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ImmunoQure AG Announces Publication in Cell of Naturally Occurring Patient-Derived Autoantibodies That Limit Human Diseases

Düsseldorf, Germany July 18th, 2016. ImmunoQure AG, a German biotechnology company focused on the development of autoantibodies as therapeutics to treat common human diseases today announced the publication of data in the leading scientific journal *Cell*, demonstrating that such therapeutics can limit a variety of common human diseases. ImmunoQure's focus is the identification and development of antibodies derived from an ultra rare patient population with an autoimmune disorder called autoimmune polyendocrine syndrome type 1 (APS1 or APECED).

APS1/APECED is caused by monogenic defect in the autoimmune regulator gene (AIRE) that leads to a catastrophic destruction in central tolerance, characterized by the escape of naïve T cells targeting self-proteins from negative thymic selection. These auto-reactive T cells enable B cells to develop and subsequently generate highly matured self-reactive antibodies. Such self-reactive antibodies should put the APS1/APECED patients at severe risk of developing a myriad of autoimmune diseases, including type 1 diabetes, multiple sclerosis, lupus and rheumatoid arthritis. This is, however, not the case. ImmunoQure's scientists - together with a collaborative group of academic researchers and clinicians, show that naturally occurring autoantibodies might indeed have disease ameliorating properties in APS1/APECED patients. Furthermore, they show that on average each patient has autoantibodies targeting almost 100 proteins, but because each patient has a different autoantibody repertoire, a collection of 80 patients has autoantibodies targeting almost one fifth of the human proteome.

The publication demonstrates that beneficial properties of autoantibodies targeting multiple cytokines and Type I interferons are directly transferable from patients to preclinical models of disease and consequently can be considered to be ideal therapeutic candidates for clinical development. As a result of their human origin and the complexity of the epitopes that the autoantibodies bind to, these drug candidates are safe, efficacious and have been specifically designed & optimized by the human immune system to perform highly defined functions.

Professor Hayday, co-founder of ImmunoQure and Professor of Immunology at King's College, London added: 'This is very significant because antibodies make up one of the largest sectors of the pharmaceutical market, and one of the great quests in the pharmaceutical industry is to be able to routinely generate antibodies against human proteins implicated in diseases. Rather than committing immense resources and expense to drug discovery, which is at best a very uncertain path, the findings suggest a route to drug recovery, in which naturally arising highly efficacious autoantibodies can be isolated from

patients whose clinical information guides us as to the diseases most likely to benefit from drugs derived from those antibodies.' Besides positioning these human antibodies as therapeutics per se, ImmunoQure will also leverage their specific characteristics and special profiles as building blocks to design and engineer novel immunotherapeutics, from bispecific antibodies, to chimeric antibodies or antigen receptors, and antibody drug conjugates.

To access the Cell publication, please follow this link:

[http://www.cell.com/cell/abstract/S0092-8674\(16\)30792-9](http://www.cell.com/cell/abstract/S0092-8674(16)30792-9)

See also:

<https://crick.ac.uk/news/press-releases/antibodies-rare-autoimmune-disorder-preventing-diabetes/>

About ImmunoQure AG

ImmunoQure was founded by a consortium of leading researchers from the Universities of Tartu, Estonia and Helsinki Finland, King's College, London UK, the APECED patient support charity APECED Oy and HS LifeSciences, Düsseldorf, Germany. ImmunoQure is financed by QureInvest II (SCS) SICAR, a specialist European life sciences entrepreneurial investment fund advised by HS LifeSciences GmbH, Düsseldorf, Germany.
