Quarterly Statement

1st Quarter 2022

TABLE OF CONTENTS

This document is a quarterly statement pursuant to section 53 of the Exchange Rules for the Frankfurt Stock Exchange.

This quarterly statement contains certain financial indicators such as operating result (EBIT), EBITDA, EBITDA pre, net financial debt and earnings per share pre, which are not defined by International Financial Reporting Standards (IFRS). These financial indicators should not be taken into account in order to assess the performance of Merck in isolation or used as an alternative to the financial indicators presented in the consolidated financial statements and determined in accordance with IFRS.

The figures presented in this quarterly statement have been rounded. This may lead to individual values not adding up to the totals presented.

The Annual Report for 2021 has been optimized for mobile devices and is available on the internet at **https://www.merckgroup.com/en/annualreport/2021/**.

MERCK – IN BRIEF

Merck Group

Key figures

€ million	**Q1 2022**	Q1 2021	Change
Net sales	5,198	4,631	12.2%
Operating result (EBIT)[1]	1,173	1,043	12.5%
Margin (% of net sales)[1]	22.6%	22.5%	
EBITDA[2]	1,603	1,467	9.3%
Margin (% of net sales)[1]	30.8%	31.7%	
EBITDA pre[1]	1,629	1,511	7.8%
Margin (% of net sales)[1]	31.3%	32.6%	
Profit after tax	884	748	18.2%
Earnings per share (€)	2.02	1.72	17.4%
Earnings per share pre (€)[1]	2.41	2.18	10.6%
Operating cash flow	840	1,216	–30.9%

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Merck Group

Net sales by quarter

€ million

Merck Group

EBITDA pre[1] by quarter

€ million

[1] Not defined by International Financial Reporting Standards (IFRS).

Developments within the Group and R&D

Merck

We are Merck, a vibrant science and technology company. Science is at the heart of everything we do. It drives the discoveries we make and the technologies we create. Our work makes a positive difference to millions of people's lives every day. Our Life Science experts impact life and health with science. In Healthcare, we discover unique ways to treat the most challenging diseases such as multiple sclerosis and cancer. And with our Electronics business, we are the company behind the companies, advancing digital living. Everything we do is fueled by a belief in science and technology as a force for good. A belief that has driven our work since 1668 and will continue to inspire us to find more joyful and sustainable ways to live. We are curious minds dedicated to human progress.

We hold the global rights to the Merck name and brand. The only exceptions are Canada and the United States. In these countries, we operate as MilliporeSigma in the Life Science business, as EMD Serono in the Biopharma business, and as EMD Electronics in the electronics business. We had 61,508 employees worldwide on March 31, 2022, compared with 57,850 employees on March 31, 2021.

This section of the present quarterly statement summarizes the highlights of the first quarter of 2022 at Merck including those in research and development. A detailed description of Merck and its business sectors can be found in our Annual Report for 2021.

Merck Group

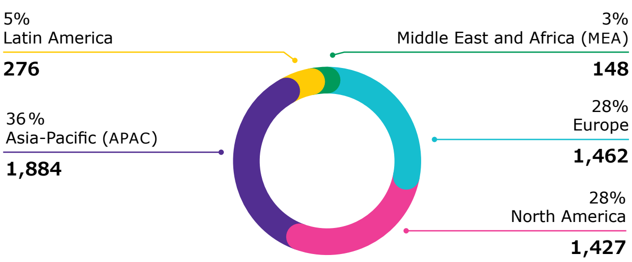
Net sales by business sector – Q1 2022

€ million / in % of net sales

Merck Group

Net sales by region – Q1 2022

€ million / in % of net sales



Life Science

- We are a leading, global supplier of tools, research-grade chemicals and equipment for academic labs, biotech and biopharmaceutical manufacturers and the industrial sector. Together with our customers, our purpose is to positively impact life and health with science. With a strong focus on innovation, we are committed to delivering the products, services, and digital platforms to create a sustainable future for generations to come.
- Across our Life Science business sector, we collaborate with the global scientific community to deliver breakthrough innovations along with a broad and deep portfolio of more than 300,000 products. In the first quarter of 2022, we continued to focus on innovating for our customers by launching approximately 7,000 products across the Research Solutions, Process Solutions and Applied Solutions business units, including those launched through our “faucet program” for antibodies, reference materials, chemicals, and nanomaterials.

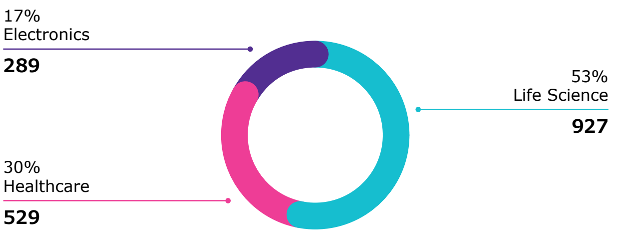
Process Solutions

- In February, we announced the closing of the transaction to acquire Exelead Inc., a biopharmaceutical CDMO based in Indianapolis, Indiana, USA. Exelead specializes in PEGylated products and complex injectable formulations, including lipid nanoparticle- (LNP) based drug delivery technology, which plays a key role in mRNA vaccines and therapeutics for use in Covid-19 and many other indications. The company has experience in all development phases, from pre-clinical development to commercial contract manufacturing for LNP formulations, including fill and finish. In addition, we plan to invest more than € 500 million in Exelead’s capabilities over the next ten years. Exelead will complement the more than 20 years of experience we have in producing lipids as well as our mRNA manufacturing capabilities acquired through AmpTec in 2020. This integrated offering will accelerate our ability to bring life-enhancing vaccines and treatments to patients faster by simplifying supply chain complexity and enhancing speed to market through an end-to-end portfolio.

Merck Group

EBITDA pre[1] by business sector[2] – Q1 2022

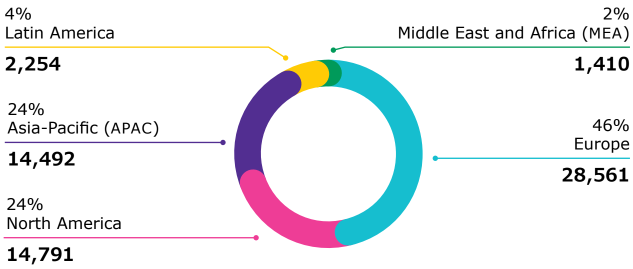
€ million / in %



Merck Group

Employees by region as of March 31, 2022

Number / in %



[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not presented: Decline in Group EBITDA pre by € −117 million due to Corporate and Other.

Research Solutions

- In the first quarter of 2022, the Research Solutions business unit continued to expand its ZooMAb® recombinant monoclonal antibodies product portfolio with 72 new products and added 23 new products to the ColorWheel® flow cytometry antibodies and dyes portfolio.

Applied Solutions

- In February, our Life Science business sector entered into a collaboration with Waters Corporation to build and expand an Extractables and Leachables (E&L) Reference Library to include ion mobility measurements. The library will enable analytical labs to identify potential extractables and leachable compounds in their samples by using Waters' ion mobility-enabled liquid chromatography mass spectrometry (LC-MS) instruments and then confirming the identity and quantity using our Supelco® reference materials. Under the agreement, Waters will use high-quality analytical standards and reference materials from our Life Science business sector to build and expand an E&L library of collision cross-section (CCS) values for Waters' LC-MS instruments. The library will help to identify E&L compounds, with each addition to the library carefully selected to ensure maximum relevance to users. The library is cross-linked to our Life Science business sector's online product catalogue to provide users access to reference materials to confirm their results.

Life Science Reorganization

- In February, we announced the reorganization of our Life Science business sector, with several organizational changes and a new operating model to support the long-term growth strategy of Life Science and to better serve the evolving needs of our global customers. As of April 1, existing Contract Development and Manufacturing Organization (CDMO) and Contract Testing services were consolidated into one global fully integrated Life Science Services organization for traditional and novel modalities, along with the respective sales and marketing, research and development, manufacturing, and supply chain operations. The CDMO service business covers traditional modalities, including monoclonal antibodies and high-potency active pharmaceutical ingredients as well as novel modalities, such as antibody drug conjugates and viral and gene therapies. The Process Solutions business unit will continue to focus on delivering our leading product offering for pharmaceutical development and manufacturing, including filtration devices, chromatography resins, single-use assemblies and systems, processing chemicals, and excipients. As of April 1, the Research Solutions and Applied Solutions business units were combined into one organization called Science and Lab Solutions. This business unit serves the pharma and biotech, industrial and testing, academic and government, as well as diagnostics sectors, providing customers a more seamless experience and access to a broad portfolio including reagents, consumables, devices, instruments, software and services for scientific discovery, in addition to lab water instruments, consumables and services, microbiology and biomonitoring products, test assays, analytical reagents, and flow cytometry kits and instruments. Functions such as Integrated Supply Chain and Operations, the Transformation Office, Strategy, Business Development & Sustainability and Quality & Regulatory as well as other enabling functions will remain unchanged.

Healthcare

- Patients are at the center of our work and with every advance, we contribute to creating, improving and prolonging lives. This single ambition drives everything we do. With the continued evolution of our pipeline and a clear commitment to delivering on our performance objectives, we strengthen our position as a global specialty innovator.

Oncology

- We have transformed the first-line standard of care in advanced bladder cancer with Bavencio® (avelumab) with more than 50 approvals around the world. On February 18, we announced the results of an exploratory analysis of Bavencio® from the Phase III JAVELIN Bladder 100 trial with 19 additional months of follow-up data from the initial primary analysis. This analysis reinforced the original results of the trial. At 38 months median follow-up, patients with locally advanced or metastatic urothelial carcinoma (UC) whose tumors had not progressed on platinum-based chemotherapy who received first-line maintenance treatment with Bavencio® plus best supportive care (BSC) showed a consistent overall survival (OS) benefit, with a median OS of 23.8 months compared with patients who received BSC alone. The results were presented at the 2022 American Society of Clinical Oncology's annual Genitourinary Cancers Symposium between February 17-19, 2022.
- We are evaluating options to maintain the long-term leadership for Bavencio® in UC. Notably, we are initiating a Phase II umbrella study called JAVELIN Bladder Medley, combining avelumab with novel investigational agents including our anti-TIGIT M6223 and Nektar Therapeutics' interleukin-15 receptor agonist, NKTR-255, and Gilead Sciences' Trodelvy® (sacituzumab govitecan-hziy) in the maintenance setting. These avelumab-based maintenance combinations will be compared with Bavencio® maintenance monotherapy to identify which regimen may offer even higher efficacy than the JAVELIN Bladder regimen. We continue to collaborate with other partners to provide Bavencio® and let them explore combinations in UC. For example, last year Exelixis announced the collaboration with us to combine Bavencio® with their next-generation tyrosine kinase inhibitor, XL092, in different metastatic settings.
- We brought the first MET inhibitor to market with Tepmetko® (tepotinib) for advanced lung cancer. On February 18, we announced that the European Commission had approved once-daily oral Tepmetko® as monotherapy for the treatment of adult patients with advanced non-small cell lung (NSCLC) harboring alterations leading to mesenchymal-epithelial transition factor gene exon 14 (METex14) skipping. The approval is based on results from the pivotal Phase II VISION study evaluating Tepmetko® as monotherapy in patients with advanced NSCLC with METex14 skipping alterations. Tepmetko® is now approved in multiple countries.
- Erbitux® continues to be the standard of care treatment for RAS wild-type metastatic colorectal cancer (mCRC) and squamous cell carcinoma of the head and neck (SCCHN) in many countries around the world. We are exploring combinations with third party assets to reinforce the role of cetuximab for mCRC and SCCHN patients and potential expand to new patient segments (e.g. KRAS G12C mutation).
- We are committed to developing a diversified oncology portfolio with organic and inorganic growth opportunities and data-driven optionality. Xevinapant is a good example of our focused approach and has a strong proof of concept. Xevinapant builds on our leadership position in SCCHN. Our ongoing Phase III trial, TrilynX, is investigating xevinapant for previously untreated and unresectable locally advanced SCCHN, in combination with platinum-based chemotherapy and standard fractionation intensity-modulated radiotherapy. We will also initiate a second global Phase III study in resected locally advanced head and neck cancer patients who are unable to tolerate a platinum-based chemotherapy in combination with radiotherapy.

