9-months 2018 Earnings Call

November 13, 2018

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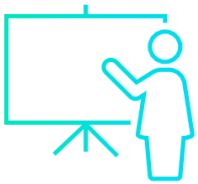
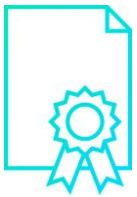
Major events since the beginning of 2018





- Phase I/II trial started with TCR-T cell therapy MDG1011
- TCR discovery alliance significantly expanded with bluebird bio
- Successful capital raise of € 32 m in oversubscribed private placement
- New collaboration initiated with Structured Immunity for improving TCR development
- New US and EU patents granted covering a tagged TCR and a method to identify $CD4^+$ T cells and TCRs
- Presentation at the *Annual Neoantigen Targeted Therapies Meeting* in Boston
- Expansion of TCR pipeline through in-licensing of HA-1-specific TCR from Leiden University

Granted IP to discover MHC class-II-restricted CD4+ T cells supports tumor antigen and neo-antigen targeting

- MDG holds an exclusive license on a recently granted European Patent covering allo-restricted CD4+ T cells, obtainable by a multi-step process, for use in a method for the treatment of solid tumors
  - Expected life-span of the granted European Patent EPEP2327763B1 is until August 2026
  - Additional IP is pending and MDG also plans to further intensify research in this area
- Allo-restricted CD4+ T cells covered by this patent recognize antigens presented via MHC class II molecules and thus help to broaden the number of potential tumor antigens, including neoantigens, accessible for adoptive T cell therapy

Medigene reports advance in TCR technologies to identify class-II-restricted CD4+ T cells

Presentation at the *Annual Neoantigen Targeted Therapies Meeting,* August 18:

General problem for developing CD4-based immunotherapies:

- Difficult to define relevant epitopes of candidate antigens that are well suited for presentation by various MHC class II allotypes for CD4+ T cell recognition

Medigene's solution:

- Use our DC technologies to prime naïve CD4+ T cells *in vitro* against selected antigen/MHC class II complexes
- Apply our high-throughput screening (HTS) methods to identify specific peptides that are truly immunogenic by their ability to induce T cell responses *in vitro*
- Bypass patient T cell deficits through use of T cells of healthy donors for HTS
- Implement our *in silico* tools to judge cross-reactivity for safety considerations

This approach can be applied to classical antigens (such as CT antigens), mutations, as well as single nucleotide polymorphisms (SNPs).

Expansion of TCR pipeline through licensing agreement with Leiden University

- Medigene licensed a Histocompatibility Antigen 1 (HA-1)-specific TCR from Leiden University
- HA-1 belongs to the group of minor Histocompatibility Antigens (mHA)
- The Leiden University HA-1-specific TCR was already tested in a small IIT Phase I trial with five patients, showing safety and tolerability, making it a partially derisked preclinical/clinical asset
- The TCR will be assessed internally at Medigene for its potential for clinical development in numerous liquid and solid tumors
- Deal terms: Upfront & milestone payments, royalties (low single-digit percentage)

HA-1: Unique opportunity to complement and advance TCR-T clinical development program

Antigen

- HA-1 extensively studied in-house
- Very well defined, easily assessed by PCR
- Well characterized tissue expression pattern
- Clinically validated T cell target in SCT

