

Europe DNA Plasmid Manufacturing Market Size and Forecast (2021 - 2031), Regional Share, Trend, and Growth Opportunity Analysis Report Coverage: By Product Type (GMP Grade and R&D grade), Application (Cell and Gene Therapy, DNA Vaccines, Immunotherapy, and Others), and End User (Pharmaceutical and Biotechnology Companies, CROs and CDMOs, and Others)

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Abstracts

The Europe DNA Plasmid Manufacturing Market is poised for significant growth, projected to reach approximately US\$ 592.6 million by 2031, up from US\$ 155.8 million in 2024, reflecting a robust compound annual growth rate (CAGR) of 21.2% from 2025 to 2031. This expansion is driven by the increasing demand for gene therapies, mRNA vaccines, and advanced biologics, positioning Europe as a pivotal hub for biotechnology and pharmaceutical innovation.

The market is segmented into key regions including the UK, Germany, France, Italy, Spain, and the Rest of Europe, with Germany, the UK, and France leading the charge. The surge in personalized medicine and a heightened focus on genetic research have amplified the need for high-quality plasmid DNA, which is crucial for developing therapies aimed at genetic disorders, cancers, and infectious diseases. Furthermore, substantial investments in biomanufacturing infrastructure and supportive government initiatives are fostering the growth of biotechnology startups and research institutions across the region.

A prime example of this trend is Germany's BioNTech, a frontrunner in mRNA vaccine technology, which heavily relies on plasmid DNA manufacturing for its vaccine production. This underscores the strategic importance of the DNA plasmid

manufacturing market in Europe. The stringent regulatory environment in Europe ensures that plasmid manufacturing adheres to high quality and safety standards, fostering trust and facilitating adoption in clinical applications. Collaborative efforts between academic institutions and biotech companies have also accelerated innovation in the sector. Partnerships aimed at enhancing plasmid yield and purity are helping to reduce production costs and turnaround times. For instance, in January 2023, Catalent inaugurated a commercial-scale plasmid DNA manufacturing facility at its European Center of Excellence for Cell Therapies in Gosselies, Belgium, further exemplifying the region's commitment to advancing plasmid manufacturing capabilities.

The market segmentation reveals that by product type, the Europe DNA Plasmid Manufacturing Market is divided into GMP Grade and R&D Grade, with GMP Grade holding the largest market share in 2024. In terms of application, the market is categorized into Cell and Gene Therapy, DNA Vaccines, Immunotherapy, and others, where Cell and Gene Therapy is expected to dominate. Additionally, by end user, Pharmaceutical and Biotechnology Companies are anticipated to hold the largest share in 2024.

The increasing complexity of gene therapies and rising regulatory demands have led to a notable trend of outsourcing plasmid DNA production to specialized Contract Development and Manufacturing Organizations (CDMOs). These CDMOs provide scalable, GMP-compliant manufacturing capabilities, enabling biopharmaceutical companies to expedite their time-to-market while avoiding the substantial capital costs associated with establishing in-house facilities. Notable CDMOs in this space include Aldevron, a Danaher company recognized for its high-quality plasmid DNA utilized in gene and cell therapies, and VGXI, a subsidiary of GeneOne Life Science, known for its proprietary Helixfermentation technology.

In April 2025, ProBio, a global CDMO, announced the launch of its GMP plasmid DNA manufacturing service at its Hopewell facility, which promises to deliver clinical-grade plasmid DNA from cell bank to batch release in just three months—significantly faster than the industry standard. This service aims to provide reliable and accelerated access to high-quality plasmid DNA for gene and cell therapy developers, ensuring transparency and adherence to client specifications.

Moreover, in June 2024, Bionova Scientific, part of the Asahi Kasei Group, revealed a US\$100 million investment to expand into plasmid DNA manufacturing, planning to establish a 100,000-square-foot facility in The Woodlands, Texas, set to begin operations in early 2025. This facility will initially focus on pDNA development services and the production of research-grade and high-quality pDNA, with GMP capabilities expected to follow in 2026. Such expansions among CDMOs are anticipated to create lucrative opportunities within the DNA plasmid manufacturing market in the coming

years.

Country-wise, Germany is leading the market, bolstered by a strong biotechnology sector, advanced manufacturing infrastructure, and a growing demand for gene therapies and vaccines. The production of plasmid DNA is critical for gene transfer and the development of recombinant proteins, which are foundational for innovative biopharmaceuticals. Germany's leadership in life sciences, coupled with robust government support and a well-established industrial base, is expected to drive market growth. Initiatives like the "Bioeconomy Strategy" and investments from the Federal Ministry of Education and Research (BMBF) have significantly enhanced innovation and manufacturing capabilities in plasmid DNA production.

Various contract manufacturing organizations in Germany, such as BioNTech and BIA Separations, are crucial in scaling up plasmid DNA production to meet both domestic and international demand. BioNTech, for instance, has completed the construction of its proprietary plasmid DNA manufacturing facility in Marburg, Germany, aimed at independently producing plasmid DNA for clinical and commercial applications in cancer and infectious diseases. Thus, strategic government policies, increasing demand for advanced therapies, and technological expertise are key drivers of market growth in Germany.

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