Neurology and Immunology

- On January 10, via our subsidiary Ares Trading S.A., we entered into an out-licensing agreement for sprifermin with TrialSpark/High Line Bio, based in New York, USA. Sprifermin, a recombinant form of human fibroblast growth factor 18, is currently being investigated as a potential form of treatment for people living with osteoarthritis (OA). As part of the agreement, we will receive an upfront payment as well as equity in TrialSpark/High Line Bio. Additionally, we are eligible for milestone payments related to the company's timely delivery related to certain development and commercial milestones, as well as royalties on any potential future net sales. TrialSpark/High Line Bio will assume full responsibility for the research, development and potential commercialization of sprifermin.
- At the Americas Committee for Treatment and Research in Multiple Sclerosis, which took place on 24–26 February, 2022 in West Palm Beach, Florida, USA, we presented new real-word data from the MSBase Registry demonstrating Mavenclad® had lower annualized relapse rates and longer time to first relapse compared with other oral disease modifying therapies fingolimod, dimethyl fumarate and teriflunomide for people living with relapsing MS (RMS). Additional clinical trial data showed that those treated with Mavenclad® had a lower rate of conversion to clinically definite multiple sclerosis, defined by further relapse or disability progression, and lower risk of relapse than those not exposed to Mavenclad®.

Fertility

- To date, over 5 million babies have been born with the help of Gonal-f®.
- The Pergoveris® pen is the first product comprising both recombinant follicle-stimulating hormone (FSH) and recombinant luteinizing hormone (LH) in a ready-to-use liquid version, eliminating the need for mixing. It thus provides a convenient treatment option for women with severe FSH and LH deficiency. Launches around the globe will continue in order to provide patients with access to this therapeutic. The Pergoveris® pen is currently available in 49 countries.

Cardiovascular, Metabolism and Endocrinology

- In the first quarter, our modified formulation of Euthyrox® (levothyroxine) for the treatment of hypothyroidism received regulatory approval in three countries, bringing the total number of countries in which it is approved to 83.
- Glucophage®, containing the active ingredient metformin, is approved in 67 countries for prediabetes when lifestyle intervention is not enough to control the condition, in addition to the more than the 100 countries in which Glucophage is approved for type 2 diabetes.
- On February 28, we announced that, in a European worksharing procedure, an extension was granted to the label for metformin products in the EU – Glucophage® (metformin hydrochloride [HCL] immediate release), Glucophage XR® (metformin HCL extended release) and Stagid® (metformin embonate immediate release) – for use throughout pregnancy. The variation for label extension was approved based on results from our register-based cohort safety study, investigating the follow-up of children from over ~4,000 pregnancies with metformin for up to 11 years and extensive independent scientific publications, which all confirmed no increased risk of congenital abnormalities or feto/neonatal toxicity after exposure to metformin at the time of conception and throughout pregnancy.

- Concor® AM, our fixed-dose combination drug of bisoprolol with amlodipine to treat hypertension, is now registered in 66 countries, with the addition of Italy in the first quarter.
- Saizen® (somatropin) is our main endocrinology product and is indicated for the treatment of growth hormone deficiency in children and adults. To date, 17,393 patients use the Easypod® electromechanical injection device for treatment with Saizen® and are enrolled in Easypod® Connect software.
- We continued the rollout of Aluetta®, our new pen for the injection of Saizen®, taking the total number of countries where it is currently available to 28.

Global Healthcare Operations

Ensuring the continuous supply of our medicines

- We are striving to ensure the supply of our medicines to patients in any circumstances, while always observing the highest standards of health and safety for our people and partners.
- Since the start of the Covid-19 pandemic more than two years ago, we have been continuously making every effort to proactively handle the situation and minimize the impact of the pandemic on the supply of our medicines locally and globally through three main levers: the thorough implementation of our business continuity plans across our network, the active management of our stocks and the assessment of alternative transportation routes to reach our customers and patients.
- In the context of the war in Ukraine, we have taken a number of measures to continue to supply patients who rely on our medicines in the countries impacted to the best of our ability, while ensuring the strictest compliance with international sanctions. These measures include building safety stocks locally, accelerating the shipment of goods from our European sites to the countries impacted and defining back-up air shipment routes in addition to truck transportation to ensure the highest flexibility at all times.

Minimizing the ecological footprint of our operations

- We are constantly taking action to further reduce the impact of our operations on our planet.
- In early 2022, results from an external audit confirmed that in 2021, we reduced the CO_2 emissions associated with the logistics of our medicines by 10,600 metric tons compared with 2018 by shifting their transportation from air to sea without compromising the supply reliability that we owe to the over 90 million patients who rely on our medicines each and every day. We are committed to maintaining this annual reduction of CO_2 emissions every year moving forward.
- We are also rolling out the new Slim Pack packaging for our Fertility medicines, which is smaller in size and free of single-use plastics. With this new packaging, we are reducing the environmental footprint of these medicines by using fewer raw materials and reducing transport volumes. We project that this new packaging can reduce transport-related emissions by approximately one third.

Electronics

- Our primary focus is on the electronics market with our materials and solutions changing the way we generate, access, store, process, and display information. In addition, our highly specialized, application-driven Surface Solutions business makes life more colorful. Our business sector consists of three business units: Semiconductor Solutions, Display Solutions and Surface Solutions.
- In the past few years, we have successfully transformed Electronics. We repositioned ourselves and developed into a leading player in the global electronic materials market. In September 2021, we introduced our new growth program Level Up and announced our plans to invest significantly more than € 3 billion in innovation and capacities up to the end of 2025.
- We seek to capture the growth opportunities that come along with the accelerating global demand for innovative semiconductor and display materials. This demand is driven by exponential data growth and impactful technology trends such as the Internet of Things and 5G. As we shift from the transformation to the execution and growth phase, we are aiming for an organic compounded annual growth rate of 3% to 6% between 2021 and 2025.

Semiconductor Solutions

- Semiconductor Solutions is at the heart of Electronics and is enabling the digital transformation in communications, mobility, and healthcare. As almost every electronic device uses one of our products, we are advancing virtually every aspect of digital living. We are developing solutions for smaller, faster and more powerful devices. Semiconductor Solutions is the largest business unit in terms of sales within Electronics and offers materials, delivery systems, and services for the semiconductor industry. The overall semiconductor market is seeing strong growth with the rising adoption of digital technologies driven by recovering automotive markets, increasing smartphone demand amid wider availability of 5G networks and the overall proliferation of data across all elements of our lives.
- The Delivery Systems & Services business develops and deploys reliable delivery equipment to ensure the safe and responsible handling of gases and liquid materials with the highest quality and safety standards for electronic manufacturers. In January 2022, we announced the opening of a new DS&S factory in the greater Phoenix, Arizona area in the United States. As part of our Level Up program, the approximately € 30 million investment will enable us to capture and grow our gas and chemical delivery systems business in the target regions of North America and Europe, with supplemental capacity to supply Asia.
- The Semiconductor Materials business supplies products for every major production step in wafer processing, including doping, patterning, deposition, planarization, etching, and cleaning. Specialty cleans, photoresists, and conductive pastes for semiconductor packaging round off the portfolio. Our business fields are Thin-Film Solutions, Specialty Gases, Patterning, and Planarization Solutions. Intermolecular is our center for complex material solutions in Electronics, located in San Jose, California, USA. There, we explore, test, and develop combinations of advanced materials for next-generation electronics. Compared to conventional methods, our approach provides significant time savings in the material development process, faster learning cycles, and detailed findings on new material combinations to provide a unique service for customers.

- Our Thin Film Solutions business is actively developing new organosilanes for conformal, high-performance atomic layer deposition (ALD) films. We continue to develop our plasma-enhanced chemical vapor deposition (PECVD) products for low-dielectric constant applications. We are already qualified at several customers and continue to develop new materials for leading edge nodes in 5 nm, 3 nm and beyond. Newly engineered container delivery systems enable these materials for our customers. To support the industry's need for faster and better processors, servers, and data storage density, we are working on new spin-on dielectric formulations with improved dielectric characteristics. We continue to work toward localization of our supply chain and local technology application capabilities closer to our customers.
- Our etch gas technology program in our Specialty Gases business is developing new chemistries to enable more than 100-layer, single-stack etching for advanced memory devices such as V-NAND (vertical flash memory). Several materials have been identified which are in testing and evaluation. We are also seeing good progress in our etch gas development work for new low-GWP (Global Warming Potential) gases for etch applications.
- Our Patterning Solutions business continues to see strong engagement in the development of extreme ultraviolet (EUV) lithography materials. With EUV lithography being ramped up in memory and logic segments, our EUV rinse product line is experiencing strong demand. At the same time, we are also driving our R&D engagements to continue development in Directed Self Assembly (DSA), advanced hard mask materials, as well as underlayers for photoresists and related ancillaries to address shrink-related module challenges.
- Our Planarization business is driving new product development across advanced oxide and metal segments by leveraging the proximity of our R&D lab to our leading customers in Asia and the United States. We are also leveraging data analytics in product development and quality control to speed up time to market for our customers while providing more predictive in-use performance for our customers.

Display Solutions

- Our Display Solutions business unit includes Liquid Crystal Materials (LC), Organic Light-Emitting Diode Materials (OLED), Display Patterning Materials (DPM), Smart Antenna and Liquid Crystal Glazing. With our broad and deep display portfolio, our profound expertise across display technologies and our strong footprint in all key regions of the globe, we continue to work very closely with the leading display manufacturers to push the boundaries of possibility. In particular, as we are heading towards a much more digitalized post-pandemic world, we see an increasing proliferation of displays across all aspects of our lives. Not only larger TVs and more smartphones, but also the emergence of completely new devices such as augmented reality (AR) headsets or quantum dot (QD)-OLED TVs. These kinds of new applications require game changing materials and expertise from companies such as ours.
- In Liquid Crystals, we continue to see a very dynamic market development. Covid-19 has accelerated the market shift towards China and increased competition. We maintained our position as the technology leader with our licristal™ products for large-area displays as well as high-resolution mobile devices. OLED is now firmly established in premium smartphones, however, we see increasing demand for larger diameter OLED applications (TVs, tablets, notebooks). This is related to OLED materials in general, including our livilux™ OLED materials.
- Our Liquid Crystal Glazing business is receiving an increasing number of commercial orders for eyrise® i350 invisible privacy glazing. The transparent dynamic liquid crystal glass partitions can be switched on demand to create private spaces in public and commercial venues. Our smart antenna technology licriOn™ leverages the microwave properties of liquid crystals to deliver flat and robust phased array antennas for broadband communication. As our expertise clearly lies on the materials side, we are collaborating with antenna partners in this project to design and commercialize the actual antennas.

