as a full service provider in the preclinical testing of biologics, pharmaceuticals, medical devices and chemicals as well as in GMP cell banking and viral safety.

In addition, vivo Science can include immunological tests into standard toxicity studies. vivo Science will provide GLP/GMP compliant, validated study protocols and will assist you in setting up a customized test program for your special requirements.

Name	vivo Science GmbH
Address	Fabrikstr. 3
Postal Code/City	48599 Gronau
Fon	+49 2562 8170-0
Fax	+49 2562 8170-19
E-Mail	info@vivoscience.de
Internet	www.vivoscience.de
Employees	21
Founded (year)	2001

Nanobiotech company having more than 20 years experience in surface derivatisation with bioinert and biofunctional nanocoatings. Manufactures SPR or other biosensor chips, coated slides for protein, cell and DNA based assays. Custom coating of many materials, including glasses, metals and plastic, also for biomedical devices. The hydrogel nanolayers exhibit an excellent haemo- and tissue compatibility and can be derivatized with growth or adhesion factors.

As complement to the biochip product line, XanTec offers SPR biosensors, which allow highly sensitive real-time and label-free detection of biomolecular interactions at the molecular level. These instruments can analyze binding constants / kinetics and allow rapid concentration determination, drug screening, epitope mapping, or adhesion studies with cells or viruses.

Name	XanTec bioanalytics GmbH
Address	Merowingerplatz 1a
Postal Code/City	40225 Düsseldorf
Fon	+49 211 9936-4744
Fax	+49 211 9936-4746
E-Mail	info@xantec.com
Internet	www.xantec.com
Employees	12
Founded (year)	1997

Health and medicine (including animal health)

ABALOS THERAPEUTICS

Abalos Therapeutics has harnessed the unique immune stimulation of the arenavirus to develop a novel anti-cancer approach that provides the full breadth of the immune system's power specifically against cancer cells. Through viral replication within cancer cells, Abalos' arenavirus-based drug candidates are designed to awake precise innate and adaptive immune responses and activate all relevant immune cell types against primary tumors and metastases. Led by experienced biotech entrepreneurs and immunology pioneers, Abalos' goal is to achieve a quantum leap in immuno-oncology.

Name	Abalos Therapeutics GmbH
Address	Merowingerplatz 1 A
Postal Code/City	40225 Düsseldorf
Fon	+49 211 540104-0
E-Mail	info@abalos-tx.com
Internet	www.abalos-tx.com
Employees	15
Founded (year)	2019

AiCuris Anti-infective Cures

AiCuris is focused on the discovery, research and development of novel, resistance breaking antiviral and antibacterial agents for the treatment of severe and potentially life-threatening infectious diseases.
Marketed products:
- Prevymis® (Letermovir), a terminase-inhibitor of the human cytomegalovirus (CMV), was licensed to MSD and is approved (since 2017) in all major markets for the prophylaxis of CMV infections in bone marrow transplant recipients. Global clinical development in additional indications is ongoing.

Projects in development:
- Pritelivir, a helicase-primase inhibitor, to treat recurrent herpes simplex virus
- AIC649, a novel biological immunomodulator targeting Hepatitis B cure
- Artilysin™ project in cooperation with Lysando targeting multi-drug resistant bacteria
- A number of early stage programs in Virology and Bacteriology

Name	AiCuris Anti-infective Cures AG
Address	Friedrich-Ebert-Str. 475
Postal Code/City	42117 Wuppertal
Fon	+49 202 31763-0
E-Mail	info@aicuris.com
Internet	www.aicuris.com
Employees	70
Founded (year)	2006

ALGIAX PHARMACEUTICALS

Algiax Pharmaceuticals is a clinical-stage biotechnology company established in 2011. It is dedicated to the discovery and development of innovative products to treat diseases with a high unmet medical need. Algiax' lead candidate AP-325 is a small-molecule GABAA receptor modulator in clinical development as a therapy for neuropathic pain. The comprehensive Phase I program has been finalized in >100 subjects and showed a good safety and tolerability profile in healthy volunteers. Our phase II clinical trial (CURE Study) is up and running. The objective of this study is to show proof-of-concept in patients with post-operative neuropathic pain. Next to AP-325 Algiax has discovered novel GABAA receptor modulator compounds called Thioacrylamide (ThAc) derivatives. The company is advancing a selection of ThAcs derivatives from its discovery to preclinical characterization.

Name	Algiax Pharmaceuticals GmbH
Address	Mettmanner Str. 25, Geb. 9
Postal Code/City	40699 Erkrath
Fon	+49 211 617851-15
Fax	+49 211 617851-50
E-Mail	info@algiax.com
Internet	www.algiax.com
Employees	6
Founded (year)	2011

Name	arrows biomedical Deutschland GmbH
Address	Heisenbergstraße 11
Postal Code/City	48149 Münster
Fon	+49 251 534064-00
Fax	+49 251 534064-01
E-Mail	raem@arrows-biomedical.com
Internet	www.arrows-biomedical.com
Employees	10
Founded (year)	2005

arrows biomedical Deutschland carries out contract research and clinical routine analyses, and also pursues its own R&D projects. The firm's areas of focus are primarily in the fields of molecular oncology and neurodegenerative disease. Its portfolio of molecular analytics includes RNA/DNA. Services like RNA/DNA isolation, microarrays(GenExpression, Array-CGH, ChIP on chip, DNA-Methylation-Microarrays), PCR (RT-qPCR, Dpca) and bioinformatics. In the area of medical diagnostics, the portfolio includes routine analysis (testing for all clinical relevant biomarkers and the complete range of blood analysis), flow cytometry (NAVIOS), HPLC analysis, diagnostic microarrays, detection of freely circulating tumor cells, and chemosensitive analysis. Furthermore, FISH analysis, general microscopy with the Zeiss axio imager M 2 in combination with the MetaSystemsSoftware and Pyro-, NGS and Sanger sequencing.

Name	attyloid GmbH
Address	Merowingerplatz 1A
Postal Code/City	40225 Düsseldorf
Fon	+49 211 81 10377
E-Mail	info@attyloid.com
Internet	www.attyloid.com
Employees	<10
Founded (year)	2018

attyloid is a biotech spin-off built on strong scientific expertise in protein misfolding and aggregation. We have developed an ultra-sensitive quantitative technology platform with value-adding potential as biomarker of CNS diseases and drug effect assaying, development and QC of biologicals, and counting of viral particles. attyloid is granting access to its proprietary technology as clinical and pre-clinical drug development tool, particularly as biomarker assay for de-risked pharmaceutical drug development. Furthermore, various iterations and custom-made modifications of sFIDA allow the generation of added value in each, and across all, of these R&D work packages.

In this manner, attyloid enables its collaboration partners to generate higher-quality biologicals with increased reproducibility, saving time and costs for the R&D partner.

Name	BioCheck GmbH
Address	Vorbergweg 41
Postal Code/City	48159 Münster
Fon	+49 251 2150-868
E-Mail	office@polycheck.de
Internet	www.polycheck.de
Employees	27
Founded (year)	1999

The Polycheck® Platform Technology was introduced by Biocheck GmbH as a tool for medical in vitro diagnosis of allergies and autoimmune diseases. The solid phase immunoassay technology is a multiparameter test device for serological quantitative screening of disorder-specific immunoglobulins using monoclonal detection antibodies.

Biocheck GmbH offers a broad range of different Polycheck® test panels which can be performed manually or fully automated matching with central Laboratory Information Systems (LIS). Evaluation and calculation is done by picture scanning and by Biocheck Imaging Software.

Biofrontera AG is a biopharmaceutical company specializing in the development and sale of dermatological drugs and medical cosmetics. Biofrontera develops and markets innovative products for the care, protection and treatment of the skin. The company's lead product is the combination of Ameluz®, a topical prescription drug, and medical device BF-RhodoLED® for the photodynamic therapy of certain superficial skin cancers and their precursors. Ameluz® has been marketed in the EU since 2012 and in the US since May 2016. In addition, the company markets the prescription medication Xepi™ for the treatment of impetigo in the United States. In the EU, the company also sells the dermocosmetics series Belixos®, which offers specialized care for damaged or diseased skin. Biofrontera is the first German founder-led pharmaceutical company to receive a centralized European and a US approval for a drug developed in-house. Biofrontera is listed on the Frankfurt Stock Exchange (Prime Standard) and on the US NASDAQ.

Name	Biofrontera AG
Address	Hemmelrather Weg 201
Postal Code/City	51377 Leverkusen
Fon	+49 214 87632-0
Fax	+49 214 87632-90
E-Mail	info@biofrontera.com
Internet	www.biofrontera.com www.biofrontera-us.com
Employees	154
Founded (year)	1997

Black Drop Biodrucker GmbH is a leading bioprinting company focused on 3D-printing of living cells. Bioprinting is a biomedical key technology that has the potential to improve medical patient treatment in multiple ways. Bioprinted tissue analogues, such as skin, liver, or heart muscle patches offer an ideal platform for drug and toxicity screening. In the future bioprinted tissue implants could be used to maintain, restore, or substitute the function of damaged tissues. As experts in 3D-bioprinting we provide our clients with outstanding bioprinting hard- and software, highly biofunctional bioinks, and bioprinted in-vitro models.

Besides our compact 3D-bioprinter series, Black Drop SuperFill, we construct individualized bioprinting systems and develop tailored organ models.

Name	Black Drop Biodrucker GmbH
Address	Gasborn 41
Postal Code/City	52062 Aachen
Fon	+49 173 2618 104
E-Mail	bioprinting@black-drop.de
Internet	www.thebioprinting.com
Employees	10
Founded (year)	2017

Carpegen is a provider of high quality molecular diagnostics. The company focuses on developing real-time PCR assays and point-of-care (POC) diagnostics for the diagnosis of specific infections and the detection of genetic biomarkers. Carpegen has developed Carpegen® Perio Diagnostics, a powerful real-time PCR based system that sets new standards in microbiological periodontal diagnostics. A main objective of Carpegen's research program is to develop and out-license POC/PCR systems for diverse applications in human and veterinary medicine, as well as in food/beverage and environmental analytics. Recently, Carpegen and collaborators received a new grant funding of the German government for the development of rapid molecular diagnostics of common infections in small animals. Since 2020, Carpegen offers sensitive and specific real-time PCR diagnostics for the detection of the coronavirus disease 2019 (COVID-19).

