



## **HOOKIPA and DarwinHealth Enter into a Research Collaboration and License Agreement to Discover and Prioritize Novel Immunogenic, Tumor-Specific Cryptic Antigens**

**New York, US and Vienna, Austria, November 28, 2018** – HOOKIPA Pharma Inc. (“HOOKIPA”), a clinical stage biopharmaceutical company developing a new class of immuno-therapeutics targeting infectious diseases and cancers based on its proprietary technology platform, announced today that it entered into a research collaboration and license agreement with DarwinHealth to develop novel immunotherapies based on the systematic discovery and prioritization of the next generation of immunogenic, tumor-specific cryptic antigens. DarwinHealth is a precision-focused cancer medicine company, utilizing systems-biology derived algorithms to identify appropriate therapies for cancer patients and to systematically discover and prioritize the next generation of immunogenic, tumor-specific antigens.

Under the terms of the agreement, DarwinHealth will utilize a combined single-cell transcriptome analysis and bioinformatics-based approach using both mouse and human cancerous and non-cancerous tissues to identify the next generation of shared “off-the-shelf” tumor-specific antigens. HOOKIPA will perform the validation experiments and be granted exclusive rights to the development, manufacturing and commercialization of products arising from the collaboration.

“Immunotherapy is one of the areas of greatest potential for future cancer treatment. Arguably, all antigen-specific immunotherapy is limited by the scarcity of known antigens. The current group of shared tumor self-antigens has been established for many years, and while more recent efforts have been aimed at identifying patient-specific neo-antigens, systematic attempts to identify the next generation of tumor self-antigens have not been pursued as aggressively,” **said Dr. Igor Matushansky, Chief Medical Officer and Global Head of Research and Development of HOOKIPA.** “This is why the primary objective of our next generation, antigen discovery program - entitled HIDE [H**uman Immunotranscript Discovery initiativeE**]” - with DarwinHealth is to identify a novel constellation of shared self-antigens for multiple tumor subtypes. Our goal is that following a successful completion of the two-year program, antigens with validated immunogenicity will be deployed clinically as antigen-specific, vector-mediated immunotherapy using our TheraT<sup>®</sup> vector.”

“DarwinHealth utilizes proprietary, systems biology-generated algorithms to match cancer patients with the drugs and drug combinations that are most likely to produce a successful treatment outcome. These same algorithms can also be used to prioritize investigational drugs and compound combinations of unknown potential against a full spectrum of human malignancies, as well as novel cancer targets,” **explained Andrea Califano, Dr. co-founder**

**of DarwinHealth and Clyde and Helen Wu Professor of Chemical Systems Biology and Chair, Department of Systems Biology at Columbia University,** “and importantly, for immuno-oncology applications, DarwinHealth can apply proprietary bioinformatics- and experimentally-based methodologies to identify human, cryptic immunogenic transcripts (crypto-antigens) that can be optimally delivered using HOOKIPA’s highly innovative vector.”

**Commenting on this immuno-oncology-focused collaboration, Gideon Bosker, CEO and co-founder of DarwinHealth said:** “Combining HOOKIPA’s proprietary viral vector technology with DarwinHealth’s novel, systems-based approach to identifying next generation, shared antigens shows immense promise, potentially enabling cancer research to leap forward and transform patients’ lives.”

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### **About HOOKIPA**

HOOKIPA Pharma Inc. is a clinical stage biopharmaceutical company developing a new class of immuno-therapeutics targeting infectious diseases and cancers based on its proprietary technology platform that is designed to reprogram the body’s immune system.

Our proprietary arenavirus-based technologies, Vaxwave<sup>®</sup>, a replication-deficient viral vector, and TheraT<sup>®</sup>, a replication-attenuated viral vector, are designed to induce potent antigen specific CD8+ T cells and pathogen-neutralizing antibodies. Both, Vaxwave<sup>®</sup> and TheraT<sup>®</sup>, are designed to allow for repeat administration while maintaining an immune response. TheraT<sup>®</sup> has the potential to induce CD8+ T cell response levels previously not achieved by other immuno-therapy approaches. Our “off-the-shelf” viral vectors target dendritic cells *in vivo* to activate the immune system.

We have successfully completed a Phase 1 trial of a Vaxwave<sup>®</sup>-based prophylactic vaccine to protect against cytomegalovirus infections. We have initiated enrollment for a Phase 2 trial in cytomegalovirus-negative patients awaiting kidney transplantation from cytomegalovirus-positive donors. To expand our infectious disease portfolio, we have forged a partnership with Gilead Sciences, Inc. to jointly research and develop functional cures for HIV and Hepatitis B infections. We are building a proprietary immuno-oncology pipeline by targeting TheraT<sup>®</sup> towards virally mediated cancer antigens, self-antigens and next-generation antigens.

Find out more about HOOKIPA online at [www.hookipapharma.com](http://www.hookipapharma.com).

\*Registered in Europe; Pending in the US.

### **About DarwinHealth**

DarwinHealth: Precision Therapeutics for Cancer Medicine is a “frontiers of cancer,” technology-focused company, co-founded by CEO Gideon Bosker, MD, and Professor Andrea Califano, Clyde and Helen Wu Professor of Chemical Systems Biology and Chair, Department of Systems Biology at Columbia University. The company’s technology was developed by the Califano lab over the last 13 years and is exclusively licensed from Columbia University.

DarwinHealth's mission statement is to deploy novel technologies rooted in systems biology to improve clinical outcomes of cancer treatment. "Our oncotectural approach, with its emphasis on elucidating and targeting tumor checkpoints," explains Dr. Califano, "provides its most important solutions and repositioning roadmaps for advancing precision-focused cancer drug discovery and therapeutics."

The unique, precision medicine-based methods employed by DarwinHealth are supported by a deep body of scientific literature authored by its scientific leadership, including DarwinHealth CSO, Mariano Alvarez, PhD, who co-developed the company's critical computational infrastructure. These proprietary strategies leverage the ability to reverse-engineer and analyze the genome-wide regulatory and signaling logic of the cancer cell, by integrating data from in silico, in vitro, and in vivo assays. This provides a fully integrated drug characterization and discovery platform designed to elucidate, accelerate, and validate precise developmental trajectories for pharmaceutical assets, including immuno-oncology-focused therapies, so their full clinical and commercial potential can be realized.

For more information, please visit: [www.DarwinHealth.com](http://www.DarwinHealth.com).

Issued for and on behalf of HOOKIPA Pharma Inc. by Instinctif Partners. For further information please contact:

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