Surface Solutions

- The core markets for Surface Solutions are automotive coatings, cosmetics and, to a smaller extent, industrial applications. We are serving these markets with functional and decorative solutions. Our main focus is on proactive solution development in close cooperation with our customers as well as expanding our portfolio through innovation in all areas. We provide our customers with solutions that help them to create innovative surfaces of all kinds. Our materials enable more beautiful, more resistant and more effective product designs.
- After Surface Solutions successfully launched a pilot project for an e-commerce strategy in China in 2020, the global rollout of the platform started in the first quarter of 2022 with the provision of e-shops in Germany, Italy and the United Kingdom. This is an important milestone for the digital transformation of the business unit, offering customers 24/7 access to the product portfolio.
- In February, Surface Solutions also introduced two new cosmetic ingredients: RonaCare® Baobab and RonaCare® Hibiscus. These two products are developed from nutrient-rich superfoods – the baobab fruit and the hibiscus flower, the effects of which can also be used for the skin. The botanical extracts are ethically sourced, sustainable, and suitable for the use within a wide range of topical products, from daily skin care to dermocosmetics. This development supports our strategic approach to strengthening our business and that of our customers with sustainable products.

Course of Business and Economic Position

Merck

Overview – Q1 2022

- All business sectors contribute to double-digit increase (12.2%) in Group sales to € 5,198 million
- Organic sales growth (7.8%) supported by positive foreign exchange effects (4.4%) and a negligible acquisition-related sales increase (0.1%)
- Group EBITDA pre up 7.8% to € 1,629 million
- EBITDA pre margin slips to 31.3% (Q1 2021: 32.6%)
- Net financial debt amounts to € 9.2 billion as of March 31, 2022 (December 31, 2021: € 8.8 billion)

Merck Group

Key figures

€ million	**Q1 2022**	Q1 2021	Change
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Margin (% of net sales)[1]	30.8%	31.7%	
EBITDA pre[1]	1,629	1,511	7.8%
Margin (% of net sales)[1]	31.3%	32.6%	
Profit after tax	884	748	18.2%
Earnings per share (€)	2.02	1.72	17.4%
Earnings per share pre (€)[1]	2.41	2.18	10.6%
Operating cash flow	840	1,216	–30.9%

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of net sales and results of operations

In the first quarter of 2022, the Merck Group increased sales by € 567 million or 12.2% to € 5,198 million compared with the year-earlier quarter (Q1 2021: € 4,631 million). Organic growth of Group sales was attributable to all three business sectors and totaled € 359 million or 7.8%. In addition, foreign exchange had a positive impact of € 203 million or 4.4% on Group net sales. This was primarily attributable to the development of the U.S. dollar, the Chinese renminbi and the Taiwan dollar. Portfolio changes increased Group net sales by € 5 million or 0.1%. This resulted from the acquisition of the biopharmaceutical contract development manufacturing organization Exelead Inc., USA, which closed on February 22, 2022 and will complement the Life Science business sector.

The Life Science business sector generated a sales increase of € 314 million or 14.7% to € 2,445 million in the first quarter of 2022 (Q1 2021: € 2,131 million). Organically, sales grew by 9.7%. Sales were also boosted by currency tailwinds of 4.8% and a portfolio effect of 0.2% from the acquisition of Exelead Inc., USA. Accounting for 47% (Q1 2021: 46%) of Group net sales, Life Science was the largest business sector of the Merck Group in terms of sales, followed by the Healthcare business sector with a 35% (Q1 2021: 35%) share of Group sales. Healthcare generated a sales increase of € 156 million or 9.5% to € 1,795 million in the first quarter of 2022 (Q1 2021: € 1,639 million). This was attributable to organic growth of 6.5% as well as foreign-exchange effects of 3.0%. Net sales of the Electronics business sector increased in the reporting period by € 97 million or 11.2% to € 957 million (Q1 2021: € 861 million). Organic sales growth was responsible for 5.2 percentage points and favorable foreign exchange effects for 6.0 percentage points of this increase. The percentage contribution of Electronics to Group net sales amounted to 18% (Q1 2021: 19%).

Merck Group

Net sales by business sector

€ million	**Q1 2022**	**Share**	**Organic growth[1]**	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	Q1 2021	Share
Life Science[2]	2,445	47%	9.7%	4.8%	0.2%	14.7%	2,131	46%
Healthcare	1,795	35%	6.5%	3.0%	–	9.5%	1,639	35%
Electronics[2]	957	18%	5.2%	6.0%	–	11.2%	861	19%
Merck Group	**5,198**	**100%**	**7.8%**	**4.4%**	**0.1%**	**12.2%**	**4,631**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

In the first quarter of 2022, the regional sales development of the Merck Group was as follows:

Merck Group

Net sales by region

€ million	**Q1 2022**	**Share**	**Organic growth[1]**	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	Q1 2021	Share
Europe	1,462	28%	10.7%	–0.8%	0.3%	10.2%	1,328	29%
North America	1,427	28%	4.6%	7.8%	0.1%	12.5%	1,268	27%
Asia-Pacific (APAC)	1,884	36%	6.7%	5.7%	–	12.4%	1,676	36%
Latin America	276	5%	12.4%	5.7%	–	18.1%	233	5%
Middle East and Africa (MEA)	148	3%	13.3%	4.8%	–	18.1%	126	3%
Merck Group	**5,198**	**100%**	**7.8%**	**4.4%**	**0.1%**	**12.2%**	**4,631**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The consolidated income statement of the Merck Group is as follows:

Merck Group

Consolidated Income Statement

€ million	Q1 2022	Q1 2021	Change
Net sales	**5,198**	**4,631**	**12.2 %**
Cost of sales	–1,987	–1,721	15.5 %
Gross profit	**3,211**	**2,910**	**10.3 %**
Marketing and selling expenses	–1,087	–1,007	7.9 %
Administration expenses[1]	–287	–271	6.0 %
Research and development costs[1]	–586	–576	1.6 %
Impairment losses and reversals of impairment losses on financial assets (net)	–5	–6	–16.5 %
Other operating expenses and income	–72	–7	>100.0 %
Operating result (EBIT)[2]	**1,173**	**1,043**	**12.5 %**
Financial result	–34	–59	–41.9 %
Profit before income tax	**1,139**	**984**	**15.8 %**
Income tax	–255	–236	8.1 %
Profit after tax	**884**	**748**	**18.2 %**
Non-controlling interests	–3	–1	>100.0 %
Net income	**880**	**747**	**17.9 %**

[1] Prior-year figures have been adjusted due to restructuring within Corporate and Other.
[2] Not defined by International Financial Reporting Standards (IFRS).

In the first quarter of 2022, the positive development of Group sales led to a 10.3% increase in gross profit to € 3,211 million (Q1 2021: € 2,910 million). The resulting gross margin, i.e. gross profit as a percentage of sales, slipped slightly to 61.8% (Q1 2021: 62.8%).

Research and development costs rose by 1.6% to € 586 million, leading to a Group research spending ratio (research and development costs as a percentage of sales) of 11.3% (Q1 2021: 12.4%). Accounting for a 71% (Q1 2021: 75%) share of research and development expenses of all business sectors, Healthcare is the most research-intensive business sector of Merck.

Other operating expenses and income (net) showed an expense balance of € 72 million in the first quarter of 2022; in the year-earlier quarter, this item showed an expense balance of € 7 million. The changes in this item were mainly due to developments in the Healthcare business sector (see explanations under “Healthcare”).

The 12.5% increase in the operating result (EBIT) to € 1,173 million (Q1 2021: € 1,043 million) was due mainly to the positive development of gross profit.

The 41.9% improvement in the financial result to € –34 million (Q1 2021: € –59 million) was due mainly to the positive development of the interest result and was primarily attributable to the effects of the new rules pertaining to interest on tax arrears and tax refunds as well as the decline in financial liabilities.

Income tax expenses of € 255 million (Q1 2021: € 236 million) led to an effective tax rate of 22.4% (Q1 2021: 24.0%).

Net income, i.e. profit after tax attributable to Merck KGaA shareholders, increased by 17.9% to € 880 million (Q1 2021: € 747 million), yielding earnings per share of € 2.02 in the first quarter of 2022 (Q1 2021: € 1.72).

The following table presents the composition of EBITDA pre in the first quarter of 2022 compared with the year-earlier quarter. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Merck Group

Reconciliation EBITDA pre[1]

	Q1 2022			Q1 2021			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**5,198**	**–**	**5,198**	**4,631**	**–**	**4,631**	**12.2%**
Cost of sales	–1,987	2	–1,985	–1,721	4	–1,716	15.7%
Gross profit	**3,211**	**2**	**3,212**	**2,910**	**4**	**2,915**	**10.2%**
Marketing and selling expenses	–1,087	1	–1,087	–1,007	6	–1,001	8.6%
Administration expenses[2]	–287	20	–268	–271	20	–250	6.9%
Research and development costs[2]	–586	1	–584	–576	2	–575	1.7%
Impairment losses and reversals of impairment losses on financial assets (net)	–5	–	–5	–6	–	–6	–16.5%
Other operating income and expenses	–72	6	–67	–7	14	7	>100.0%
Operating result (EBIT)[1]	**1,173**			**1,043**			
Depreciation/amortization/impairment losses/reversals of impairment losses	430	–3	427	424	–3	421	1.5%
EBITDA[3]	**1,603**			**1,467**			
Restructuring expenses	8	–8	–	28	–28	–	
Integration expenses/IT expenses	20	–20	–	19	–19	–	
Gains (–)/losses (+) on the divestment of businesses	–10	10	–	–6	6	–	
Acquisition-related adjustments	2	–2	–	–1	1	–	
Other adjustments	6	–6	–	4	–4	–	
EBITDA pre[1]	**1,629**	**–**	**1,629**	**1,511**	**–**	**1,511**	**7.8%**
of which: organic growth[1]							1.6%
of which: exchange rate effects							6.4%
of which: acquisitions/divestments							–0.2%

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Prior-year figures have been adjusted due to restructuring within Corporate and Other.
[3] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

EBITDA pre, the most important financial indicator used to steer operating business, rose by 7.8% to € 1,629 million in the first quarter of 2022 (Q1 2021: € 1,511 million). Organic earnings growth amounted to 1.6% and was supported by positive foreign exchange effects of 6.4%. Negative portfolio effects amounted to –0.2% and were largely attributable to the acquisition of Exelead Inc., USA. Relative to net sales, the EBITDA pre margin was 31.3% in the first quarter of 2022 (Q1 2021: 32.6%). Earnings per share pre (earnings per share after net of tax effect of adjustments and amortization of purchased intangible assets) improved by 10.6% to € 2.41 (Q1 2021: € 2.18).

Net assets and financial position

Merck Group

Balance sheet structure

	March 31, 2022		Dec. 31, 2021		Change	
	€ million	in %	€ million	in %	€ million	in %
Non-current assets	**35,149**	**76.0%**	**34,380**	**75.8%**	**769**	**2.2%**
thereof:						
Goodwill	17,761		17,004		756	
Other intangible assets	7,549		7,612		–63	
Property, plant and equipment	7,303		7,217		86	
Other non-current assets	2,536		2,546		–10	
Current assets	**11,085**	**24.0%**	**10,982**	**24.2%**	**103**	**0.9%**
thereof:						
Inventories	4,143		3,900		242	
Trade and other current receivables	4,138		3,646		492	
Other current financial assets	106		174		–68	
Other current assets	1,360		1,362		–2	
Cash and cash equivalents	1,339		1,899		–561	
Total assets	**46,235**	**100.0%**	**45,362**	**100.0%**	**872**	**1.9%**
Equity	**22,990**	**49.7%**	**21,416**	**47.2%**	**1,575**	**7.4%**
Non-current liabilities	**13,038**	**28.2%**	**13,515**	**29.8%**	**–477**	**–3.5%**
thereof:						
Non-current provisions for employee benefits	2,879		3,402		–523	
Other non-current provisions	279		269		10	
Non-current financial debt	8,286		8,270		16	
Other non-current liabilities	1,594		1,574		20	
Current liabilities	**10,207**	**22.1%**	**10,432**	**23.0%**	**–225**	**–2.2%**
thereof:						
Current provisions	546		601		–54	
Current financial debt	2,345		2,531		–186	
Trade and other current payables/refund liabilities	3,229		3,219		10	
Other current liabilities	4,086		4,081		5	
Total equity and liabilities	**46,235**	**100.0%**	**45,362**	**100.0%**	**872**	**1.9%**

In the first three months of 2022, total assets of the Merck Group increased by 1.9% to € 46,235 million (December 31, 2021: € 45,362 million).