Name	Carpegen GmbH
Address	Mendelstr. 11
Postal Code/City	48149 Münster
Fon	+49 251 980-2320
Fax	+49 251 980-2321
E-Mail	info@carpegen.de
Internet	www.carpegen.de
Employees	10
Founded (year)	2001

Name	CEVEC Pharmaceuticals GmbH
Address	Gottfried-Hagen-Str. 60-62
Postal Code/City	51105 Köln
Fon	+49 221 46020-800
Fax	+49 221 46020-801
E-Mail	info@cevec.com
Internet	www.cevec.com
Founded (year)	2003

CEVEC Pharmaceuticals is a leading provider of high-performance cell technology for the manufacturing of advanced biotherapeutics. With the ELEVECTA® Technology, CEVEC offers a unique solution for large-scale production of AAV vectors using helper virus-free producer cell lines with all necessary components stably integrated into the cell. The technology is based on suspension cells and does not require any expensive transfection reagents or cGMP plasmids. CEVEC's CAP® Technology based on human suspension cells is the ideal production platform for RCA-free Adenoviral vectors, Lentiviral vectors, viral vaccines and exosomes. With the CAP-Go® Technology CEVEC provides a solution for the production of complex recombinant and highly glycosylated protein molecules, including laminins, coagulation factors and plasma proteins.

Name	Cilian AG
Address	Johann-Krane-Weg 42
Postal Code/City	48149 Münster
Fon	+49 251 6203-114
Fax	+49 251 6203-116
E-Mail	info@cilian.de
Internet	www.cilian.de
Employees	29
Founded (year)	2001

Cilian AG is a biotechnology company developing and marketing a novel expression system. The company uses a species of Ciliates, a eukaryotic single-cell organism, for the production of vaccines, monoclonal antibodies and therapeutic enzymes.

Name	Creative Therapeutics GmbH
Address	Am Rohm 86
Postal Code/City	42113 Wuppertal
Fon	+49 178 7272118
E-Mail	zeiler@creative-therapeutics.com
Internet	www.creative-therapeutics.com
Employees	2
Founded (year)	2009

CreativeTherapeutics GmbH (CT) is a privately-held biotechnology company designing innovative, tailored cancer therapeutics causing genomic and metabolic instability resulting in epigenetic changes leading to activation of the immunesystem.

CT offers collaboration to advance its lead asset CT913 through IND enabling studies to pave the way for Phase I in cancer patients.

Currently there are no approved targeted therapies of this type with such a multifaceted mode of action.

Recognizing the science-based chance to realize the vision for a much more selective and well tolerated anticancer principle CT was founded and started to realize its mission.

Cygenia is the first company to provide service on epigenetic biomarkers. Epigenetics is a new area of research that holds great potential for cellular analysis.

We have established biomarkers to characterize cell culture with regard to replicative senescence, pluripotency, cellular composition, or classification of mesenchymal stromal cells. In addition, we provide biomarkers to determine the state of aging in blood samples of mice and men.

We are experts in project design and advice you to find the best suitable biomarker for your project. We address particularly scientists and clinicians.

Name	Cygenia GmbH
Address	Am Alten Kalkwerk 14
Postal Code/City	52078 Aachen
Fon	+49 241 53108060
Fax	+49 241 53108069
E-Mail	w.wagner@cygenia.com
Internet	www.cygenia.com
Founded (year)	2014

Detechgene is diagnostic company that develops mobile, accurate and affordable molecular Point-of-Care tests. Our vision is to provide fast and reliable pathogen detection to anyone, anywhere, without prior knowledge.

Our tests are based on isothermal amplification and can detect all kind of pathogens based on their nucleic acid. The flexibility of the tests allows the analysis of a wide range of sample material and can be used in various medical as well as public and private areas due to the cost-effective preparation.

With its interdisciplinary expertise, Detechgene is able to cover the entire test production from sequence based test development, test tool production up to regulatory affairs. Our test portfolio aims to detect widespread pathogens as well as the detection of rare or seasonal pathogens.

Name	Detechgene GmbH
Address	Vitalisstraße 67
Postal Code/City	50827 Köln
E-Mail	info@detechgene.de
Internet	www.detechgene.de
Employees	<10
Founded (year)	2022

Evotec is a life science company with a unique business model focused on delivering highly effective new therapeutics to the patients. The Company leverages its multimodality platform, the "Data-driven R&D Autobahn to Cures", for proprietary projects and within a network of partners including Pharma, Biotech, academics, and other healthcare stakeholders. Evotec operates worldwide and is headquartered in Hamburg, Germany.

Evotec's Cologne site leverages induced pluripotent stem cell (iPSC) technology for neural and cardiac drug development. This includes bulk production of differentiated cells, assay development and customised services in the context of safety / toxicology studies, *in vitro* disease modelling and drug discovery screening.

Name	Evotec SE - Cologne Site
Address	Nattermannallee 1, Building S20
Postal Code/City	50829 Köln
Fon	+49 221 998818-0
E-Mail	info@evotec.com
Internet	www.evotec.com
Employees	>4,500
Founded (year)	1993

Name	ImmunoQure AG
Address	Königsallee 90
Postal Code/City	40212 Düsseldorf
E-Mail	info@immunoqure.com
Internet	www.immunoqure.com
Founded (year)	2011

ImmunoQure AG is a young biotech company focusing on the research and development of human-derived autoantibodies for the treatment of common human diseases.

Through our unique access to ultra-rare APECED/APS-1 patient populations, we are able to identify patients harboring autoantibodies against naturally occurring self-proteins. The autoantibodies have been optimized by the human immune system for functionality and are outstanding modulators of key proteins involved in e.g., inflammation and autoimmune disorders.

ImmunoQure has established a strategic partnership with Servier Laboratoires, Paris France for the development and commercialization of autoantibodies targeting Interferon-alpha for the treatment of certain human diseases.

Name	InfanDx AG
Address	Nattermannallee 1 Geb. S20
Postal Code/City	50829 Köln
Fon	+49 221 2927-1401
Fax	+49 221 2927-1490
E-Mail	info@infandx.com
Internet	www.infandx.com
Employees	20
Founded (year)	2010

InfanDx AG is a privately held IVD company focusing on the development and commercialization of novel diagnostic solutions designed to support clinicians in the management of acute and critical care conditions in newborns.

The lead product in advanced clinical development: HypoxE® Test for early and reliable identification of Hypoxic-Ischemic Encephalopathy (HIE) in newborns. HIE can result in life-long disabilities which can be mitigated by neuroprotective hypothermia treatment. The HypoxE® Test helps clinicians in the timely decision whether newborns require this burdensome therapy. Beyond the HypoxE® Test, InfanDx is building a pipeline of high-value diagnostic solutions for neonatal acute and critical care.

InfanDx was founded in 2010, is headquartered at BioCampus Cologne, Germany with offices in Berlin, Germany and Boston, USA.

Name	innoVitro GmbH
Address	Artilleriestraße 2
Postal Code/City	52428 Jülich
Fon	+49 2461 3170561
E-Mail	info@innovitro.de
Internet	www.innovitro.de
Employees	4
Founded (year)	2018

innoVitro is a Contract Research Organisation based in Jülich, Germany, with core competences in measurement and analysis of cellular forces - specifically cardiac contraction of human iPSC-derived cardiomyocytes.

innoVitro's FLEXcyte service is an animal-free high throughput tool for cardiac risk assessment of new drug candidates to address preclinical safety, toxicity, and efficacy concerns, but is also engaged for cell culture medium development, isogenic cell line comparison and cell line characterization.

Key feature of the FLEXcyte technology is a hyperelastic silicone membrane that substitutes rigid glass or plastic culture surfaces for the cells in a 96-well high throughput format. Membrane and human iPSC-derived cardiomyocytes form a physiological biohybrid construct that reacts like an adult human heart tissue upon compound treatment, demonstrating unprecedented physiological relevance.

Lead Discovery Center LDC

The Lead Discovery Center GmbH (LDC) was founded in 2008 and is a professional drug discovery company with all required infrastructure, core competencies and disciplines operating in a fully integrated way at highest industrial standards. LDC is working closely together with a broad academic and industrial network, e.g. the Max Planck Society, universities, pharmaceutical companies, and the Technology Transfer Fund KHAN-1.

LDC functions as facilitator to translate basic research results into professional drug discovery projects. LDC is working on a broad portfolio of early stage drug discovery projects. The indications include cancer and metabolic syndromes, neurodegenerative diseases, inflammatory disorders and infections, as well as other conditions with high, unmet clinical needs.

Name	Lead Discovery Center GmbH
Address	Otto-Hahn-Str. 15
Postal Code/City	44227 Dortmund
Fon	+49 231 9742-7000
Fax	+49 231 9742-7039
E-Mail	info@lead-discovery.de
Internet	www.lead-discovery.de
Employees	100
Founded (year)	2008

life&brain

LIFE&BRAIN is a biomedical enterprise serving as commercial hub of the Uni versity of Bonn Medical Center. Integrating a unique set of expertise, we aim at delivering future-oriented services and products for disease-related research and the development of novel therapies with a focus on neurological and neuropsychiatric diseases.

Within our business divisions Cellomics, Genomics and Electrophysiology Services we provide human stem cell-based cell culture systems and services for neurological disease modelling and compound development, genome and gene expression analysis, electro- physiology services to characterize small molecules in target engagement, efficacy and potency in human and rodent models.

