ATACs fighting Cancer

November 2018
Safe Harbor

Forward looking statements

This communication contains certain forward-looking statements, relating to the Company’s business, which can be identified by the use of forward-looking terminology such as “estimates”, “believes”, “expects”, “may”, “will” “should” “future”, “potential” or similar expressions or by general discussion of strategy, plans or intentions of the Company. Such forward-looking statements involve known and unknown risks, uncertainties and other factors, which may cause our actual results of operations, financial condition, performance, or achievements, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements.

Such factors include, among others, the following: uncertainties related to results of our clinical trials, the uncertainty of regulatory approval and commercial uncertainty, reimbursement and drug price uncertainty, the absence of sales and marketing experience and limited manufacturing capabilities, attraction and retention of technologically skilled employees, dependence on licenses, patents and proprietary technology, dependence upon collaborators, future capital needs and the uncertainty of additional funding, risks of product liability and limitations of insurance, limitations of supplies, competition from other biopharmaceutical, chemical and pharmaceutical companies, environmental, health and safety matters, availability of licensing arrangements, currency fluctuations, adverse changes in governmental rules and fiscal policies, civil unrest, acts of God, acts of war, and other factors referenced in this communication.

Given these uncertainties, prospective investors and partners are cautioned not to place undue reliance on such forward-looking statements. We disclaim any obligation to update any such forward-looking statements to reflect future events or developments.

This material is not intended as an offer or solicitation for the purchase or sale of shares of Heidelberg Pharma AG. This material may not be distributed within countries where it may violate applicable law.
Developing new options to address major challenges in cancer therapy

Our Company

- Listed as Heidelberg Pharma AG
- Frankfurt Stock Exchange: WL6
- Shares outstanding: 28.13 million
- Market cap: ~€75 million
- Headquarters: Ladenburg, Germany
- 62 employees (August 2018)

Our Mission

- Improve efficacy
- Overcome resistance mechanisms
- Kill dormant tumor cells
- Provide new options in cancer therapy

Our Approach

- New mode of action in cancer therapy - **Antibody Targeted Amanitin Conjugates (ATACs)**
  - Induction of apoptosis by inhibition of RNA Polymerase II
  - Application of innovative payload by harnessing ADC therapeutic modality

© Heidelberg Pharma AG
Management Team with Strong Pharma and R&D Experience

**CEO / CFO**

@ Heidelberg Pharma since 2001

20 years’ experience in commercial and financial leadership positions in pharma and chemical companies, including BASF

Managing Director of an Austrian BASF Pharma subsidiary (EBEWE Arzneimittel GmbH) from 1997 to 2001, prior several positions at the BASF Group

Member of the board of directors of BIO Deutschland e.V.

LLD from the University of Mannheim

**CSO**

@ Heidelberg Pharma since 2012

20 years’ experience in research and higher education

Head of Late Pharmacology at Nycomed and Takeda Pharmaceuticals from 2008 to 2012

Professor of Pharmacology and Toxicology at the University of Erlangen-Nuremberg (FAU)

PhD in chemistry from the University of Berlin
Strategic Cornerstones

Build proprietary ATAC pipeline

Sign technology licensing collaborations

Additional upside potential with partnered non-ATAC legacy clinical assets

Proprietary lead candidate HDP-101

ATAC third-party collaborations + other proprietary ATAC candidates

Lead ATAC HDP-101

ATAC technology partner

ATAC technology partnering with pharma and biotech

MESUPRON® (RedHill, Link Health)
REDECTANE® (Telix)
RENCAREX®

Clinical assets

© Heidelberg Pharma AG
Achievements of Last 12 Months

Proprietary ATAC Project

Development HDP-101
- Amanitin
  - GMP transfer Amanitin synthesis
- BCMA Antibody
  - GMP material
- Regulatory path
  - Type C Meeting FDA
  - Scientific advice Paul-Ehrlich Institute
- ASH Conference
  - 12/2017: Ex-vivo data from patients
  - 12/2018: 3 poster and 1 oral presentation accepted

ATAC Technology Licensing

- Multi-Target Research and Option Agreement
  - Deal signed in 3/2018
  - 1st licensing option exercised 11/2018

Licensed Projects

- TLX250 - Diagnostic for Renal Cancer with PET/CT
  - Partner Telix Pharmaceuticals has started Phase III recruitment in Australia
  - Submission of CTA for clinical Phase III study in EU
Innovative Potential First-in-humans Mode of Action with Compelling Clinical Potential

Unique mode of action of Amanitin as toxic payload...