In the first quarter of 2022, equity rose by 7.4%, amounting to € 22,990 million as of March 31, 2022 (December 31, 2021: € 21,416 million). Consequently, the equity ratio improved to 49.7% (December 31, 2021: 47.2%). More information on the development of equity can be found in the Consolidated Statement of Changes in Net Equity under “Supplemental Financial Information”.

The composition and the development of net financial debt were as follows:

Merck Group

Net financial debt[1]

€ million	March 31, 2022	Dec. 31, 2021	Change € million	Change in %
Bonds and commercial paper	9,467	9,320	147	1.6%
Bank loans	126	36	91	>100.0%
Liabilities to related parties	490	896	–406	–45.3%
Loans from third parties and other financial liabilities	72	56	16	28.9%
Liabilities from derivatives (financial transactions)	20	35	–14	–41.8%
Lease liabilities	456	459	–3	–0.7%
Financial debt	**10,631**	**10,801**	**–170**	**–1.6%**
less:				
Cash and cash equivalents	1,339	1,899	–561	–29.5%
Current financial assets[2]	64	149	–85	–57.2%
Net financial debt[1]	**9,228**	**8,753**	**475**	**5.4%**

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Excluding current derivatives (operational).

Merck Group

Reconciliation of net financial debt[1]

€ million	2022	2021
January 1	**8,753**	**10,758**
Operating cash flow	–840	–1,216
Payments for investments in intangible assets[2]	68	47
Payments from the disposal of intangible assets[2]	–21	–9
Payments for investments in property, plant and equipment[2]	430	315
Payments from the disposal of property, plant and equipment[2]	–17	–6
Acquisitions[2]	695	–
Payments from other divestments[2]	–4	–1
Dividend payments/profit withdrawals[2]	100	55
Currency translation difference	15	108
Other	48	30
March 31	**9,228**	**10,081**

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] According to the Consolidated Cash Flow Statement.

As one of the three key performance indicators alongside net sales and EBITDA pre, operating cash flow developed as follows:

Merck Group

Operating cash flow

€ million	**Q1 2022**	Q1 2021	Change
EBITDA pre[1]	**1,629**	**1,511**	7.8%
Adjustments[1]	–26	–44	–41.0%
Financial result[2]	–34	–59	–41.9%
Income tax[2]	–255	–236	8.1%
Changes in working capital[1]	–322	–88	>100.0%
of which: changes in inventories[3]	–186	–108	72.6%
of which: changes in trade accounts receivable[3]	–343	–314	9.2%
of which: changes in trade accounts payable/refund liabilities[3]	207	334	–37.9%
Changes in provisions[3]	22	–34	>100.0%
Changes in other assets and liabilities[3]	–149	160	>100.0%
Neutralization of gains/losses on disposals of fixed assets and other disposals[3]	–27	–6	>100.0%
Other non-cash income and expenses[3]	3	12	–76.1%
Operating cash flow	**840**	**1,216**	**–30.9%**

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] According to the Consolidated Income Statement.
[3] According to the Consolidated Cash Flow Statement.

Life Science

Life Science

Key figures

€ million	**Q1 2022**	Q1 2021[2]	Change
Net sales	2,445	2,131	14.7%
Operating result (EBIT)[1]	723	594	21.9%
Margin (% of net sales)[1]	29.6%	27.9%	
EBITDA[3]	922	780	18.2%
Margin (% of net sales)[1]	37.7%	36.6%	
EBITDA pre[1]	927	794	16.8%
Margin (% of net sales)[1]	37.9%	37.2%	

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

[3] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of sales and results of operations

In the first quarter of 2022, net sales of the Life Science business sector increased by 14.7% to € 2,445 million (Q1 2021: € 2,131 million). This reflected organic sales growth of 9.7% and a favorable foreign exchange effect of 4.8%. All three business units contributed to organic growth, with the largest contribution coming from Process Solutions followed by Applied Solutions.

Life Science

Net sales by business unit

€ million	**Q1 2022**	**Share**	**Organic growth[1]**	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	Q1 2021[2]	Share
Process Solutions	1,251	51%	13.1%	5.2%	0.5%	18.8%	1,053	50%
Research Solutions	688	28%	2.1%	4.4%	–	6.5%	646	30%
Applied Solutions	506	21%	12.9%	4.3%	–	17.2%	432	20%
Life Science	**2,445**	**100%**	**9.7%**	**4.8%**	**0.2%**	**14.7%**	**2,131**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors and adjustments within the Life Science business sector.

The Process Solutions business unit, which markets products and services for the pharmaceutical production value chain, generated organic sales growth of 13.1%, which was the highest rate within the Life Science business sector. Strong demand in the core business drove the positive performance while the business in connection with the Covid-19 pandemic remained stable in a year-on-year comparison. With a favorable foreign exchange effect of 5.2% and a positive impact of 0.5% from the acquisition of Exelead Inc., USA, net sales totaled € 1,251 million in the first quarter 2022 (Q1 2021: € 1,053 million). The percentage contribution of the Process Solutions business unit to the net sales of Life Science was 51% (Q1 2021: 50%). Geographically, Process Solutions posted double-digit organic sales growth in all key regions.

The Research Solutions business unit, which provides products and services to support life science research for pharmaceutical, biotechnology and academic research laboratories, delivered organic sales growth of 2.1% in the first quarter of 2022. This was mainly driven by growth in the core business amid a decline in pandemic-related demand. With a favorable foreign exchange effect of 4.4%, sales totaled € 688 million in the first quarter 2022 (Q1 2021: € 646 million). Research Solutions thus accounted for a 28% share of the net sales of Life Science (Q1 2021: 30%). Organic sales growth was mainly driven by the Asia-Pacific region.

The Applied Solutions business unit with its broad range of products for researchers as well as scientific and industrial laboratories accounted for a 21% share of Life Science sales (Q1 2021: 20%). Applied Solutions generated strong organic sales growth of 12.9% in the first quarter of 2022, to which all businesses contributed. Including a favorable foreign exchange effect of 4.3%, sales totaled € 506 million in the first quarter of 2022 (Q1 2021: € 432 million). Geographically, Applied Solutions achieved organic sales growth in all regions.

Net sales of the business sector by region in the first quarter of 2022 developed as follows:

Life Science

Net sales by region

€ million	**Q1 2022**	**Share**	**Organic growth**[1]	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	Q1 2021[2]	Share
Europe	798	33%	9.7%	1.2%	0.5%	11.4%	717	34%
North America	900	37%	9.6%	8.2%	0.2%	18.0%	763	36%
Asia-Pacific (APAC)	642	26%	9.7%	4.7%	–	14.4%	561	26%
Latin America	80	3%	13.0%	6.2%	0.1%	19.3%	67	3%
Middle East and Africa (MEA)	24	1%	4.8%	3.0%	–	7.8%	22	1%
Life Science	**2,445**	**100%**	**9.7%**	**4.8%**	**0.2%**	**14.7%**	**2,131**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

The following table presents the composition of EBITDA pre for the first quarter of 2022 in comparison with the year-earlier quarter. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Life Science

Reconciliation EBITDA pre[1]

	Q1 2022			Q1 2021[2]			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**2,445**	**–**	**2,445**	**2,131**	**–**	**2,131**	**14.7%**
Cost of sales	–965	–	–965	–849	1	–849	13.7%
Gross profit	**1,480**	**–**	**1,480**	**1,282**	**1**	**1,283**	**15.4%**
Marketing and selling expenses	–552	–	–552	–501	1	–500	10.3%
Administration expenses	–91	7	–84	–82	7	–74	13.6%
Research and development costs	–88	–	–88	–75	–	–75	17.3%
Impairment losses and reversals of impairment losses on financial assets (net)	–2	–	–2	–5	–	–5	–67.3%
Other operating income and expenses	–24	–1	–25	–26	5	–20	22.0%
Operating result (EBIT)[1]	**723**			**594**			
Depreciation/amortization/impairment losses/reversals of impairment losses	198	–1	197	186	–	186	5.9%
EBITDA[3]	**922**			**780**			
Restructuring expenses	–3	3	–	8	–8	–	
Integration expenses/IT expenses	8	–8	–	8	–8	–	
Gains (–)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	1	–1	–	–1	1	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**927**	**–**	**927**	**794**	**–**	**794**	**16.8%**
of which: organic growth[1]							11.8%
of which: exchange rate effects							5.5%
of which: acquisitions/divestments							–0.4%

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

[3] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Adjusted gross profit rose by 15.4% to € 1,480 million in the first quarter of 2022 (Q1 2021: € 1,283 million). The increase was mainly driven by the strong sales growth in Process Solutions and Applied Solutions followed by Research Solutions. Marketing and selling expenses rose by 10.3% to € 552 million (Q1 2021: € 500 million), mainly driven by higher logistics costs and increased personnel costs. Administration expenses increased by 13.6% to € 84 million (Q1 2021: € 74 million) owing to additional expenses to support our organic transformation. Research and development costs grew by 17.3% to € 88 million (Q1 2021: € 75 million), driven mainly by our core growth areas. Apart from organic development, foreign exchange effects also influenced the development of costs in comparison with the year-earlier quarter. EBITDA pre rose by 16.8% to € 927 million (Q1 2021: € 794 million). Organic growth of 11.8% in the first quarter of 2022 was supported by positive exchange rate effects of 5.5% and partly offset by negative portfolio effects of –0.4%, mainly related to the acquisition of Exelead Inc., USA. The EBITDA pre margin increased slightly to 37.9% (Q1 2021: 37.2%).

Healthcare

Healthcare

Key figures

€ million	Q1 2022	Q1 2021	Change
Net sales	1,795	1,639	9.5%
Operating result (EBIT)[1]	454	445	2.1%
Margin (% of net sales)[1]	25.3%	27.1%	
EBITDA[2]	526	523	0.5%
Margin (% of net sales)[1]	29.3%	31.9%	
EBITDA pre[1]	529	533	–0.7%
Margin (% of net sales)[1]	29.5%	32.5%	

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of net sales and results of operations

In the first quarter of 2022, the Healthcare business sector generated organic sales growth of 6.5%. Including positive foreign exchange effects of 3.0%, net sales increased by a total of € 156 million or 9.5% to € 1,795 million (Q1 2021: € 1,639 million). The positive foreign exchange effect was primarily attributable to the favorable development of the U.S. dollar and the Chinese renminbi.

