

Spot on Biotechnology Business 2019/2020





From Mind to Market:  
Biotechnology Company Directory 2019/2020  
North Rhine-Westphalia



## Editorial

### Dear Reader,

North Rhine-Westphalia is a vibrant industrial and scientific location. Being at the center of Europe, the federal state exhibits Germany's densest network of universities and research institutes. At the same time, it is a traditional location for the chemistry and pharmaceuticals industry. Benefiting from the location advantage the biotechnology industry could thrive in North Rhine-Westphalia. In order to promote North Rhine-Westphalia's role as a leading biotech location the state government started "BIO.NRW" 10 years ago to bring together the different stakeholders in the field of biotechnology. Since then the biotech industry in North Rhine-Westphalia has been constantly growing. With the support of "BIO.NRW" mediating access to the several funding and investment programs, launched by the state of North Rhine-Westphalia as well as international markets, dozens of start-ups have been founded. They bring new biotechnological innovations into the market and further promote North Rhine-Westphalia's economy. North Rhine-Westphalia is a truly international business location with the highest number of foreign company subsidiaries in Germany. "BIO.NRW" strategically develops internationalization of the life sciences on the most important global markets, with China being a focus in recent years.

Together, this growth also supports Germany as a European biotech region, which was recently ranked by the US journal GEN as one of the top bio-pharma locations in Europe.

Biotechnological methods experience a rapid growth, boosted even further through the combination with digital technologies.



Examples are digital biomarkers, next generation sequencing and synthetic biology. Biotechnology can be applied in all industry sectors which is why biotech innovations contribute substantially to the process of "biologization of industry", building a sustainable bioeconomy. Starting from the medicine sector bio-based processes spread into all industry sectors by now.

Therefore, biotechnology and digitalization are both important pace setters for future innovations and industrial progress. Both contribute to achieve e.g. personalized medicine and allow the optimization of industrial processes. This innovative development can provide solutions amidst pressing challenges like climate change or the structural change from the coal mining

industry towards a comprehensive and sustainable bio-based economy – a highly relevant process in North Rhine-Westphalia in the years to come. This development goes along with societal changes and the need for information and discussion. The Federal Government recognizes the central importance of bioeconomy as well and makes it the topic of the annual "Year of Science" in 2020, aiming at the communication and interaction between science and society.

Biologization and digitalization belong to the greatest tasks of our time. I am pleased that "BIO.NRW" continues to tackle these challenges by initiating collaborations between science, industry, investors and politics. With this, I would like to congratulate to 10 years of advancing North Rhine-Westphalia as the top biotechnology location and I am looking forward to the coming years of inspiring networking.

A handwritten signature in blue ink, appearing to read "Andreas Pinkwart".

**Prof Dr Andreas Pinkwart**

*Minister of Economic Affairs, Innovation, Digitalization and Energy of the State of North Rhine-Westphalia*



## Greeting

### Dear Reader,

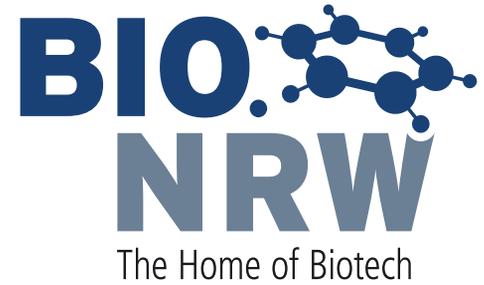
The team of BIO.NRW is proud to present the 10 years anniversary edition of "Spot on Biotechnology Business". On this occasion we would like to take a closer look on 10 years of growth for the biotechnology industry sectors in North Rhine-Westphalia:

2009, the biotech industry was already regarded being a key technology of the 21<sup>st</sup> century. This modern and innovative industry had experienced a rapid growth since its emergence 30 years ago. Especially North Rhine-Westphalia had developed into a biotech hot spot region certainly within Germany but also in Europe. The positive growth has continued over the last 10 years. The numbers of dedicated biotech companies and their employees have almost doubled during that time. Back then as well as today – among the different areas of application of biotech – the health sector is the most prominent segment in North Rhine-Westphalia as most companies are active in that field. The areas of industrial biotechnology and agrobiotechnology were expected to be the most dynamic ones with the strongest potential for growth. However, as their development turned out as rather stable, today these segments are gaining attention again for the transition into a bio-based economy. They enable technological change by transferring innovations into the traditional fields of chemistry, materials, food, and feed. Thereby, biotechnology has the potential to significantly contribute to solutions for some of the most important global challenges like climate change and dwindling resources. And this shift is especially important for North Rhine-Westphalia as the structural change of large regions in the state is taking place now. The struc-

tural change mainly affects the region called "Rheinisches Revier", which has turned into a major industrial location due to lignite mining over the past decades. The value created directly or indirectly by the lignite mining industry resulted in prosperity of the "Rheinisches Revier" and the adjacent regions.

Reshaping a whole region from a fossil-based into a sustainable economic system is a major challenge. In this context, the bio-based economy offers the possibility to ensure prosperity, employment and economic growth. The transition is not restricted to the energy sector, bioeconomy rather impacts on all economic sectors. Examples for promising bioeconomy concepts are biorefineries, waste water treatment by microalgae or the production of bioplastics by microorganisms. Importantly, also pharma and health as NRW's largest industry sectors are increasingly depended on biotech innovations and are thus accounted as a major part of a knowledge-driven bioeconomy. Regarding the fact of a continuously aging society, biotech solutions and products like effective therapies and precise diagnostics are crucial to address this societal challenge.

For all industry branches, innovations are key for implementing sustainable and efficient processes. North Rhine-Westphalia as Germany's economically strongest federal state offers several locational advantages to support the transition into a bio-based economy in all industry sectors. These include a strong industry landscape of start-ups, SMEs and global enterprises, an excellent science and innovation landscape of the highest density in Germany as well as agricultural resources. NRW and especially



the regions that have to undergo an all-embracing structural change could therefore become a model region for Europe in terms of implementing a bioeconomy and turning from a highly fossil-dependent region to a sustainable and future-orientated region.

The next 10 years for sure will show how this transformation takes place and we will keep track and support of these exciting developments!

For now, feel free to take a detailed look into NRW's biotech industry and the BIO.NRW team invites you to actively participate in our state's vibrant biotech community!

### Your BIO.NRW Team

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## Spot on Biotechnology Business

### Biotech Landscape

North Rhine-Westphalia (NRW) is at the heart of Europe. 160 million people – almost a third of the population of the European Union – live within a day's drive of Düsseldorf, the state capital. 23.3 % (i.e. EUR 172.5 bn in 2017) of the direct foreign investment that flows into Germany ends up in North Rhine-Westphalia, where some 14.000 international companies control their German and European operations from. NRW also is the number one trading state among Germany's 16 federal states.<sup>1</sup> Summing up the in- and export of NRW the trading volume in 2018 was EUR 438 bn.<sup>2</sup> With around EUR 705 bn in 2018, NRW generated 20.8 % of the German GDP, putting it clearly at the top of all German federal states.<sup>3</sup>

The state accounts for 4.4 % of the European GDP (EU-28), making it one of the most important economic regions in Europe. Comparing NRW in an international ranking, it is ahead of several European countries such as Switzerland, Sweden, Poland, and Belgium.<sup>1</sup> With 17.9 million inhabitants – of which 10 million live in the Rhine-Ruhr area, that lists among the top 20 metropolitan areas in the world – NRW is by far the most populous German state.<sup>4</sup>

Consequently, the state boasts the highest level of infrastructure within Germany including the country's densest railway network and six international airports.<sup>1</sup> Handling 127.5 million tons of goods in 2018, Duisburg is the world's largest inland port.<sup>5</sup> With over 100 annual international trade fairs NRW has the largest trade fair venue of the world.

Cologne's "Koelnmesse" is the No.1 venue for more than 25 different industries.

Traditionally, North Rhine-Westphalia has been Germany's most important location for the pharmaceutical and chemical industry. Today the state has also developed into a life sciences hotspot: a good reason for many top-level biotechnology companies and research institutes to have their headquarters here. Numerous successful start-up and spin-off companies are flourishing in NRW alongside a strong chemical and pharmaceutical industry that includes many well-known household names like Bayer, Evonik, Henkel, Grüenthal, Johnson & Johnson or UCB.

This business excellence is endorsed by a dense network of outstanding academic institutions, which focus on biotechnology within a broad life sciences landscape. In addition, there is an equally rich and ro-

bust funding environment to support and promote the industry including venture capital providers and business development organizations.

Biotechnology in NRW represents an active, multicentric network, which is setting the pace for the powerful pulse of the state's life science business. Meanwhile biotechnology is a maturing industry that expands rapidly. Its innovative technologies are applied to major industry branches serving health/medicine, chemistry, food and environment. North Rhine-Westphalia has been developing its biotechnology hotspot since 1995. More than 20 years into the program, about 500 life science related companies are located here<sup>1</sup> – among them 119 biotechnology enterprises including several global players (Figure 1).

Major business areas covered are industrial, nano- and pharmaceutical biotechnology, and there is a focus on enabling technologies and supporting services as well. Combining the strong technical expertise evolving from these areas has been the key driver for NRW as the state is pioneering the field of bioeconomy in Germany.

### Stimuli for Start-Up's

Many of today's successful young biotech companies started as university spin-offs. They took advantage of life science incubators and technology centers, whose existence can be pivotal for a start-up company. As catalysts for regional infrastructure and economic development, there are approximately 60 such centers and incubators in the immediate vicinity of universities and basic research institutions in NRW.<sup>1</sup>

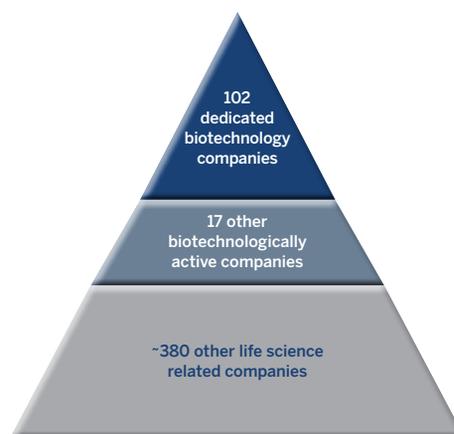


Fig. 1: Life Science Company Landscape in North Rhine-Westphalia



19 % of all German start-ups are based in NRW, the highest rate of all German states.<sup>6</sup> They perform technology transfer all the way from mind to market. At the time of the editorial deadline of this brochure, a total of 118 biotech and life science related companies were incubated by 23 of these technology centers.<sup>7</sup> You will find the respective locations of the centers and the number of biotech companies each of them hosts on the map on page 24. The services these start-up centers provide include renting of affordable laboratory and office space, mediating business contacts, consulting on funding opportunities, and advising on either founding or relocating a firm. Business plan competitions are offered as an additional chance for support.

One technology park that deserves to find special mention here is BioCampus Cologne, one of the largest of its type in Germany. It houses more than 23,000 square meters of office and laboratory space, including state of the art S1- and S2 labs, and industrial production facilities on a site totaling more than 25 hectares. Company founders, young entrepreneurs and scientists all profit from NRW's highly-networked biotechnology scene.

### Academic Biotech Research

North Rhine-Westphalia is offering Germany's most comprehensive network of aca-

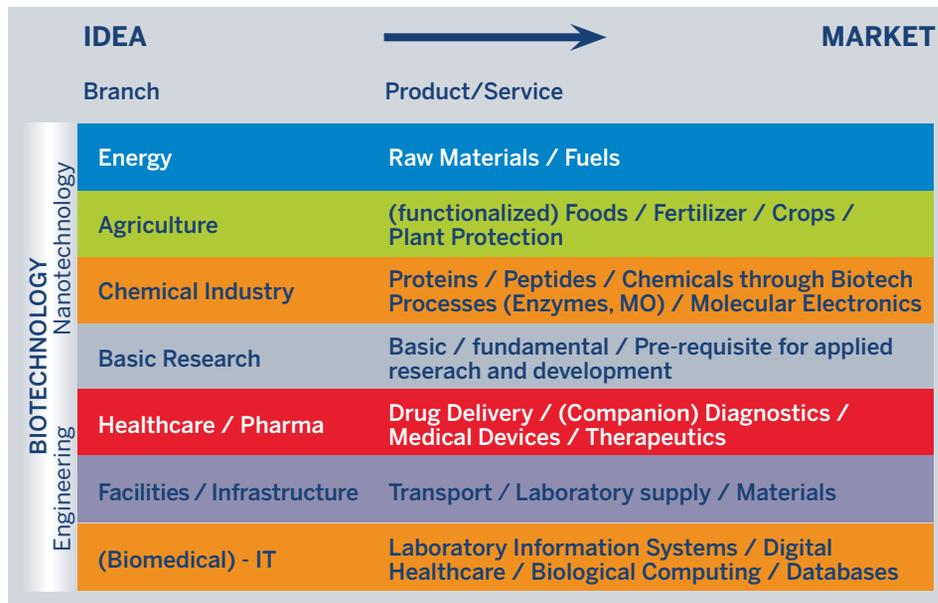


Fig. 2: Biotechnology is a strongly linked industry

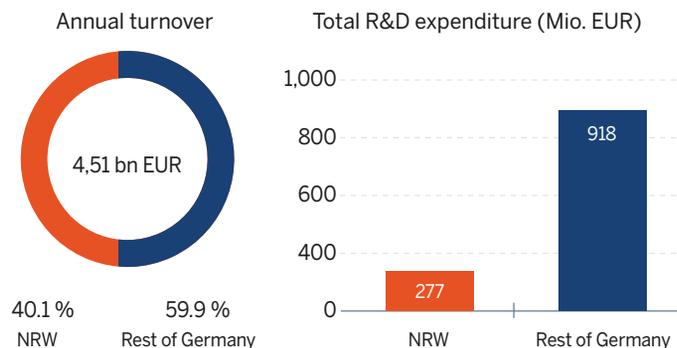
ademic institutions. It consists of internationally renowned Universities and Universities of Applied Sciences (78; 25 with life science activity), Max Planck Institutes (14; 6 with life science activity), Fraunhofer Institutes (15; 6 with life science activity), Helmholtz Institutes (4; 3 with life science activity) and Leibniz Institutes (9; 6 with life science activ-

ity). 27.2 % of all German students are taking advantage of this excellent environment for science and education and are pursuing their studies in NRW<sup>4</sup>. Remarkably, one third of all STEM fields (Science, Technology, Engineering and Mathematics) students are studying in NRW. University centers can be found in Aachen, Bonn, Cologne,