- Amanitin kills dividing AND quiescent tumor cells by binding and inhibiting RNA polymerase II

...results in potential clinical benefits by

Antibody Targeted Amanitin Conjugates (ATACs) as targeted therapy

- **Strong efficacy** in vivo and in vitro models
- Ability to **overcome resistance**
- **Kill dormant tumor cells** causing metastasis & tumor relapse, independent of cell proliferation
- ATAC technology applicable to every tumor entity
Antibody Drug Conjugate Technology – Proven & Established Technology

ADC: Combining the best of two therapeutic modalities

Antibody specificity + toxin efficacy → improved therapeutic window and fewer side effects

ATAC:
Antibody-Targeted Amanitin Conjugate

1. ATAC is prepared and released into bloodstream
2. Binding to tumor-associated antigen
3. Internalization
4. Release of Amanitin from the antibody/ATAC
5. Amanitin relocates from the lysosome to the nucleus
6. Amanitin binds to the RNA polymerase II and inhibits mRNA synthesis

© Heidelberg Pharma AG
<table>
<thead>
<tr>
<th></th>
<th>Calicheamicin</th>
<th>Auristatin</th>
<th>Maytansinoids</th>
<th>Amanitin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target</strong></td>
<td>DNA</td>
<td>Tubulin</td>
<td>Tubulin</td>
<td>RNA Pol II</td>
</tr>
<tr>
<td><strong>Target concentration</strong></td>
<td>?</td>
<td>10^{-5} M</td>
<td>10^{-5} M</td>
<td>10^{-8} - 10^{-9} M</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>hydrophobic</td>
<td>hydrophobic</td>
<td>hydrophobic</td>
<td>hydrophilic</td>
</tr>
<tr>
<td><strong>Activity on non-dividing cells</strong></td>
<td>low</td>
<td>low</td>
<td>low</td>
<td>high</td>
</tr>
<tr>
<td><strong>Activity on multi-drug resistant cells</strong></td>
<td>low</td>
<td>low</td>
<td>low</td>
<td>high</td>
</tr>
<tr>
<td><strong>Aggregation of conjugates</strong></td>
<td>high</td>
<td>high</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td><strong>Conjugation chemistry</strong></td>
<td>organic</td>
<td>organic</td>
<td>organic</td>
<td>aqueous</td>
</tr>
<tr>
<td><strong>Antigen expression</strong></td>
<td>high to low</td>
<td>high</td>
<td>high</td>
<td>high to very low</td>
</tr>
<tr>
<td><strong>Clinical data</strong></td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
</tr>
</tbody>
</table>
Complete remissions in JIMT-1 xenograft models after single dose application of 2.9mg/kg Her2-ATAC

Clinical dose of T-DM1 ineffective (FDA approved Kadcyla®)

Equivalent dose of Her2-ATAC shows complete remission

Kadcyla could not achieve remission

Comparison with auristatin-ADC confirmed superiority of Amanitin payload
Early Validation and Cash Through Pharma Collaborations + Future High Value Potential with Proprietary Portfolio

Partnering target by target

Antibodies from partners, license to the partner, development by the partner

ATAC toolbox: customized and target-optimized toxins and linkers

Defined payload

Linker variations

Amanitin derivates

In-licensed antibodies, internal development activities

HDP-101

Proprietary

© Heidelberg Pharma AG
Multi-Target Research and Option Agreements with Takeda and Magenta

**Research & Option Agreements**
- Synthesis of ATACs using antibodies from the Takeda/Magenta portfolio
- Both companies have exclusive target licensing option for global development and marketing rights for development candidates
- Option for several exclusive targets
- If option exercised, partner is responsible for further preclinical and clinical development as well as commercialization

**Financials**
- Upfront technology access fees and R&D support
- Option fee for each option exercised
- Clinical development, regulatory and sales-related milestone payments:
  - Takeda of up to USD 113 million for each product candidate; up to three targets
  - Magenta: totaling up to more than USD 330 million for up to four potential targets
- Royalties on sales

---

One of the top 15 pharmaceutical companies worldwide

New and fast growing player in the field of stem cell research
### ATACs – Growing Pipeline of Proprietary and Partnered Programs

