medigene

# Q1 2020

MEDIGENE AG
QUARTERLY STATEMENT Q1 2020

# PREAMBLE

For some time now, companies listed in the Prime Standard segment of the Frankfurt Stock Exchange have no longer been required to prepare full-length quarterly financial reports. Instead, the regulatory requirements for 3- and 9-Month Reports have been limited to quarterly statements.

Medigene takes advantage of this flexibility and has developed this quarterly statement format that is intended to focus attention on the key operational developments and key figures. Medigene is now using this format to align itself better with the sector-related needs of the public capital markets. This quarterly statement should be read in conjunction with the Consolidated Financial Statements and Group Management Report for the 2019 financial year.

# 1 ABOUT MEDIGENE

Medigene AG (FSE: MDG1, ISIN DE000A1X3W00, Prime Standard) is a publicly listed biotechnology company headquartered in Martinsried near Munich, Germany. With its scientific expertise, Medigene is working on the development of innovative immunotherapies to treat cancer such as T cell receptor-modified T cells (TCR-Ts) or dendritic cell (DC) vaccines in fields of high medical need. The first product candidates are in clinical development and the Company has diverse preclinical programs.

Medigene's strategy is to develop its own therapies towards clinical proof-of-concept, starting with hematological malignancies, and advancing its technologies towards solid tumor indications. In addition, the Company offers selected partners the opportunity to discover and develop additional treatments on the basis of its technological platforms.

# 2 BUSINESS REVIEW SINCE THE BEGINNING OF 2020 AND OUTLOOK

Building an extensive pipeline of potential TCR-development candidates is an important goal to secure future clinical programs. In 2020, Medigene is largely unaffected by the current COVID-19 pandemic and continues to work on further developing its T cell enhancers, characterizing new TCR candidates and collecting preclinical data for future clinical TCR trials, especially targeting solid tumor indications. The primary goal is to make effective new therapies available to patients as soon as possible. Medigene is constantly evaluating new partnering opportunities related to its portfolio of product candidates to additionally maximize the Company's value.

## 2.1 Immunotherapies (core business)

T cells are at the center of Medigene's therapeutic approaches to fight various forms of cancer. With the aid of Medigene's immunotherapies the patient's own defense mechanisms are activated, and T cells harnessed in the battle against cancer. In this way, it is intended to mobilize a T cell response using the patient's immune system that is tailored to the patient's particular disease and disease stage.

### 2.1.1 T cell receptor-modified T cell (TCR-T) therapy

Medigene's TCR-T therapies aim to arm the patient's own T cells with tumor-specific TCRs. These TCR-Ts should thereby be able to detect and efficiently kill tumor cells. This approach to immunotherapy aims to overcome the patient's immune tolerance to cancer cells and tumor-induced immunosuppression by activating the patient's T cells outside the body, genetically modifying them with tumor-specific TCRs and finally multiplying them. In this way, large numbers of specific TCR-Ts are made available to patients to fight the tumor within a short period of time. In the context of its TCR platform, Medigene is developing a pipeline of recombinant TCRs which are isolated from the blood of healthy donors and then are subsequently used to modify the T cells of individual patients to empower them to specifically seek and destroy the cancer cells within the patient.

#### *2.1.1.1 MDG1011 – First TCR-T clinical trial on track*

"MDG1011" is Medigene's first clinical TCR-T immunotherapy product candidate and targets the tumor antigen PReferentially expressed Antigen in MElanoma (PRAME). PRAME is overexpressed in a variety of solid cancer indications and several hematological malignancies. It is a highly suitable target antigen to detect and fight tumors, as the only healthy tissue known to express PRAME is the testis – a tissue which itself is normally not detected by immune cells.

Medigene commenced a clinical trial of MDG1011 in 2018. The multi-center, open-label Phase I/II clinical trial treats blood cancer patients with advanced-stage acute myeloid leukemia (AML), myelodysplastic syndrome (MDS) or multiple myeloma (MM). Phase I is a dose escalation trial with approximately 12 patients, which is primarily evaluating safety and feasibility as well as other secondary endpoints. Dependent on the results of the Phase I portion of the trial, a Phase II portion with up to 80 patients will contain control groups (40 of 80 patients) and will investigate, as co-primary endpoints, the safety and initial efficacy of the therapy.