Name	Life & Brain GmbH
Address	Venusberg-Campus 1 Gebäude 76
Postal Code/City	53127 Bonn
Fon	+49 228 6885-100
Fax	+49 228 6885-101
E-Mail	info@lifeandbrain.com
Internet	www.lifeandbrain.com
Employees	35
Founded (year)	2002

matricel
ALL IT TAKES TO REGENERATE

Matricel GmbH develops and produces innovative medical class III collagen implants and biomatrices for applications in medicine and biotechnology.

Matricel´s proprietary technologies are the key to successfully produce biocompatible and biodegradable matrices in a wide range of modifications suitable for the cultivation with human cells in tissue engineering and regenerative medicine. The products serve different medical fields like ACI-Maix and Cartimaix for tissue engineering of articular cartilage and other orthopedic applications and Remaix as a dental membrane for guided bone regeneration.

Matricel´s product Optimaix is dedicated for research in 3D cell culture. Matricel has a promising product pipeline in further medical fields like dermal and nerve regeneration with customized scaffolds.

Name	Matricel GmbH
Address	Kaiserstr. 100
Postal Code/City	52134 Herzogenrath
Fon	+49 2407 5644-0
E-Mail	info@matricel.com
Internet	www.matricel.com
Employees	40
Founded (year)	2001

Name	MLM Medical Labs GmbH
Address	Dohrweg 63
Postal Code/City	41066 Mönchengladbach
Fon	+49 2161 4642100
Fax	+49 2161 4642190
E-Mail	info@mlm-labs.com
Internet	www.mlm-labs.com
Employees	150
Founded (year)	1993

MLM Medical Labs is a leading specialty and central laboratory with comprehensive research services and diagnostic capabilities in Europe and North America. Offering standard and fully customizable analytical services across a variety of therapeutic areas, the team of over 150 employees adds value and expertise at every stage of the drug development process, from nonclinical and preclinical through phase IV clinical trials. Over the last three decades MLM has supported over 2000 clinical trials worldwide. Core service areas include central lab services such as safety and biomarker testing in Europe & US, kit building and sample logistics, as well as pharmacology and efficacy studies for preclinical research and histopathology services. All services are complemented by a superior IT infrastructure, global project management and high quality standards.

Name	MukoCell GmbH
Address	Otto-Hahn-Straße 15
Postal Code/City	44227 Dortmund
Fon	+49 231 97 42 63 70
Fax	+49 231 97 42 63 71
E-Mail	info@mukocell.com
Internet	www.mukocell.com
Employees	12
Founded (year)	2013

MukoCell GmbH, a pharmaceutical company with headquarters in Dortmund and Bochum / Germany, has developed an innovative and gentle method for the surgical repair of urethral strictures. Using an autologous cell transplant (Mukocell®), the patient's own cells are used for treating the patient's urological disease. The replacement tissue emerged from the company's own research and development and is the first tissue engineering product in the urology field worldwide that is based on the patient's own cells. Last year, MukoCell GmbH built one of the most modern GMP manufacturing facilities on the university campus in Bochum.

MukoCell is also a contract manufacturer in the field of cell therapy and enables start-up companies to clinically develop products under GMP conditions.

Name	Myriad International GmbH
Address	Nattermannallee 1
	Geb. S19
Postal Code/City	50829 Köln
Fon	+49 221 669561-13
Fax	+49 221 669561-99
E-Mail	info@myriadgenetics.de
Internet	www.myriadgenetics.eu
	www.endopredict.eu
	www.prolaris.com
Employees	26
Founded (year)	2010

Myriad International GmbH in Cologne is part of the Myriad Genetics group of companies, a global leader in molecular diagnostics. We develop and distribute molecular pathological *in-vitro*-diagnostic tests with the aim of improving individual therapy selection for oncological diseases through precise diagnostics.

Our team is highly committed to the development of diagnostic tests, using advanced technologies, to provide patients with personalized medicine and support.

NEUWAY PHARMA

NEUWAY Pharma is developing an entirely novel class of biotherapeutics built around its proprietary Engineered Protein Capsules (EnPC®), which can cross the blood-brain barrier and deliver transformative neuropharmaceuticals for the treatment of disorders of the central nervous system (CNS).

The company aims to be the partner of choice for antibody and mRNA drug developers who need to overcome the current hurdles of delivering these and other drug modalities into the brain and CNS tissue.

Operating as a drug developer and a delivery expert, NEUWAY will demonstrate and exploit the value of its technology through its internal rare disease pipeline for indications with a high unmet medical need as well as partnered programs.

Name	NEUWAY Pharma GmbH
Address	In den Dauen 6A
Postal Code/City	53117 Bonn
Fon	+49 228 522798-0
E-Mail	info@neuway-pharma.com
Internet	www.neuway-pharma.com
Employees	25
Founded (year)	2014

Oncimmune®

Oncimmune, a global leader in immune biomarker discovery and immunodiagnostics is focused on autoantibody biomarker profiling in immuno-oncology, autoimmune and infectious diseases. Through its ImmunoINSIGHTS™ technology platform, the company provides key insights to discover and validate novel biomarkers, improve treatment responses and adverse event (irAE) prediction, patient screening and diagnostic accuracy. Oncimmune is headquartered in the UK with operations in UK, Germany and USA.

Name	Oncimmune Germany GmbH
Address	Otto-Hahn-Str. 15
Postal Code/City	44227 Dortmund
Fon	+49 231 9742-6300
Fax	+49 231 9742-6301
E-Mail	info.do@oncimmune.com
Internet	www.oncimmune.com
Founded (year)	1997

PAION

PAION AG is a publicly listed specialty pharmaceutical with innovative drugs. PAION's lead compound is remimazolam, a sedative/anesthetic.

In addition, PAION markets two intensive care products in selected European countries. Angiotensin II (GIAPREZA®), a vasoconstrictor indicated for the treatment of refractory hypotension in adults with septic or other distributive shock, and eravacycline (XERAVA®), a novel fluorocycline antibiotic indicated for the treatment of complicated intra-abdominal infections in adults.

PAION's mission is to be a leading specialty pharmaceutical company in the fields of anesthesia and critical care by bringing novel products to market to benefit patients, doctors and other stakeholders in healthcare.

Name	Paion AG
Address	Heussstr. 25
Postal Code/City	52078 Aachen
Fon	+49 241 4453-152
Fax	+49 241 4453-523
E-Mail	info@paion.com
Internet	www.paion.com
Employees	50
Founded (year)	2000

Name	Priavoid GmbH
Address	Merowingerplatz 1a
Postal Code/City	40225 Düsseldorf
Fon	+49 211 942 522 98
Fax	+49 211 942 522 99
E-Mail	info@priavoid.com
Internet	www.priavoid.com
Employees	14
Founded (year)	2017

Priavoid is developing disease-modifying therapies for patients with severe neurological disorders like Alzheimer's dementia (AD).

The proprietary development candidates are based exclusively on D-enantiomeric amino acids (D-peptides) and therefore suitable for oral drug administration as capsules or tablets. Priavoid's most advanced compound PRI-002 for the treatment of AD acts via a novel mechanism of action. Aβ peptides play a crucial role in AD. Aβ monomers can assemble to form toxic oligomers that replicate in a prion-like manner. PRI-002 is the first drug substance that acts as an anti-prionic in animals and is safe in humans.

The new mechanistic principle of direct dissolution of toxic oligomers can be applied to other neurodegenerative diseases. Priavoid advances several programs at different stages of pharmaceutical development.

Name	QIAGEN GmbH
Address	Qiagen Str. 1
Postal Code/City	40724 Hilden
Fon	+49 2103 29-0
Fax	+49 2103 29-22000
E-Mail	pr@qiagen.com
Internet	www.qiagen.com
Employees	6,100 worldwide
Founded (year)	1984

QIAGEN is the leading global provider of Sample to Insight solutions that enable customers to gain valuable molecular insights from samples containing the building blocks of life. Our sample technologies isolate and process DNA, RNA, and proteins from blood, tissue and other materials. Assay technologies make these biomolecules visible and ready for analysis. Bioinformatics software and knowledge bases interpret data to report relevant, actionable insights. Automation solutions tie these together in seamless and cost-effective workflows.

QIAGEN provides solutions to more than 500,000 customers around the world in Molecular Diagnostics (human healthcare) and Life Sciences (academia, pharma R&D and industrial applications, primarily forensics). Further information can be found at http://www.qiagen.com.

Name	QITHERA GmbH
Address	Talstraße 14
Postal Code/City	52525 Heinsberg
E-Mail	info@qithera.com
Internet	www.qithera.com
Founded (year)	2012

Qithera, Germany, is a "Business Angel Boost" that was founded by Prof. Edgar Dahl (RWTH Aachen University) together with experienced biotech experts of the BIO.NRW network.

The company is developing innovative drugs to suppress tumor progression and metastasis with the goal to improve survival of cancer patients. Qithera's R&D is based on new molecular findings from RWTH research and is implemented in close collaboration with the Hospital of RWTH Aachen University.

By addressing internally validated target molecules that are known to abrogate aggressive characteristics of cancer (stem) cells, Qithera is currently characterizing pharmacologically active compounds that suppress tumor spreading. The first indication of choice is a clinical important subset of bladder cancer whose disease management has been stagnant for decades.

Based on the leading proteasome expertise of Nobel laureate and company co-founder Prof. Robert Huber and collaboration between the Lead Discovery Center GmbH, Max Planck Society and Qurient Co. Ltd. QLi5 has established a versatile platform for the design of proteasome inhibitors with outstanding selectivity, unique non-covalent binding characteristics and favourable pharmacodynamic properties for multiple indications. A successful Series A financing secures promoting the pipeline into the clinics.

Name	QLi5 Therapeutics GmbH
Address	Otto-Hahn-Straße 15
Postal Code/City	44227 Dortmund
Fon	+49 231 9742 7000
E-Mail	huber@qli5tx.com
Internet	www.qli5tx.com
Founded (year)	2020

SOLUVENTIS
NANOTHERAPEUTICS

The Soluventis-platform is a powerful drug delivery system, an entirely new type of Nanocarrier characterized by high efficacy and a good safety profile.