	NRW *	Germany **	Percentage of NRW relative to Germany
<b>Number of employees</b>	4,930	23,540	20.9
<b>Turnover Mio</b>	1,808	4,510	40.1
<b>R&amp;D expenditure Mio</b>	277	1,195	23.2
<b>Biotechnology active companies</b>	102	679	15.0

\* data according to survey by BIOCUM AG, \*\* data according to biotechnologie.de ([http://biotechnologie.de/statistics\\_articles/28-die-deutsche-biotechnologie-branche-2019](http://biotechnologie.de/statistics_articles/28-die-deutsche-biotechnologie-branche-2019))

Fig. 3: Key biotechnology facts; NRW and Germany





Düsseldorf, Münster, Bochum, Essen, Dortmund, Bielefeld, and other cities in the state. In the area 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.

NRW is exceptional in the research fields of health and sustainability, which both are future-orientated topics given the fact of an increasing and ageing world population and the climate change.

For over a decade, NRW has been the leading German region in stem cell research and development with Münster, Bonn and Cologne as hotspots.

The example of the university campus in Cologne emphasizes the very dynamic development of NRW as a research location. The Cluster of Excellence-Cellular Stress Responses in Aging-Associated Diseases (CECAD), the Max Planck Institute for Biology of Ageing and the Center for Integrated Oncology are located here. Additionally, several world leading neuroscience institutes are located in close proximity. Along with the German Center for Neurodegenerative Diseases and the respective institutes of the Universities of Cologne and Bonn as well as their University Hospitals, Cologne has developed into a worldwide unique competence center for ageing research.

About one hour west of Cologne, Europe's most innovative technology campus is currently taking shape: after the recent realization of the "Campus Melaten", the RWTH Aachen University is now going to expand further by building the "Campus West". Covering another 800,000 square meters in total, the new campuses of the RWTH Aachen University will house several technology clusters, among them the "cluster biomedical technology", and take up investments of EUR 1 bn.

Table 1: Temporal Development Key Figures for the Biotechnology Industry of North Rhine-Westphalia

	2016	2017	2018
Number of employees	4,963	5,573	4,930
Turnover	EUR 1.819 bn	EUR 2.073 bn	EUR 1.808 bn
R&D expenditure	EUR 394 m	EUR 366 m	EUR 277 m
	based on company survey by BIO Deutschland e.V.		based on survey by BIOCOM AG

Another Excellence Cluster located in NRW is Immunosensation<sup>2</sup> in Bonn, which was established in 2012 with a grant of EUR 28 m. Scientists study the immune sensory system, which plays a role in many modern diseases, such as diabetes and cancer. Both Excellence Clusters, Immunosensation<sup>2</sup> and

search in Cologne deserves to be called Germany's "cradle of plant biotechnology" as the first plant transformation technologies were developed here. It is also part of the Cluster of Excellence on Plant Science (CEPLAS), a collaboration of several universities and research institutes that was founded in 2012. In 2019, the second funding period of CEPLAS started with a new grant of EUR 56.8 m for 7 years. CEPLAS addresses strategies for the improvement of crops against the background of a changing environment and society. Sustainable Crop production is also a focus of the Cluster of Excellence PhenoRob in Bonn. The project tackles sustainable crop production via technology-driven approaches including multi-scale monitoring of plants using autonomous robots. The subject of energy utilization from renewable resources is covered by the Excellence Cluster Fuel Science Center in Aachen. The Cluster works on the conversion of renewable energy into "bio-hybrid fuels". The Bioeconomy Science Center (BioSC) is a competence center by the universities of Aachen, Düsseldorf and Bonn as well as the Jülich Research Center. BioSC supports research addressing sustainable bioeconomy, which is an important issue given the fact that bioeconomy is one strategy for the structural change of the Rhenish mining area. All these activities reflect how NRW is keeping pace in times of climate change by promoting research

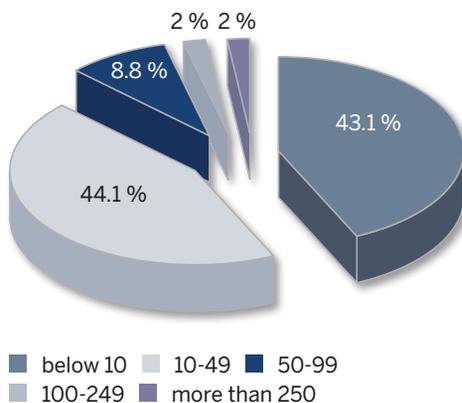


Fig. 4: Size of Dedicated Biotechnology Companies (Number of Employees)

CECAD, received new funding in 2019 for another 7 years, which underlines NRW's position in health research. In addition, North Rhine-Westphalia is the federal state in Germany where most Excellence Clusters were funded in 2019.

In the field of plant genetics, the Max Planck Institute for Plant Breeding Re-



that addresses sustainability and future-orientated technologies.

The digital transformation is a highly strategic topic for the life science industry and could influence competitiveness in the future. Digitalization in the area of life sciences is generally seen as an opportunity, however, some companies are slow to implement new technologies. The federal state of North Rhine-Westphalia supports the digital transformation. The NRW government is planning the foundation of a European block chain institute at the Fraunhofer Institute for Material Flow and Logistics in Dortmund. In addition, a block chain real world laboratory (“Reallabor”) was set up in the “Rheinisches Revier” this year for technical implementation trials of new blockchain technologies. The project consortium includes the Fraunhofer Society, the RWTH Aachen, Ruhr University Bochum, the Westphalian University of Applied Sciences Gelsenkirchen and RegioIT Aachen. The project aims the cooperation of science, industry and start-ups.

Cooperations of academia and industry are creating synergy effects, to give one example, the Research Center Jülich has a long-standing cooperation with Siemens Medical Solutions to develop specialized instruments and techniques for brain research. BIO.NRW offers detailed information about the academic life science landscape in NRW in its compendium “Spot on Biotechnology Science”. This brochure is composed in a similar manner like “Spot on Biotechnology Business” and presents a total of 227 profiles of research institutes, centers and facilities in NRW. Its second issue was released in November 2016.

### Biotech Business

Biotechnology became one of the most dynamic business sectors over the past few decades. Having such a complex industry,

finding a simple value chain or separating it from other, more “static” industries, is difficult. Biotechnology routinely uses other technologies, e.g. nanotechnology or engineering, to improve products. However, all colors of biotechnology (green, red, white and blue) are linked to diverse other branches like the chemical industry (Figure 2, page 13).

Putting the view on single services and products makes it obvious, that looking only on dedicated biotechnology companies reveals an artificially reduced impact biotechnology has on the entire industry. For example, a recent report elucidated that the sum of the turnover of the European bioeconomy industry is more than EUR 2.3 trillion (!) and over 18.6 million people are employed in bio-based industries, underlying the importance of biotechnology on the overall economy.<sup>8</sup>

Nevertheless, it is crucial to have a uniform definition of the core biotech companies to monitor the development of the industry. This is especially true for start-ups, which are the innovative center of the community. For this purpose, BIOCUM AG

annually carries out a statistical analysis of the German core biotech companies allowing a more sophisticated view of the biotechnology landscape in Germany.

The framework of the analysis is set by the OECD definition of a dedicated biotech company and biotech associated companies (see page 74). Based on this definition, 102 dedicated biotech companies were operating in NRW in 2018. Their activities were complemented by 17 other companies with a biotechnological commitment, mostly global players in the field 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 following statistics. 15 % of all German biotech companies are located in NRW (Table 2, page 21).

The real economic impact of biotechnology in NRW is therefore higher than these statistics reveal. These dedicated companies listed in this brochure are at the innovative core of biotechnological research and development. In contrast to the business figures of the dedicated biotech companies – as an example – the 2018 sales of Bayer AG and Evonik Industries AG alone, both headquartered in NRW, are EUR 39.6 bn<sup>9</sup> and EUR 13.3 bn<sup>10</sup>, respectively. Even though only a part of their turnover can be assigned to NRW sites and not all products are generated involving biotech processes, the key business sectors of both companies are based on biotechnology. These two examples clearly demonstrate the enormous impact biotechnology has on the overall industry in NRW and Germany.

Germany as well as its federal state NRW are innovative biotechnology regions. Out all granted EPO patents worldwide, 16.3 % went to Germany in 2018. That puts Germany on the third place after the USA and

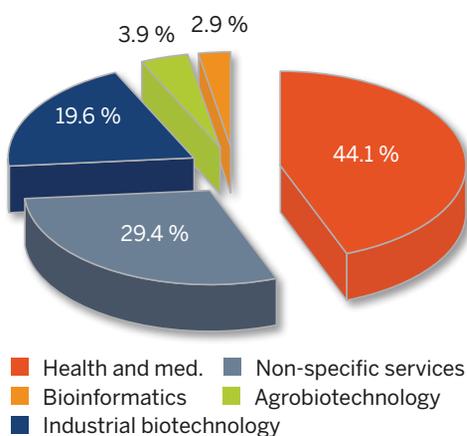


Fig. 5: Areas of activity (for definitions see page 74)



Japan.<sup>11</sup> Regarding the federal states of Germany, NRW is among the top three states when it comes to general patent filings.<sup>12</sup> In terms of biotechnology, four of the top ten companies worldwide that handed in patent applications in 2018 are operating in North Rhine-Westphalia.<sup>4</sup>

The business figures of the 119 NRW biotechnological active companies are set into comparison with the 679 German biotech companies.<sup>13</sup> In NRW 4,930 people (of about 23,540 nationwide) – more than in any other German federal state – were employed by dedicated biotech companies in 2018.<sup>4,14</sup> They generated a turnover of approximately EUR 1.8 bn (Table 1, page 15), which corresponds to 40.1 % of the German biotech annual turnover.<sup>4,15</sup>

Thus, the biotech industry in NRW is – to a large extent – responsible for the economic impact of the German biotech business as a whole. 15.3 % of the NRW annual turnover in biotechnology (EUR 277 m) was reinvested into R&D projects.<sup>14</sup>

The development of this key business figures underlines that the investments by the dedicated biotech companies in NRW are persistent in essence and will advance the future market position of NRW biotech. Together, NRW biotech firms are placing the highest investments for R&D of innovative products – nationwide. Overall, the proportional expenditure, of biotech companies based in NRW, for R&D, being at 15.3 % of the annual turnover is more than 5 times higher than the mean of all businesses in Germany (3.04 % in 2017).<sup>16</sup>

The employee structure reflects the mixture of companies based in NRW: 43.1 % of all companies have less than 10 employees, 44.1 % have 10 - 49 employees, 8.8 % have 50 - 99 employees and 4 % employ more than 100 people (Figure 4, page 15).<sup>14</sup>

After financing rounds of EUR 2 m in 2017 contributed by Grünenthal Group, the investment strongly increased to

Indication	Number of Products
Neoplasms / cancer / oncology	29
Infectious and parasitic diseases	18
Diseases of the nervous system	15
Skin and subcutaneous tissue	7
Musculoskeletal system and connective tissue	6
Symptoms, signs abnormal clinical and laboratory findings, not elsewhere classified	4
Respiratory	2
Digestive system	2
Other	2
Mental and behavioural disorders	1
Endocrine, nutritional and metabolic diseases	1
Diseases of the blood and blood-forming organs; immune disorders	1
<b>Total</b>	<b>88</b>

Fig. 6: Drug Development Pipeline by Indication

EUR 17 m and USD 10 m in 2018 due to financing rounds in Jennewein Biotechnology GmbH, Evorion Biotechnologies GmbH and ProteMBis GmbH. In 2019 EUR 12.3 m and USD 5.2 m were raised by CryoTherapeutics GmbH, INFANDX AG and Hemovent GmbH.<sup>15</sup> Of course, the total amount of non-public investments into biotech companies in NRW was much higher than these numbers reveal. In addition to the

big community of business angels based in NRW, numerous (institutional) investors set up their business headquarter along the Rhine within the last years. These investors strongly foster young biotech companies. Investment activities into life science companies are also supported by the state, e.g. through our “BIO.NRW Business Angel Zirkel” and our annually “Business Angel Congress”.

