

PRESS RELEASE

Heidelberg Pharma Publishes Article on Chemical Amanitin Synthesis in *Angewandte Chemie* Journal

- Chemical synthesis of the natural compound Amanitin successfully established by Heidelberg Pharma
- New, additional synthetic route suitable for larger-scale Amanitin production
- Patents and exclusive licenses to synthetic routes protect Heidelberg Pharma's ATAC technology

Ladenburg, Germany, 27 March 2020 – Heidelberg Pharma AG (FSE: WL6) today announced that a scientific article on the chemical synthesis of the fungal compound Amanitin has been published in *Angewandte Chemie*, a leading chemical journal. In this article, researchers from Group subsidiary Heidelberg Pharma Research GmbH describe a novel, scalable synthetic process for the mushroom toxin Amanitin, which was developed in the laboratories of Heidelberg Pharma Research. To the Company's knowledge, Heidelberg Pharma Research is the first company together with its production partner Carbogen AMCIS AG, Bubendorf, Switzerland, to have succeeded in synthetically producing Amanitin in GMP in the gram range based on this synthesis process. The summary of this article is available at <https://onlinelibrary.wiley.com/doi/abs/10.1002/anie.201914935?af=R>.

In a related collaborative project, Professor Roderich Suessmuth, Rudolf Wiechert Professor of Biological Chemistry at the Technical University of Berlin, successfully established specific synthetic processes for Amanitin. The synthetic method he developed represents the first robust liquid-phase synthesis of Amanitin that is also suitable for larger-scale production and pharmaceutical applications. Heidelberg Pharma Research owns the exclusive patent rights to this method. This synthetic method was also published in the journal *Angewandte Chemie* at the end of last year <https://doi.org/10.1002/anie.201914620>.

Andreas Pahl, Chief Scientific Officer at Heidelberg Pharma, commented: "We are delighted with the publication of two articles in connection with the synthesis of Amanitin in the renowned scientific journal *Angewandte Chemie*. This demonstrates the significance of this important manufacturing process, which is essential for the development of ATACs. The exclusive license we obtained for Professor Suessmuth's synthetic method, protects the manufacturing of the compound Amanitin – and our ATAC technology – on a very broad basis."

About Heidelberg Pharma's proprietary ATAC technology

Antibody Drug Conjugates (ADCs) combine the high affinity and specificity of antibodies with the potency of cytotoxic small molecules for the treatment of cancer. Antibody Targeted Amanitin Conjugates (ATACs) are ADCs whose active ingredient is made up of Amanitin molecules. Amanitins are small bicyclic peptides naturally occurring in the death cap mushroom. They inhibit mRNA transcription by binding to RNA polymerase II, a mechanism that is crucial for the survival of eukaryotic cells. In preclinical testing, ATACs have been

shown to be highly efficacious, overcoming frequently encountered resistance mechanisms and combating even quiescent tumor cells.

About Heidelberg Pharma

Heidelberg Pharma AG is a biopharmaceutical company based in Ladenburg, Germany. Heidelberg Pharma is an oncology specialist and the first company to develop the toxin Amanitin into cancer therapies. The proprietary ATAC technology is being applied to develop the Company's proprietary therapeutic ATACs as well as in third-party collaborations. The proprietary lead candidate HDP-101 is a BCMA ATAC for multiple myeloma. Heidelberg Pharma AG is listed on the Frankfurt Stock Exchange: ISIN DE000A11QVV0 / WKN A11QVV / Symbol WL6. More information is available at www.heidelberg-pharma.com.

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