



Horizon Discovery partners with the Human Protein Atlas

- *Horizon's HAP1 cell line to be integrated in the HPA Cell Atlas program*
- *Knockout cell models from Horizon chosen based on consistency and reproducibility demonstrated in validation studies*
- *Agreement will expand open access resource, supporting genetic research globally*

Cambridge, UK, and Stockholm, Sweden, 03 December 2019: Horizon Discovery Group plc (LSE: HZD) ("Horizon"), a global leader in the application of gene editing and gene modulation for cell line engineering, today announced that it has entered into a partnership with The Human Protein Atlas (HPA). HPA has selected Horizon's CRISPR-edited knockout cell models to further expand the knowledge available in its Cell Atlas program, to advance our understanding of the genetic drivers of disease. Knockout cell models offer the possibility for an enhanced validation of antibodies based on genetic strategies, because the complete absence of the targeting protein correlates with a complete loss of signal for specific antibodies. Adding more validation data for the HPA's antibodies will increase the reliability of the Cell Atlas and thereby help users find the most-trustworthy tools for their research.

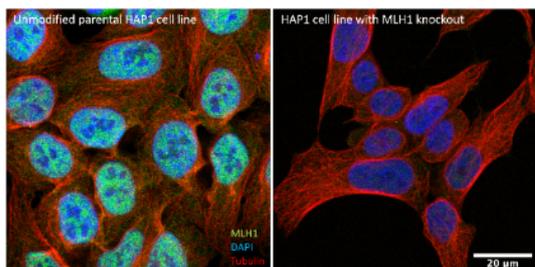
The HPA, a Sweden-based program, was founded in 2003 with the aim of mapping all the human proteins in cells, tissues and organs. The growing information database of HPA is available as open access to scientists in academia and industry in order to explore the human proteome. The Horizon cell models will be integrated specifically within the HPA Cell Atlas program, which details the subcellular localization of proteins in single human cells, providing high-resolution insights into molecular mechanisms. Initially, HPA researchers will utilize 500 of Horizon's CRISPR-edited knockout cell models as part of large-scale protein expression and imaging studies.

Professor Emma Lundberg, responsible for the HPA Cell Atlas program, explained: *"Horizon has over a decade of experience in gene editing, and a well-established reputation for providing CRISPR-edited knockout cell models. We have previously used Horizon's cell lines in our high throughput imaging processes with great success. Using a validated gene-edited cell line where all cell models have the same background will be key to maximizing efficiency and achieving data reproducibility."*

Terry Pizzie, CEO, Horizon Discovery, said: *"Having contributed to several thousands of publications in the field of human biology and disease, the HPA is a highly regarded knowledge provider and an expert in the field of molecular mechanisms of the human cell. We are delighted to partner with HPA to provide the robust research tools required to extend their database, and we are proud to be contributing to the expansion of this renowned open access resource for both academia and industry."*

For further information, please visit: <https://horizondiscovery.com/navigation/gene-editing/cell-models>

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ICC-IF of MHL1 in Horizon Discovery's HAP1 cell line with and without MLH1 gene knockout using an HPA antibody

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About Horizon Discovery Group plc www.horizondiscovery.com

Horizon Discovery Group plc (LSE: HZD) ("Horizon") drives the application of gene editing and gene modulation within the global life science market – supporting scientists on the path from research to therapy.

Built upon more than a decade of experience in the engineering of cell lines, Horizon offers an unmatched portfolio of tools and services to help scientists gain a greater understanding of gene function, identify genetic drivers behind human disease, deliver biotherapeutics, cellular and gene therapies for precision medicine as well as develop and validate diagnostic workflows.

Horizon's solutions enable almost any gene to be altered, or its function modulated, in human and other mammalian cell lines.

The Company's customers include global pharmaceutical and biotechnology companies, many of the world's foremost academic institutes, as well as clinical diagnostic laboratories. Insight into the challenges faced by these organizations enables Horizon to focus efforts on development of innovative solutions that not only differentiate the company's offering, but also fuel development of the next wave of precision medicines.

Horizon is headquartered in Cambridge, UK with offices in USA and Japan. The Group is listed on the London Stock Exchange's AIM market under the ticker HZD.

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About Horizon cell models

Horizon offers a wide range of gene-edited cell models available 'ready-to-go', express engineered or fully customized enabling scientists to choose the cell model most relevant for their application. The 'ready-to-go' CRISPR-edited HAP1 cell models have been engineered to introduce frameshift

mutations into the coding sequence of genes of interest and validated to confirm the mutation at the genomic level. Using the HAP1 cell line enables multiple gene targets to be investigated using the same cell background for consistency.

About Human Protein Atlas www.proteinatlas.org

About Human Protein Atlas The Human Protein Atlas (HPA) is a program based at SciLifeLab (Science for Life Laboratory), Stockholm, that started in 2003 with the aim to map all the human proteins in cells, tissues and organs using integration of various omics technologies, including antibody-based imaging, mass spectrometry-based proteomics, transcriptomics and systems biology. All the data in the knowledge resource is open access to allow scientists both in academia and industry to freely access the data for exploration of the human proteome. Version 19 (launched September 5, 2019) adds three new parts to the resource, thus it consists of six separate parts now, each focusing on a particular aspect of analysis of the human proteins: the Tissue Atlas showing the distribution of the proteins across all major tissues and organs in the human body, the Cell Atlas showing the subcellular localization of proteins in single cells, the Pathology Atlas showing the impact of protein levels for survival of patients with cancer, the Blood Atlas showing the profiles of blood cells and proteins in the blood, the Brain Atlas showing the distribution of proteins in human, mouse and pig brain, and the Metabolic Atlas showing the presence of metabolic pathways across human tissues; the latter is a collaboration with Chalmers University. The Human Protein Atlas program has already contributed to several thousands of publications in the field of human biology and disease and it has been selected by the organization ELIXIR (www.elixir-europe.org) as a European core resource due to its fundamental importance for the wider life science community. The HPA consortium is funded by the Knut and Alice Wallenberg Foundation.