#### Additional proprietary ATACs in research and preclinical development
- **Targets:** PSMA, CD19, others
- **Excellent preclinical efficacy in mice and very good tolerability in cynomolgus monkeys**

<table>
<thead>
<tr>
<th>Product</th>
<th>Target</th>
<th>Indication</th>
<th>Research</th>
<th>Preclin</th>
<th>Clinic</th>
<th>Partner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary</td>
<td></td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
<td></td>
</tr>
<tr>
<td>HDP-101</td>
<td>BCMA</td>
<td>Multiple myeloma (DLBCL/CLL)</td>
<td></td>
<td></td>
<td></td>
<td>Proprietary</td>
</tr>
<tr>
<td>PSMA-ATAC</td>
<td>PSMA</td>
<td>Prostate cancer</td>
<td></td>
<td></td>
<td></td>
<td>Proprietary</td>
</tr>
<tr>
<td>CD19-ATAC</td>
<td>CD19</td>
<td>Hematological tumors</td>
<td></td>
<td></td>
<td></td>
<td>Proprietary</td>
</tr>
<tr>
<td>NN-ATACs</td>
<td>n/a</td>
<td>Leukemias &amp; solid tumors</td>
<td></td>
<td></td>
<td></td>
<td>Several partners</td>
</tr>
<tr>
<td>ATAC technology partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TAK-XX-ATACs</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td>Takeda/ Millennium</td>
</tr>
<tr>
<td>MGTA-XX-ATACs</td>
<td>CD117, n/a</td>
<td>HSCs, Conditioning programs for bone marrow transplant</td>
<td></td>
<td></td>
<td></td>
<td>Magenta</td>
</tr>
</tbody>
</table>
Multiple Myeloma – Major Unmet Medical Need

- Second most prevalent hematopoietic malignancy*

- MM represents about 0.8-1% of all cancers worldwide, with 70,000 deaths annually; median age at diagnosis is 65-70 years

- Malignancy characterized by the proliferation of single clone of plasma cells derived from B-cells which produce abnormal antibody proteins

- MM is initially confined to bone marrow, natural progression of disease can result in end organ damage

- MM is still considered incurable, median survival of ~30-60 months

- Current treatment options: Chemotherapy, immunomodulatory drugs, proteasome inhibitors and autologous stem cell transplantation (ASCT)

ADCs targeting BCMA – small competitive environment

- **GSK**: BCMA-MMAE ADC, Phase II data presented @ASH 12/2017: Overall response rate of 60%
- **HDP-101**: IND in preparation, 1st patient-in H2 2019
- **Celgene / Sutro collaboration**: IND submission expected early 2019, undisclosed payload
- **Medimmune**: Preclinical stage

**Bispecific BCMA mAbs**
- **Celgene/Engmab**: Start Phase I Q1 2018
- **Boehringer Ingelheim/Amgen**: Start Phase I Q4 2017
- **Pfizer**: Start Phase I Q4 2017
- **J&J**: Start Phase I Q2 2017
- **TeneoBio**: Start Phase I Q4 2018
- **Affimed**: preclinical

**CAR-T Cell BCMA therapies**
- **Bluebird (Celgene)**: Start Phase I Q1 2016 (ASH 12/2017); Start Phase II Q4 2017
- **Kite (Gilead)**: Start Phase I Q4 2017
- **Nanjing Legend Biotech**: Phase I (ASCO 06/2017)
- **Poseida Therapeutics**: Start Phase I Q3 2017
- **Autolus Limited**: Start Phase I Q4 2017
- **The Pregene Biotech Comp**: Start Phase I Q4 2017
- **University Pennsylvania**: Phase I (ASH 12/2017); inactive
- **CARsgen Therapeutics**: Start Phase I Q2 2018
- **Cartesian Therapeutics**: Start Phase I Q1 2018
- **Juno (Celgene)**: Start Phase I Q1 2018
HDP-101 – Results from Research Collaboration with Heidelberg University and the DKFZ Presented at ASH

Comparison with MMAF (Auristatin Conjugate as used by GSK) on MM Patient Cells

- Green lines: Non-dividing (quiescent) cells isolated from multiple myeloma patient bone marrow biopsies
- Black lines: Dividing tumor cells from lab cell lines

- Strong cytotoxic effect at very low doses, even in cancer cells with a low concentration of BCMA antigens
- No toxicity on non-BCMA expressing control cells
- First time that the efficacy of Amanitin on cancer cells taken from human patients was demonstrated