Active clinical trial sites currently include the university hospitals in Dresden, Erlangen, Frankfurt am Main, Freiburg, Heidelberg, Leipzig, Mainz, Regensburg and Würzburg. Despite the ongoing COVID-19 pandemic, patient recruitment is on track and Medigene still expects to complete dosing of the first three dose cohorts of the Phase I part of this trial by the end of 2020.

#### *2.1.1.2 MDG1021 – second TCR-T clinical trial in preparation*

"MDG1021" is a TCR-T therapy targeting the HA-1 antigen, which is expressed in the patient's hematopoietic (blood-forming) system and thus also on lymphoma or leukemic cells. The goal of MDG1021 is eradicating the disease and allowing donor stem cells from a hematological stem cell transplantation (HSCT) to repopulate the patient's blood forming system.

Medigene in-licensed the HA-1 TCR from the Leiden University Medical Center (LUMC), the Netherlands, at the end of 2018. The TCR was developed by LUMC and positively evaluated for preliminary safety and tolerability in a first Phase I clinical trial involving five patients.

In 2019, Medigene entered into a Clinical Trial Agreement with LUMC to conduct a further Phase I clinical trial assessing the safety, feasibility and preliminary efficacy of MDG1021 in patients with relapsed or persistent hematologic malignancies after allogeneic (foreign) HSCT, an area with high unmet medical need. Medigene continues to expect the trial to be initiated in the first half of 2020, as MDG1021 potentially provides an option for patients who have no other approved treatment available. However, some uncertainty remains regarding how the COVID-19 situation will evolve in the coming weeks and how it might influence clinical trial activity at LUMC.

#### *2.1.1.3 MDG10XX – Enhancing the safety and activity of TCR-T therapies towards treatment of solid tumor indications*

Science-driven innovation underpins the development of tools that will be incorporated into 2nd and 3rd generation TCR-Ts. Innovative tools that are developed at Medigene to enhance the safety and activity of TCR-T therapies might allow Medigene's technology to advance towards solid tumor indications in the future. The continuation of these preclinical projects is currently not affected by the COVID-19 pandemic.

Medigene developed a controllable TCR, the so-called inducible Medigene TCR (iM-TCR), which is designed to improve the safety of TCR-Ts in patients. In parallel, Medigene develops the PD1-41BB switch receptor to improve clinical activity of TCR-Ts. This approach overcomes one of the most important signaling pathways that cancer cells use to inhibit the functionality of T cells – the PD-1 – PD-L1 inhibitory axis.

In January 2020, Medigene entered into a research collaboration on novel cancer antigens for highly specific immunotherapies with the Université de Montréal (UdeM) and IRICoR, a pan-Canadian drug discovery research commercialization center. Under this collaboration, Medigene will evaluate a number of proprietary tumor-specific antigens (TSAs) provided by UdeM through IRICoR particularly for solid tumors. These TSAs have been identified using high-throughput mass spectrometry during many years of research conducted by UdeM scientists. About 90% of these newly discovered TSAs derive from allegedly non-coding regions of the genome and would have been missed by standard approaches. Since these TSAs are found exclusively in tumor cells, but not in healthy tissue, they are particularly interesting targets for tailored immunotherapies.

Medigene has an option to exercise an exclusive and worldwide license to develop and commercialize TCRs against up to five of these novel TSAs. Upfront and near-term payments by Medigene to UdeM and IRICoR are not relevant for the 2020 financial year but could potentially reach mid to high single-digit millions in euro over the course of the next five years. Additionally, UdeM and IRICoR are eligible to receive development, regulatory and commercial milestone payments, along with tiered royalties, on a per target basis. The payments will be expensed as incurred.

### 2.1.2 Dendritic cell (DC) vaccines – Phase I/II clinical trial in AML patients successfully completed

In addition to Medigene's focus on TCR-Ts, the Company has developed a new generation of antigen-tailored DC vaccines.

DCs are a specialized type of immune cells. They patrol throughout the body, take up antigens from various sources including tumors, process them and present short peptides on their cell surface. These peptides are recognized by other types of immune cells such as T cells, which then become activated. In this way, the activated immune cells are enabled to recognize and eliminate tumor cells.

