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Philogen
innovating targeting

Philogen announces publication in Protein Science on the selection and structural characterization of a novel PD-1 blocking antibody

The study describes the development and in vitro characterization of a novel anti-PD-1 antibody from a new fully human antibody phage library.

The antibody shows potent blockade of PD-1 with a different recognition mechanism compared to anti-PD-1 antibodies that have recently reached the market.

Siena (Italy), November 18 2022 - Philogen S.p.A., a clinical-stage biotechnology company focused on the development of innovative medicines based on tumor targeting antibodies and small molecule ligands, announces the publication of a study in the peer-reviewed journal "Protein Science" describing the *in vitro* characterization of a new programmed cell death protein 1 (PD-1) blocking antibody isolated from a novel fully human antibody phage library. The study, conducted by scientists at Philochem AG, the wholly-owned Swiss subsidiary company of Philogen, shows how Philochem's phage display libraries can be applied to generate potent monoclonal antibodies for the immunotherapy of cancer.

The paper can be accessed on the *Protein Science* website under the following link.

PD-1 is a protein expressed on immune cells such as monocytes and T lymphocytes. Interaction of PD-1 with its cognate ligand PD-L1, which is frequently overexpressed in various tumors, results in reduced cytolytic activity of tumor-specific T cells. The antibody-mediated blockade of PD-1 has been shown to increase T cell effector functions and has demonstrated activity against multiple tumor types. The screening of Philochem's proprietary phage display libraries has enabled the isolation of a novel antibody that potently blocks PD-1 *in vitro*. Analysis by X-ray crystallography revealed binding of the antibody to a unique epitope and a PD-1 recognition mechanism, which is different from those of previously reported anti-PD-1 antibodies.

Dario Neri, Chief Executive Officer of Philogen commented: "This study confirms the ability of Philogen to generate best-in-class fully human antibodies against specific proteins associated with certain diseases. These new data support the development of a new anti-PD-1 antibody that can be used to generate new prototypes for the immunotherapy of different tumors."

Philogen Group Description

Philogen is an Italian-Swiss company active in the biotechnology sector, specialized in the research and development of pharmaceutical products for the treatment of highly lethal diseases. The Group mainly discovers and develops targeted anticancer drugs, exploiting high-affinity ligands for tumor markers (also called tumor antigens). These ligands - human monoclonal antibodies or small organic molecules - are identified using Antibody Phage Display Libraries and DNA-Encoded Chemical Library technologies.

The Group's main therapeutic strategy for the treatment of these diseases is represented by the so-called tumor targeting. This approach is based on the use of ligands capable of selectively delivering very potent therapeutic active ingredients (such as pro-inflammatory cytokines) to the tumor mass, sparing healthy tissues. Over the years, Philogen has mainly developed monoclonal antibody-based ligands that are specific for antigens expressed in

tumor-associated blood vessels, but not expressed in blood vessels associated with healthy tissues. These antigens are usually more abundant and more stable than those expressed directly on the surface of tumor cells. This approach, so called vascular targeting, is used for most of the projects pursued by the Group.

The Group's objective is to generate, develop and market innovative products for the treatment of diseases for which medical science has not yet identified satisfactory therapies. This is achieved by exploiting (i) proprietary technologies for the isolation of ligands that react with antigens present in certain diseases, (ii) experience in the development of products targeted at the tissues affected by the disease, (iii) experience in drug manufacturing and development, and (iv) an extensive portfolio of patents and intellectual property rights.

Although the Group's drugs are primarily oncology applications, the targeting approach is also potentially applicable to other diseases, such as certain chronic inflammatory diseases.

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