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New Insights into Hookipa's TheraT(R) Replicating Viral Vector Platform

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The study was led by Professor Doron Merkler, M.D., and his team at the Department of Pathology and Immunology at the University of Geneva

Hookipa Biotech AG, a clinical stage biotech company pioneering an innovative class of active immunization therapies for oncology and infectious diseases, announces the publication of a new preclinical study of its TheraT® replicating viral platform in the May edition of the prestigious international peer-reviewed journal Immunity.

The study was led by Professor Doron Merkler, M.D., and his team at the Department of Pathology and Immunology at the University of Geneva, Switzerland.

CD8+ cytotoxic T lymphocytes (CTLs) are important in the body's defense against infection and cancer and, in addition, contribute to the pathogenesis of several autoimmune diseases.

In this study a mouse model of central nervous system autoimmune disease was used to investigate how priming by distinct microbes may enable CTLs to destroy self-tissues.

The study demonstrated that TheraT®-induced CD8+ T cells have a unique transcriptional profile, characterized by expression of the master transcription factor thymocyte selection-associated HMG-box protein (TOX).

TOX expression unleashes the tissue-destructive potential of CD8+ T cells by repressing the immune checkpoint 2B4/CD244. Expression of TOX, which is selectively induced by TheraT®, enables CD8+ T cells to establish long-lasting interactions with their target cells inside solid tissues and kill them.

Professor Daniel D. Pinschewer, M.D., Hookipa's Chief Scientific Officer and a co-author of the paper, said, "These data are very encouraging. They show that TOX expression enables TheraT®-induced CD8+ T cells to attack and destroy "self" tissue. A limitation of other immunization approaches has been that cancer also being a "self" tissue avoids immune mediated destruction. This feature of TheraT®-induced CD8+ T cells is of paramount importance in the immune response against cancer, which in essence represents an autoimmune attack that is desired and beneficial to the patient as it is directed specifically to and effective against the cancer".

Hookipa is performing IND-enabling studies for HB-201/TheraT® to be tested in Human papillomavirus positive (HPV+) head and neck squamous cell carcinoma. A Phase 1 trial is scheduled to start in 2019 as a monotherapy. In 2020, HB-201 will be combined with a checkpoint inhibitor and later with HB-202, a complementary TheraT®-based product in preclinical development.