The Soluventis Nanocarrier shields transported siRNA or other oligonucleotides from blood and immune system and reaches reliably target organs including poorly vascularized tumor tissue. The active substance is loaded into the liver and into tumors in comparable concentrations.

The targeting of metastases is excellent. The frozen ready-to-use Nanocarrier has a long shelf life in ampoules whereas in the organism it is completely eliminated within two days.

Soluventis has a portfolio of oncologic siRNAs and has experience with different drug candidates of customers. This novel drug delivery system opens the door to therapeutic oligonucleotides and we are facing the first clinical studies.

Name	Soluventis Nanotherapeutics GmbH
Address	Universitätsstrasse 136
Postal Code/City	44799 Bochum
Fon	+49 234 32 29125
Fax	+49 234 32 14191
E-Mail	soeren.schreiber@soluventis.de
Internet	www.soluventis.com
Founded (year)	2018

syntab
therapeutics

Syntab Therapeutics is committed to the exploration und development of innovative drugs against severe diseases such as cancer. Syntab's Immune System Engagers (ISErs) exhibit all desirable properties of conventional antibodies while, at the same time, being significantly smaller, chemically accessible molecules.

The company strives for the early outlicensing of product candidates. Syntab's platform technology enables the chemical synthesis of highly effective drugs for immuno-oncology. The flexibility of the technology is based on the application of highly specific binders against cell surface proteins. Furthermore, the technology has the potential to vary the number and specific properties of binders and effectors within the ISEr molecules. The effector part activates the patients' immune system with strong efficacy.

Name	Syntab Therapeutics GmbH
Address	St.-Jobser-Straße 56
Postal Code/City	52146 Würselen
Fon	+49 2405 40 999 50
E-Mail	info@syntab-therapeutics.com
Internet	www.syntab-therapeutics.com
Founded (year)	2010

Name	Tranquil Immune GmbH
Address	c/o Life Science Inkubator GmbH In den Dauen 6a
Postal Code/City	53117 Bonn
Fon	+49 172 2975497
E-Mail	hennes@tranquil-immune.com
Internet	https://tranquil-immune.com
Employees	<10
Founded (year)	2022

TRANQUIL IMMUNE

Tranquil Immune's mission is to provide the first immediate therapeutic and causal intervention for relapses of autoimmune diseases such as multiple sclerosis (MS) and Crohn's disease by suppressing pathogenic T-cell activation based on Dr. Thomas Harder's *in vitro* T-cell silencer modeling experiments.

Tranquil Immune is supported by the Life Science Incubator (LSI) in Bonn, represented by Dr. Jörg Fregien, which has been accompanying life science ideas in their development to financing and market maturity since 2008. Tranquil Immune operates its laboratories at the Gründer- und Technologiezentrum Rheinbach and in cooperation with the Bonn Rhein-Sieg University of Applied Sciences (Prof. Dr. Martin Sieber).

Name	Transimmune AG
Address	Königsallee 90
Postal Code/City	40212 Düsseldorf
Fon	+49 211 6413 6110
Fax	+49 211 8693 1614
E-Mail	info@transimmune.de
Internet	www.transimmune.com
Founded (year)	2012

TRANSIMMUNE

Transimmune AG is developing novel immunotherapies based on its unique understanding of the physiologic processes underlying the activation of antigen presenting cells. This understanding derives from nearly 30 years of research into the mechanism of action behind Extracorporeal Photopheresis (ECP), arguably the first FDA-approved cellular immunotherapy. ECP is a highly successful immunological treatment used for many years, mainly in cutaneous T cell lymphoma (CTCL), graft versus host disease (GVHD) and organ transplant rejection. Transimmune has created two core technologies; Transimmunization and Transtolerization. These involve protocols for manipulating the immune system that have been reduced to practice through our mouse-to-man development platform, generating compelling preclinical proof-of-concept data. These technologies have the potential to significantly enhance current ECP practice as well as drive its application more broadly into numerous other indications.

Name	UGISense AG
Address	Otto-Hahn-Straße 15
Postal Code/City	44227 Dortmund
Fon	+49 231 97427063
E-Mail	contact@ugisense.com
Internet	www.ugisense.com
Employees	2
Founded (year)	2016

UGISense

UGISense AG is a biotech company developing Ugimers™, a new type of PNA-based antisense drugs.

Based on a strong IP protection, Ugimers™ solve the challenging problems that antisense products have faced: delivery, stability and toxicity. In addition, the chemical structure also allows a rational design with regard to modifications, e.g. amphiphilic- and customizable PK-properties and the addition to homing tags/peptides. Through these capacities, Ugimers™ can address the specific requirements of envisaged targets.

UGISense places its main focus on oncology, planning the in-house development into clinical stages in this area, but has also established projects in the field of metabolic diseases, muscular dystrophies and peripheral neuropathies.

X-ZELL is an award-winning medical technology start-up specialising in next-generation cytology.

Designed to slot seamlessly into clinical routine, X-ZELL's patented Cryoimmunostaining™ technology fuses multi-channel immunostaining with digital imaging to provide an efficient, highly scalable alternative to conventional immunohistochemical (IHC) staining.

Reimbursable in Germany under EBM and GoÄ, it does not require complex specimen preparation such as cytoblocking and introduces a new, digital evaluation system to reduce the average time from sample to diagnosis from 48h to less than 4h.

X-ZELL is headquartered in Singapore and has regional offices in Germany (Europe), Thailand (Southeast Asia) and the US (North America).

Name	X-ZELL Biotech GmbH
Address	Bielefelder Str. 62
Postal Code/City	57368 Lennestadt
E-Mail	info@x-zell.com
Internet	www.x-zell.com
Employees	24
Founded (year)	2014

Industrial biotechnology

b.fab turns CO_2 into value-added products. We are specialized in C1 Bioeconomy and use CO_2 as our feedstock. In a first step, we efficiently convert CO_2 into formate with an electrolyzer. In a second step, formate is used in a bioprocess which converts formate into value-added chemicals, feed proteins and biofuels. We apply Synthetic Biology to engineer microbial cell factories for production of specific products. Our technology platform is built on anaerobic and aerobic microbial cells to provide flexibility in the process design and adaptation to specific product requirements. b.fab offers pathway design, strain engineering, process development and technology licenses to its customers from the chemical, cosmetic, feed and energy industry. b.fab is strongly dedicated to establish the C1 Bioeconomy in the coming years.

Name	b.fab GmbH
Address	Gottfried-Hagen-Straße 60
Postal Code/City	51105 Köln
Fon	+49-221-56092741
E-Mail	info@bfab.bio
Internet	www.bfab.bio
Employees	5
Founded (year)	2018

bitop

Extremolytes for life

bitop is a global market leader and expert in the biotechnological production and development of extremolytes.

Extremolytes are natural molecules, which protect biological structures. They are found inside of extremophilic plants and microorganisms. Protected by extremolytes, these fascinating living beings can thrive in the harshest habitats one can imagine: salt lakes, deserts, hot springs, the arctic ice or deep sea.

With 30 years of experience and passion in biotechnological manufacturing of 100% natural extremolytes, bitop is a reliable supplier for the pharma, consumer healthcare, cosmetics and life science indus- try. Furthermore we develop unique, extremolyte-based OTC medical devices for various applications and indications including allergy, dry eye, woman's health, dermatology, or airway diseases.

Name	bitop AG
Address	Carlo-Schmid-Allee 5
Postal Code/City	44263 Dortmund
Fon	+49 231 98 77 44-0
Fax	+49 231 98 77 44-10
E-Mail	info@bitop.de
Internet	www.bitop.de
Employees	70
Founded (year)	1993

BSV BioScience GmbH

BSV BioScience GmbH was founded in Oct. 2007 in Baesweiler, near the historical city of Aachen. Since June 2010, the company manufactures and markets biological pharmaceutical active ingredients for different therapeutic areas.

One of our key strengths is based on the production of fertility hormones, being supplied either as API or finished injectables, in co-operation with an also GMP approved German license manufacturer. Our main products are:

- Human Chorionic Gonadotrophin (HCG),
- Human Menopausal Gonadotrophin (HMG),
- Follicle Stimulating Hormone (FSH),
- Urokinase (UK), Streptokinase and Ulinastatin (UTI).

BSV BioScience GmbH is focused on different R&D activities, continuously pursuing improvements in the field of API´s and finished dosage forms.

Name	BSV Bioscience GmbH
Address	Max-Planck-Strasse 12
Postal Code/City	52499 Baesweiler
Fon	+49 2401 8047-10
Fax	+49 2401 8047-198
E-Mail	office@bsvbio.de
Internet	www.bsvbio.de
Employees	40
Founded (year)	2007

Name	Cysal GmbH
Address	Mendelstraße 11
Postal Code/City	48149 Münster
Fon	+49 251 980 2490
Fax	+49 251 980 2499
E-Mail	info@cysal.de
Internet	www.cysal.de
Employees	5
Founded (year)	2012

The innovative biotechnology company Cysal GmbH was founded as a spin-out of the University of Münster, Germany.

Cysal focuses on the production of novel biomaterials in the area of biopolymers, peptides, amino acids, and dipeptides on an industrial scale at unprecedented low-cost, and also develops application fields for these biomaterials to serve humans and animals. Cysal's business strategy aims at out-licensing its technology platform to interested companies and/or offering its raw materials for incorporation into consumer products for various markets.

The main target markets are those for energy food additives and sport nutrition, cosmetics and skin care, dental hygiene, clinical nutrition, immunomodulation, impotence and infertility, as well as in the area of animal feed production, especially for aquaculture.