Sales of the key product lines and products developed in the first quarter of 2022 as follows:

Healthcare

Development of net sales by key product lines and products

€ million	Q1 2022	Share	Organic growth[1]	Exchange rate effects	Total change	Q1 2021	Share
Oncology	**379**	**21%**	**26.6%**	**1.9%**	**28.5%**	**295**	**18%**
thereof: Erbitux®	242	13%	9.5%	1.0%	10.5%	219	13%
thereof: Bavencio®	128	7%	>100%	5.0%	>100%	62	4%
Neurology & Immunology	**391**	**22%**	**0.8%**	**3.5%**	**4.4%**	**374**	**23%**
thereof: Rebif®	201	11%	–14.8%	3.4%	–11.4%	227	14%
thereof: Mavenclad®	189	11%	24.9%	3.7%	28.7%	147	9%
Fertility	**341**	**19%**	**4.3%**	**2.3%**	**6.6%**	**320**	**20%**
thereof: Gonal-f®	200	11%	5.0%	2.3%	7.3%	186	11%
Cardiovascular, Metabolism and Endocrinology	**652**	**36%**	**2.5%**	**3.6%**	**6.1%**	**615**	**37%**
thereof: Glucophage®	218	12%	–5.1%	5.4%	0.2%	217	13%
thereof: Concor®	138	8%	8.1%	1.4%	9.5%	126	8%
thereof: Euthyrox®	128	7%	16.1%	3.5%	19.7%	107	7%
thereof: Saizen®	61	3%	6.6%	–	6.6%	57	3%
Other	**32**	**2%**				**35**	**2%**
Healthcare	**1,795**	**100%**	**6.5%**	**3.0%**	**9.5%**	**1,639**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The oncology drug Erbitux® generated favorable organic sales growth of 9.5%, thus continuing the positive trend from the previous year. Including positive foreign exchange effects of 1.0%, net sales increased by a total of 10.5% to € 242 million in the first quarter of 2022 (Q1 2021: € 219 million). All regions contributed to this favorable performance. High demand in the Asia-Pacific region continued to be the main growth driver. Accordingly, net sales in this region saw organic growth of 9.5% to € 106 million (Q1 2021: € 92 million). The good performance in the core European markets was also attributable to increased demand. Consequently, sales in the region grew organically by 9.1% to € 105 million (Q1 2021: € 100 million).

Sales of the oncology drug Bavencio® doubled to € 128 million (Q1 2021: € 62 million). Since receiving approval as a first-line maintenance therapy for patients with locally advanced or metastatic urothelial carcinoma (UC) in the United States in June 2020 and in Europe and Japan in the first quarter of 2021, Bavencio® has continuously gained market share in these regions, which was the main driver of this very favorable growth.

Mavenclad®, for the oral short-course treatment of highly active relapsing forms of multiple sclerosis, generated organic sales growth of 24.9% in the first quarter of 2022. Including positive foreign exchange effects of 3.7%, net sales amounted to € 189 million (Q1 2021: € 147 million). The positive development of Mavenclad® was predominantly driven by the partial recovery of the high-efficacy MS therapy segment, which was negatively impacted by the pandemic, and increased demand in all regions.

Healthcare

Product sales and organic growth[1] of Erbitux®, Glucophage® and Rebif® by region – Q1 2022

		Total	Europe	North America	Asia-Pacific (APAC)	Latin America	Middle East and Africa (MEA)
Erbitux®	€ million	242	105	–	106	20	11
	Organic growth[1]	9.5%	9.1%	–	9.5%	2.9%	28.5%
	Share	100%	43%	–	44%	8%	5%
Glucophage®	€ million	218	32	–	123	39	24
	Organic growth[1]	–5.1%	3.9%	–	–12.2%	3.4%	10.8%
	Share	100%	15%	–	56%	18%	11%
Rebif®	€ million	201	61	120	2	9	9
	Organic growth[1]	–14.8%	–18.3%	–15.0%	–20.2%	72.5%	–26.1%
	Share	100%	30%	60%	1%	4%	5%

[1] Not defined by International Financial Reporting Standards (IFRS).

The medicine Rebif®, which is used to treat relapsing forms of multiple sclerosis, saw an organic decline of –14.8%. This was mainly due to the ongoing difficult competitive situation in the interferon market as well as competition from oral dosage forms and high-efficacy MS therapies. Positive foreign exchange effects of 3.4% were responsible for the decrease in global net sales by –11.4% to € 201 million (Q1 2021: 227 million). Sales in North America, the largest sales market for Rebif®, fell organically by –15.0% to € 120 million (Q1 2021: € 131 million), while sales in Europe saw an organic decline of –18.3% to € 61 million (Q1 2021: € 76 million).

The Cardiovascular, Metabolism and Endocrinology franchise, which commercializes products to treat cardiovascular diseases, thyroid disorders, diabetes, and growth disorders, among other things, generated positive organic growth of 2.5%. Including positive foreign exchange effects of 3.6%, net sales of the franchise amounted to € 652 million (Q1 2021: € 615 million). At € 218 million, sales of the diabetes medicine Glucophage® were at about the same level as the year-earlier quarter (Q1 2021: € 217 million). An organic sales decline of –5.1% was offset by positive foreign exchange effects of 5.4%. The organic sales decline of Glucophage® was primarily attributable to the volume-based procurement regulation that took effect in China in 2020 and was successively rolled out in all regions in China in 2021. The products Concor®, Euthyrox® and Saizen® contributed to the positive development of the franchise with high single-digit and low double-digit organic growth rates.

The Fertility franchise delivered organic sales growth of 4.3%. Including positive foreign exchange effects of 2.3%, net sales amounted to € 341 million (Q1 2021: € 320 million). Although various pandemic-related rebound effects had already had a significant positive impact on the year-earlier quarter, the franchise once again achieved organic growth thanks to continued strong demand for our Fertility products. Gonal-f®, the leading recombinant hormone for the treatment of infertility, generated organic growth of 5.0%, thus increasing net sales to € 200 million (Q1 2021: € 186 million).

Net sales of the business sector by region developed in the first quarter of 2022 as follows:

Healthcare

Net sales by region

€ million	**Q1 2022**	**Share**	**Organic growth[1]**	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	Q1 2021	Share
Europe	583	33%	11.6%	–3.7%	–	8.0%	540	33%
North America	388	22%	–3.7%	7.1%	–	3.4%	375	23%
Asia-Pacific (APAC)	524	29%	5.0%	6.2%	–	11.2%	471	29%
Latin America	187	10%	13.0%	5.4%	–	18.4%	158	9%
Middle East and Africa (MEA)	114	6%	14.3%	4.9%	–	19.2%	96	6%
Healthcare	**1,795**	**100%**	**6.5%**	**3.0%**	**–**	**9.5%**	**1,639**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

The following table presents the composition of EBITDA pre in the first quarter of 2022 compared with the year-earlier quarter. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Healthcare

Reconciliation EBITDA pre[1]

	Q1 2022			Q1 2021			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**1,795**	**–**	**1,795**	**1,639**	**–**	**1,639**	**9.5%**
Cost of sales	–461	–	–460	–388	–	–388	18.5%
Gross profit	**1,334**	**–**	**1,335**	**1,251**	**–**	**1,251**	**6.7%**
Marketing and selling expenses	–376	–	–375	–370	5	–365	2.7%
Administration expenses	–71	2	–69	–73	3	–69	–
Research and development costs	–397	1	–397	–416	1	–415	–4.5%
Impairment losses and reversals of impairment losses on financial assets (net)	–4	–	–4	–2	–	–2	>100.0%
Other operating income and expenses	–32	1	–32	55	–	55	>100.0%
Operating result (EBIT)[1]	**454**			**445**			
Depreciation/amortization/impairment losses/reversals of impairment losses	72	–1	71	78	–	78	–9.6%
EBITDA[2]	**526**			**523**			
Restructuring expenses	2	–2	–	7	–7	–	
Integration expenses/IT expenses	2	–2	–	3	–3	–	
Gains (–)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	–	–	–	–	–	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**529**	**–**	**529**	**533**	**–**	**533**	**–0.7%**
of which: organic growth[1]							–7.4%
of which: exchange rate effects							6.7%
of which: acquisitions/divestments							–

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

In the first quarter of 2022, adjusted gross profit increased by 6.7% to € 1,335 million (Q1 2021: € 1,251 million). The resulting gross margin declined to 74.4% (Q1 2021: 76.3%).

Adjusted marketing and selling expenses were slightly above the year-earlier quarter and amounted to € 375 million (Q1 2021: € 365 million). The slight decline in research and development costs reflected the lower investment requirements for our development pipeline. The costs amounted to € 397 million (Q1 2021: € 415 million). The change in other operating expenses and income to € –32 million (Q1 2021: € 55 million) was mainly due to the positive impact in the year-earlier quarter of the recognition of milestone payments of around € 50 million for the approvals of Bavencio® in Europe and Japan as a first-line maintenance treatment of patients with locally advanced or metastatic urothelial carcinoma (UC).

At € 529 million, EBITDA pre remained at the level of the year-earlier quarter (Q1 2021: € 533 million). An organic earnings decline of –7.4% compared with positive foreign exchange effects of 6.7%. The EBITDA pre margin fell to 29.5% (Q1 2021: 32.5%).

Electronics

Electronics
Key figures

€ million	Q1 2022	Q1 2021[2]	Change
Net sales	957	861	11.2%
Operating result (EBIT)[1]	145	125	15.9%
Margin (% of net sales)[1]	15.2%	14.6%	
EBITDA[3]	279	259	7.4%
Margin (% of net sales)[1]	29.1%	30.2%	
EBITDA pre[1]	289	273	5.8%
Margin (% of net sales)[1]	30.2%	31.8%	

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.
[3] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Development of net sales and results of operations

In the first quarter of 2022, net sales of the Electronics business sector grew by 11.2% to € 957 million (Q1 2021: € 861 million). Organically, sales rose by 5.2%, driven by the strong growth in Semiconductor Solutions. Foreign exchange effects increased sales by 6.0%.

Electronics
Net sales by business unit

€ million	Q1 2022	Share	Organic growth[1]	Exchange rate effects	Acquisitions/ divestments	Total change	Q1 2021[2]	Share
Semiconductor Solutions	581	61%	15.9%	6.3%	–	22.2%	475	55%
Display Solutions	262	27%	–11.5%	6.8%	–	–4.7%	274	32%
Surface Solutions	115	12%	0.9%	3.0%	–	4.0%	111	13%
Electronics	**957**	**100%**	**5.2%**	**6.0%**	**–**	**11.2%**	**861**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors and adjustments within the Electronics business sector.

Net sales of the Semiconductor Solutions business unit, which comprises two businesses, namely Semiconductor Materials and Delivery Systems & Services, increased by 22.2% in the first quarter of 2022 to € 581 million (Q1 2021: € 475 million), driving its overall share of net sales of the Electronics business sector to 61% (Q1 2021: 55%). Semiconductor Materials focuses on the development and commercialization of material-based solutions for the semiconductor industry, while Delivery Systems & Services focuses on developing, selling and operating delivery systems for semiconductor manufacturers. Organically, net sales rose by 15.9% in the first quarter of 2022 as robust demand for Semiconductor Materials and Delivery Systems & Services continued to fuel growth across both businesses. Foreign exchange effects contributed 6.3% to sales.

In the first quarter of 2022, net sales of the Display Solutions business unit, consisting mainly of the business with liquid crystals, photoresists for display applications as well as OLED materials, decreased by –4.7% to € 262 million (Q1 2021: € 274 million). Display Solutions saw an organic decline of –11.5% as the increased market competition in Liquid Crystals continued to be the main factor in the year-on-year decline. Foreign exchange effects were favorable at 6.8%.

Net sales of the Surface Solutions business unit grew 4.0% to € 115 million in the first quarter of 2022 (Q1 2021: € 111 million). Organically, Surface Solutions increased sales by 0.9% compared with the year-earlier quarter. Growth in Cosmetics outweighed slower demand in Coatings and Industrials as supply chain shortages continued to impact customer production. Foreign exchange effects were favorable at 3.0%.