Medigene has developed new, fast and efficient methods for generating autologous (patient-specific) mature DCs which have the relevant characteristics to generate very strong T cell and natural killer cell immune responses. The DCs can be loaded with various tumor antigens to treat different forms of cancer. Since an immune response builds up over the total time of administration of the DC vaccine, this form of therapy is particularly designed for patients who suffer from a tumor disease which has been reduced e.g. by chemotherapy, to such an extent that the prevention of the recurrence of the tumor disease is the main treatment goal.

In January 2020, Medigene published positive 2-year topline results from the completed open-label Phase I/II clinical trial of its autologous DC vaccine program targeting the tumor antigens WT-1 and PRAME in 20 AML patients. The study of Medigene's DC vaccine was designed to potentially offer patients a new treatment option, in particular with the aim of reducing the risk of relapse after completion of conventional chemotherapy. Even

after such treatment, the majority of predominantly elderly AML patients are still diagnosed with minimal residual disease, which sooner or later leads to a relapse.

The study of Medigene's DC vaccine was conducted at the Oslo University Hospital, Norway. Data were collected shortly after completion of the clinical trial, i.e. after 24 months of vaccination and follow-up of all patients. The trial's primary outcome measures assessing 1) the feasibility of DC vaccine manufacturing/administration, and 2) its safety/tolerability over 2 years, were successfully achieved. The DC vaccinations were well tolerated with no serious adverse events (SAEs) related to the treatment. Further encouraging overall survival (80%) and progression-free survival (55%) results were obtained after 2 years of vaccination.

As Medigene's development focus lies on TCR-T therapies, the DC project will be continued with partners. For the Asian region, a development partnership has already been signed with Cytovant Sciences HK Limited, a biopharmaceutical company founded by Roivant Sciences (Roivant/Cytovant), and, based on the positive topline results of the completed study, further partnerships for other regions are currently being evaluated.

### 2.1.3 Extension of patent portfolio

In April 2020, Medigene was granted two patents covering the novel CrossTAg-1 technology in Japan and New Zealand. Patent applications in various other jurisdictions are still pending. The CrossTAg-1 technology is of particular relevance for the further development of both TCR-T and DC vaccine immunotherapies, as the novel technology assures that Medigene can activate several subtypes of T cells specific for peptides derived from the same cancer antigen. In patients, the interaction of these subtypes of T cells is needed for best immunity to ultimately fight and control the cancer.

Besides these newly accomplished patents, Medigene is constantly expanding its existing patent portfolio into further jurisdictions.

## 2.2 Other products (non-core business)

Several drugs and drug candidates stem from the time before Medigene's focus on the clinical development of immunotherapies, which are marketed and developed by partners. To date, there were no significant events regarding these products in 2020 and, according to Medigene's current knowledge, the COVID-19 pandemic has no impact on the related business activities of the respective partners.

## 2.3 Significant partnerships

### 2.3.1 TCR-T partnership with bluebird bio

In 2016, Medigene and bluebird bio, Inc. (bluebird bio) entered into a strategic research and development collaboration and licensing agreement encompassing TCR immunotherapies against four targets. This agreement was expanded in 2018 to six targets.

In 2019, bluebird bio announced at an analyst day that it intends to start clinical development in 2020 of the first therapeutic TCR candidate arising from the collaboration, a TCR against the antigen MAGE-A4. This TCR will probably be tested in patients with solid tumors. According to Medigene's current knowledge, this goal should be met, although there is generally increased uncertainty regarding clinical development programs in the biotechnology sector due to COVID-19. Medigene's preclinical activities under the partnership are continuing undisrupted by the pandemic.

### 2.3.2 TCR-T and DC partnership with Roivant/Cytovant

In 2019, Medigene entered into license and cooperation agreements with Roivant/Cytovant, which cover three TCR-T projects as well as Medigene's DC vaccine for Greater China, South Korea and Japan. Following the publication of positive topline results of Medigene's DC trial, Roivant/Cytovant will continue the development of the DC vaccine under the name "CVT-DC-01" in its licensed territories in Asia. In addition, Roivant/Cytovant has designated the indications synovial sarcoma, MM and solid tumors for the development of the TCR-T therapy directed against the tumor antigen NY-ESO-1, which will be conducted under the name "CVT-TCR-01".