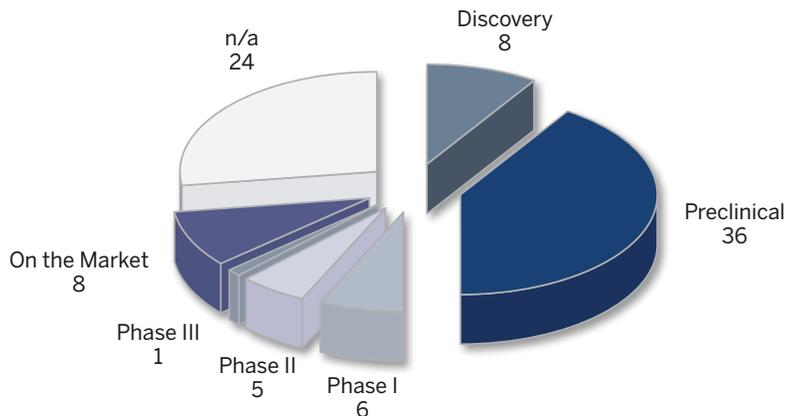


Fig. 7: Drug Development Pipeline by Phase



29.4 % of biotech companies in North Rhine-Westphalia are active in multiple branches (Figure 5, page 17).<sup>14</sup> These biotechnology companies with “nonspecific business activities” include service providers and suppliers for the industry. Among Germany’s three largest biotech companies regarding the number of employees are QIAGEN GmbH and Miltenyi Biotec B.V. & Co. KG.<sup>19</sup> As Qiagen has developed into the field of medical applications, meanwhile the company is accounted as a dedicated biotech company in the „health-medicine“sector.

QIAGEN began as a spin-off from the University of Düsseldorf in 1984. Today, the company employs 5,200 experts in over 35 locations worldwide and is Germany’s largest biotech company. It has become the leading provider of sample technology and a top player in molecular diagnostics especially in cancer detection and prevention. Through a number of strategic moves QIAGEN today is one of the leading companies in biomarker discovery and development (i.e. companion diagnostics), which is the basis for the company’s redirection to the health business.

Based on the invention of a magnetic cell separation technology, Miltenyi Biotec was founded 1989 in Bergisch Gladbach near Cologne. Since then, the company has expanded to more than 3.000 employees worldwide who produce and market over 14.000 products for the global biomedical research community. It is remarkable that this success has been solely achieved by generic growth.

The majority of dedicated NRW biotech companies (44.1 %) are active in the field of health and medicine including veterinary medicine (Figure 5, page 17).<sup>14</sup> At the time of the editorial deadline of this brochure, the dedicated biotech companies in the field of health and medicine had developed a drug pipeline of in total 88 products and product candidates, which corresponds to

Table 2: 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

2007 - 2014 and 2018 based on survey by BIOCUM AG; 2015 - 2017 based on survey by BioDeutschland

a decrease of 13 % compared to 2018 (101 drugs in pipeline). The detailed distribution by indication clearly lists “neoplasms/cancer/oncology” as top one category with 29 products in pipeline in 2019 (Figure 6, page 19). Although the number of products slightly decreased compared to 2018 (34 products), the category “Neoplasms/cancer/oncology has been the main focus of product development for several years. This is followed by “infectious and parasitic diseases” with 18 products in pipeline in 2019 (19 products in 2018). The category “Diseases of the nervous system” remained constant with 15 products in pipeline (2018 and 2019) and the category “Skin and subcutaneous tissue” is on the fourth place with 7 products in pipeline in 2019 (5 in 2018).<sup>15</sup>

The pipeline includes 12 therapeutics (17 in 2018, Figure 7, page 19) in the clinical phases I to III (13.6 %). The majority of products (40.9 %) are preclinical drug candidates. The overall number of products in the development pipeline significantly increased compared to 2017 with 99 products (+ 32.9 %).<sup>15</sup> The underlying classification

refers to companies that develop enzymes, biomaterials or bioprocesses, which can be applied to facilitate or enable large-scale production in the chemical industry. The NRW-based companies Henkel and Evonik have been pioneering industrial biotechnology worldwide and are still its pacesetters today.

### Competence Clusters

Besides the large number of biotech companies, which have specialized in enabling technologies, two main fields of activity characterize the biotechnology landscape in North Rhine-Westphalia: Industrial Biotechnology and Pharmaceutical Biotechnology.

### Industrial Biotechnology – CLIB

CLIB (Cluster Industrial Biotechnology) is an international open innovation cluster of large companies, SMEs, academic institutes and universities, as well as other stakeholders active in biotechnology and bioeconomy as a whole. The cluster comprises about

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

CLIB is a non-profit association, with its members shaping the cluster's interests and activities. The cluster coordinates several associated programs, which cover different aspects of bioeconomy, and invites members to become involved. To this end, CLIB organizes a number of events throughout the year: the annual CLIB international conference (CIC), forum events, topic-specific workshops, dedicated small partnering meetings and visits to partners, sites or meetings in Germany and abroad.

In NRW, CLIB is coordinating the regional innovation network (RIN) "Stoffströme", which seeks to improve the exploitation of biomass, wastes, and side streams in the region. This action is funded by NRW's Ministry of Culture and Science (MKW). Another NRW-based project is dedicated to improve identification and production of high performance ingredients (HiPerIn2.0) for markets like adhesives, cosmetics, or food and feed. This action is funded by the Ministry of Economic Affairs, Innovation, Digitalization and Energy of the State of North Rhine-Westphalia.

Besides this, CLIB established together with partners in Germany, Flanders, and the Netherlands, the BioInnovation Growth mega-Cluster (BIG-Cluster), which aims at developing novel cross-border value chains on the topics lignocellulose, C1 gases, aviation fuels and cross-border education. Three projects under the BIG-Cluster are currently running. In ALIGN the consortium aims at producing new high-value aromatics

based on lignocellulose. Within the project BioCOnversion, the partners will develop a biotechnological process for CO/CO<sub>2</sub> gas conversion. In CROSSBEE a cross-border bioeconomy education will be established. All three projects are coordinated by CLIB and are funded by the German Federal Ministry of Education and Research (BMBF) with EUR 3 m over a period of 3 years.

### Pharmaceutical Biotechnology – BIO.NRW.red

In the last decades, major milestones in medicine and healthcare have been achieved through pharmaceutical ("red") biotechnology, namely in the development of drugs, vaccines and diagnostics. In 2018, 400 medical biotech companies were registered in Germany, 119 of them already have biopharmaceutical products in the market and / or have their own product pipeline. The remaining 281 companies contribute to drug development for example by their technology platforms. For many years most of the German biotech companies have been active in the field of red biotechnology.<sup>17</sup> Likewise, in NRW the key task of most (43.7 %) of the dedicated biotech companies is developing drugs or diagnostics or finding new ways for drug delivery.<sup>14</sup>

Taking a closer look at the overall German medical biotechnology area, including biopharmaceuticals, again the year 2018 has been a good one. The sales of biopharmaceuticals in Germany increased by 11.7 % in 2018 relative to 2017 and reached a volume of about EUR 11.4 bn, which corresponds to 27.4 % of the total pharmaceutical market in 2018. 38 (24 new biopharmaceutical compounds, 14 biosimilars) out of 65 newly approved drugs were biopharmaceuticals in 2018. This corresponds to 58 % of all new approvals – more than ever before.<sup>17</sup>

Since 2005 the biopharmaceutical pipeline has much more than doubled. Although

the number of compounds in clinical development (Phase I – III) decreased slightly in 2018 (from 639 to 635) the biopharmaceutical pipeline is still filled. And beyond that the absolute high numbers of candidates in development (635 compounds) represent a continuous and huge investment in the biopharmaceutical development pipeline. More than 20.0 % of the entire phase III pipelines are biosimilars.<sup>17</sup>

For more than a century, NRW has been the heartland of Germany's pharmaceutical industry with an exceptional standard in biotechnological and medical education. This advantage, combined with the enormous market potential of biopharmaceuticals, gave reason for BIO.NRW's strategic initiative in the field of red biotechnology called BIO.NRW.red.

Its starting point was the competition "Bio.NRW" in 2009, a call for projects announced by NRW's Ministry of Innovation, Science and Research (MIWF; renamed to MKW, Ministry of Culture and Science of the State North Rhine- Westphalia in 2017) to support the cooperation between academia and biotech companies. The focal areas of the successful projects were: development of drugs (biologicals and small molecules), generation of new methods in diagnostics, establishment of biomarkers and introduction of new biopharmaceutical technology platforms – especially based on cell cultures technology.

Since then several further calls for proposals in the field of red biotechnology were published by the NRW's State Government. The BIO.NRW.red initiative has been increasingly involved in supporting the formation of new consortia in "PerMed.NRW" (by the end of 2010), focused on personalized medicine and in "Translational Stem Cell Research" (finished in June 2014).

In line with the "Lead market strategy" of the state of North Rhine-Westphalia, a new series of competitions (Leit-

marktwettbewerbe NRW) was launched in 2015, focusing on translational research in eight so-called lead markets. By the end of the LifeSciences.NRW competition in December 2018, 173 consortia had participated in the 4 rounds. From this, 41 projects will be funded with a total of EUR 73.8 m.<sup>18</sup> Members of the new consortia will further expand the sustainable network BIO.NRW.red, which brings together key supporters from the medical, healthcare, pharmaceutical industry and red biotechnology sectors in the state.

### From Mind to Market

This chapter provides an overview of 102 of the dedicated and 17 of the other biotechnological-active companies from North Rhine-Westphalia as classified following the OECD guidelines (page 74). For convenience, the companies are grouped in six areas according to their main business:

- Non-specific Services
- Health and Medicine (including Animal Health)
- Industrial Biotechnology

- Agri/Agrobiotechnology
- Bioinformatics
- Other biotechnologically companies

For a more comprehensive directory that includes all life science and life science related companies in NRW, please visit our company database at <https://www.bio.nrw.de/db/>.

BIO.NRW invites you to discover North Rhine-Westphalia's biotechnology community!

### Sources, Literature, Links

- [1] <https://www.nrwinvest.com>
- [2] <https://www.it.nrw/statistik/eckdaten/aus-und-einfuhr-2008-2018-2095>
- [3] <https://www.statistik-bw.de/VGRdL/tbls/tab.jsp?rev=RV2014&tbl=tab01&lang=de-DE#tab04>
- [4] <https://de.statista.com/>
- [5] <https://www.duisport.de/hafeninformati-on/>
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- [7] Analysis by BIO.NRW
- [8] Pitrowski S, Carus M, Carrez D: European Bioeconomy in Figures 2008 – 2016, nova-Institute for Ecology and Innovation, commissioned by Bio based Industries Consortium
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- [11] European Patent Office, Statistics: <https://www.epo.org/about-us/annual-reports-statistics/statistics.html>
- [12] Neuhäusler P, Rothengatter O, Frietsch R: Patent Applications – Structures, Trends and Recent Development 2017, Studien zum deutschen Innovationssystem Nr. 4-2018, Fraunhofer Institute for Systems and Innovation Research ISI; [https://www.e-fi.de/fileadmin/Innovationsstudien\\_2018/StuDIS\\_04\\_2018.pdf](https://www.e-fi.de/fileadmin/Innovationsstudien_2018/StuDIS_04_2018.pdf)
- [13] [http://biotechnologie.de/statistics\\_articles/28-die-deutsche-biotechnologiebranche-2019](http://biotechnologie.de/statistics_articles/28-die-deutsche-biotechnologiebranche-2019)
- [14] Analysis by BIOCOCOM AG
- [15] <http://www.biotechgate.com/web/cms/index.php/start.html>
- [16] <https://data.oecd.org/rd/gross-domestic-spending-on-r-d.htm>
- [17] Biotech-Report "Medizinische Biotechnologie in Deutschland 2019" von vfa bio und BCG; [www.vfa-bio.de](http://www.vfa-bio.de)
- [18] LeitmarktAgentur.NRW; [www.leitmarkt-agentur.nrw/leitmarkt-wettbewerbe/lifesciences](http://www.leitmarkt-agentur.nrw/leitmarkt-wettbewerbe/lifesciences)



