medigene

Q3 2020

MEDIGENE AG
QUARTERLY STATEMENT Q3 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. In this way, the Company aims 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 as well as the 6-Months Report 2020.

1 ABOUT MEDIGENE

Medigene AG (Medigene, FSE: MDG1, ISIN: DE000A1X3W00, Prime Standard) is a publicly listed biotechnology company headquartered in Martinsried near Munich, Germany. Medigene is working on the development of innovative immunotherapies such as T cell receptor-modified T cells (TCR-Ts) or dendritic cell (DC) vaccines to treat cancer 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. This began with hematological malignancies and the Company is now focusing more efforts on advancing its earlier stage 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

2.1 Corporate restructuring measures to extend cash runway

Medigene has been proactively progressing its product development activities to further position itself as a key player in the development of novel immunotherapies. Building an extensive pipeline of potential TCR-development candidates is therefore an important goal to secure future clinical programs. To address this mission, the Company has decided to concentrate all future preclinical research and development activities on developing functionally enhanced TCR-T cells as treatments for solid tumors (MDG10XX), the most significant commercial opportunities for Medigene's clearly differentiated technologies.

As part of this strategic focus, cost-saving measures are being implemented including a reduction of costs for external services as well as of the number of employees across all departments to around 100 by the end of 2020. These measures will reduce the cash burn and secure the Company's financing into Q3 2022. In addition to these actions, Medigene is constantly evaluating new partnering opportunities related to its portfolio of technologies and product candidates to further build the Company’s value.

2.2 Immunotherapies (core business)

2.2.1 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 T cell receptors (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.

2.2.1.1 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. Tools that are designed to enhance the safety and activity of TCR-T therapies are being developed to advance Medigene's technology towards solid tumor indications. The continuation of these preclinical projects is currently not affected by the COVID-19 pandemic.

In particular, Medigene is developing the PD1-41BB switch receptor to improve the activity of TCR-Ts in solid tumors. This approach overcomes one of the most important signaling pathways that cancer cells use to inhibit the functionality of T cells – the PD1-PDL1 inhibitory pathway. Medigene's PD1-41BB molecule is designed to convert the PD-1 "stop" signal induced by tumor cells to a "go" command by switching signals inside the T cells to activation, thereby overcoming the PD1-PDL1 inhibitory checkpoint blockade. In June 2020, Medigene presented a poster on preclinical data regarding the mode of action of its PD1-41BB switch receptor at the 2020 American Association for Cancer Research (AACR) Virtual Annual Meeting II. The experiments showed that the addition of the PD1-41BB switch receptor strongly enhanced the antigen-specific functions of the TCR-Ts against solid tumors. Further presentations on this switch receptor were given recently at the CAR-TCR Digital Week virtual conference and at the Society for Immunotherapy of Cancer virtual 35th Annual Meeting (SITC 2020).

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) 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 for targeted 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 expected to be material in the 2020 financial year but could potentially reach mid to high single-digit millions in euro cumulatively 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.

2.2.1.2 MDG1011 – First TCR-T clinical trial progressing

"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.

Medigene is conducting a multi-center, open-label Phase I/II clinical trial of MDG1011 to treat blood cancer patients with advanced-stage acute myeloid leukemia (AML) or myelodysplastic syndrome (MDS). Active clinical trial sites currently include the university hospitals in Dresden, Erlangen, Frankfurt am Main, Freiburg, Heidelberg, Leipzig, Mainz, Regensburg and Würzburg.

The Phase I part is a dose escalation trial with approximately 12 patients, which is primarily evaluating safety and feasibility as well as other secondary endpoints. Medigene had so far expected the completion of dosing of the third dose cohort in the Phase I part by the end of 2020. Even though patient recruitment is not affected by the ongoing COVID-19 pandemic, this timeline has been extended into Q1 2021 due to feasibility challenges associated with treating hematological cancer patients with very advanced and highly aggressive disease. Unfortunately, for example patients did not receive their personalized MDG1011 product due to the more-rapid-than-expected progression of their disease.

Following the Phase I part of the trial, a Phase II part with up to 80 patients (including 40 patients in control groups) would investigate the safety and initial efficacy of the therapy as co-primary endpoints. In line with Medigene's focus shifting towards solid tumor indications, the Company has decided to partner the Phase II part, contingent on the results from the phase I part.

At the virtual 62nd American Society of Hematology (ASH) Annual Meeting and Exposition in December 2020, Medigene will present preclinical data on the evaluation of PRAME expression and HLA genotype distribution in patients with AML or MDS.

2.2.1.3 MDG1021 – second TCR-T clinical trial started

"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. In June 2020, Medigene received the approval to start a Phase I study of MDG1021 at the Leiden University Medical Center (LUMC), the Netherlands. Thus, MDG1021 is Medigene's second clinical-stage TCR-T development candidate. Despite the ongoing COVID-19 pandemic, the LUMC continues to actively screen patients with the intention to begin treatments as soon as possible. However, delays in patient recruitment due to the COVID-19 pandemic cannot be completely ruled out.

The patient population includes those suffering from relapsed or persistent blood cancers after allogeneic (non-self) hematopoietic stem cell transplantation, an area with high unmet medical need. The treatment goal is to eradicate the disease and allow donor stem cells from a hematopoietic stem cell transplantation to repopulate the patient's blood forming system.

The trial assesses the safety and feasibility of the MDG1021 immunotherapy, with secondary endpoints including preliminary efficacy. In the dose-escalation portion of the trial, at least 9 patients will be treated with MDG1021 at three different doses to assess the safety and the maximum tolerated dose using a standard 3+3 cohort design. MDG1021 is administered as a one-time IV infusion. Upon completion of the dose escalation part and selection of the optimal dose, an expansion part of the study will evaluate MDG1021's safety in 20 additional patients.