Only HDP-101 is efficacious on non-dividing primary tumor cells isolated from multiple myeloma patients

© Heidelberg Pharma AG
Influence of cytogenetics in patients with relapsed or refractory multiple myeloma treated with lenalidomide plus dexamethasone: adverse effect of deletion 17p13

Donna Reece, Kevin W. Song, Tommy Fu, Birgitte Roland, Hong Chang, Douglas E. Horsman, Adnan Mansoor, Christine Chen, Esther Masih-Khan, Young Trieu, Helene Bruyere, Douglas A. Stewart, and Nizar J. Bahlis

Division of Oncology, Princess Margaret Hospital, Toronto, ON; Division of Hematology, Vancouver General Hospital, Vancouver, BC; Celgene Corporation, Summit, NJ; Department of Pathology and Laboratory Medicine, University of Calgary, Calgary, AB; Department of Pathology and Laboratory Medicine, British Columbia Cancer Agency, Vancouver, BC; Division of Hematology and Transfusion Medicine, Calgary Laboratory Services, Calgary, AB; Department of Pathology and Laboratory Medicine, Vancouver General Hospital, Vancouver, BC; and Division of Hematology and Bone Marrow Transplant, University of Calgary, Calgary, AB.
17p Deletion = Loss of TP53/POLR2A on chromosome 17

LETTER

doi:10.1038/nature14418

TP53 loss creates therapeutic vulnerability in colorectal cancer

Yunhua Liu¹, Xinna Zhang²,³, Cecil Han¹, Guohui Wan¹, Xingyu Huang⁴, Cristina Ivan²,³, Dahai Jiang²,³, Cristian Rodriguez–Aguayo⁵,⁶, Gabriel Lopez–Berestein³,⁸, Pulivarthi H. Rao⁶, Dipen M. Maru⁷, Andreas Pahl⁸, Xiaoming He⁹, Anil K. Sood¹,⁴,⁵, Lee M. Ellis¹⁰, Jan Anderl⁸ & Xiongbin Lu¹,³
17p Deletion: Loss of TP53/POL2RA on chromosome 17

- NATURE Publication: 10 x increased susceptibility to Amanitin in the case of loss of POLR2A
- POLR2A potential biomarker to increase therapeutic window
Biomarker Applies to HDP-101 in Multiple Myeloma

Oral Presentation at the ASH 60th Annual Meeting Dec. 2018 in San Diego
The University of Texas MD Anderson Cancer Center, Houston, TX, USA, and Heidelberg Pharma AG:

Translates basic findings from NATURE article to Multiple Myeloma

HDP-101 is active against MM with Preferential Efficacy Against Preclinical Models of Deletion 17p

Biomarker RNA pol II
Potential to expedite clinical development
Multiple Myeloma patients with 17p deleted tumors have a very high medical need for new treatment options.

HDP-101 has a preferential activity on 17p deleted tumor cells derived from Multiple Myeloma patients (ASH conference 2018).

Potential options to speed-up market approval for such a selected patient population if preclinical data translate into clinical benefits.

Potentially broader therapeutic window resulting in lower development risk and new treatment option for patient segment with bad prognosis.
## Financials

<table>
<thead>
<tr>
<th>in € m</th>
<th>FY 2017</th>
<th>9M 2018</th>
<th>Guidance 03/2018</th>
<th>Revised Guidance 10/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales revenue and other income</td>
<td>2.5</td>
<td>3.5</td>
<td>3.0 to 5.0</td>
<td>3.5 to 4.5</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>13.2</td>
<td>10.9</td>
<td>16.0 to 20.0</td>
<td>14.0 to 16.0</td>
</tr>
<tr>
<td>Operating result (EBIT)</td>
<td>-10.8</td>
<td>-7.4</td>
<td>-12.0 to -16.0</td>
<td>-10.0 to -12.0</td>
</tr>
<tr>
<td>Funds required</td>
<td>8.6*</td>
<td>7.7*</td>
<td>13.0 to 17.0</td>
<td>10.0 to 13.0</td>
</tr>
<tr>
<td>Funds required per month</td>
<td>0.7*</td>
<td>0.9*</td>
<td>1.1 to 1.4</td>
<td>0.8 to 1.1</td>
</tr>
</tbody>
</table>