# Biotechnology Map of North Rhine-Westphalia

## Life Science Technology Parks and Incubators



Name		City	Companies*	Homepage
1	ZBMT - Zentrum für Bio-Medizintechnik	Aachen	7	www.agit.de
	TZA -Technologiezentrum am Europaplatz Aachen		4	
2	INCA Technologiezentrum GmbH	Ascheberg	1	www.inca-technologiezentrum.de
3	its-Internationales Technologie- und Service-Center Baesweiler	Baesweiler	3	www.its-center.de
4	Technologiepark Bergisch-Gladbach	Bergisch-Gladbach	1	www.tbg.de
5	Technologiezentrum Bielefeld	Bielefeld	1	www.technologiezentrum-bielefeld.de
6	BMZ - BioMedizinZentrum Bochum	Bochum	7	www.bmz-bochum.de
7	TZR - Technologiezentrum Ruhr	Bochum	1	www.chip-tzr.de
8	Bio-Security	Bönen	9	www.bio-security.de
9	BMZ - BioMedizinZentrum Dortmund	Dortmund	17	www.bmz-do.de
10	Zentrum für Mikro- und Nanotechnologie	Dortmund	1	www.mst-factory.de
11	LSC - Life Science Center Düsseldorf	Düsseldorf	12	www.lsc-dus.de
12	ETEC - Essener Technologie- und Entwicklungs-Centrum GmbH	Essen	1	www.etec.de
13	TPH - Technologie Park Herzogenrath	Herzogenrath	4	www.tph.de
14	TZJ - Technologiezentrum Jülich	Jülich	1	www.tz-juelich.de
15	BioCampus Cologne Grundbesitz GmbH & Co. KG	Köln	6	www.biocampuscologne.de
16	RTZ - Rechtsrheinisches Technologie- und Gründerzentrum Köln	Köln	10	www.rtz.de
17	TechnologiePark Köln	Köln	4	www.tpk.de
18	Creative Campus Monheim	Monheim	7	www.cc-monheim.de
19	Technologieförderung Münster GmbH	Münster	8	www.technologieforderung-muenster.de
20	CeNTech - Center for Nanotechnology	Münster	4	www.centech.de
21	Gründer- und Technologiezentrum Rheinbach	Rheinbach	3	www.wfeg-rheinbach.de
22	Forschungs- und Entwicklungs-Zentrum Witten GmbH	Witten	2	www.fe.z.de
23	Technologiezentrum Wuppertal W-tec GmbH	Wuppertal	1	www.w-tec.de
<b>Total: 23</b>			<b>118</b>	

\* Life Science Companies

# Biotechnology Map of North Rhine-Westphalia

## Dedicated and other biotechnologically active companies



**Dedicated companies<sup>1,3</sup>**

Acus Laboratories GmbH	Köln	p. 29
Adhesys Medical GmbH	Aachen	p. 39
AgroJector UG	Köln	p. 59
AgroProtect GmbH	Aachen	p. 63
AiCuris Anti-infective Cures GmbH	Wuppertal	p. 39
Algix Pharmaceuticals GmbH	Erkrath	p. 39
Alvotech Germany GmbH	Aachen	
arrows biomedical Deutschland GmbH	Münster	p. 40
ARTES Biotechnology GmbH	Langenfeld	p. 29
attylloid GmbH	Düsseldorf	p. 40
Autodisplay Biotech GmbH	Düsseldorf	p. 57
AYOXXA Biosystems GmbH	Köln	p. 29
BBT Biotech GmbH	Baesweiler	p. 30
beniag GmbH	Jülich	p. 30
Bex-Biotech GmbH & Ko.KG	Münster	p. 59
BIBITEC Gesellschaft für Prozessentwicklung mbH	Bielefeld	p. 30
BioCheck GmbH	Münster	p. 40
BioEcho Life Sciences GmbH	Köln	p. 41
Biofidus AG	Bielefeld	p. 31
Biofrontera AG	Leverkusen	p. 41
BioSolveIT GmbH	Sankt Augustin	p. 63
bitop AG	Witten	p. 53
Black Drop Biodrucker GmbH	Aachen	p. 31
BluCon Biotech GmbH	Köln	
BSV Bioscience GmbH	Baesweiler	p. 53
Carpegen GmbH	Münster	p. 41
CellAct Pharma GmbH	Dortmund	p. 42
CellSystems Biotechnologie Vertrieb GmbH	Troisdorf	p. 31
Cevac Pharmaceuticals GmbH	Köln	p. 42
Charles River Laboratories Germany GmbH	Erkrath	p. 32
Chembiotech	Münster	
Chimera Biotec GmbH	Dortmund	p. 32
Cilian AG	Münster	p. 42
CIRES cell & immune research services	Bochum	p. 43
Creative-Therapeutics GmbH	Wuppertal	p. 43
Cube Biotech GmbH	Monheim	p. 32
Cygenia GmbH	Aachen	p. 43
Cysal GmbH	Münster	p. 54
Cytocentrics Bioscience GmbH	Köln	
Dr. Seibt Genomics GmbH	Bonn	
Dynavax GmbH	Düsseldorf	
EVORION Biotechnologies GmbH	Münster	p. 33
Evotec SE *formerly Ncardia Cologne	Köln	p. 44
evoxx technologies GmbH	Monheim am Rhein	p. 54
GEN-IAL GmbH	Troisdorf	p. 33
IFM Therapeutics GmbH	Bonn	
IIT - Institut für Innovationstransfer	Bielefeld	p. 63
IMAX Discovery GmbH	Dortmund	p. 54
IMD Natural Solutions GmbH *acquired by Lanxess	Dortmund	
ImmunoQure AG	Düsseldorf	p. 44
InfanDx AG	Köln	p. 44
innoVitro GmbH	Jülich	
Isoloid GmbH	Düsseldorf	p. 33
Lead Discovery Center GmbH	Dortmund	p. 45
LenioBio GmbH	Düsseldorf	p. 34
Life & Brain GmbH	Bonn	p. 45
Lonza Cologne GmbH	Köln	p. 34
m2p-labs GmbH	Baesweiler	p. 55
Matricel GmbH	Herzogenrath	p. 45
MBBL Dr. Bartling GmbH	Bielefeld	
miacom diagnostics GmbH	Düsseldorf	p. 46
Miltenyi Biotec B.V. & Co. KG	Bergisch Gladbach	p. 34
MLM Medical Labs GmbH	Mönchengladbach	p. 46

Morphoplant GmbH	Bochum	p. 46
multiBIND biotec GmbH	Köln	p. 55
Myriad International GmbH	Köln	p. 47
NEO New Oncology GmbH	Köln	
Neracare GmbH	Köln	
NEUWAY Pharma GmbH	Bonn	p. 47
Noscendo GmbH	Duisburg	p. 63
NUMAFERM GmbH	Düsseldorf	p. 35
PAIA Biotech GmbH	Köln	p. 35
PAION AG	Aachen	p. 47
Pharmedartis GmbH	Aachen	p. 48
phytolinc GbR	Köln	p. 55
Phytowelt GreenTechnologies GmbH	Nettetal	p. 60
PL BioScience GmbH	Aachen	p. 35
PlasmidFactory GmbH & Co. KG	Bielefeld	p. 36
Priavoid GmbH	Jülich	p. 48
Protagen AG	Dortmund	p. 48
Protagen Protein Services	Dortmund	p. 36
QIAGEN	Hilden	p. 49
QITHERA GmbH	Düsseldorf	p. 49
RHEINCELL Therapeutics GmbH	Langenfeld	p. 49
Ridom GmbH	Münster	p. 64
Saaten-Union BIOTEC GmbH	Leopoldshöhe	p. 60
SanguiBioTech GmbH	Witten	
SenseUp GmbH	Jülich	
Senzyme GmbH	Troisdorf	p. 56
SeSaM-Biotech GmbH	Aachen	p. 56
Soluventis GmbH	Bochum	p. 50
Squarix GmbH	Marl	p. 36
Succinity GmbH	Düsseldorf	
Syntab Therapeutics GmbH	Würselen	p. 50
Taconic Biosciences GmbH	Köln	
Transimmune AG	Düsseldorf	p. 50
UGiSense AG	Dortmund	p. 51
UriCell GmbH	Düsseldorf	p. 51
vivo Science GmbH	Gronau	p. 37
W42 Industrial Biotechnology GmbH	Dortmund	p. 56
WeissBioTech GmbH	Ascheberg	
XanTec bioanalytics GmbH	Düsseldorf	p. 37
Xell AG	Bielefeld	p. 37

**Other biotechnologically active companies<sup>2,3</sup>**

Baxter Oncology GmbH	Halle/Westfalen	
Bayer AG	Leverkusen	p. 67
BASF Personal Care and Nutrition GmbH	Monheim	
BAYER CropScience AG	Monheim	
Bayer Pharma AG	Wuppertal	
Deutsche Saatveredelung AG	Lippstadt	p. 67
Evonik Industries AG	Essen	p. 67
Evonik Industries GmbH	Marl	
Evonik Nutrition & Care GmbH	Halle/Westfalen	
German Seed Alliance GmbH	Köln	p. 68
Grünenthal GmbH	Aachen	p. 68
Henkel AG & Co. KGaA	Düsseldorf	p. 68
MEDIWISS Analytik GmbH	Moers	
Monsanto Agrar Deutschland GmbH	Düsseldorf	
*acquired by Bayer AG		
Octapharma GmbH	Langenfeld	
PerkinElmer chemagen Technologie GmbH	Baesweiler	p. 69
PHARMA WALDHOF GmbH	Düsseldorf	p. 69
Syngenta Seeds GmbH	Bad Salzuflen	p. 69
Taros Chemicals GmbH & Co. KG	Dortmund	
UCB GmbH	Monheim	p. 70
W. von Borries-Eckendorf GmbH & Co. KG	Leopoldshöhe	p. 70

<sup>1</sup> List of dedicated biotechnology companies in the fiscal year 2018

<sup>2</sup> OECD Definition page 74

<sup>3</sup> including company sites in NRW that are not headquarters and are therefore not accounted as NRW-based companies in the annual study by "BIO Deutschland e.V."



## 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
Address	Joseph-Stelzmann-Straße 9b
Postal Code/City	50931 Köln
Fon	+49-22137970-920
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 recom-

mendation, 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	22
Founded (year)	2002



Biosystems

AYOXXA Biosystems GmbH is an international life science company based in Cologne. With LUNARIS™, its proprietary innovative beads-on-a-chip multiplexing platform for advanced protein analysis, the Company is paving the way for translating knowledge generated in a laboratory environment through clinical studies in

support of basic biology and across drug development. With its advantages in terms of quality, flexibility, robustness and efficiency, LUNARIS™ enables fully scalable research & validation of biomarkers in minute amounts of biological samples.

AYOXXA is commercializing a growing portfolio of standardized ready-to-use biomarker analysis assays, with a focus on the biology of inflammation and immune response.

Name	AYOXXA Biosystems GmbH
Address	Nattermannallee 1
Postal Code/City	50829 Köln
Fon	+49 221 222529-0
Fax	+49 221 222529-11
E-Mail	info@ayoxxa.com
Internet	www.ayoxxa.com
Employees	35
Founded (year)	2010

Name	BBT Biotech GmbH
Address	Arnold-Sommerfeld-Ring 28
Postal Code/City	52499 Baesweiler
Fon	+49 2401 93310-0
Fax	+49 2401 93310-90
E-Mail	office@bbt-biotech.de
Internet	www.bbt-biotech.de
Employees	30
Founded (year)	1999



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 sepa-

rators, 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).

Name	beniag GmbH
Address	Huthmacherstrasse 20
Postal Code/City	52428 Jülich
Fon	+49 2461 616734 +49 15780393499
Fax	+49 2461 613907
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
Address	Universitätsstr. 25
Postal Code/City	33615 Bielefeld
Fon	+49 521 106-6326
Fax	+49 521 106-156233
Internet	www.bibitec.de
Employees	12
Founded (year)	2001



BIBITEC Gesellschaft für Prozessentwicklung mbH, a 100 % subsidiary of Nordmark Arzneimittel 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.



Biofidus is an analytical company located in Bielefeld, Germany. Its services include a wide variety of bioanalytical methods such as spectroscopic, chromatographic, and mass spectrometric assays focused on 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, erythropoietin, 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.

The analytical service also includes the development of custom tailored and novel client-specific assays.

Name	Biofidus AG
Address	Hainteichstrasse 78
Postal Code/City	33613 Bielefeld
Fon	+49 521 999 89 400
Fax	+49 521 999 89 409
E-Mail	info@biofidus.de
Internet	www.biofidus.de
Employees	10
Founded (year)	2015



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	3
Founded (year)	2017



Since its formation CellSystems® has been a reliable partner for the life science community. CellSystems offers highly sophisticated research products, including EU validated 3D in vitro skin models for research and toxicology assays that were developed and are produced at our onsite laboratories. Additionally, CellSystems offers a wide range of contract services.

In 2010, we opened our new clean room laboratories to meet the growing demands for various 3D tissue models and services. Today, our portfolio comprises a wide range of products for cell biology research and in vitro toxicology studies. CellSystems is certified ISO 9001:2015.

Name	CellSystems GmbH
Address	Langeler Ring 5
Postal Code/City	53842 Troisdorf
Fon	+49 2241 25515-0
Fax	+49 2241 25515-30
E-Mail	info@cellsystems.de
Internet	www.cellsystems.de
Founded (year)	1992

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



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	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



Description: Chimera Biotec is a GLP/GCP certified bioanalytical Contract Research Organization (CRO) specialized in ultra sensitive large-molecule bioanalysis on various technology platforms including proprietary immuno-pcr (Imperacer®) technology.

Corporate mission: Chimera Biotec is service provider for the development, validation and support of ultra sensitive and technically demanding immunoassays for quantifying large molecule targets in virtually any biological matrix. Chimera Biotec provides ultra sensitive GLP/GCP bioanalytical support for all phases of drug discovery and development. Chimera Biotec has the expertise and technical capabilities to identify the ideal platform technology based on and run according to your pharmacological and regulatory requirements.

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	16
Founded (year)	2012



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.



EVORION® Biotechnologies GmbH specialized in developing innovative high-performance live-cell analysis systems to decipher highly complex biological mechanisms like cellular communication at single cell resolution.