Net sales of the business sector by region in the first quarter of 2022 developed as follows:

Electronics

Net sales by region

€ million	**Q1 2022**	**Share**	**Organic growth**[1]	**Exchange rate effects**	**Acquisitions/ divestments**	**Total change**	Q1 2021[2]	Share
Europe	81	8%	13.0%	1.6%	–	14.6%	71	8%
North America	139	15%	–0.7%	7.4%	–	6.8%	130	15%
Asia-Pacific (APAC)	719	75%	5.4%	6.2%	–	11.6%	644	75%
Latin America	8	1%	–5.6%	6.5%	–	0.8%	8	1%
Middle East and Africa (MEA)	10	1%	24.3%	10.0%	–	34.4%	8	1%
Electronics	**957**	**100%**	**5.2%**	**6.0%**	**–**	**11.2%**	**861**	**100%**

[1] Not defined by International Financial Reporting Standards (IFRS).

2 Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

The following table presents the composition of EBITDA pre for the first quarter of 2022 in comparison with the year-earlier quarter. The IFRS figures have been modified to reflect the elimination of adjustments included in the respective functional costs.

Electronics

Reconciliation EBITDA pre[1]

	Q1 2022			Q1 2021[2]			Change
€ million	IFRS	Elimination of adjustments	Pre[1]	IFRS	Elimination of adjustments	Pre[1]	Pre[1]
Net sales	**957**	**–**	**957**	**861**	**–**	**861**	**11.2%**
Cost of sales	–560	1	–559	–483	4	–479	16.6%
Gross profit	**397**	**1**	**398**	**377**	**4**	**381**	**4.5%**
Marketing and selling expenses	–156	–	–156	–135	1	–135	15.6%
Administration expenses	–28	–	–28	–34	2	–33	–14.9%
Research and development costs	–75	–	–75	–67	–	–66	13.1%
Impairment losses and reversals of impairment losses on financial assets (net)	–	–	–	–	–	–	–
Other operating income and expenses	7	9	16	–16	10	–6	>100.0%
Operating result (EBIT)[1]	**145**			**125**			
Depreciation/amortization/impairment losses/reversals of impairment losses	134	–	133	134	–3	131	1.5%
EBITDA[3]	**279**			**259**			
Restructuring expenses	5	–5	–	8	–8	–	
Integration expenses/IT expenses	5	–5	–	5	–5	–	
Gains (–)/losses (+) on the divestment of businesses	–	–	–	–	–	–	
Acquisition-related adjustments	1	–1	–	–	–	–	
Other adjustments	–	–	–	–	–	–	
EBITDA pre[1]	**289**	**–**	**289**	**273**	**–**	**273**	**5.8%**
of which: organic growth[1]							–6.0%
of which: exchange rate effects							11.9%
of which: acquisitions/divestments							–

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.
[3] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Adjusted gross profit for the Electronics business sector increased by 4.5% to € 398 million in the first quarter of 2022 (Q1 2021: € 381 million). Higher sales and the aforementioned favorable foreign exchange effects drove the positive development. In the first quarter of 2022, adjusted gross margin was 41.6%, which was below the year-earlier figure (Q1 2021: 44.3%). The decline was attributable to two key business-related factors. Firstly, quickly escalating raw material and energy costs outpaced price increase implementation, especially in Semiconductor Materials. Secondly, the sector saw continued unfavorable price and mix effects from market developments in the Liquid Crystal business. Excluding the elimination of adjustments, the operating result (EBIT) increased by € 20 million to € 145 million in the first quarter of 2022 (Q1 2021: € 125 million). The increase in EBIT was driven by the additional gross profit coupled with lower administration costs from the “Bright Future” transformation program on the one hand and Versum synergies on the other hand. In addition, insurance proceeds from past losses were recognized under other operating income. Higher marketing and selling expenses due to increased logistics costs associated with rising fuel costs and increased demand for key shipping lanes as well as research and development costs to support growth in Semiconductor Materials partially offset some of these gains. EBITDA pre increased by 5.8% to € 289 million in the first quarter of 2022 (Q1 2021: € 273 million). An organic decline of –6.0% was offset by favorable foreign exchange effects of 11.9%. At 30.2%, the EBITDA pre margin in the first quarter of 2022 was below the year-earlier quarter (Q1 2021: 31.8%).

Corporate and Other

Corporate and Other comprises administration expenses for Group functions that cannot be directly allocated to the business sectors, such as Finance, Procurement, Legal, Communications, and Human Resources. Corporate and Other additionally encompasses expenses for central, non-allocated IT functions, including expenses related to the expansion and harmonization of IT systems within the Merck Group as well as research and development costs spanning business sectors.

Corporate and Other

Key figures

€ million	**Q1 2022**	Q1 2021	Change
Operating result (EBIT)[1]	–149	–120	23.7%
EBITDA[2]	–123	–95	29.1%
EBITDA pre[1]	–117	–89	30.7%

[1] Not defined by International Financial Reporting Standards (IFRS).

[2] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to the operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.

Adjusted administration expenses amounted to € 86 million in the first quarter of 2022 (Q1 2021: € 74 million). Research and development costs spanning business sectors were allocated to Corporate and Other in the amount of € 25 million in the first quarter of 2022 (Q1 2021: € 18 million). After eliminating adjustments, other operating expenses (net) rose to € 27 million in the first quarter of 2022 (Q1 2021: € 22 million). After eliminating depreciation, amortization and adjustments, EBITDA pre totaled € –117 million in the first quarter of 2022 (Q1 2021: € –89 million).

Report on Expected Developments

Merck Group

With the publication of the results of fiscal 2021, we provided a forecast of the development of net sales and EBITDA pre for the Merck Group and the individual business sectors Life Science, Healthcare and Electronics as well as an estimation of Group operating cash flow in 2022. With the completion of the first quarter of 2022, we further specify this forecast.

Fundamental assumptions

Owing to the geopolitical situation, the increase in energy and raw material prices in particular has accelerated. The current forecast reflects the continuation of a correspondingly high price level, which will be mitigated by countermeasures as far as possible.

Furthermore, subsequent to a renewed outbreak of Covid-19 in China, lockdowns have been imposed in individual provinces. This forecast is based on the assumption of a short, locally restricted lockdown with imminent relaxations.

Owing to the assumptions outlined above as regards the economic and geopolitical circumstances, this forecast is subject to increased uncertainty and volatility. We are monitoring the developments very closely and will adapt our forecast accordingly if necessary.

Furthermore, the forecast is based on the following additional assumptions.

We do not expect the acquisition of Exelead Inc., USA, a biopharmaceutical contract development and manufacturing organization (CDMO), to have a material effect at Group level in fiscal 2022.

As regards the development of exchange rates, we expect a continuing volatile environment due to political and macroeconomic developments. For 2022, we continue to forecast a positive foreign exchange effect. In the first quarter, the euro-U.S. dollar exchange rate was within the corridor of 1.11 to 1.16 we had forecast, albeit at the lower end. Taking into account the current exchange rate development, we now expect a more favorable development of foreign exchange effects. Therefore, we now expect a euro-U.S. dollar exchange rate in the range of 1.06 to 1.10.

Net sales

We are specifying our expectations for the Merck Group and predict organic sales growth of 6% to 9% in fiscal 2022 (previously strong organic growth), which will be driven by all our business sectors, particularly Life Science. Owing to the current development of exchange rates, we now assume a stronger positive foreign exchange effect of between 3% and 6% (previously 1% to 4%). Overall, we forecast net sales in a range of between € 21.6 billion and € 22.8 billion (2021: € 19.7 billion).

EBITDA pre

For EBITDA pre in fiscal 2022, we are specifying our forecast and expect organic growth of between 5% and 9% (previously strong organic growth). Life Science will be the main growth driver; Healthcare and Electronics will also contribute positively to the organic development. The expected foreign exchange development is forecast to have a positive effect of 4% to 8% on Group EBITDA pre compared with fiscal 2021 (previously 2% to 5%); it is likely to be seen mainly in the Healthcare and Electronics business sectors. Overall, we expect EBITDA pre of between € 6.6 billion and € 7.1 billion (2021: € 6.1 billion).

Operating cash flow

In general, the forecast for operating cash flow is subject to a higher fluctuation corridor than the forecast for net sales and EBITDA pre. We provide an estimate of the development of operating cash flow only for the Group as a whole. In this context, the development of operating cash flow is forecast to be largely in line with the strong operating performance. The development of working capital, which will reflect strong business performance, will dampen operating cash flow as will the expected payments within the scope of the ongoing transformation and growth programs in fiscal 2022. These programs relate mainly to the Healthcare and Electronics business sectors. Overall, we expect operating cash flow of € 4.5 billion to € 5.1 billion (2021: € 4.6 billion) (previously strong increase). As regards the composition of operating cash flow, we refer to the consolidated cash flow statement in this report.

Life Science

For Life Science, we assume organic sales growth of between 7% and 10% for fiscal 2022 (previously strong organic growth). Process Solutions will remain the strongest growth driver by far, with growth in this business unit being driven exclusively by the organic growth of the core business. We now expect Process Solutions to generate sales of up to € 700 million from the fight against the Covid-19 pandemic (previously up to € 900 million in fiscal 2022). In connection with the Covid-19 pandemic, the production of vaccines, medicines and diagnostics, for which we manufacture the required input materials, is contributing to our sales. The Applied Solutions and Research Solutions business units will also contribute positively to the overall development of Life Science. The dynamic growth in our Life Science business is currently subject to higher volatility due to the varying developments across product groups and customer segments. Increased research and development activity on the customer side as well as higher production volumes among pharmaceutical companies, especially in the biopharmaceutical segment, are the key drivers of growth in the core business. The expansion of our production capacities will enable us to meet a higher level of demand. We expect foreign exchange effects of 3% to 6% (previously slightly to moderately positive). The forecast for net sales is € 10.00 billion to € 10.65 billion (2021: € 9.0 billion).

Following a strong first quarter, we forecast EBITDA pre in a range of between € 3.60 to € 3.85 billion (2021: € 3.3 billion), reflecting organic growth of 6% to 10% (previously strong organic growth). Earnings growth will continue to be driven mainly by the dynamic development of demand. Targeted countermeasures are likely to be able to offset the increase in negative impacts from higher logistics costs and raw material prices. Nevertheless, the development of EBITDA pre remains subject to greater uncertainty due to the underlying assumptions regarding economic and geopolitical circumstances as previously outlined. Based on our estimates, the foreign exchange effect on earnings in fiscal 2022 should be between 3% and 6% (previously slightly to moderately positive).

Healthcare

For fiscal 2022, we assume organic net sales growth of between 4% and 7% (previously solid organic growth). We expect further significant increases in sales of Mavenclad® and Bavencio® to contribute substantially to this. For our established business, we forecast a roughly stable organic development. Generally, this will be driven by organic growth in the Fertility franchise and by our products in the Cardiovascular, Metabolism & Endocrinology (CM&E) franchise. Following the adverse impacts on the sales of CM&E in fiscal 2021 caused by the volume-based procurement regulations introduced in China in 2020, this franchise will return to growth in fiscal 2022 as expected. The decline in sales of Rebif® due to continued competitive pressure can thus be offset. We expect foreign exchange effects of 3% to 6% (previously slightly to moderately positive). Overall, we forecast net sales in a range of between € 7.6 billion and € 8.0 billion (2021: € 7.1 billion).