Name	Enzymaster Deutschland GmbH
Address	Neusser Str. 39
Postal Code/City	40219 Düsseldorf
Fon	+49 211 15821610
Fax	+49 211 15821612
E-Mail	info@enzymaster.de
Internet	www.enzymaster.de
Employees	6
Founded (year)	2018

Enzymaster provides a one-stop solution for the development and commercialization of innovative and sustainable enzyme catalysis technologies. With our proprietary BioEngine® platform and long-term experience, we offer R&D services combined with establishment of complete technology transfer packages, and manufacturing collaborations to fine chemical, pharmaceutical, and other industries. Our portfolio includes enzyme panel screening, smart enzyme engineering, process development, enzyme preparation by fermentation, and biocatalytic manufacturing.

Enzymaster Deutschland GmbH, a subsidiary of Enzymaster (Ningbo) Bio-Engineering Co. Ltd., represents your partner in the international market for enzyme applications and products manufactured by biocatalytic processes. Green Magic Happens Here!

Name	evoxx technologies GmbH
Address	Alfred-Nobel-Str. 10
Postal Code/City	40789 Monheim am Rhein
Fon	+49 2173 4099 40
Fax	+49 2173 4099 440
E-Mail	contact@evoxx.com
Internet	www.evoxx.com
Employees	25
Founded (year)	2006

evoxx technologies GmbH, a German Industrial Biotechnology Company, is focusing on the development and production of industrial enzymes. As European subsidiary of the global enzyme manufacturer Advanced Enzymes Technologies Ltd. a comprehensive product portfolio of enzymatic solutions for human nutrition, animal nutrition, bio-processing and pharma industries is offered. Product development is based on the proprietary technology platform covering the whole value chain from early enzyme and process development to industrial scale production and product deregulation.

evoxx industrial partners and customers benefit from the unique metagenomics libraries, the enzyme development skills and tech-transfer and production capabilities. evoxx is located on the Creative Campus in Monheim am Rhein.

GEN-IAL GmbH is a specialist laboratory for DNA based food and feed analyses. GEN-IAL offers services and kits for GMO-, allergene- and animal identity analyses as well as bacteria- and yeast detection and differentiation. We offer training in PCR, contract research, several kits for DNA-extraction, PCR-kits for beer/wine spoilage bacteria and yeast, pathogenes, genetically modified organism (GMO), allergenes, plant and animal-identity. The laboratory is accredited (DIN EN ISO/IEC 17025) and official cross checking laboratory. We are member in the German official working group for method development for GMO detection and quantification. We are an approved laboratory for the German VLOG (Verband Lebensmittel ohne Gentechnik e.V.) for GMO-free labeling.

New: Capturing of microorganism by polymer technology.

Name	GEN-IAL GmbH
Address	Heuserweg 13-15
Postal Code/City	53842 Troisdorf
Fon	+49 2241 252-2980
Fax	+49 2241 252-2989
E-Mail	info@gen-ial.de
Internet	www.gen-ial.de
Employees	10
Founded (year)	1998

multiBIND develops innovative disinfection and decontamination solutions for research and healthcare. Core technology are two patent pending solution systems to generate new disinfectants and decontamination agents with high antimicrobial activity efficacy especially against all viruses including coronavirus. Currently bioDECONT® is the only agent that in addition to the effective killing of microorganisms also accomplishes safe and complete elimination of genetic material (DNA/RNA) to avoid cross-contaminations in PCR analysis and DNA testing. Besides its high antimicrobial activity and decontamination properties, bioDECONT® is nontoxic for humans, non-corrosive and free of alcohols or other hazardous chemicals. multiBIND pursues a partnering strategy and respective products are on the markets of the EU, USA and China.

Name	multiBIND biotec GmbH
Address	Gottfried-Hagen-Str. 60-62
Postal Code/City	51105 Köln
Fon	+49 221 2780-211
Fax	+49 221 2780-213
E-Mail	info@multibind.de
Internet	www.multibind.de
Employees	3
Founded (year)	2005

Numaferm revolutionizes the world of biomanufacturing. With the high-titer peptide and protein (so-called "peptein") production platform Numatech™, we overcome existing challenges: long development times, high development costs and low product purities. As a service provider (CRO/CDMO), we support our partners from the discovery to commercial supply in the multi-ton scale. This enables innovations – in time, at highest quality and competitive costs. Our mission is to unlock the power of peptides and proteins and be market-standard for a broad range of industries - in a sustainable way. Numaferm is a VC backed company located in Duesseldorf, Germany, with a facility of 600m² and a team of 30 experts.

Name	NUMAFERM GmbH
Address	Merowingerplatz 1a
Postal Code/City	40225 Düsseldorf
Fon	+49 211 975 32900
E-Mail	info@numaferm.com
Internet	www.numaferm.com
Employees	30
Founded (year)	2017

Name	OligoScience Biotechnology GmbH
Address	Siemensstraße 42
Postal Code/City	59199 Bönen
Fon	+49 2383 919-293
E-Mail	info@oligoscience.de
Internet	www.oligoscience.de
Employees	11
Founded (year)	2017

OligoScience Biotechnology - Healthy Life Inspired by Nature

OligoScience Biotechnology GmbH was founded in 2017 with the vision to improve the health of humans and animals by producing human milk oligosaccharides (HMOs) which support the immune system and a healthy intestinal flora. Based on innovative and proprietary technologies, OligoScience aims to become one of the world's leading providers of functional HMOs with strategic partners. The business goal is, thus, the development of efficient production processes for specific HMOs in a large scale with appropriate cost for the use as bioactive, functional natural products.

Name	Phytowelt GreenTechnologies GmbH
Address	Kölsumer Weg 33
Postal Code/City	41334 Nettetal
Fon	+49 221 669 639-03
Fax	+49 221 669 578-361
E-Mail	contact@phytowelt.com
Internet	www.phytowelt.com
Employees	30
Founded (year)	1998

Phytowelt operates industrial plant biotechnology to help unleashing the potential of plants. It is a leading provider for the identification and expression of genes encoding plant enzymes. These enzymes offer new possibilities for industrial fermentation, targeting fatty acids, terpenoids and plant P450 enzymes. Additionally, Phytowelt offers solutions in plant breeding to improve plants by protoplast fusion, genome editing and double haploid production. Like this for example biomass and secondary metabolite production can be optimized.

A big poplar collection for biomass production combined with a unique fermentation process for terpenes in E.coli, especially carotenoids, is a big success factor and USP for Phytowelt. The raspberry flavour, R-Alpha-Ionone is Phytowelt`s first fermentatively produced product and on the market available product.

Name	SenseUP GmbH
Address	Campus Forschungszentrum
Postal Code/City	52428 Jülich
Fon	+49 2461 615529
E-Mail	info@senseup.de
Internet	www.senseup-biotech.com
Employees	14
Founded (year)	2015

Using their novel natural evolution technology, SenseUp has developed powerful and universal production platforms for proteins and peptides, as well as RNA. These platforms are quickly adaptable to a huge number of individual products for different applications and markets, such as pharma, food, and crop science.

We have now started developing a range of innovative RNA products based on microbial fermentation using SenseUP's patented *Corynebacterium* and natural evolution technology and addressing animal health and crop protection. The aim is to develop sustainable and effective commercial products that are ready for industrial-scale production at low cost and can be launched in the years to come in cooperation with strategic industrial partners.

Senzyme GmbH develops and produces technical enzymes and functional feed materials for the bioenergy and animal nutrition markets.

The production process is based on solid-state-fermentation using filamentous fungi, where the company has a many years experience and substantial Know How.

Name	Senzyme GmbH
Address	Gierlichsstr. 6
Postal Code/City	53840 Troisdorf
Fon	+49 2241 9715-2000
Fax	+49 2241 9715-2499
E-Mail	info@senzyme.de
Internet	www.senzyme.de
Employees	42
Founded (year)	2000

SeSaM-Biotech is dedicated to the directed evolution of enzymes. With our comprehensive KnowVolution strategy we help companies from biotech and pharma with their enzyme developments. We provide the best combination of top-of-the-line mutagenesis technologies and rational design by computational modelling and simulation to successfully increase your enzyme's performance.

SeSaM-Biotech tunes enzyme properties like activity, thermal resilience, protease resistance, solvent/pH stability, and substrate/product inhibition. The track record of 10 years of successful protein engineering includes enzymes of all classes for the biotechnological sectors pharma, chemistry, cosmetics, flavors, nutrients, feed, laundry, food/beverages, biofuel, textiles and paper.

Name	SeSaM-Biotech GmbH
Address	Forckenbeckstraße 50
Postal Code/City	52074 Aachen
Fon	+49 241 93856979
E-Mail	info@sesam-biotech.com
Internet	www.sesam-biotech.com
Founded (year)	2008

Agrobiotechnology

It is estimated that plant pathogens are responsible of world-wide losses in the range of billions of euros per year. Therefore, there is a strong need to provide effective, broad range and environmentally friendly approaches to ensure protection of plants-from pathogens. We developed a platform based on antibody fusions which ensures plant protection from fungal and bacterial infections. This alternative approach for controlling plant pathogens and parasites aims at minimising the costs for cultivation of crops thereby reducing the toxic effects of pesticides and toxins for human beings.

AgroProtect GmbH offers its technology know-how and the generation of pathogen resistant plants.