The unique microfluidic chip-based technology allows the user to manipulate single living cells in biological matrices,

and to investigate individual cells for multi-parametric analysis. The approach is highly parallelized, e.g. providing simultaneous and fast analysis of thousands of cell interactions at a time. This novel approach will accelerate cell biology research, clinical product development and the development of novel and effective cell therapies targeting cancers and many other diseases.

Name	EVORION® Biotechnologies GmbH
Address	Mendelstrasse 17
Postal Code/City	48149 Münster
Fon	+49 251 287 693-39
E-Mail	info@evorion.de
Internet	www.evorion.de
Employees	13
Founded (year)	2017



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, geneti-

cally 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



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

Name	LenioBio GmbH
Address Postal Code/City	c/o Factory Campus, Erkratherstr 401 40231 Düsseldorf
Fon	+49 211 890940300
E-Mail	info@leniobio.com
Internet	www.leniobio.com
Employees	24
Founded (year)	2016



At LenioBio GmbH, everything we do begins with our Mission: to provide our customers with innovative solutions that address their toughest challenges – easily, quickly and more efficiently. This deep commitment is at the core of our name: Lenio, from the Latin “to ease, make better”.

LenioBio is a biotech company that develops and markets a novel and propri-

etary protein production platform, ALiCE<sup>®</sup>, which enables protein drugs to be brought to market faster and at lower cost. ALiCE<sup>®</sup> is exclusively licensed from DowDuPont and the Fraunhofer Institute.

ALiCE<sup>®</sup> will target to pharma & biotech sector to make development and manufacture of protein drugs faster and more efficiently than existing production systems.

ALiCE<sup>®</sup> offers a fully integrated protein production platform with unique capabilities and the ability to scale with customers' needs.

Name	Lonza Cologne GmbH
Address Postal Code/City	Nattermannallee 1 50829 Köln
Fon	+49 221 99199-190
E-Mail	info.cologne@lonza.com
Internet	bioscience.lonza.com
Employees	109
Founded (year)	1998

# 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	Miltenyi Biotec B.V. & Co. KG
Address Postal Code/City	Friedrich-Ebert-Str. 68 51429 Bergisch Gladbach
Fon	+49 2204 8306-0
Fax	+49 2204 85197
E-Mail	macs@miltenyibiotec.de
Internet	www.miltenyibiotec.com
Employees	3,000
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, and molecular analysis.

Over 30,000 scientific publications and the manufacture of more than 50,000 cell products for clinical use demonstrate the profound trust scientists and clinicians have in MACS<sup>®</sup> 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 3,000 employees in 28 countries are passionate about our cell and gene therapy solutions.



NUMAFERM has developed an efficient and effective biotechnology for the production of recombinant peptides. The drawbacks of available bioprocesses are overcome – for example proteolytic damage, aggregation and toxicity issues. Our technology serves as a reliable platform for peptides of any length.

Our mission is to make peptides cheaper and their production more eco-friendly in comparison to predominant chemical synthesis. With lower prices and a scalable process, they also become accessible for non-pharmaceutical applications.

Founded in 2017, NUMAFERM is a venture capital-backed startup company headquartered in Düsseldorf, Germany.

Name	NUMAFERM GmbH
Address Postal Code/City	Merowingerplatz 1a 40225 Düsseldorf
Fon E-Mail Internet	+49 211 9753290-0 info@numaferm.com www.numaferm.com
Employees Founded (year)	12 2017



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 fluores-

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



PL BioScience is an ambitious and dynamic life science start-up committed to cell expansion in safe conditions. The company has developed a portfolio of novel products and innovative technologies for human cell expansion in research and clinical applications. With its animal component-free prod-

ucts, the team accelerates the translation of basic research into cell therapy.

The start-up has a broad expertise concerning human Platelet Lysate as an alternative to the ethical and safety-related doubtful Fetal Bovine Serum. PL BioScience offers diverse human Platelet Lysate-derived products, e.g. the patent-protected 3D cell culture system PLMatrix. With its pathogen-reduced products, the company provides a 'new generation' human Platelet Lysate complying the highest safety guidelines for cell expansion in clinical and therapeutic environments.

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

Name	PlasmidFactory GmbH & Co. KG
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	23
Founded (year)	2000



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 and development as well as the complete service are located in Bielefeld,

Germany. The company offers the production of plasmid and minicircle DNA in several quality grades: Research Grade and ccc Grade for research purposes and pre-clinical applications, High Quality Grade as starting material for e.g. GMP production of RNA and viral vectors and GMP Grade for clinical applications.

Besides production of individual plasmids and minicircles, In Stock products that are deliverable immediately "off-the-shelf", e.g. reporter genes and AAV Helper & Packaging vectors (pDG/ pDP family, several serotypes) are also provided.

Name	Protagen Protein Services GmbH
Address	Otto-Hahn-Straße 15
Postal Code/City	44227 Dortmund
Fon	+49 231 9742-6100
Fax	+49 231 9742-6149
E-Mail	contact@ProtagenProtein Services.com
Internet	www.ProtagenProtein Services.com
Employees	70
Founded (year)	1997

## PROTAGEN Protein Services

Protagen Protein Services (PPS) is a world leading contract research organization with an large international customer base in the field of Protein Analytics of biotherapeutics. With more than 20 years of market experience, PPS is able to offer a comprehensive, GMP compliant spectrum of state of the art analytical methods, ensure the highest quality for the identification and structural

characterization incl. modification of new biological entities as well as biosimilar products. Comprehensive proteome studies and differential protein display techniques are offered in addition for example to support up and downstream process optimization of biotherapeutic production. PPS combines unique expertise in e.g. bioinformatics for protein mass spectrometry with a long track record in protein chemistry and protein analytics. PPS provides you with the full range of services, from drug discovery and development to release testing and regulatory compliance under ICH Q6B.

Name	Squarix GmbH biotechnology
Address	Elbestr. 10
Postal Code/City	45768 Marl
Fon	+49 2365 915-278
Fax	+49 2365 915-254
E-Mail	info@squarix.de
Internet	www.squarix.de
Employees	8
Founded (year)	1992



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.



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	17
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



Xell is an innovative partner for the biotech and pharmaceutical industry, providing efficient solutions in cell culture technology. Based on its proprietary technology, Xell has developed a range of customized as well as commercial culture media and feeds for the most commonly used cell types (CHO, HEK,

etc). Our chemically defined products are animal-component free and compliant for GMP manufacturing. Apart from the media platform we offer fast and reliable analytical services - among others, proprietary methods for amino acid, vitamin or polyamine analyses. Additionally, cell culture and process services are provided to better understand cellular behavior and optimize cultivation processes. We are happy to announce our new ISO 9001 certified production site for large scale production of liquid and powder media, ready by end of 2019.

Name	Xell AG
Address	Waldweg 21
Postal Code/City	33758 Schloss Holte-Stukenbrock
Fon	+49 5207 9597-200
Fax	+49 5207 9597-201
E-Mail	info@xell.ag
Internet	www.xell.ag
Employees	35
Founded (year)	2009



**Health and Medicine (including Animal Health)**



Adhesys Medical GmbH develops fully synthetic, biodegradable surgical adhesives. The first product FLIX® is designed for dermal use, to close a great variety of topical wounds, and has received its CE-mark in January 2018. Based on its unique polyurethane platform technology Adhesys develops further products for use inside the human body: either as an adhesive, to

seal areas of leakage or re-attach tissue, or as a hemostat, to stop bleeding.

The company was founded in 2013 in Aachen, Germany. In February 2014, the founders closed a 7-digit seed investment round with S-UBG, KfW and a group of private investors. In April 2014 the team won the Rice Business Plan Competition in Houston, Texas and expanded to the United States. In April 2017 the company was acquired by the pharmaceutical company Grünenthal and operates now as a wholly-owned subsidiary with offices in Aachen, Germany and Boston, United States.

Name	Adhesys Medical GmbH
Address Postal Code/City	Pauwelsstraße 17 52074 Aachen
Fon Internet	+49 241 41250320 www.adhesys-medical.com
Employees Founded (year)	25 2013



AiCuris is focused on discovery, research and development of novel, resistance-breaking antiviral and antibacterial agents for the treatment of severe and potentially lifethreatening infectious diseases. Since November 2017, the first product from AiCuris is on the market. Letermovir, a terminase-inhibitor of the human cyto-

megalovirus (CMV), was licensed to MSD and achieved market approval in the all major markets for the prophylaxis of CMV infections in recipients of bone marrow transplants.

Further projects include Pritelivir, a helicase-primase inhibitor, developed to treat recurrent herpes simplex and AIC649, a novel biological immunomodulator targeting Hepatitis B cure, as well as preclinical programs in Bacteriology and Virology. AiCuris' projects focus on new modes of action and/or represent novel chemical classes.

Name	AiCuris Anti-infective Cures GmbH
Address Postal Code/City	Friedrich-Ebert-Str. 475 42117 Wuppertal
Fon Fax E-Mail Internet	+49 202 31763-0 +49 202 31763-1177 info@aicuris.com www.aicuris.com
Employees Founded (year)	65 2006



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. A phase II clinical study will start in late 2019 to show proof-of-concept in patients suffering from 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 ThAc derivatives from its discovery to preclinical characterization

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Fon Fax E-Mail Internet	+49 211 617851-15 +49 211 617851-50 info@algiax.com www.algiax.com
Employees Founded (year)	6 2011

Name	arrows biomedical Deutschland GmbH
Address Postal Code/City	Heisenbergstraße 11 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 MetaSystems Software and Pyro-, NGS and Sanger sequencing.

Name	attyloid GmbH
Address Postal Code/City	Elsa-Brändström-Str. 34 40595 Düsseldorf
Fon	+49 211 81 10377
E-Mail	info@attyloid.com
Internet	www.attyloid.com
Employees	<10
Founded (year)	2018



attyloid GmbH was founded in 2018 and is located in Düsseldorf, Germany. Building on a strong scientific expertise in protein misfolding and aggregation, we focus our business model on aggregate quantitation for development and QC of biologicals.

Our mission is to revolutionize aggregate analytics to safeguard the biotech-

nological production chain.

attyloid offers its proprietary sFIDA platform technology featuring single particle sensitivity and a 4-log dynamic range of particle size and concentration. The ISO 9001-embedded sFIDA technology is fully automated and scalable.

Name	BioCheck GmbH
Address Postal Code/City	Vorbergweg 41 48159 Münster
Fon	+49 251 2150-868
E-Mail	office@polycheck.de
Internet	www.polycheck.de
Employees	25
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.



Founded 2016 by a team of experts in genomic sample preparation (extraction & clean-up of nucleic acids) BioEcho Life Sciences provides a new generation of kits and reagents for genomic research and molecular diagnostics. BioEcho has developed

a revolutionary single-step technology for accelerated and simplified DNA and RNA purification processes.

We apply this technology in the development of more convenient Liquid Biopsy procedures (isolation of circulating nucleic acids), faster NGS workflows, Point-of-Care diagnostics applications, and selected customization projects.

Name	BioEcho Life Sciences GmbH
Address Postal Code/City	Nattermannallee 1 50829 Köln
Fon E-Mail Internet	+49 0221 9988 97-0 contact@bioecho.de www.bioecho.de
Employees Founded (year)	< 10 2016



Biofrontera AG is a biopharmaceutical company specializing in the development and sale of dermatological drugs and medical cosmetics.

The Germany-based company, with almost 200 employees worldwide, develops and markets innovative products for the care, protection and treatment of the skin. Biofrontera's lead product Ameluz®, is a

prescription-only medication to treat non-melanoma skin cancer and its precursors with photodynamic therapy. Ameluz® is marketed in the EU and in the United States. Additionally, the company markets Xepi, a prescription drug for the treatment of impetigo in the US. In the EU, Biofrontera also sells the dermocosmetics series Belixos®, which offers specialized care for damaged or diseased skin.

Biofrontera AG is listed on the Frankfurt Stock Exchange (Prime Standard) and since February 2018 on the US NASDAQ.

Name	Biofrontera AG
Address Postal Code/City	Hemmelrather Weg 201 51377 Leverkusen
Fon Fax E-Mail Internet	+49 214 87632-0 +49 214 87632-90 info@biofrontera.com www.biofrontera.com www.biofrontera.us.com
Employees Founded (year)	189 1997



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. A joint R&D project related to the development of innovative analytics of water pathogens is currently being pursued with financial support of the German Federal Ministry for Economic Affairs and Energy.

Name	Carpegen GmbH
Address Postal Code/City	Mendelstr. 11 48149 Münster
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Employees Founded (year)	10 2001

Name	CellAct Pharma GmbH
Address Postal Code/City	Otto-Hahn-Str. 15 44227 Dortmund
Fon	+49 231 9742-6350
Fax	+49 231 9742-6355
E-Mail	info@cellact.eu
Internet	www.cellact.eu
Employees	7
Founded (year)	2007



CellAct's small molecule compound, named CAP7.1, targets Topoisomerase II and has shown efficacy and tolerability in various advanced cancer disease in phase I and II clinical studies.

CAP7.1 received orphan drug status for biliary tract cancers from the EMA.

CAP7.1 was acquired by MundiPharma for over >\$250 million after a randomized, multi-center, phase II proof-of-concept study in adults with end-stage biliary tract cancer in 2017.