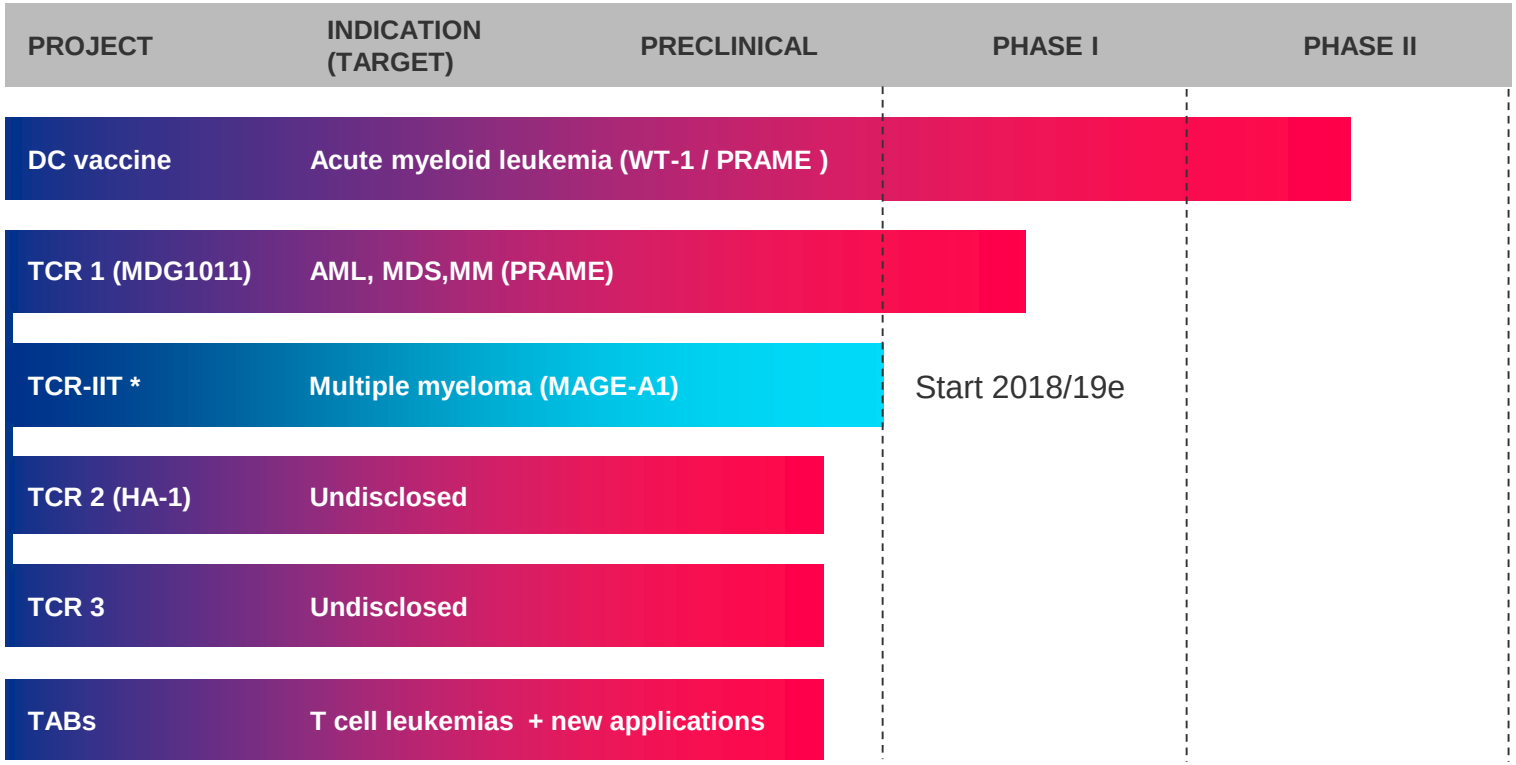
Patients

- High medical need
- Broad HA-1 expression in liquid & solid tumors
- Especially interesting in the stem cell transplantation setting; mismatched in 10-20% of cases
- Well defined indications for clinical use

TCR

- First safety & tolerability data from IIT in Leiden with five patients
- Clinically de-risked TCR

Medigene's immunotherapy pipeline



* Investigator-initiated trial (IIT) under the responsibility of Max Delbrück Center and Charité ,Berlin

Additional IITs utilizing Medigene's DC vaccine technology are ongoing at
LMU Munich (Phase I/II in AML) and Oslo University Hospital (Phase II in prostate cancer)

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MDG1011

First TCR-T cell therapy clinical trial

Phase I/II clinical trial of MDG1011 in myeloid and lymphoid malignancies

Target:

- PRAME is a well characterized tumor antigen overexpressed in multiple hematological and solid tumor indications

The drug, MDG1011:

- T cells expressing a HLA-A*02:01-restricted T cell receptor specific for PRAME

Trial outline:

- Combined Phase I/II clinical trial
- Primary endpoints: Safety and feasibility (Phase I), Safety and early efficacy (Phase II)
- Disease indications for Phase I, all in advanced stages:
  - acute myeloid leukemia (AML)
  - myelodysplastic syndrome (MDS)
  - multiple myeloma (MM)
- 2 of the 3 indications will be carried over into Phase II