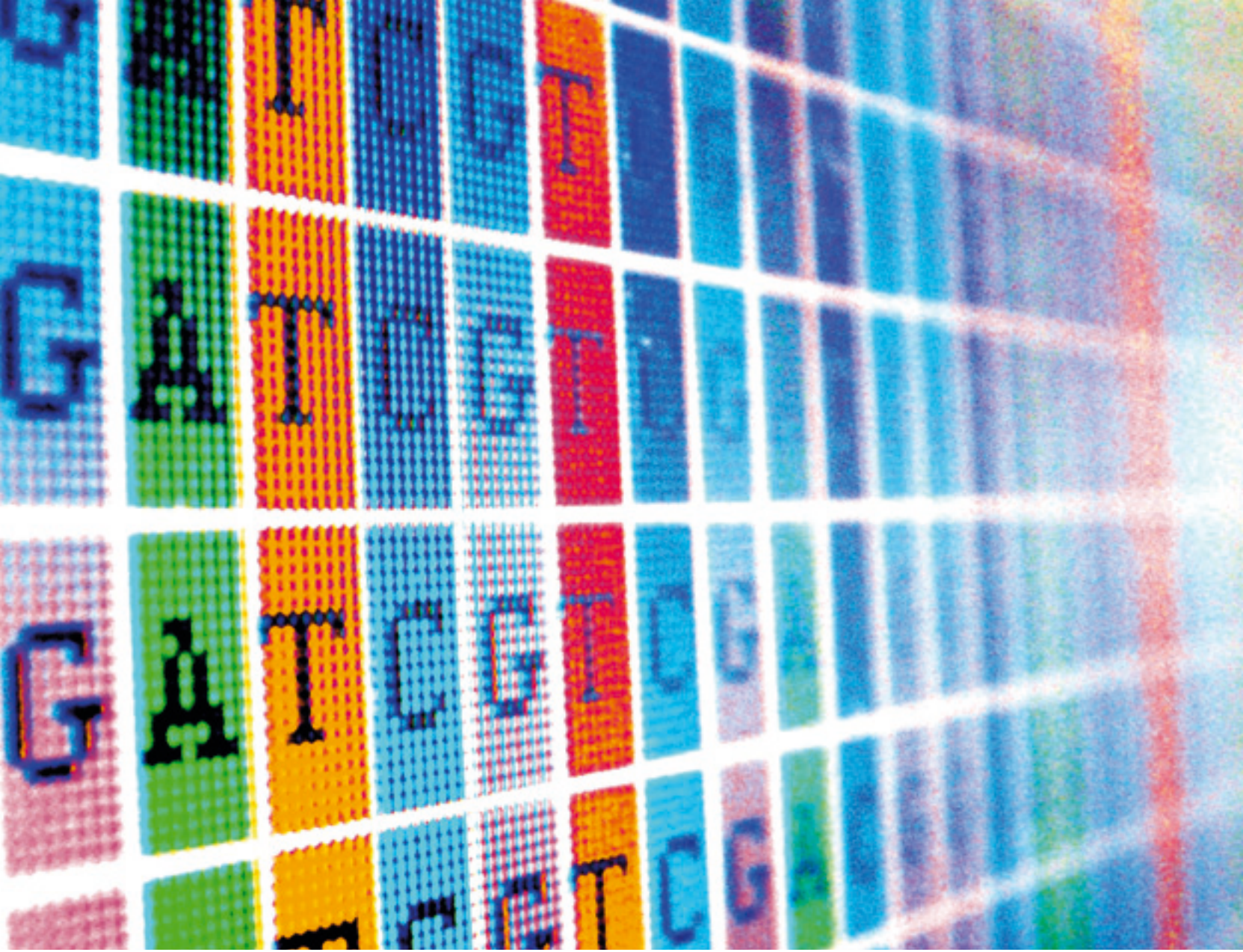
Name	AgroProtect GmbH
Address	Pfarrer-Holzberg-Straße 20
Postal Code/City	52511 Geilenkirchen
Fon	+49 2451 914 8783
Fax	+49 2451 914 8784
E-Mail	info@agroprotect.de
Internet	www.agroprotect.de
Founded (year)	2010

BexBioTec is engaged in plant-system-diagnostics. Our unique laboratory test system evaluates the effects of various plant treatments, such as biostimulants. Plant performance is influenced by versatile parameters. In our test setup we control these parameters and evaluate their influence on growth, yield fruit quality and stress tolerance (abiotic and/or biotic). We offer classic plant growth assays combined with new bioanalytical technologies, in order to unterstand what happens in the plant. Thus, we provide data in exceptionally short time helping you to identify interesting candidate substances for further studies, new projects and to accelerate the market entry of new products.

Name	Bex-Biotec GmbH&Co.KG
Address	Siemensstr. 42
Postal Code/City	59199 Bönen
Fon	+49 2383 919270
E-Mail	info@bex-biotec.com
Internet	www.bex-biotec.com
Employees	7
Founded (year)	2018

Saaten-Union Biotec offers services and contract research in the field of plant breeding. The development of new varieties of cereals, rapeseed and other crops is strongly build upon innovation. Application of tissue culture technologies (doubled haploids, embryo rescue) and molecular marker applications are routinely used in a wide range of crops and for a significant number of breeding traits. Saaten-Union Biotec takes part in various scientific research and development projects to follow the latest scientific developments and to constantly optimize our service.

Name	Saaten-Union BIOTEC GmbH
Address	Hovedisser Str. 94
Postal Code/City	33818 Leopoldshöhe
Fon	+49 5208 95971-0
Fax	+49 5208 95971-96
E-Mail	service@saaten-union-biotec.de
Internet	www.saaten-union-biotec.de
Employees	80
Founded (year)	1984



Bioinformatics

BioSolveIT visualizes drug discovery. Our fast and easy-to-use software enables every chemist to advance their research. Perceptive visualization helps you to understand computational results at a glance. We believe in full transparency, and all the science behind our software is published.

Our trusted platforms SeeSAR and infiniSee support you in structure-based and ligand-based drug discovery and inspire you with new, vivid ideas. We are passionate about the needs of our customers and live this through the discovery services we offer. Working together with users in this way helps us to stay at the forefront of current research, addressing the questions that chemists are interested in right now. We aspire to develop software that is indispensable to drug discovery and, more importantly, software that is a pleasure to use every day.

Name	BioSolveIT GmbH
Address	An der Ziegelei 79
Postal Code/City	53757 Sankt Augustin
Fon	+49 2241 25250
Fax	+49 2241 25255-25
E-Mail	contact@biosolveit.de
Internet	www.biosolveit.de
Employees	25
Founded (year)	2001

In order to successfully treat the infected patient, you have to recognise and diagnose most reliably the infecting microbe.

Noscendo GmbH, a Duisburg (Germany) based molecular diagnostics company, changes the way infection causative microbes are identified. Introducing a paradigm shift using proprietary algorithms and software harnessing next generation sequencing of cell free nucleic acids isolated from patient samples Noscendo brings the concept of liquid biopsy into the field of infectious diseases.

Noscendo's software solution is capable of differentiating infection from non-infectious signals and thereby aiding intensive care clinicians in their daily task to find the right decisions, enabling a targeted and successful treatment in an actionable timeframe.

Name	Noscendo GmbH
Address	Königstr. 34
Postal Code/City	47198 Duisburg
Fon	+49 2066 50687 80
E-Mail	info@noscendo.com
Internet	www.noscendo.com
Employees	<10
Founded (year)	2017

Resolve Biosciences is applying the power of Molecular Cartography™ to enable scientists to gain new insights based on the highest-resolution view of spatial biology. The platform features the company's proprietary single-molecule detection technology, which offers three-dimensional spatial context at subcellular resolution in a fully automated workflow that preserves the sample tissue. The Molecular Cartography technology delivers unparalleled sensitivity and specificity that helps researchers detect individual transcripts and rare signals to interpret fundamental biology and rapidly advance the understanding of complex biological questions in critical fields such as oncology, neuroscience, infectious disease, and agriculture. Resolve Biosciences is based in Monheim am Rhein, Germany, with a North American laboratory in the United States.

Name	Resolve BioSciences GmbH
Address	Creative Campus Monheim,
Postal Code/City	Gebäude A03 Alfred-Nobel-Str. 10 40789 Monheim am Rhein
Fon	+49 2173 2975-200
E-Mail	info@resolvebiosciences.com
Internet	www.resolvebiosciences.com
Employees	80
Founded (year)	2020

Name	Ridom GmbH
Address	Mendelstr. 11
Postal Code/City	48149 Münster
Fon	+49 251 490931-50
Fax	+49 251 490931-51
E-Mail	info@ridom.de
Internet	www.ridom.de
Employees	4
Founded (year)	2003

The Ridom GmbH (Münster, Germany) was founded January 2003. The company develops software for DNA re-sequencing analysis for physicians and epidemiologists on routine basis. The company has in the meantime by its software products a well-recognized name in the field of sequence based microbial typing; e.g., every European National Health System Authority (e.g., RKI, RIVM, HPA, Serum Statens) has bought in the last 10 years and is using since then at least one software product from Ridom. Ridom has pioneered typing efforts with a software tool for Staphylococcus aureus. The company has developed and maintains the worldwide largest sequence-based microbial typing database (Ridom SpaServer). The SPA typing software Ridom StaphType is currently used by approximately 400 users in 36 different countries worldwide. The new Ridom SeqSphere+ software provides a bacterial typing solution for any bacteria, any study type, any lab.

PHASELLUS NEC VESTIBULUM LEO.
IN HAC HABITASSE PLATEA DICTUMST. SED EFFICITUR DUI IN EX AUCTOR TINCIDUNT AC QUIS ANTE. UT ACCUMSAN TELLUS NON PURUS FEUGIAT PHARETRA. CRAS VEL DAPIBUS EROS. SED EGET GRAVIDA LECTUS. SED SEMPER MAURIS NEC ODIO FINIBUS FACILISIS. PELLENTESQUE SEMPER LOREM LOREM, AC TEMPUS RETUS VOLUTPAT EGET. PROIN POSUERE POSUERE COMMODO. VIVAMUS ORCI NULLA, VULPUTATE VITAE ULTRICIES QUIS, EGESTAS

Other biotechnologically active companies

Bayer is a global enterprise with core competencies in the life science fields of health care and nutrition. Its products and services are designed to benefit people by supporting efforts to overcome the major challenges presented by a growing and aging global population. At the same time, the Group aims to increase its earning power and create value through innovation and growth. Bayer is committed to the principles of sustainable development, and the Bayer brand stands for trust, reliability and quality throughout the world.