For fiscal 2022, we are specifying our assumptions as regards organic growth of EBITDA pre to between 3% and 5% (previously moderate to solid organic growth). Significant earnings contributions, especially from Mavenclad®, should more than offset the negative earnings effects due to the expected decline in sales of Rebif®. The expected positive development of EBITDA pre will result from continued strict cost management. Consequently, operating expenses will develop more moderately compared with the rise in sales.
In addition, we will further pursue the continuous prioritization of our development pipeline. We therefore expect the share of both marketing and selling expenses as well as research and development costs to decline as a percentage of sales. The development of research and development costs will remain heavily dependent on clinical data as well as further expected study results. The absence of non-recurring effects incurred in fiscal 2021 will negatively impact the development of EBITDA pre. This relates primarily to the milestone payments realized in the previous year within the scope of our strategic alliance with Pfizer to develop and commercialize Bavencio® as well as the earnings effect from the full receipt of the previously deferred upfront cash payment as a result of the mutual decision to end the global strategic alliance with GlaxoSmithKline plc (GSK) on the co-development and co-commercialization of bintrafusp alfa. The one-time items included in other operating income in the previous year in this context totaled € 173 million. In fiscal 2022, we expect income from active portfolio management in a low to mid double-digit million euro range. For Healthcare, we predict foreign exchange effects of 8% to 12% (previously solid to strongly positive). Overall, we forecast EBITDA pre in a range of between € 2.35 billion and € 2.5 billion (2021: € 2.2 billion).

Electronics

In the Electronics business sector, we expect organic sales growth of 5% to 8% (previously solid to strong organic growth) in fiscal 2022. The key growth driver of the development compared with the previous year will remain the Semiconductor Solutions business unit, for which we expect a strong growth dynamic that will exceed market growth in the medium term. As expected, the project business within our Delivery Systems & Services business will be subject to strong fluctuations owing to its dependency on major individual orders. We also expect our Surface Solutions business unit to see a positive organic development in fiscal 2022. Sales in our Display Solutions business unit will continue to decline organically. This will be attributable to the organic decrease in the Liquid Crystals business, which is facing persistent price erosion due to the price pressure common in this industry. We expect foreign exchange effects of 4% to 7% (previously a moderate to solid positive foreign exchange effect). Consequently, we forecast net sales of € 3.95 billion to € 4.15 billion (2021: € 3.6 billion).

For 2022, we expect EBITDA pre to see an organic development of 0% to 4% (previously solid organic growth). We assume that in comparison with the previous year, the anticipated growth of Semiconductor Solutions as well as active price and cost management will more than offset the price erosion in Liquid Crystals. In comparison with the previous forecast, we expect a greater adverse impact from higher raw material and logistic costs, which countermeasures can offset only partly. In this context, the development of EBITDA pre remains subject to greater uncertainty due to the underlying assumptions regarding economic and geopolitical circumstances as previously outlined. We forecast foreign exchange effects of between 9% and 12% (previously solid to strongly positive) and expect EBITDA pre of € 1.2 billion to € 1.3 billion (2021: € 1.1 billion).

Corporate and Other

We are specifying our forecast for Corporate and Other and now expect EBITDA pre for fiscal 2022 in a corridor of € –510 million to € –570 million (2021: € –465 million) (previously slight increase in costs). In particular, this increase is attributable to the adapted assumptions for exchange rate developments and the associated expected negative effects of currency hedging transactions, which will partly offset positive foreign exchange effects in the business sectors.

In summary, the forecast for fiscal 2022 is as follows:

Forecast for the Merck Group

Forecast for FY 2022

€ million	Net sales	EBITDA pre	Operating cash flow
Merck Group	**~21,600 to 22,800** Organic increase of +6% to +9% Foreign exchange effect +3% to +6%	**~6,600 to 7,100** Organic increase of +5% to +9% Foreign exchange effect +4% to +8%	**~4,500 to 5,100**
Life Science	**~10,000 to 10,650** Organic increase of +7% to +10% Foreign exchange effect +3% to +6%	**~3,600 to 3,850** Organic increase of +6% to +10% Foreign exchange effect +3% to +6%	n/a
Healthcare	**~7,600 to 8,000** Organic increase of +4% to +7% Foreign exchange effect +3% to +6%	**~2,350 to 2,500** Organic increase of +3% to +5% Foreign exchange effect +8% to +12%	n/a
Electronics	**~3,950 to 4,150** Organic increase of +5% to +8% Foreign exchange effect +4% to +7%	**~1,200 to 1,300** Organic increase of +0% to +4% Foreign exchange effect +9% to +12%	n/a
Corporate and Other	–	**~–510 to –570**	n/a

EPS pre € 9.60 to € 10.50, based on an underlying tax rate of 23%

Full-year FX assumption for 2022: € 1 = US$ 1.06 to US$ 1.10

Supplemental Financial Information

Supplemental Financial Information

Consolidated Income Statement

€ million	**Q1 2022**	Q1 2021
Net sales	**5,198**	**4,631**
Cost of sales	–1,987	–1,721
Gross profit	**3,211**	**2,910**
Marketing and selling expenses	–1,087	–1,007
Administration expenses[1]	–287	–271
Research and development costs[1]	–586	–576
Impairment losses and reversals of impairment losses on financial assets (net)	–5	–6
Other operating income	112	132
Other operating expenses	–185	–139
Operating result (EBIT)[2]	**1,173**	**1,043**
Finance income	31	24
Finance costs	–65	–84
Profit before income tax	**1,139**	**984**
Income tax	**–255**	**–236**
Profit after tax	**884**	**748**
thereof: attributable to Merck KGaA shareholders (net income)	880	747
thereof: attributable to non-controlling interests	3	1
Earnings per share (in €)		
Basic	2.02	1.72
Diluted	2.02	1.72

[1] Prior-year figures have been adjusted owing to restructuring within Corporate and Other.
[2] Not defined by International Financial Reporting Standard (IFRS).

Statement of Comprehensive Income

€ million	**Q1 2022**	Q1 2021
Profit after tax	**884**	**748**
Items of other comprehensive income that will not be reclassified to profit or loss in subsequent periods		
Net defined benefit liability		
Changes in remeasurement	589	555
Tax effect	–112	–105
Changes recognized in equity	477	450
Equity instruments		
Fair value adjustments	–45	–63
Tax effect	4	–
Changes recognized in equity	–42	–63
	435	387
Items of other comprehensive income that may be reclassified to profit or loss in subsequent periods		
Cash flow hedge reserve		
Fair value adjustments	–20	–89
Reclassification to profit or loss	15	6
Reclassification to assets	–	–
Tax effect	3	27
Changes recognized in equity	–2	–56
Cost of cash flow hedge reserve		
Fair value adjustments	3	–3
Reclassification to profit or loss	1	2
Tax effect	3	–
Changes recognized in equity	8	–
Currency translation difference		
Changes taken directly to equity	261	895
Reclassification to profit or loss	–2	–
Changes recognized in equity	259	895
	265	**838**
Other comprehensive income	**700**	**1,225**
Comprehensive income	**1,584**	**1,973**
thereof: attributable to Merck KGaA shareholders	1,581	1,970
thereof: attributable to non-controlling interests	3	3

Consolidated Balance Sheet

€ million	March 31, 2022	Dec. 31, 2021
Non-current assets		
Goodwill	17,761	17,004
Other intangible assets	7,549	7,612
Property, plant and equipment	7,303	7,217
Investments accounted for using the equity method	3	3
Other non-current financial assets	902	911
Other non-current receivables	25	25
Other non-current non-financial assets	105	95
Non-current income tax receivables	10	10
Deferred tax assets	1,492	1,502
	35,149	**34,380**
Current assets		
Inventories	4,143	3,900
Trade and other current receivables	4,138	3,646
Contract assets	207	207
Other current financial assets	106	174
Other current non-financial assets	793	663
Current income tax receivables	360	492
Cash and cash equivalents	1,339	1,899
	11,085	**10,982**
Total assets	**46,235**	**45,362**
Total equity		
Equity capital	565	565
Capital reserves	3,814	3,814
Retained earnings	16,450	15,134
Gains/losses recognized in equity	2,090	1,824
Equity attributable to Merck KGaA shareholders	**22,919**	**21,338**
Non-controlling interests	71	78
	22,990	**21,416**
Non-current liabilities		
Non-current provisions for employee benefits	2,879	3,402
Other non-current provisions	279	269
Non-current financial debt	8,286	8,270
Other non-current financial liabilities	149	106
Other non-current non-financial liabilities	15	15
Non-current income tax liabilities	41	42
Deferred tax liabilities	1,389	1,411
	13,038	**13,515**
Current liabilities		
Current provisions for employee benefits	174	224
Other current provisions	372	377
Current financial debt	2,345	2,531
Other current financial liabilities	1,077	1,192
Trade and other current payables	2,356	2,380
Refund liabilities	873	839
Current income tax liabilities	1,466	1,421
Other current non-financial liabilities	1,543	1,468
	10,207	**10,432**
Total equity and liabilities	**46,235**	**45,362**

Consolidated Cash Flow Statement

€ million	Q1 2022	Q1 2021
Profit after tax	**884**	**748**
Depreciation/amortization/impairment losses/reversals of impairment losses	430	424
Changes in inventories	–186	–108
Changes in trade accounts receivable	–343	–314
Changes in trade accounts payable/refund liabilities	207	334
Changes in provisions	22	–34
Changes in other assets and liabilities	–149	160
Neutralization of gains/losses on disposals of assets	–27	–6
Other non-cash income and expenses	3	12
Operating cash flow	**840**	**1,216**
Payments for investments in intangible assets	–68	–47
Payments from the disposal of intangible assets	21	9
Payments for investments in property, plant and equipment	–430	–315
Payments from the disposal of property, plant and equipment	17	6
Payments for investments in financial assets	–24	–10
Payments for acquisitions less acquired cash and cash equivalents	–695	–
Payments from the disposal of other financial assets	87	10
Payments for the aquisition of non-financial assets	–100	–
Proceeds from the disposal of non-financial assets	100	–
Payments from other divestments	4	1
Cash flow from investing activities	**–1,089**	**–346**
Dividend payment to Merck KGaA shareholders	–	–
Dividend payments to non-controlling interests	–10	–7
Dividend payments to E. Merck KG	–91	–48
Payments from new borrowings from E. Merck KG	–	–
Repayments of financial debt to E. Merck KG	–406	–25
Payments from the issuance of bonds	–	–
Repayments of bonds	–883	–
Changes in other current and non-current financial debt	1,074	86
Cash flow from financing activities	**–315**	**6**
Changes in cash and cash equivalents	**–564**	**875**
Changes in cash and cash equivalents due to currency translation	4	7
Cash and cash equivalents at the beginning of the reporting period	1,899	1,355
Changes in cash and cash equivalents due to reclassification to assets held for sale	–	–
Cash and cash equivalents as of March 31 (consolidated balance sheet)	**1,339**	**2,238**

Consolidated Statement of Changes in Net Equity

€ million	Equity capital	Capital reserves	Retained earnings	Gains/losses recognized in equity	**Equity attributable to Merck KGaA shareholders**	Non-controlling interests	**Equity**
Jan. 1, 2022	**565**	**3,814**	**15,134**	**1,824**	**21,338**	**78**	**21,416**
Profit after tax	–	–	881	–	881	3	884
Gains/losses recognized in equity	–	–	435	266	701	–1	700
Comprehensive income	**–**	**–**	**1,315**	**266**	**1,581**	**3**	**1,584**
Dividend payments	–	–	–	–	–	–10	–10
Profit transfer to/from E. Merck KG including changes in reserves	–	–	–	–	–	–	–
Transactions with no change of control	–	–	–	–	–	–	–
Change in scope of consolidation/ other changes	–	–	–	–	–	–	–
March 31, 2022	**565**	**3,814**	**16,450**	**2,090**	**22,919**	**71**	**22,990**

€ million	Equity capital	Capital reserves	Retained earnings	Gains/losses recognized in equity	**Equity attributable to Merck KGaA shareholders**	Non-controlling interests	**Equity**
Jan. 1, 2021	**565**	**3,814**	**12,378**	**189**	**16,946**	**71**	**17,017**
Profit after tax	–	–	747	–	747	1	748
Gains/losses recognized in equity	–	–	387	837	1,224	2	1,225
Comprehensive income	**–**	**–**	**1,134**	**837**	**1,970**	**3**	**1,973**
Dividend payments	–	–	–	–	–	–7	–7
Profit transfer to/from E. Merck KG including changes in reserves	–	–	–	–	–	–	–
Transactions with no change of control	–	–	–	–	–	–	–
Change in scope of consolidation/ other changes	–	–	–	–	–	–	–
March 31, 2021	**565**	**3,814**	**13,511**	**1,026**	**18,916**	**67**	**18,983**

Significant events during the reporting period

Acquisition of Exelead Inc., USA

On December 30, 2021, Merck signed a definitive agreement to aquire Exelead Inc., United States, (Exelead), a biopharmaceutical contract development and manufacturing organization (CDMO). The transaction closed on February 22, 2022 following regulatory clearances and the fulfillment of other customary closing conditions. The preliminary purchase price was US$ 792 million (€ 701 million) in cash. In the cash flow statement, € 693 million is disclosed as net cash outflows from acquisitions less acquired cash and cash equivalents.