Medigene in-licensed the HA-1 TCR from the LUMC at the end of 2018, where it was positively evaluated for preliminary safety and tolerability in a first Phase I clinical trial involving five patients.

2.2.2 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 which 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 controlling potential residual 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 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.

In November 2020, Medigene presented positive feasibility results regarding the production of consistent high-quality DC vaccines from the blood of AML patients who had been previously treated with intensive chemotherapy at the virtual SITC 2020 conference. Furthermore, the Company will present more detailed data and analyses from the completed Phase I/II trial at the virtual ASH conference taking place in December 2020s.

As Medigene's development focus lies on TCR-T therapies, the DC project will be continued only 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, Medigene is pursuing further partnerships for other regions.

2.2.3 Extension of patent portfolio

Medigene was granted patents covering the novel CrossTAg-1 and CrossTAg-2 technologies in Japan and New Zealand. Patent applications in various other jurisdictions are still pending. The CrossTAg 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 cancers.

Furthermore, Medigene was granted a patent from the European Patent Office that covers an approach to obtaining antigen-specific helper T cells. These cells play a key role in orchestrating activities of other parts of the immune system against disease.

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

2.3 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.

2.4 Significant partnerships

2.4.1 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. As reported previously, Medigene's preclinical activities under the partnership are continuing undisrupted by the ongoing COVID-19 pandemic.

In November 2020, Medigene and bluebird bio presented preclinical data on the MAGE-A4-specific TCR at the virtual SITC 2020 conference. This TCR is different to other MAGE-A4 TCRs in development elsewhere as it works independently of signaling through the co-receptor CD8, which is found on so-called killer T cells. Any T cells, including helper T cells which express CD4 and not CD8, equipped with Medigene's MAGE-A4 TCR can detect and kill tumor cells presenting the MAGE-A4 antigen on their surface. It is anticipated that bluebird bio will test this TCR in patients with solid tumors.

2.4.2 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. In October 2020, Medigene concluded a further service agreement with Roivant/Cytovant to support process development activities for the manufacturing of the DC vaccines.

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. Under the new service agreement, Medigene will use its expertise to support Roivant/Cytovant in establishing the respective processes for the manufacturing of the DC vaccine and further develop these towards an automated manufacturing process in the future. Financial terms of the service agreement were not disclosed.

In addition, Roivant/Cytovant has designated the indications synovial sarcoma, multiple myeloma 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". Development of the first TCR, which will be directed against a target antigen defined by Roivant/Cytovant, was started at Medigene as planned in April 2020.

Despite the COVID-19 situation in the Asian region, according to Medigene's current 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 GUIDANCE

In order to ensure the financing of operations, Medigene implemented a restructuring and reprioritization of projects in Q3 2020, the effect of which is expected to be mainly felt in Q4 2020 and in the years 2021 and 2022. As part of the strategic realignment, the number of employees as well as costs for external services were

reduced significantly in September this year. The quarterly result therefore includes corresponding restructuring expenses.

Total revenues in Q3 2020 increased by €885 k from €1,303 k for Q3 2019 to €2,188 k. This is mainly due to the TCR Discovery Agreement with Roivant/Cytovant, which became effective in April 2020. Revenues in Q3 2020 include revenues from the release of contract liabilities and reimbursement of research and development costs from the strategic partnerships with bluebird bio and Roivant/Cytovant.

Research and development expenses of €5,932 k in Q3 2020 were €392 k higher than in the same period of the previous year (Q3 2019: €5,540 k), mainly due to the expansion of the development pipeline and the ongoing costs for the execution of clinical studies and preclinical activities of Medigene. As a result, earnings before interest, taxes, depreciation and amortization (EBITDA) were €194 k higher than in the previous year (Q3 2019: €-5,394 k) and amounted to €-5,200 k in Q3 2020.

As of 30 September 2020, cash and cash equivalents and time deposits amounted to €35,798 k (31 December 2019: €54,682 k). The main reason for the decrease in cash and cash equivalents and fixed-term deposits in the first nine months of 2020 is research and development spending to advance Medigene's expanded clinical and preclinical activities.

Currently, Medigene does not expect the COVID-19 pandemic to have a material impact on total revenues, research and development costs and EBITDA loss and confirms its financial guidance for 2020 as revised on 22 September 2020, which reflects the Company's focus and progress in its core immunotherapeutic business. 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 amount depend to a large extent on external parties and therefore cannot be reliably predicted by Medigene. The Company continues to expect total revenues of €7-9 m, research and development costs of €22-26 m and an EBITDA loss of €17-24 m in 2020. Based on current planning and in view of the cost saving measures taken, the company is financed into Q3 2022.

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 generally refer to Section 4 of the Group Management Report in the 2019 Annual Report as well as Section 6 of the Interim Group Management’s Discussion and Analysis in the 6-Months Report 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). Medigene is in close and regular contact with its business partners and in particular is examining possible effects of the COVID-19 pandemic. As of the reporting date, there was no indication that the COVID-19 pandemic would have a significant negative impact on Medigene or its business partners.

The occurrence of any one of the risks described above or 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 and 2021

Annual General Meeting 2020	16 December 2020
Annual Report 2020	25 March 2021
Quarterly Statement Q1 2021	11 May 2021
Annual General Meeting 2021	24 June 2021
6-Months Report 2021	12 August 2021
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