Name	CEVEC Pharmaceuticals GmbH
Address Postal Code/City	Gottfried-Hagen-Str. 60-62 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 is a biotechnology company specialized in cell line and process development for the scalable production of high-end biologics, including gene therapy vectors and complex glycosylated recombinant proteins, from R&D to production scale.

With CAP-Go, CEVEC enables the efficient production of complex recombinant proteins, like FVIII, C1-Inhibitor, laminins,

AIAT and others, with high titers and excellent pharmacokinetics mediated by tailor-made glycosylation.

With CAP-GT, CEVEC has developed a scalable platform for gene therapy vector manufacturing based on suspension cell lines. For AAV (Adeno-Associated Viral) vectors CEVEC offers a unique fully scalable, stable helper virus-free production system.

Name	Cilian AG
Address Postal Code/City	Johann-Krane-Weg 42 48149 Münster
Fon	+49 251 6203-114
Fax	+49 251 6203-116
E-Mail	info@cilian.de
Internet	www.cilian.de
Employees	14
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.



CIRES has further great experience in the preclinical and clinical development and testing of vaccines and adjuvants.

CIRES is experienced in all kinds of cell culture techniques, ranging from generation of hybridomas, culture of mammalian cells in general and the culture of lines of transgenic cells. This includes production by Bioreactor technology, purification and labeling of monoclonal antibodies and development of ELISA tests.

Name	CIRES cell + immune research services GmbH
Address	BioMedizinZentrum Bochum Universitätsstrasse 136 44799 Bochum
Postal Code/City	44799 Bochum
Fon	+49 234 93696536
Fax	+49 234 93696538
E-Mail	frank.w.falkenberg@cires.de
Internet	www.cires.de
Employees	3
Founded (year)	2001



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

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.

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.

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

Name	Creative Therapeutics GmbH
Address	Am Rohm 86
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Fon	+49 178 7272118
Fax	+49 7690 7902
E-Mail	zeiler@creative-therapeutics.com
Internet	www.creative-therapeutics.com
Employees	2
Founded (year)	2009



mesenchymal stromal cells. In addition, we provide biomarkers to determine the state of aging in blood samples of mice and men.

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

We have established biomarkers to characterize cell culture with regard to replicative senescence, pluripotency, cellular composition, or classification of

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

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	>2.800
Founded (year)	1993



Evotec is a drug discovery alliance and development partnership company focused on rapidly progressing innovative product approaches with leading pharmaceutical and biotechnology companies, academics, patient advocacy groups and venture capitalists. Drug discovery solutions are

provided in form of fee-for-service work, integrated drug discovery alliances, development partnerships, licensing of innovative drug candidates and consulting arrangements. 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	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 3008 9783
Fax	+49 221 2851975
E-Mail	info@infandx.com
Internet	www.infandx.com
Employees	< 10
Founded (year)	2010



Develops first diagnostic test to detect perinatal asphyxia (PA, oxygen deficit during birth) and related braininjury.

PA is very prevalent in childbirth worldwide with 0.5-4 % of births affected, but 5-10% of newborns being at risk while initially being largely asymptomatic. Typical outcome brain damage results in e.g. cerebral palsy/spasticism,etc. Available and reim-

bursed therapy underpins the high medical need, but treatment needs to be started within 6 h after delivery. InfanDx conducted 2 clinical studies and ultimately intends to launch a blood based point-of-care test to be applied immediately after birth.

Technology origin is metabolomics research. Product-pipeline holds further patent backed applications.

InfanDx seeks partnerships as.

- pharma-partnering, („companion diagnostic“, therapy monitoring)
- manufacturer of point-of-care device
- marketing co-operations



Bridging the gap between academic discoveries and pharmaceutical development.

Active in the field of drug discovery, LDC transforms promising early stage projects into marketable assets providing industry with high-quality leads and biologics with proof-of-concept in animals. These drug discovery projects are conducted in close

collaboration with world-class academic researchers from LDC's broad network including the Max Planck Society, Helmholtz Association and numerous universities. The LDC team consists of experts with solid industry experience in Project Management as well as Screening, Cellular Biology, Pharmacology, Medicinal Chemistry and Therapeutic Antibody Engineering.

LDC has formed alliances with AstraZeneca, Bayer, Boehringer Ingelheim, Daiichi Sankyo, Grünenthal, Johnson & Johnson, Merck, Qurient, Roche and SOTIO among others.

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Internet	www.lead-discovery.de
Employees	75
Founded (year)	2008



LIFE&BRAIN is a biomedical enterprise serving as commercial hub of the University 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.

The four business divisions Cellomics, Genomics, Electrophysiology Services and NeuroEconomics provide human stem cell-based cell culture systems and services for neurological disease modeling and compound development, genome and gene expression analysis, electrophysiology services to characterize small molecules in target engagement, efficacy and potency in human and rodent models and neuroscientific methods for testing marketing effects.

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



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 Rемаix 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
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E-Mail	info@matricel.com
Internet	www.matricel.com
Employees	40
Founded (year)	2001

Name	miacom diagnostics GmbH
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E-Mail	info@miacom-diagnostics.com
Internet	www.miacom-diagnostics.com
Employees	10
Founded (year)	2006



**Why do PCR?**  
*Just go FISHing!*

Miacom Diagnostics is specialized in developing next-level in vitro diagnostic tests for the identification of pathogens causing acute systemic diseases. Miacom improves critical patient care by providing rapid molecular diagnostic tools designed for routine use to promote more efficient antibiotic therapies and help healthcare organizations reduce costs. Our proprietary Direct Multiplex Imaging (DMI) assays deliver results in

less than 30 minutes directly from patient samples without need of tedious sample preparation or DNA amplification.

In addition to the world's only molecular diagnostic (MDx) test that identifies all relevant pneumonia-related bacteria directly from sputum, miacom offers CE & FDA cleared multiplex test for sepsis. Our latest innovation includes a fully automated rapid ID system that allows high-throughput MDx testing of several hundred samples per day. Since 2014 Fosun Diagnostics, the diagnostic division of Shanghai Fosun Pharmaceutical, is investor by miacom.

Name	MLM Medical Labs GmbH
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Fon	+49 2161 4642102
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E-Mail	kneuer@mlm-labs.com
Internet	www.mlm-labs.com
Employees	80
Founded (year)	1993



MLM Medical Labs is a GLP-certified, CLIA-, CAP- and ISO15189 accredited central laboratory dedicated exclusively to clinical trials.

MLM offers full laboratory services, including a whole range of analytics: standard safety profiles, such as blood counts, coagulation, urinalysis, clinical chemistry, and analyses of biomarkers, drug compounds,

metabolites and molecular diagnostic parameters.

The MLM lab is on duty 365 days a year to ensure valid results with a quick turnaround time. With their strategic partners Cenetron Central Laboratories in Austin, USA and Teddy Clinical Research Laboratory offers worldwide central lab services, especially for Europe, USA and China.

The extensive lab portfolio is complemented by a superior IT infrastructure (e.g. mlm online®, MLM Sample Storage System®) and the MLM Kit Building® services for customized sampling kits.

Name	MorphoPlant GmbH
Address	Universitätsstr. 136
Postal Code/City	44799 Bochum
Fon	+49 234 7772870
Fax	+49 234 7772870-20
E-Mail	info@morphoplant.de
Internet	www.morphoplant.de
Employees	14
Founded (year)	2002



MorphoPlant GmbH is a bio-/ medtech company headquartered at the BioMedizin-Zentrum in Bochum and focused on the integration of biotech functionalities into medical devices. Laboratories equipped with state-of-the-art technology for recombinant protein

production, protein chemistry, molecular and cell biology, isotope protein labeling/ monitoring and optical biosensor technology are available to our experienced and multidisciplinary R&D team. MorphoPlant's proprietary technologies provide our customers with ultrahydrophilic and osteophilic long-term storable metal implant surfaces and solutions for biocoating of a variety of implant materials with recombinant growth factors (bone/ vascular). Our outstanding expertise in surface functionalization, protein adsorption, kinetics monitoring and animal testing is also available for contract research.



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.

Name	Myriad International GmbH
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E-Mail	info@myriad-international.de
Internet	www.myriadgenetics.eu www.endopredict.eu
Employees	25
Founded (year)	2010



NEUWAY Pharma GmbH, Bonn, Germany, is focusing on the preclinical and clinical development of innovative therapeutics for treatment of severe orphan brain diseases based on its proprietary CNS Drug Delivery Platform. The company uses this technol-

ogy to encapsulate active drug substances that do not cross the blood brain barrier to successfully treat severe orphan brain diseases with a very high medical need. Besides these in-house projects, NEUWAY Pharma also intends to partner its CNS Drug Delivery Technology for application to proprietary compounds of pharmaceutical companies to exploit its therapeutic use in the field of gene therapy and rare CNS indications. The company is backed with venture capital from renowned investors and a strong board.

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Internet	www.neuway-pharma.com
Employees	21
Founded (year)	2014



PAION AG is a publicly listed specialty pharmaceutical company developing and aiming to commercialize innovative drugs for out-patient and hospital-based sedation, anesthesia and critical care services. PAION's lead compound is remimazolam, an intravenous, ultra-short-acting and controllable benzodiazepine sedative/

anesthetic drug candidate for which PAION has completed the clinical development for use in procedural sedation in the U.S. with filings for market approval in China (PS), Japan (GA) and the U.S (PS).

In Europe, PAION is seeking approval for remimazolam in the indications general anesthesia and procedural sedation. PAION's vision is to become an acknowledged "PAIONeer" in sedation and anesthesia. PAION is headquartered in Aachen (Germany) with an additional site in Cambridge (United Kingdom).

Name	Paion AG
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Fax	+49 241 4453-523
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Internet	www.paion.com
Employees	44
Founded (year)	2000

Name	Pharmedartis GmbH
Address Postal Code/City	Forckenbeckstr. 6 52074 Aachen
Fon	+49 241 6085132-60
Fax	+49 241 6085132-66
E-Mail Internet	mail@pharmedartis.de www.pharmedartis.de
Employees Founded (year)	5 2007



Pharmedartis (PMA) develops next generation targeted therapies. This platform technology of Human Cytolytic Fusion Proteins (HCFP) has several advantages over well-received ADCs. A binder is recombinantly fused to a payload. This can be proteases,

RNases or kinases. Since the binder can be almost anything making it truly scalable. Human payloads should have much less side-effects. We look for partner interested in out-licensing opportunities for these first-in-class products. We develop CFPs to treat cancer, inflammation, auto-immune and skin diseases. 6 products are in preclinical testing. CFPs for clinical testing can be produced in Aachen in proprietary system at a state-of-the-art GMP facility of Fraunhofer Society, of which PMA is a spin-off. As a one-stop-shop we provide full service from gene to biopharmaceutical product.

Name	Priavoid GmbH
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Employees Founded (year)	7 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. A $\beta$  peptides play a crucial role in AD. A $\beta$  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.

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Employees Founded (year)	17 1997



We specialize in Pharma development services and novel companion diagnostics, in the field of immuno-oncology and autoimmune disease. Via co-development projects with Pharma and Biotech companies, Protagen enables effective, targeted immuno-therapeutic development for improved patient care.

Protagen is at the forefront of immuno-profiling and the discovery of

novel biomarkers using its proprietary immuno-profiling platform (SeroTag<sup>®</sup>), and stratification arrays based on biomarker panels (NavigAID) to screen patient serum specimens.

We enable: Better disease activity assessment, Improved response prediction, Patient monitoring and Early detection of immune-related adverse events (irAEs).

To find out how Protagen can support your therapeutic development project to enable better response prediction, patient monitoring and early detection of adverse events contact us now.



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. As-

say 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>.

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Internet	www.qiagen.com
Employees	~ 5,200 worldwide
Founded (year)	1984



Qithera, Düsseldorf, 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.

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Founded (year)	2012



RheinCell Therapeutics GmbH specializes in the GMP-compliant generation of human, induced pluripotent stem cells (iPSC) from allogeneic umbilical cord blood (CB). The main focus is on setting up an iPSC master cell bank from HLA homozygous CB units. The key idea behind is that only a limited number of iPSC lines are needed to

set up a resource which prevents immune rejections in a large number of recipient patients. Thus, this master cell bank serves as “off the shelf” - platform for various types of cell therapeutics and has the potential to become the starting material of any future iPSC-based cell therapy in Europe and beyond.

Additionally RheinCell is advancing its own therapeutic approach by developing retinal pigment epithelial cells for the treatment of age-related macular degeneration in cooperation with a leading research institute (USA).

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Fax	+49 2173 3282015
E-Mail	contact@rheincell.de
Internet	www.rheincell.de
Employees	11
Founded (year)	2017

Name	Soluventis Nanotherapeutics GmbH
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Fon	+49 234 32 14191
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Internet	www.soluventis.com
Founded (year)	2018

## 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 ac-

tive 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.

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Internet	www.syntab-therapeutics. com
Founded (year)	2010

## 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 out-licensing 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.

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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 im-

munological 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.

# UGISense

UGISense AG is a mostly virtual biotech company developing Ugimers™, a new type of antisense drugs.

Ugimers™ solve the challenging problems that antisense products have faced: delivery, stability and toxicity.