Exelead specializes in complex injectable formulations, including the lipid nanoparticles that are key components of mRNA (messenger ribonucleic acid) therapeutics for treating Covid-19 and many other diseases. The aim of the acquisition is to use Exelead’s capacities and expertise to expand the service range for mRNA contract development and manufacturing and to provide a fully integrated offering across the entire mRNA manufacturing process. The business will be integrated into the new Life Science Services business unit, which will be established as of April 1, 2022.

Acquisition of Chord Therapeutics SA, Switzerland

On January 31, 2022, Merck completed the acquisition of Chord Therapeutics SA, Switzerland, a biotech company specializing in rare neuroinflammatory diseases. The purchase price was agreed as an upfront cash payment amounting to a mid double-digit million euro figure plus payments for the achievement of future development and sales milestones.

For this transaction, Merck applied the optional concentration test set out in IFRS 3. The vast majority of the purchase price was attributable to the license acquired in conjunction with the company. The concentration test was thus satisfied. Accordingly, the transaction was not treated as the acquisition of a business pursuant to IFRS 3 but rather as the acquisition of individual assets.

Acquisition of the MAST® platform from the Lonza Group AG, Switzerland

On March 31, 2022, Merck entered into an agreement with a subsidiary of the Lonza Group AG, Switzerland, to acquire the technology and associated assets of an automated, aseptic bioreactor sampling system (MAST® platform), which will be integrated into the Process Solutions business unit. The transaction is expected to close by the beginning of the third quarter of 2022 at the latest.

Impacts of the war in Ukraine

To date, the war in Ukraine has not had any material effects on the net assets, financial position or results of operations of Merck owing to the limited business volume in Russia, Ukraine, Belarus, and the Republic of Moldova. In the reporting period, the total share of Group net sales generated in this region amounted to less than 1.5 %. These sales were attributable almost exclusively to the Healthcare and Life Science business sectors. With the exception of Russia, Merck does not have any of its own subsidiaries in this region.

Trade receivables from customers in this region are partly covered by credit insurance. The payment behavior of customers in the affected region is being monitored very closely and impairment losses will be recognized if necessary. Moreover, the war had indirect impacts on the net assets, financial position and results of operations of the Group owing to higher logistics and energy expenses as well as an increase in the costs of purchased raw materials.

Information by Business Sector

	Life Science		Healthcare		Electronics		Corporate and Other		Group	
€ million	**Q1 2022**	Q1 2021[1]	**Q1 2022**	Q1 2021	**Q1 2022**	Q1 2021[1]	**Q1 2022**	Q1 2021	**Q1 2022**	Q1 2021
Net sales[2]	**2,445**	**2,131**	**1,795**	**1,639**	**957**	**861**	**–**	**–**	**5,198**	**4,631**
Intersegment sales	16	18	–	–	–	–	–16	–18	–	–
Operating result (EBIT)[3]	**723**	**594**	**454**	**445**	**145**	**125**	**–149**	**–120**	**1,173**	**1,043**
Depreciation and amortization	197	186	71	80	133	131	26	25	427	423
Impairment losses[4]	1	–	1	–	–	3	–	–	3	3
Reversals of impairment losses	–	–	–	–2	–	–	–	–	–	–2
EBITDA[5]	**922**	**780**	**526**	**523**	**279**	**259**	**–123**	**–95**	**1,603**	**1,467**
Adjustments[3]	6	14	3	10	11	14	6	6	26	44
EBITDA pre (Segment result)[3]	**927**	**794**	**529**	**533**	**289**	**273**	**–117**	**–89**	**1,629**	**1,511**
EBITDA pre margin (in % of net sales)[3]	37.9%	37.2%	29.5%	32.5%	30.2%	31.8%	–	–	31.3%	32.6%
Assets by business sector[6]	23,151	21,917	8,132	7,809	10,380	10,306	4,572	5,329	46,235	45,362
Liabilities by business sector[6]	–2,021	–2,094	–3,051	–2,807	–654	–720	–17,519	–18,326	–23,244	–23,947
Payments for investments in property, plant and equipment[7]	205	136	103	108	87	56	36	15	430	315
Payments for investments in intangible assets[7]	4	9	61	35	2	2	2	2	68	47
Non-cash changes in provisions (according to consolidated cash flow statement)[8]	6	21	60	25	6	–15	–17	31	56	62

[1] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.
[2] Excluding intersegment sales.
[3] Not defined by International Financial Reporting Standards (IFRS).
[4] Not including impairment losses on financial assets.
[5] Not defined by International Financial Reporting Standards (IFRS); EBITDA corresponds to operating result (EBIT) adjusted by depreciation, amortization, impairment losses, and reversals of impairment losses.
[6] Figures for the reporting period ending on March 31, 2022, previous-year figures as of December 31, 2021.
[7] As reported in the consolidated cash flow statement.
[8] Excluding provisions for pensions and other post-employment benefits.

€ million	**Q1 2022**	Q1 2021
EBITDA pre of the operating businesses[1]	**1,745**	**1,600**
Corporate and Other	–117	–89
EBITDA pre of the Merck Group[1]	**1,629**	**1,511**
Depreciation/amortization/impairment losses/reversals of impairment losses	–430	–424
Adjustments[1]	26	44
Operating result (EBIT)[1]	**1,173**	**1,043**
Financial result	–34	–59
Profit before income tax	**1,139**	**984**

[1] Not defined by International Financial Reporting Standards (IFRS).

€ million	**Q1 2022**	Q1 2021
Restructuring expenses	–8	–28
Integration expenses/IT expenses	–20	–19
Gains (+)/losses (–) on the divestment of businesses	10	6
Acquisition-related adjustments	–2	1
Other adjustments	–6	–4
Adjustments before impairment losses/reversals of impairment losses[1]	**–26**	**–44**
Impairment losses[2]	–3	–3
Reversals of impairment losses	–	–
Adjustments (total)[1]	**–28**	**–47**

[1] Not defined by International Financial Reporting Standards (IFRS).
[2] Not including impairment losses on financial assets.

The following tables present a more detailed breakdown of net sales from contracts with customers.

€ million	Q1 2022							
Net sales by nature of the products	Life Science		Healthcare		Electronics		**Group**	
Goods	2,175	89%	1,788	100%	852	89%	4,816	93%
Equipment/hardware	107	4%	–	–	82	9%	189	4%
Services	158	7%	3	–	23	2%	183	3%
License income	5	–	–	–	–	–	6	–
Commission income	–	–	3	–	–	–	3	–
Income from co-commercialization agreements	–	–	1	–	–	–	1	–
Total	**2,445**	**100%**	**1,795**	**100%**	**957**	**100%**	**5,198**	**100%**
Net sales by region (customer location)								
Europe	798	33%	583	33%	81	8%	1,462	28%
North America	900	37%	388	22%	139	15%	1,427	28%
Asia-Pacific (APAC)	642	26%	524	29%	719	75%	1,884	36%
Latin America	80	3%	187	10%	8	1%	276	5%
Middle East and Africa (MEA)	24	1%	114	6%	10	1%	148	3%
Total	**2,445**	**100%**	**1,795**	**100%**	**957**	**100%**	**5,198**	**100%**

€ million	Q1 2021							
Net sales by nature of the products	Life Science[1]		Healthcare		Electronics[1]		**Group**	
Goods	1,887	89%	1,615	99%	777	90%	4,279	92%
Equipment/hardware	100	5%	1	–	63	7%	165	4%
Services	140	6%	7	–	21	3%	167	4%
License income	3	–	–	–	–	–	4	–
Commission income	–	–	4	–	–	–	4	–
Income from co-commercialization agreements	–	–	12	1%	–	–	12	–
Total	**2,131**	**100%**	**1,639**	**100%**	**861**	**100%**	**4,631**	**100%**
Net sales by region (customer location)								
Europe	717	34%	540	33%	71	8%	1,328	29%
North America	763	36%	375	23%	130	15%	1,268	27%
Asia-Pacific (APAC)	561	26%	471	29%	644	75%	1,676	36%
Latin America	67	3%	158	9%	8	1%	233	5%
Middle East and Africa (MEA)	22	1%	96	6%	8	1%	126	3%
Total	**2,131**	**100%**	**1,639**	**100%**	**861**	**100%**	**4,631**	**100%**

[1] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors.

Life Science

€ million/in %	**Q1 2022**	**Share**	Q1 2021[1]	Share
Process Solutions	1,251	51%	1,053	50%
Research Solutions	688	28%	646	30%
Applied Solutions	506	21%	432	20%
Total	**2,445**	**100%**	**2,131**	**100%**

[1] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors and adjustments within the Life Science business sector.

Healthcare

€ million/in %	**Q1 2022**	**Share**	Q1 2021	Share
Oncology	**379**	**21%**	**295**	**18%**
thereof: Erbitux®	242	13%	219	13%
thereof: Bavencio®	128	7%	62	4%
Neurology & Immunology	**391**	**22%**	**374**	**23%**
thereof: Rebif®	201	11%	227	14%
thereof: Mavenclad®	189	11%	147	9%
Fertility	**341**	**19%**	**320**	**20%**
thereof: Gonal-f®	200	11%	186	11%
Cardiovascular, Metabolism and Endocrinology	**652**	**36%**	**615**	**37%**
thereof: Glucophage®	218	12%	217	13%
thereof: Concor®	138	8%	126	8%
thereof: Euthyrox®	128	7%	107	7%
thereof: Saizen®	61	3%	57	3%
Other	**32**	**2%**	**35**	**2%**
Total	**1,795**	**100%**	**1,639**	**100%**

Electronics

€ million/in %	**Q1 2022**	**Share**	Q1 2021[1]	Share
Semiconductor Solutions	581	61%	475	55%
Display Solutions	262	27%	274	32%
Surface Solutions	115	12%	111	13%
Total	**957**	**100%**	**861**	**100%**

[1] Prior-year figures have been adjusted due to product reallocations between the Life Science and Electronics business sectors and adjustments within the Electronics business sector.

Subsequent events

Subsequent to the balance sheet date, no events of special importance occurred that could have a material impact on the net assets, financial position or results of operations.

Darmstadt, May 11, 2022

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FINANCIAL CALENDAR 2022–2023

August
4
2022
Half-yearly Financial Report

November
10
2022
Quarterly Statement Q3

March
2
2023
Annual Press Conference

April
28
2023
Annual General Meeting

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TYPESETTING & LAYOUT
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