Despite the COVID-19 situation in the Asian region, according to Medigene's current state of knowledge, the development activities of Roivant/Cytovant are not affected. Preclinical work by Medigene within the framework of this partnership is also progressing unaffected by the pandemic.

# 3 FINANCIAL DEVELOPMENT AND FINANCIAL FORECAST

Total revenue in the first quarter 2020 decreased from €2,098 k in the first quarter 2019 by €695 k to €1.403 k. This is mainly due to the sales of Veregen® of €609 k included in the prior-year quarter. In April 2019, Medigene sold its remaining rights to Veregen® and its complete stock of the corresponding active pharmaceutical ingredient to the German pharmaceutical company Aresus Pharma GmbH. Revenues in the first quarter 2020 include revenues from the release of contract liabilities and reimbursement of research and development costs from the strategic partnership with bluebird bio.

Research and development expenses of €6.361 k in the first quarter 2020 were €825 k higher than in the prior-year quarter (Q1 2019: €5,539 k) which is mainly attributable to ongoing costs for the preparation and conduct of clinical trials and preclinical activities of Medigene in line with the expansion of its development pipeline. As a result, the earnings before interest, taxes, depreciation, and amortization (EBITDA) decreased by €961 k on the prior-year quarter (Q1 2019: €-4,988 k), amounting to €-5.949 k in the first quarter 2020.

Medigene confirms its financial forecast for 2020 published in the Group Management's Discussion and Analysis 2019, which reflects the Company's focus on and progress in the core business of immunotherapies. These estimates do not include potential future milestone payments from existing or future partnerships or transactions, as the occurrence of such events or their timing and extent largely depend on external parties and therefore cannot be reliably predicted by Medigene. The Company continues to expect total revenue of €7.0 - 9.0 m in 2020, research and development expenses of €29 - 34 m and a loss at EBITDA level of €24 - 32 m.

Currently Medigene expects no material influence of the COVID-19 pandemic on total revenue, research and development expenses and loss at EBITDA level. For the potential impact of the pandemic on future consolidated financial statements, please refer to note (51) in the Notes to the Consolidated Financial Statements and section 4.3.10 in the Group Management Report for the 2019 financial year.

As of 31 March 2020, cash and cash equivalents and fixed-term deposits amounted to €48.531 k. (31 December 2019: €54.682 k). The decrease in total cash and cash equivalents and fixed-term deposits in the first quarter of 2020 compared to the end of 2019 is primarily due to research and development expenses to advance Medigene's expanded clinical and preclinical activities. Based on current planning, the Company is financed into the second half of 2021.

# 4 OPPORTUNITIES AND RISKS

For a detailed description of the opportunities and risks associated with the Company's business activities as well as the risk management and internal control system, please refer to Section 4 of the Group Management Report in the 2019 Annual Report, as these have remained largely unchanged since the approval of the 2019 Consolidated Financial Statements on 25 March 2020.

Medigene continues to regularly review its risk assessment regarding the COVID-19 pandemic and will make updates as appropriate (see above for program-specific COVID-19 comments).

The occurrence of any one of the risks described in the Group Management's Discussion and Analysis – alone or in conjunction with each other – could have a negative impact on the results of operations, financial position and net assets of Medigene.

# Financial calendar 2020

| | |
|---|---|
| Quarterly Statement Q1 2020 | 14 May 2020 |
| Annual General Meeting 2020 | 15 July 2020 |
| 6-Month Report 2020 | 7 August 2020 |
| Quarterly Statement Q3 2020 | 12 November 2020 |

# Imprint

**Published by**

Medigene AG
Lochhamer Str. 11
82152 Planegg/Martinsried
T +49 (0) 89 200033-0
F +49 (0) 89 200033-2920

**Contact**

Public & Investor Relations
Dr. Gary Waanders, Dr. Anna Niedl, Claudia Burmester
T +49 89 2000 3333 01
investor@medigene.com

# Trademarks



# Disclaimer

# LIVING IMMUNOTHERAPIES

WWW.MEDIGENE.COM