Their basic structure is a fully artificial peptidic backbone that provides Ugimers™ with stable properties. In addition, this

structure also allows for a rational design with regard to modifications, e.g. amphiphilic- and customizable PK-properties in addition to homing tags/peptides. Through these capacities, Ugimers™ can address the specific requirements of envisaged targets.

UGISense has established projects in the fields of oncology, metabolic diseases, muscular dystrophies and peripheral neuropathies.

In comparison to competitor molecules, Ugimers™ have shown up to 10fold efficacy in tissue. IP protection is strong and durable.

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Internet	www.ugisense.com
Employees	2
Founded (year)	2016



UriCell is a spin-off from the Institute for Stem Cell Research and Regenerative Medicine (University Hospital Düsseldorf).

UriCell uses urine as an innovative non-invasive biomaterial to generate human personalised kidney stem cell products, including renal progenitor cells, tubular

epithelial cells and induced pluripotent stem cells. These products are suitable for drug development, nephrotoxicity tests, research on nephrogenesis and diagnostics.

The standard procedure to obtain human kidney cells - kidney biopsy - is associated with limitations such as availability, costs, risks and ethical issues, which UriCell avoids.

We are able to satisfy the increasing demand for high quality human kidney cells, resulting from the rising prevalence of kidney-associated diseases, need of alternatives for animal testing and growing complexity of drug development processes.

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Founded (year)	2020



# Industrial Biotechnology



Autodisplay Biotech GmbH is a biotechnology company commercializing its proprietary expression platform for the display of heterologous proteins or peptides on the surface of gram negative bacteria. This cell surface display technology provides

numerous benefits to biocatalysis, the functionalisation of solid surfaces and screening applications.

With its custom-tailored products and services, Autodisplay Biotech is an ideal partner for leading companies in the chemical, pharmaceutical and biotechnology industries.

Name	Autodisplay Biotech GmbH
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Internet	www.autodisplay-biotech.com
Employees	6
Founded (year)	2008

# bitop

Extremolytes for Life

bitop is a global market leader and expert in the biotechnological production and development of so called extreolytes.

Extremolytes are natural molecules, which protect biological structures. They are found inside of extremophilic plants and microorganisms. Protected by ex-

tremolytes, 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 more than 25 years of experience and passion in the manufacturing of 100 % natural, pure and GMO-free extremolytes, bitop is a reliable partner for the pharma, animal health, cosmetics and life science industry. We develop unique, extremolyte-based medical products and concepts for human and animal health and offer our raw material as multifunctional cosmetic active ingredients to our worldwide customers.

Name	bitop AG
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Internet	www.bitop.de
Founded (year)	1993



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 sup-

plied 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.

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Internet	www.bsvbio.de
Employees	40
Founded (year)	2007

Name	Cysal GmbH
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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.

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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 and on the Biotech Campus Hermannswerder in Potsdam.

Name	IMAX Discovery GmbH
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Internet	www.imaxdiscovery.com
Founded (year)	2010



IMAX Discovery is a research driven company, creating new product innovation through the generation and development of novel and natural ingredients for the food, beverage, perfume and cosmetic industries. IMAX Discovery offers its clients and partners integrated solutions for the entire flavour, fragrance and cosmetic

discovery process starting from target identification and validation up to the selection and development of new bioactive compounds by providing services, tools and integrated solutions tailored to the client's and partner's specific needs. Using its strong technology platforms and expertise around taste, olfactory receptors and natural products, IMAX Discovery also generates proprietary product pipelines of natural product based on novel taste and fragrance modulators. IMAX Discovery is a subsidiary of Axxam SpA in Milan, Italy.



m2p-labs high-throughput microbioreactors (BioLector®) provide intelligent, online monitored (biomass, fluorescence, pH and DO) micro fermentation technology for screening and bioprocess development.

The systems increase the number of microbial experiments (aerobic/micro-aerophilic/strict anaerobic) as well as the

information content, and are approved for bacterial, yeast, fungi, plant and insect cells. The BioLector® Pro with its microfluidic chip technology, continuously controls the pH value of each culture individually as well as the feeding for realizing fed-batch cultivations.

The microbioreactor systems combined with a standard liquid handling robot (RoboLector®) allow automated micro fermentation of the whole bioprocess.

Name	m2p-labs GmbH
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Internet	www.m2p-labs.com
Employees	42
Founded (year)	2005



multiBIND develops innovative decontamination, disinfection and hygiene solutions for molecular biology, healthcare and agriculture. The R&D work constantly generates exclusive, confidential know-how, international patents and new patent applications for disinfection and decon-

tamination agents for consumer markets, hospitals, laboratories and agrochemistry. bioDECONT® and bioCLEAN are the only agents that in addition to the effective killing of microorganisms also accomplish safe and complete decontamination and non-enzymatic degradation of genetic material (DNA/RNA).

These innovative solutions are nontoxic for humans, non-corrosive and free of organic solvents or other hazardous chemicals. multiBIND pursues a strict partnering strategy with international licenses for products in all suitable markets and industrial sectors.

Name	multiBIND biotec GmbH
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Internet	www.multibind.de
Employees	3
Founded (year)	2005



Phytolinc is a spin-off from the University of Cologne and has developed an innovative photobioreactor for microalgae production as well as water purification purposes. The unique membrane system enables a highly efficient cultivation of microalgae, the production of new algae species and perfectly suits applications in the water treatment industry. Currently, the startup is installing a pilot plant at the waste disposal site

of "Bergischer Abfallverband" in Engelskirchen, Germany. For more information, feel free to visit our website or contact us directly ([www.phytolinc.com](http://www.phytolinc.com)).

Name	PHYTOLINC
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Internet	www.phytolinc.com
Employees	5
Founded (year)	2017

Name	Senzyme GmbH
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E-Mail	info@senzyme.de
Internet	www.senzyme.de
Employees	42
Founded (year)	2000



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 filamen-

tous fungi, where the company has a many years experience and substantial Know How.

Name	SeSaM-Biotech GmbH
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Internet	www.sesam-biotech.com
Founded (year)	2008



SeSaM-Biotech is dedicated to the directed evolution of enzymes. Our comprehensive evolution strategy KnowVolution as part of the QuEST-Service offers the best combination of patented mutagenesis technologies and rational design by computational

modelling and simulations 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 proteases, monooxygenases, lipases, cellulases, amylases, phytases, esterases, glucose oxidases, pectinases, isomerases, laccases, and xylanases being applied in the biotechnological sectors pharma, chemistry, cosmetics, flavors, nutrients, feed, laundry, food/beverages, biofuel, textiles and paper.

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Internet	www.w42biotechnology.de
Employees	3
Founded (year)	2005



W42 GmbH is your partner for enzyme production and process development. We offer: High performance heterologous protein production in Pichia sp. Wide range of different strains and promoters – best choice for your project. Methanol dependent and customer specific 'fine-tuning' process control for high yield protein production. Complete processes are offered including: strain de-

velopment – fermentation – DSP – enzyme immobilisation – biocatalytic process development. Since 2005 W42 GmbH has carried out many successful projects for industrial partners in Europe and P.R. China. Several improved strains are running on industrial scale for production of technical enzymes.

Recently W42 has established a European Network for the development, production, licensing and marketing of vaccines for animal health with focus on aquaculture sector. Focus is the development of 2<sup>nd</sup> generation recombinant vaccines. We are offering complete service for your vaccine candidate.





## Agrobiotechnology



The most commonly used tools, including the recently developed genome editing technologies, are behind the expectations of science and society for genetically improving plants regarding targeting specificity, full editing capability and stringent biosafety. AgroJector is an ag-biotech company focused on addressing these limi-

tations. Our patent pending gene therapy technologies will radically improve the precision and safety of crop improvements in generating higher yielding, pest resistant, drought/cold tolerant plants as well as plants with improved nutrition quality and industrial characters.

The company aims at introducing desirable, lost, wild genes back to highly-bred, elite crops or correcting faulty genes in such elite crops. Our technologies are not limited to plant science but can also potentially be applied in human gene therapy.

Name	AgroJector UG
Address Postal Code/City	Nattermannallee 1 50829 Köln
Fon	+49 176 618 213 95
E-Mail Internet	info@agrojector.com www.agrojector.com
Employees Founded (year)	2 2014

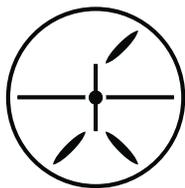


It is estimated that plant pathogens are responsible of world-wide losses in the range of billions of euros per year. Therefore, there is a strong need to provide effective, broad range and environmentally friendly approaches to ensure protection of plants

from pathogens. We developed a patented 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 licences its proprietary technology and offers the generation of pathogen resistant plants as well as access to novel resistant cultivars of several crops.

Name	AgroProtect GmbH
Address Postal Code/City	Forckenbeckstraße 6 52074 Aachen
Fon	+49 2451 914 8783
Fax	+49 2451 914 8784
E-Mail Internet	info@agroprotect.de www.agroprotect.de
Founded (year)	2010



Bex-Biotec is an emerging start-up company that is dedicated to support development processes of new plant treatments.

To this end, we offer fast biotechnological plant-based bioassays to evaluate

the effect of plant treatments on both dicot and monocot model plants and crops.

As contract researchers we screen for interesting candidate substances, optimal application and dosage, as well as plant varieties and species.

Our assays identify influence on plant growth, stress tolerance (abiotic and/or biotic) and fruit yield. The flexibility of our test system enables us to work equally with any developmental stage – from seedling to adult plant.

Name	Bex-Biotec GmbH&Co.KG
Address Postal Code/City	Mendelstr. 11 48149 Münster
Fon	+49 251 9801190
E-Mail Internet	info@bex-biotec.com www.bex-biotec.com
Employees Founded (year)	4 2018

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	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	info@saaten-union-biotec.com
Internet	www.saaten-union-biotec.de
Employees	80
Founded (year)	1984



Saaten-Union Biotec offers services and contract research in the field of plant breeding (rapeseed, barley, wheat, triticale, durum, spelt, oat, potato). 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.

**Apply Now**



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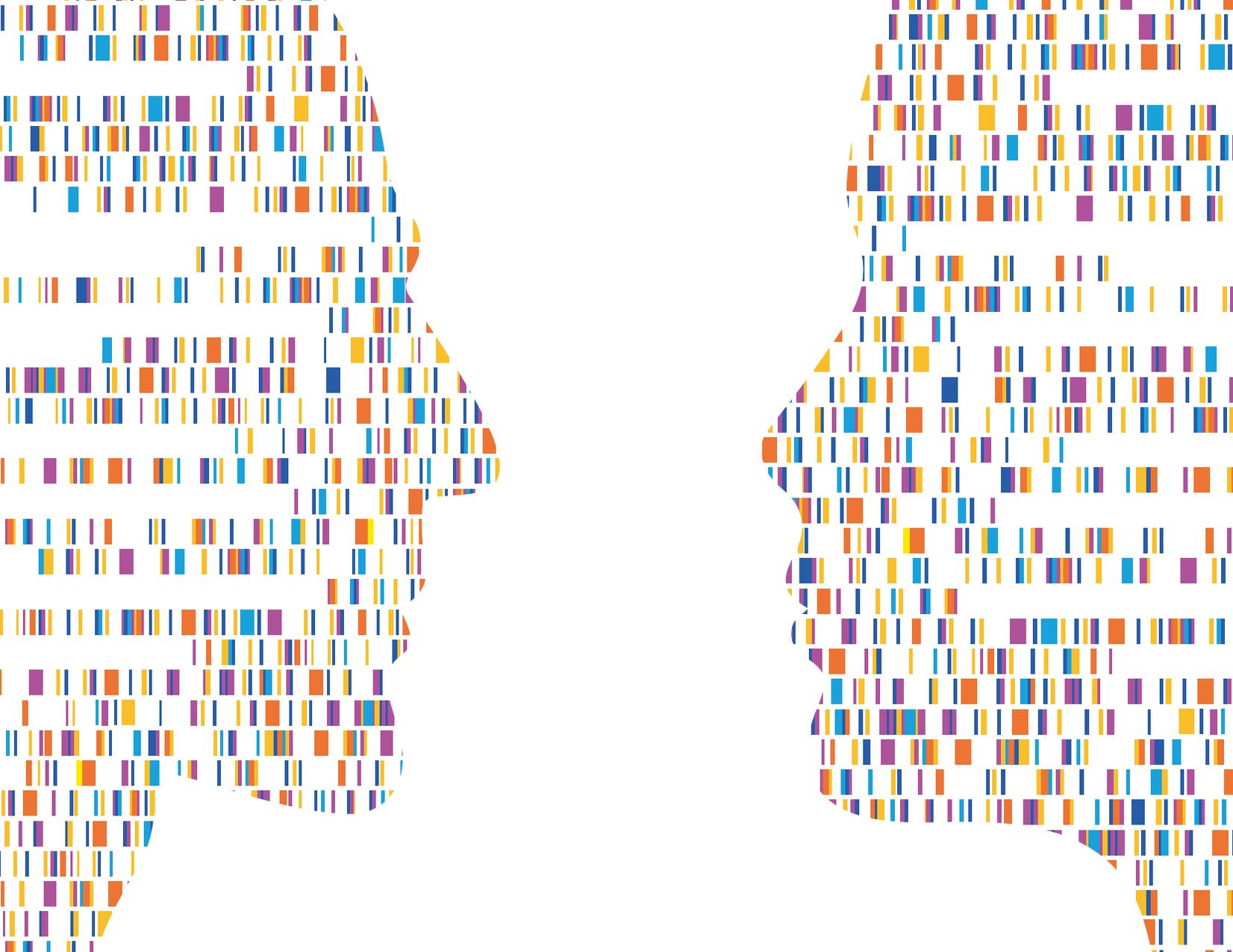
**What are you waiting for?**

**[www.startups4.eu](http://www.startups4.eu)**



BIO Clustermanagement NRW GmbH  
Merowingerplatz 1  
40225 Düsseldorf, Germany

phone: +49 (0) 211 942 150 49  
mail: [info@bioclustermanagement.de](mailto:info@bioclustermanagement.de)  
web: [www.bioclustermanagement.de](http://www.bioclustermanagement.de)



# 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 be-

hind 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
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	17
Founded (year)	2001



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.