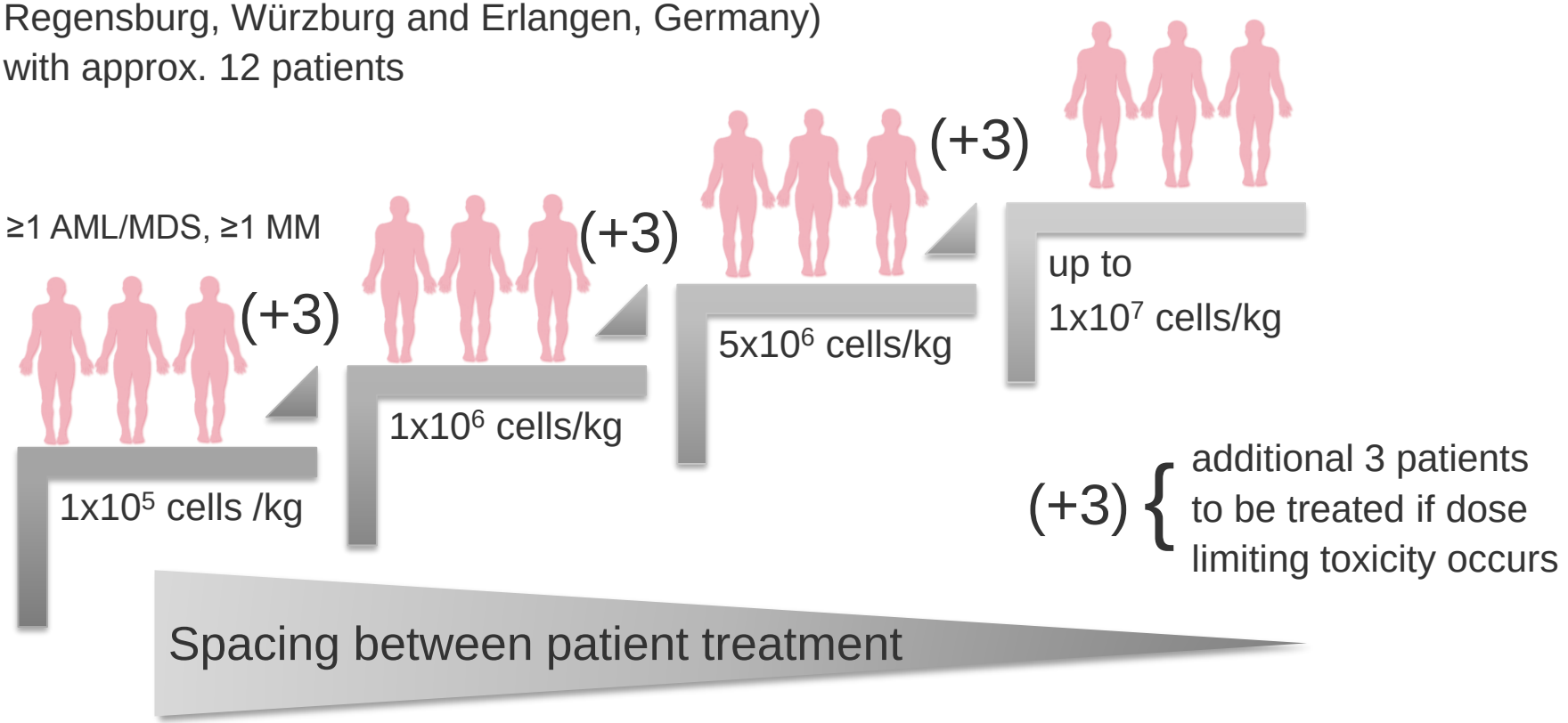
https://www.clinicaltrialsregister.eu/ctr-search/trial/2017-000440-18/DE

Current status of MDG1011 Phase I/II trial

- Amendment of trial design approved by the Paul-Ehrlich-Institut (German regulatory authority) to simplify patient enrollment:
  - Old: 1 patient per indication per dose cohort
  - New: At least 1 Multiple Myeloma patient and at least 1 AML or MDS patient per dose cohort
  - Improvement of method for PRAME expression analysis
- Successful production of first personalized cell therapy product MDG1011
  - Sufficient numbers of therapeutic TCR-modified T cells were generated using autologous patient T cells despite advanced stage of disease and high blast counts
  - Patient was not treated with MDG1011 due to rapid progression of underlying disease (drop out)
- Three trial sites actively screening and open for patient recruitment
- Rollout of a screening study to referral centers around clinical sites
- Ongoing preparations to increase the number of clinical sites

Protocol amendment approved: Inclusion criteria simplified for patient recruitment in Phase I

Multi-center study at currently three sites (University of Regensburg, Würzburg and Erlangen, Germany) with approx. 12 patients



= independent Data and Safety Monitoring Board (DSMB) decides on progression between dose cohorts.