In fiscal 2020, the Group employed around 100,000 people and had sales of 41.4 billion euros. Capital expenditures amounted to 3.138 billion euros, R&D expenses to 4.884 billion euros. For more information, go to www.bayer.com.

Name	Bayer AG
Address	Kaiser-Wilhelm-Allee 1
Postal Code/City	51368 Leverkusen
Fon	+49 214 30-1
Internet	www.bayer.com
Employees	100,000

CELLEX – YOUR PARTNER FOR CLINICAL AND COMMERCIAL SUPPORT
Cellex offers a full portfolio of services around Cell and Gene Therapy for research, clinical and commercial use. Our company has experience in providing most different starting materials, GMP manufacturing of autologous and allogeneic cell types, for instance for CAR-T technologies.

Cellex apheresis centers have all techniques for collection of different cell products from healthy donors for clinical use, research or commercial purposes; moreover autologous collections can be performed. Cellex runs its own data base “Cell Community” with many different types of donors willing to support research. In our state-of-the-art GMP-facility, cellular subsets can be separated, genetically modified, analyzed and frozen.

Name	Cellex Cell Professionals GmbH
Address	Melli-Beese-Straße 9-11
Postal Code/City	50829 Köln
E-Mail	businessdevelopment@cellex.me
Internet	www.cellex.me
Employees	153
Founded (year)	2001 Dresden 2009 Köln

Deutsche Saatveredelung AG is an international plant breeding company with headquarters in Germany. The main focus is on research and development in breeding and seed production for different crop plant species.

Our major products include rapeseed, wheat, barley, corn/maize, pasture and turf grasses, and different intercrop species. Breeding is run on nine breeding stations in Europe and two in Canada. We are dedicated to our purpose: Innovation for your growth. Seed of new varieties is produced and processed mostly in Europe and sold world-wide.

In the framework of several cooperations in breeding, production, marketing and sales DSV is partner of several competitive enterprises on the national and international level. Presently, DSV Group employs around 600 people and has a turnover of around EUR 200 million.

Name	Deutsche Saatveredelung AG (DSV)
Address	Weissenburger Straße 5
Postal Code/City	59557 Lippstadt
Fon	+49 2941 296-0
Fax	+49 2941 296-100
E-Mail	info@dsv-saaten.de
Internet	www.dsv-seeds.com
Employees	600
Founded (year)	1923

Name	Evonik Industries AG
Address	Rellinghauser Str. 1-11
Postal Code/City	45128 Essen
Fon	+49 201 177 01
Fax	+49 201 177 3475
E-Mail	bioeconomy@evonik.com
Internet	www.evonik.com
Employees	33,000
Founded (year)	2007

Evonik, the creative industrial group from Germany, is one of the world leaders in specialty chemicals. Profitable growth and a sustained increase in the value of the company form the heart of Evonik's corporate strategy. Its activities focus on the key megatrends health, nutrition, resource efficiency and globalization. Evonik benefits specifically from its innovative prowess and integrated technology platforms.

Evonik is active in over 100 countries around the world. In fiscal 2015 more than 33,000 employees generated sales of around €13.5 billion and an operating profit (adjusted EBITDA) of about €2.4 billion.

Evonik innovates and serves the bioeconomy markets. Products are i. a. Biolys®, DYNACOLL® Terra, DYNAPOL® Terra, RESOMER®, ThreAMINO®, TrypAMINO®, and VESTAMID® Terra.

Name	EVONIK Operations GmbH
Address	Kantstraße 2
Postal Code/City	33790 Halle-Künsebeck
Fon	+49 5201 857-0
Fax	+49 5208 9125-49
E-Mail	christoph.kobler@evonik.com
Internet	www.evonik.com
Employees	>170
Founded (year)	1982

The Evonik Biotech Hub is the competence centre for industrial biotechnology at Evonik and offers everything from a single source – from breakthrough ideas to industrial bioprocess production – and helps to turn busi ness opportunities into entrepreneurial success.

We consider Industrial Biotechnology as the key technology platform for a sustainable industry, as with biotechnological processes have the potential to

- reduce the consumption of natural resources,
- improve the sustainability of the global food system, and
- enable the smooth transition to a circular economy.

In addition, Industrial Biotechnology is an important lever for growth and innovation, as novel products inspired by nature and inaccessible via chemical synthesis can be developed, further as complementing technologies and services of Evonik.

Name	Grünenthal GmbH
Address	Zieglerstr. 6
Postal Code/City	52099 Aachen
Fon	+49 241 569-0
E-Mail	info@grunenthal.com
Internet	www.grunenthal.com
Employees	4,500 worldwide
Founded (year)	1946

Grünenthal is a global leader in pain management and related diseases. As a science-based, fully-integrated pharmaceutical company, we have a long track record of bringing innovative treatments and state-of-the-art technologies to patients worldwide. Our purpose is to change lives for the better – and innovation is our passion. We are focusing all of our activities and efforts on working towards our vision of a world free of pain.

Grünenthal is headquartered in Aachen, Germany, and has affiliates in 28 countries across Europe, Latin America and the US. Our products are available in more than 100 countries. In 2021, Grünenthal employed around 4,500 people and achieved sales of € 1.5 bn.

Click here for our Grünenthal Report
Follow us on:
LinkedIn: Grunenthal Group
Instagram: grunenthal

Henkel operates globally with a well-balanced and diversified portfolio. The company holds leading positions with its three business units in both industrial and consumer businesses thanks to strong brands, innovations and technologies.

For more than 140 years, Henkel has been taking a visionary approach to supporting environmental and social progress. We've integrated these criteria into our innovation process, because we recognize the potential impact of our products and technologies being used millions of times around the world every day. Henkel Adhesive Technologies is the global leader in the adhesives market – across all industry segments worldwide.

In its Laundry & Home Care and Beauty Care businesses, Henkel holds leading positions in many markets and categories around the world. Henkel employs more than 52,000 people globally and reported sales of more than 20,0 bn euros in fiscal year 2021. Henkel's preferred shares are listed in the German stock index DAX.

Name	Henkel AG & Co. KGaA
Address	Henkelstr. 67
Postal Code/City	40191 Düsseldorf
Fon	+49 211 7979 630
Fax	+49 211 7982 245
Internet	www.henkel.com
Employees	52,000
Founded (year)	1876

PerkinElmer chemagen Technologie GmbH is a key player in the field of automated nucleic acid isolation with vast experience in the field of DNA and RNA isolation for human genetics, HLA typing, blood banking, and pathogen detection. chemagen's technology for the purification of genomic DNA, cfDNA, RNA, and viral nucleic acids is based on the use of proprietary M-PVA Magnetic Beads in combination with our high-performance instruments.

chemagen has developed numerous kits for the isolation of nucleic acids from various sample materials such as blood, serum or plasma, tissue, saliva, buccal swabs, amniotic fluid or stool samples. PerkinElmer chemagen routinely develops customized solutions addressing any specific requirements for DNA or RNA purification in close coordination with clients. IVD versions of instruments and kits are available.

Name	PerkinElmer chemagen Technologie GmbH
Address	Arnold-Sommerfeld-Ring 2
Postal Code/City	52499 Baesweiler
Fon	+49 2401 805500
Fax	+49 2401 805519
E-Mail	support.chemagen@perkinelmer.com
Internet	www.chemagen.com
Employees	>60
Founded (year)	1997

Since more than 70 years, Pharma Waldhof GmbH is experienced in Nucleic Acid Biochemistry and Co-Enzymes. Our success is based on delivering quality value added products in various segments like Pharma APIs and Intermediates, Cosmetics- and Cell Culture Media Ingredients, and Diagnostics. Pharma Waldhof belongs to the multinational Aceto Group.

Pharma Waldhof maintains manufacturing and technical collaboration with selected and world-renowned biotechnology companies and research institutions as well, qualifying us to flexibly respond to specific customer demands and developments.

Name	Pharma Waldhof GmbH
Address	Hansaallee 159
Postal Code/City	40549 Düsseldorf
Fon	+49 211 52602-0
Fax	+49 211 52602-60
E-Mail	info@pharmawaldhof.de
Internet	www.pharmawaldhof.de
Employees	13
Founded (year)	1974

Name	Syngenta Seeds GmbH
Address	Zum Knipkenbach 20
Postal Code/City	32107 Bad Salzuflen
Fon	+49 5222 5308-0
E-Mail	internet.marketing@syngenta.com
Internet	www.syngenta.de
Employees	150
Founded (year)	2000

Syngenta is a leading agriculture company helping to improve global food security by enabling millions of farmers to make better use of available resources.

Through world class science and innovative crop solutions, our 28,000 people in over 90 countries are working to transform how crops are grown. We are committed to rescuing land from degradation, enhancing biodiversity and revitalizing rural communities.

To learn more visit www.syngenta.com and www.goodgrowthplan.com. Follow us on Twitter® at www.twitter.com/Syngenta.

Name	Taros Chemicals GmbH & Co. KG
Address	Emil-Figge-Str. 76a
Postal Code/City	44227 Dortmund
Fon	+49 231 226198-11
Fax	+49 231 226198-19
E-Mail	info@taros.de
Internet	www.tarosdiscovery.com
Employees	65
Founded (year)	1999

Taros, a privately owned chemistry CRO and custom synthesis company has been serving pharmaceutical, biotech and chemical companies since 1999. Within our drug discovery division, our mission is to deliver chemistry enabling clinical candidates for our clients. Taros has a strong scientific track record on many biomolecular targets in all main therapeutic areas and thereby adding considerable value to collaborations from target validation and hit identification to lead optimization. Taros' chemical services include custom synthesis, process chemistry, medicinal chemistry, computational chemistry and molecular design, as well as compound library design and production. As a one-stop shop we support our customers with scale-up of fine and specialty chemicals to first kg quantities, cost reduction of existing syntheses and streamlining chemical processes.