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



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

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



ridom  
BIOINFORMATICS

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.





## 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 2018, the Group employed around 117,000 people and had sales of 39.6 billion euros. Capital expenditures amounted to 2.6 billion euros, R&D expenses to 5.2 billion euros. For more information, go to [www.bayer.com](http://www.bayer.com).

Name	Bayer AG
Address Postal Code/City	Kaiser-Wilhelm-Allee 1 51368 Leverkusen
Fon Internet	+49 214 30-1 <a href="http://www.bayer.com">www.bayer.com</a>
Employees	117,000



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 650 people and has a turnover of around EUR 200 million.

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



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 inno-

novative 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 Industries AG
Address Postal Code/City	Rellinghauser Str. 1-11 45128 Essen
Fon Fax E-Mail Internet	+49 201 177 01 +49 201 177 3475 <a href="mailto:bioeconomy@evonik.com">bioeconomy@evonik.com</a> <a href="http://www.evonik.com">www.evonik.com</a>
Employees Founded (year)	33,000 2007

Name	German Seed Alliance GmbH
Address	Aachener Str. 1053-1055
Postal Code/City	50858 Köln
Fon	+49 221 162 506-0
Fax	+49 221 162 506-29
E-Mail	info@german-seed-alliance.de
Internet	www.german-seed-alliance.de
Employees	45
Founded (year)	2008



German Seed Alliance GmbH is an alliance of four leading German plant breeding companies in international agriculture: Deutsche Saatveredelung, Norddeutsche Pflanzenzucht, Nordsaat Saatzucht and SaKa. The company and its shareholders are internationally experienced enterprises in the field of plant research and development, breeding, seed production and distribution.

The main focus is on oilseed rape, potatoes, corn, sunflower, grasses, peas and cereals (especially wheat, barley, rye, oat and triticale). German Seed Alliance coordinates all research programs of the group and is partner of the national and international scientific community in plant research and biotechnology. New varieties are developed and high quality seeds are produced for different climate regions. In sales the first focus is on Russian Federation, with innovative solutions and wide range of seed products combined with professional service and individual consultancy.

Name	Grünenthal GmbH
Address	Zieglerstr. 6
Postal Code/City	52099 Aachen
Fon	+49 241 569-0
E-Mail	info@gruenthal.com
Internet	www.gruenthal.com
Employees	5,200 worldwide
Founded (year)	1946



Grünenthal is an entrepreneurial, science-based pharmaceutical company specialized in pain, gout and inflammation. Our ambition is to deliver four to five new products to patients in diseases with high unmet medical need by 2022 and become a € 2 bn company. We are a fully integrated research & development company with a long track

record of bringing innovative pain treatments and state-of-the-art technologies to patients. By sustainably investing in our R&D above the industrial average, we are strongly committed to innovation.

Grünenthal is an independent, family-owned company headquartered in Aachen, Germany. We are present in approx. 30 countries with affiliates in Europe, Latin America and the US. Our products are sold in more than 100 countries and approx. 5,200 employees are working for Grünenthal worldwide. In 2017, Grünenthal achieved revenues of approx. € 1.3 bn.

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	50,000
Founded (year)	1876



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. 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. Founded in 1876, Henkel looks back on more than 140 years of success.

Henkel employs more than 50,000 people globally and reported sales of 20,0 bn euros in fiscal year 2017. Henkel's preferred shares are listed in the German stock index DAX.



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,

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	>40
Founded (year)	1997



Since 70 years, Pharma Waldhof GmbH, located in Düsseldorf/Germany, is active in the unique world of Nucleic Acid Biochemistry. The last milestones in our long company history were in 2014 and 2016 the award of the label "Innovative through Research" by the "Stifterverband für die deutsche Wissenschaft" and in 2015 the acknowledgement by the "Deutscher Bildungspreis" as

an "Excellence company for Training and Talent Management". Development of new products using cutting-edge technology enables us to apply our high standards and quality values into innovative, powerful and well-accepted products designed for existing and new markets.

Our success is based on our highly skilled people and pursuit for delivering quality value added products serving the worldwide market in various segments like Pharma APIs and Intermediates; Cosmetics; Nutrition and Diagnostics. Pharma Waldhof belongs to the multi-national Aceto Group/USA.

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



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](http://www.syngenta.com) and [www.goodgrowthplan.com](http://www.goodgrowthplan.com). Follow us on Twitter® at [www.twitter.com/Syngenta](http://www.twitter.com/Syngenta).

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

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.

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



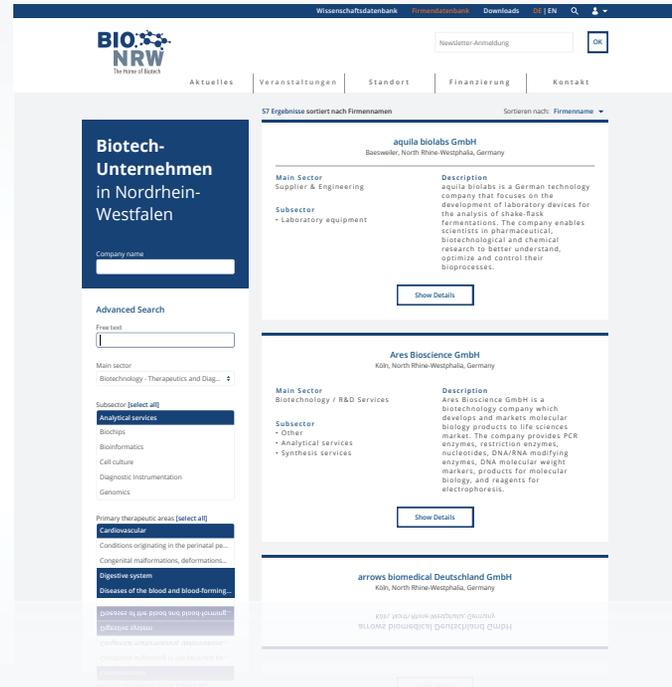
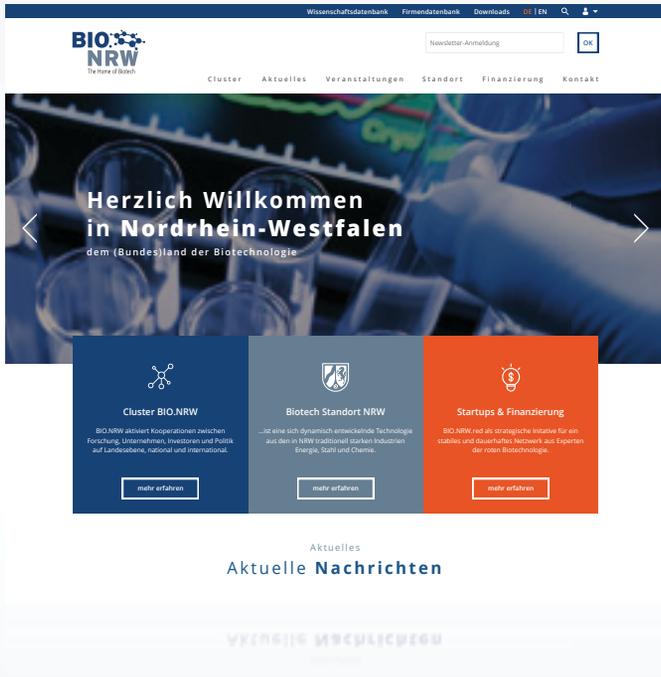
W. von Borries-Eckendorf is a medium-sized family-owned company, founded in 1849 by Wilhelm von Borries (1805-1890), a prominent farmer and talented plant breeder. Starting with the “Eckendorfer” fodder beet,

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.

# www.bio.nrw.de company database



**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](mailto:bio.nrw@bio.nrw.de)

**Excellence NRW**  
Cluster North Rhine-Westphalia



## BIO.NRW The Home of Biotech in North Rhine-Westphalia

North Rhine-Westphalia is situated at Europe's geographic and economic center. It is the largest of Germany's 16 federal states and a leading exporter. If classified as an independent exporting nation, NRW would rank 29<sup>th</sup> in the world between Czech Republic and Austria.

North Rhine-Westphalia's state government has established a number of technology clusters to systematically improve NRW's strengths and talents in established industries and up-and-coming fields like biotechnology.

North Rhine-Westphalia's biotechnology network BIO.NRW is a central catalyst for the sustainable development of the state's biotech sector. It activates cooperation between business, research, investors and policy-makers. BIO.NRW also promotes the strengths and achievements of biotechnology in the state.

To support young as well as already established biotech companies, BIO.NRW offers the following core competencies:

- Individual matchmaking for collaborations and partners
- Overview on all up-to-date R&D activities in industry and academia
- Profound knowledge on financing possibilities
- International promotion and marketing for NRW as biotech location
- Direct contacts to decision makers

### Our services include

#### Technology Transfer

Tech transfer support is a key contribution from BIO.NRW. We organize events, working platforms and meetings to promote the

dialogue between all stakeholders in the field of biotechnology and to encourage cooperation.

#### Biotech Business & Sciences

BIO.NRW compiles comprehensive and current online databases of the academic institutions and companies active in the life sciences in NRW. Free to access and easy-to-use, these resources are valuable tools for identifying prospective business partners. More information on [www.bio.nrw.de](http://www.bio.nrw.de)

#### Fairs, Exhibitions and Conferences

Companies and academic institutions can generate awareness of their activities locally, nationally and internationally by being a part of the BIO.NRW common stands on fairs, exhibitions and conferences. BIO.NRW also organizes a series of workshops and symposia, called BIO.NRW.academy.

#### Support of Young Professionals

BIO.NRW takes a special interest in supporting young professionals in biotechnology. We participate in conventions and exhibitions to bring graduates in contact with representatives from industry and academic science. The 'Business Angel Network – BIO.NRW' helps financing and funding biotech start-ups. In addition, a forum that brings together investment institutions, private investors and business angels and developers provides information about the current NRW biotech scene. These meetings are a valuable opportunity for start-up companies to receive coaching and financing.

To learn more about the Cluster BIO.NRW and to stay informed about the latest

biotech developments in NRW please visit [www.bio.nrw.de](http://www.bio.nrw.de).

Further drivers in the field are dynamic local biotechnology initiatives and networks:

Bioanalytik-Münster  
[www.bioanalytik-muenster.de](http://www.bioanalytik-muenster.de)

BioCologne  
[www.biocologne.de](http://www.biocologne.de)

bio.dortmund  
[www.wirtschaftsfoerderung-dortmund.de](http://www.wirtschaftsfoerderung-dortmund.de)

BioIndustry  
[www.bioindustry.de](http://www.bioindustry.de)

BioRiver  
[www.bioriver.de](http://www.bioriver.de)

LifeScienceNet Düsseldorf  
[www.lifescience-dus.de](http://www.lifescience-dus.de)

MedLife (Aachen)  
[www.medlife-ev.de](http://www.medlife-ev.de)

Cluster Industrial Biotechnology  
[www.CLIB2021.com](http://www.CLIB2021.com)



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Austria

Kiel

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Schwerin

Bremen

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Potsdam

Hannover

Düsseldorf

Erfurt

Dresden

Frankfurt

Mainz

Saarbrücken

Stuttgart

München

# 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](http://www.oecd.org)

## OECD Definitions

### Biotechnology company

... 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*

## Contact BIO.NRW

Dr. rer. nat. Nils Schrader  
Head of office BIO.NRW  
Merowingerplatz 1  
40225 Düsseldorf, Germany  
Fon +49 211 385469-9203  
Fax +49 211 385469-9220  
[n.schrader@bio.nrw.de](mailto:n.schrader@bio.nrw.de)  
[www.bio.nrw.de](http://www.bio.nrw.de)





**Online  
Company  
Database**  
[www.bio.nrw.de](http://www.bio.nrw.de)

**BIO.NRW**

Merowingerplatz 1  
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Fon +49 211 385469-9200  
Fax +49 211 385469-9220  
[bio.nrw@bio.nrw.de](mailto:bio.nrw@bio.nrw.de)  
[www.bio.nrw.de](http://www.bio.nrw.de)

**Ministry of Economic Affairs, Innovation,  
Digitalization and Energy of the State  
of North Rhine-Westphalia**

40213 Düsseldorf  
[www.wirtschaft.nrw](http://www.wirtschaft.nrw)