- Guidance revised due to cost postponements into the following year; resulting in lower operating expenses
- Significant sales growth compared with previous year

### Financing

- Mixed non-cash and cash capital increase in November 2017 - €34.4 m total transaction volume
- Cash at the end of 9M: €22.7 m
- Cash reach is secured until 2020 based on current budget planning
Heidelberg Pharma Shares

Share performance 2018

- High: €3.980 (15 January 2018)
- Low: €1.880 (11 October 2018)
- Daily trading volume: 30,414 shares (2017: 14,049)
- Shares outstanding: 28,131,385 (as of 15 November 2018)
- Current market cap: ~€75 m (November 2018)

Analyst coverage

- Baader Helvea 10/18: target €4.40
- Equinet 10/18: target €3.50
- EQUI.TS 10/18: target €5.02

Share ownership as of 15 November 2018

- Dietmar Hopp and affiliated companies**: 75%
- Corporate bodies*: 1%
- Freefloat: 20%
- UCB: 4%

* held directly
** dievini Hopp BioTech holding GmbH & Co. KG + DH Holding Verwaltungs GmbH

© Heidelberg Pharma AG
Next Steps and Potential Milestones

**ATAC technology and proprietary pipeline**

- **HDP-101**
  - Start of GLP toxicity study for HDP-101
  - Clinical Trial Application Q2/2019
  - Completion of GMP manufacturing of HDP-101
  - First patient in Q4/2019
  - Biomarker development
  - Sign additional license and collaboration agreements with biopharma partners
  - Reach next milestones with our partners

**Partnered legacy clinical programs**

**REDECTANE®**
- Telix Phase III recruitment in Australia
- Initiation of Phase III trial in Europe submitted in August

**MESUPRON®**
- Link Health: IND approval and preparation of clinical development study in China
Developing new options to address major challenges in cancer therapy

• Heidelberg Pharma is developing new treatment options with Amanitin for different cancer indications, also validated by high quality collaborations

• The innovative first in humans mode of action provides high efficacy and potential for unique clinical advantages including treatment of dormant tumor cells as well as increased efficacy on 17p deleted tumor cells

• Value step-up ahead in 2019 due to transition to clinical stage of lead product HDP-101 in Multiple Myeloma

• Dual business model – early validation and cash through pharma collaborations + future high value potential with proprietary portfolio
## Contact Us

**Heidelberg Pharma AG**

Schriesheimer Strasse 101  
68526 Ladenburg, Germany  
Tel.: +49 6203 1009-0  
Fax: +49 6203 1009-19  
Website: www.heidelberg-pharma.com

**IR/PR support**

MC Services AG  
Katja Arnold (CIRO)  
Tel.: +49 89 210 288-40  
Email: katja.arnold[at]mc-services.eu

**Ticker data**

- ISIN: DE000A11QVV0  
- Symbol: WL6  
- Reuters: WL6G.DE  
- Bloomberg: WL6.GR

---

### Upcoming conferences & events H1 2019

<table>
<thead>
<tr>
<th>Event</th>
<th>Venue</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>60th ASH Annual Meeting &amp; Exposition</td>
<td>San Diego</td>
<td>01 – 04 December 2018</td>
</tr>
<tr>
<td>JP Morgan Annual Healthcare Conference</td>
<td>San Francisco</td>
<td>07 – 09 January 2019</td>
</tr>
<tr>
<td>PepTalk: The Protein Science Week</td>
<td>San Diego</td>
<td>14 – 18 January 2019</td>
</tr>
<tr>
<td>9th Annual World ADC</td>
<td>London</td>
<td>04 – 06 March 2019</td>
</tr>
<tr>
<td>Heidelberg Pharma Annual Report</td>
<td>Ladenburg</td>
<td>21 March 2019</td>
</tr>
<tr>
<td>BIO-Europe Spring</td>
<td>Vienna</td>
<td>25 – 27 March 2019</td>
</tr>
<tr>
<td>AACR Annual Meeting</td>
<td>Atlanta</td>
<td>29 March – 3 April 2019</td>
</tr>
<tr>
<td>Interim management statement on the first three months of 2019</td>
<td>Ladenburg</td>
<td>11 April 2019</td>
</tr>
<tr>
<td>Bio€quity Europe</td>
<td>Barcelona</td>
<td>20 – 21 May 2019</td>
</tr>
</tbody>
</table>