Name	UCB Pharma GmbH UCB Biosciences GmbH
Address	Alfred-Nobel-Str. 10
Postal Code/City	40789 Monheim
Fon	+49 2173 4848-48
Fax	+49 2173 4848-41
E-Mail	ucbcares.de@ucb.com
Internet	www.ucb.com; www.ucb.de
Founded (year)	1928 (Belgium)

Inspired by **patients.**
Driven by **science.**

UCB is a global biopharmaceutical company with around 7,500 people worldwide. We focus on neurology and immunology disorders – putting patients at the center of our world. UCB is connecting science in new ways, notably chemistry and biology, so that they can leverage the potential of these two disciplines, as well as illuminate the biological pathways involved in severe diseases. The complexities of severe diseases are beyond the expertise and resources of a single organisation.

Developing and commercialising innovative therapies is often the result of strong partnerships. That is why we value partnering with leading academic, biotech and pharma companies to bring new solutions for patients. There is no such thing as an "average patient". We are seeking to embed the real needs of specific patient populations in our science and innovation process.

W. von Borries-Eckendorf is a medium-sized family-owned company, founded in 1849 by Wilhelm von Borries (1805-1890), a prominent farmer and talented plant breeder. Starting with the "Eckendorfer" fodder beet, WvB is nowadays well known for strong breeding programs in oilseed rape, barley and high yielding wheat varieties.

The company based in Lippe is founding member of the Rapool Ring GmbH and the Saaten-Union Biotec GmbH.

Along with other breeding companies, Eckendorf is significantly involved in one of the largest distributors in the German sector of seed, the Saaten-Union GmbH.

Name	W. von Borries-Eckendorf GmbH & Co. KG Pflanzenzuchtbetrieb
Address	Hovedisser Strasse 94
Postal Code/City	33818 Leopoldshöhe
Fon	+49 5208 9125-30
Fax	+49 5208 9125-49
E-Mail	info@wvb-eckendorf.de
Internet	www.wvb-eckendorf.de
Employees	40
Founded (year)	1849

The BIO.NRW Team

Dr. Nils Schrader
Managing Director BIO.NRW

phone: +49 211 385 469 – 9203
n.schrader@bio.nrw.de

Key topics
International relations
Networks

Daria Kreckel (geb. Siury)
Senior Project Manager BIO.NRW.red

phone: +49 211 385 469 – 9202
d.kreckel@bio.nrw.de

Key topics
Pharmaceutical Biotechnology
BIO.NRW.red

Dr. Martina Weßling
Senior Project Manager BIO.NRW.red

phone: +49 211 385 469 – 9205
m.wessling@bio.nrw.de

Key topics
Pharmaceutical Biotechnology
Public funding

Dr. Stefan Rensch
Senior Project Manager PR and Communication
phone: +49 211 385 469 – 9234
s.rensch@bio.nrw.de

Key topics
Public Relations
Communication

Dr. Katharina Gräfe
Senior Project Manager BIO.NRW.eco

phone: +49 211 385 469 – 9206
k.graefe@bio.nrw.de

Key topics
Industrial Biotechnology
Spot on Biotechnology Business

Zaklina Bozic
Executive and Team Assistant

phone: +49 211 385 469 – 9200
z.bozic@bio.nrw.de

Dr. Jasmin Schubert
Senior Project Manager BIO.NRW.eco

phone: +49 211 385 469 – 9204
ja.schubert@bio.nrw.de

Key topics
Bioeconomy
Biotech Databases

Uwe Stetskamp
Manager Finance and Controlling

phone: +49 2461 61 – 85046
u.stetskamp@fz-juelich.de

Denmark
Kiel
Hamburg
Schwerin
Netherland
Bremen
Poland
Berlin
Magdeburg
Potsdam
Hannover
Düsseldorf
Dresden
Erfurt
Belgium
Frankfurt
Luxembourg
Mainz
Czech Republic
Saarbrücken
Stuttgart
France
München
Austria
Switzerland

Go abroad with BIO.NRW

5th – 8th June 2023

BIO International Convention
International Partnering Conference

Exhibition Center - Boston, MA

April 2024

BIO.NRW Delegation
including Asia Bio Partnering Forum

Singapore

The Greener Manufacturing Show

8th – 9th November 2023

The Greener Manufacturing Show

Köln Messe

Be part of the BIO.NRW joint stand!
If you would like to exhibit with us, please contact drache@bioclustermanagement.de

THE GREENER MANUFACTURING SHOW

BIO.NRW.eco

Glossary

Organisation for Economic Co-operation and Development (OECD)

The OECD is a unique forum where the governments of 30 democracies work together to address the economic, social and environmental challenges of globalisation.

The OECD Biotechnology Statistics, which brings together the latest available economic and activity data on biotechnology and innovation, is collected by OECD member and non-member countries.

The report builds on the extensive work of the OECD and national experts to improve the comparability of biotechnology statistics.

www.oecd.org

OECD Definitions

Biotechnology

... is defined as an application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services.

Dedicated biotechnology companies

... are defined as biotechnology active firms whose predominant activities involve the application of biotechnology techniques to produce goods or services and/or the performance of biotechnology R&D.

Other biotechnologically active companies

... firms that apply biotechnology techniques for the purpose of implementing new or significantly improved products or processes. This definition excludes end users that innovate simply by using biotechnology products as intermediate inputs (for instance, detergent manufacturers that change a formulation to include enzymes produced by other firms via biotechnology techniques).

Business areas of activity

– Health/Medicine (including animal health)

Development of therapeutics and/or diagnostics for the field of human medicine, drug delivery, human tissue replacement.

– Agri/Agrobiotechnology

Biotech focussed on genetically modified plants, animals or microorganisms, as well as non-genetically modified plants grown using biotechnological procedures for use in agriculture or forestry.

– Industrial biotechnology

Biotechnological products and processes for the handling of waste or sewage, for chemical synthesis, for the extraction of raw materials and energy, etc.

– Non-specific application

Equipment or reagents based on biotechnological principles for research or provision of services in this field (“ancillary industry”).

Source: biotechnologie.de

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[20] *ZukunftBIO.NRW (https://www.zukunftbio.nrw/)*

[21] *https://www.bayer.com/de/strategie/profil-und-organisation*

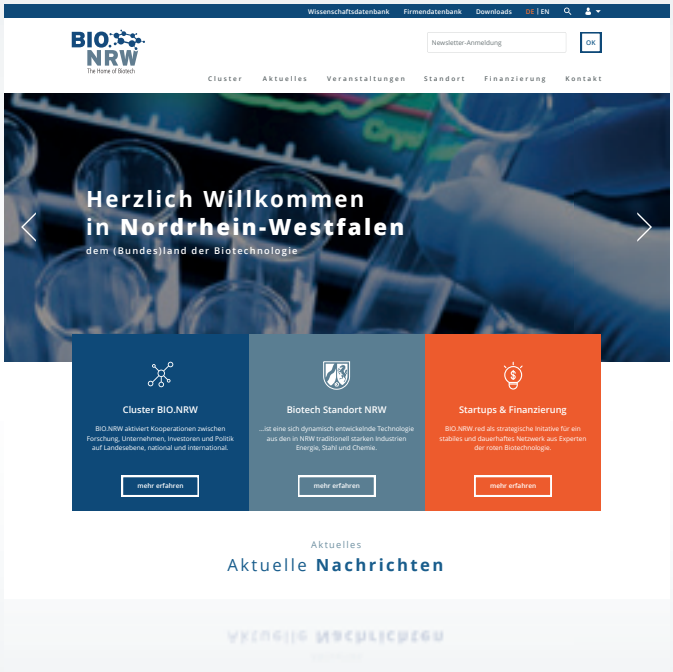
[22] *https://corporate.evonik.com/de/presse/pressemitteilungen/corporate/nachhaltig-und-profitabel-evonik-waechst-weiter-170387.html*

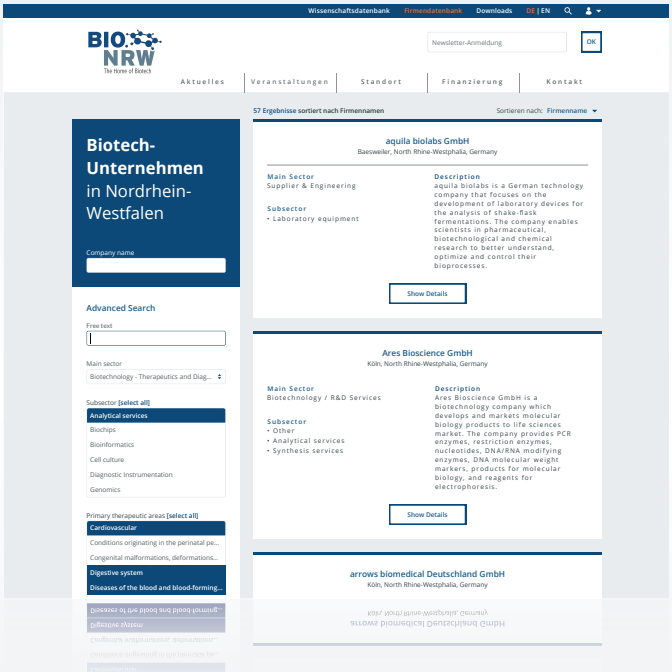
[23] *Die pharmazeutische Industrie in Deutschland, 6., überarbeitete Ausgabe*

All links were accessed on 4 May 2023.

www.bio.nrw.de
company database

BIO NRW
The Home of Biotech





Innovative biotech companies in North Rhine-Westphalia. BIO.NRW offers free of charge a well-organized and comprehensive database of life science and biotech companies resident in North Rhine-Westphalia. The database currently includes 450 company profiles, contact details and a summary of products, services and technologies and is updated frequently several times per year.

phone: +49 211 38 54 69-9200 • E-Mail: bio.nrw@bio.nrw.de

BIO.NRW
Merowingerplatz 1
40225 Düsseldorf, Germany
Fon +49 211 385469-9200
Fax +49 211 385469-9220
bio.nrw@bio.nrw.de
www.bio.nrw.de

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