https://www.clinicaltrialsregister.eu/ctr-search/trial/2017-000440-18/DE

DC vaccine update

- **Ongoing Phase I/II trial:**
  - Open-label, prospective, non-randomized trial
  - **20 AML patients:** Continuous vaccination for 2 years or until progression/ death, last patient included end of 2017
  - Primary objectives: **feasibility** and **safety**
  - Secondary objectives: overall survival (**OS**), progression free survival (**PFS**), control of minimal residual disease (**MRD**), time to progression (**TTP**), induction of **immune responses**
  - Medigene plans to conduct an interim analysis after 20th patient has been treated for 12 months (Q4 2018) for presentation in 2019
- **Oslo University (OUH) compassionate use follow up data (5 AML patients):**
  - Conducted independently from Medigene under the responsibility of OUH
  - Poster presentation at ASH 2018 from OUH on 8th of December
  - Abstract title: *Immune Monitoring of Vaccine Quality and Persistence of Specific T Cell Responses in Five AML Patients Receiving Extended Dendritic Cell Vaccination Under Compassionate Use*

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Financial Report 9M-2018

Revenue and R&D cost increased, guidance further improved

€8.0 m	**Total revenues increased by 11%**
+20%	**Increase in R&D expenses to 13.3 m due to extension in development activities**
€4.7 m	**Revenues from immunotherapies increased by 38%**
€76.3 m	**Liquid assets & time deposits**
€10.7 m	**EBITDA loss increased by 5%**
	**Further improved financial guidance for 2018**

Financial guidance 2018 further improved

	PREVIOUS GUIDANCE*	UPDATED 9M GUIDANCE
Total revenue	€9.5-10.5 m	€9.5-10.5 m
R&D expenses	€21-23 m	€19-21 m
EBITDA loss	€18-20 m	€16-18 m
Cash usage	€15-17 m	€12-14 m

- Liquid assets as of September 30, 2018 amounted to €76.3 m
- Medigene expects it has sufficient financial resources at least for the planning horizon of two years
- No milestone payments or additional cash inflows are included from existing or future partnerships or transactions

*as improved in 6M Report 2018

Outlook

MDG1011, Medigene's first TCR trial:

- Start treatment of first dose cohort

Medigene's DC trial in AML:

- Analysis of 1-year-treatment (half of treatment period) to be presented at scientific conferences in 2019
- Final read-out (2-years-treatment) expected end of 2019

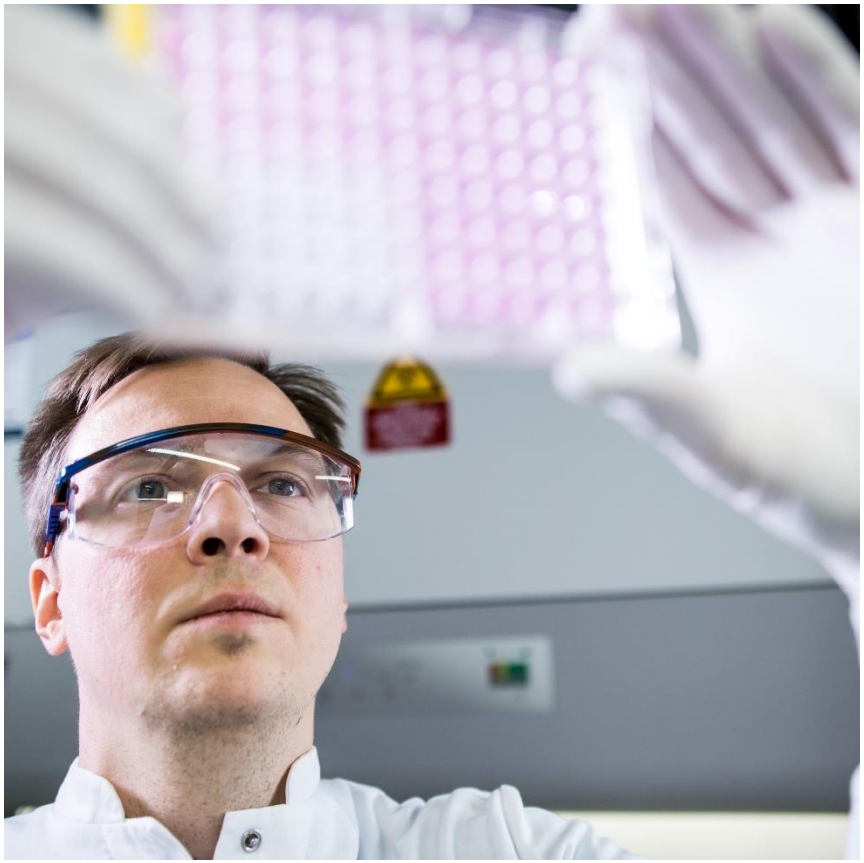
HA-1 TCR:

- Further preclinical evaluation

TCR IIT by MDC & Charité:

- Study start

Progress in expanded bluebird bio collaboration



Questions & Answers

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