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Media release – IMMEDIATE RELEASE

Panspecific antibodies: Novimmune successful in designing antibodies with multiple specificities

Plan-Les-Quates/Geneve – NovImmune announced today the description, for the first time, of a single antibody engineered for double antigen binding specificity involving chemokines as targets. The work was accepted for publication in *mAbs*, the first international peer-reviewed journal of its kind to focus exclusively on monoclonal antibodies (mAbs). Antibodies are designed by nature to bind to epitopes on pathogens with high capacity through a unique one binding specificity mechanism. However, with current molecular biology know how, a team of scientists at NovImmune succeeded in rationally inventing an antibody with two specificities within the one antibody binding site paradigm. This novel and innovative antibody engineering approach will open future avenues for the design of panspecific therapeutic antibodies, that is, antibodies with a binding site that is rationally designed to have multiple intrinsic binding specificities. The experimental strategy, taken by the NovImmune team, could be potentially expanded to apply wherever there is a therapeutic rationale to simultaneously modulate the activity of two target proteins or epitopes. The benefit of hitting two birds with one stone is to create synergistic therapeutic effects with, for example, redundant biological pathways (chemokines) or two non-overlapping epitopes (aggregating tumor specific antigens).

Monoclonal antibodies: successful therapeutics

Invented in the 1970's yet gaining new momentum only in the last decade as medicines, mAbs offer what can be considered as one of the most promising scaffolds for the treatment of a plethora of clinical indications (e.g. cancer, autoimmune diseases, allergic asthma, neurodegenerative disorders). In general, their selectivity, potency and mechanism of action have delivered a robust product with a higher chance of receiving market approval than small molecular weight compounds. Thus, the current success of commercialized mAbs has fully validated this drug class. In addition to creating this novel panspecific prototype, NovImmune has generated 7 therapeutic mAbs of the classical phenotype.

Panspecific mAbs to chemokines

NovImmune's research team successfully engineered a mAb with a double specificity to bind two different chemokines (i.e. CXCL9 and CXCL10). Chemokines are the chemoattractant cytokines, a family of proteins that are implicated in cell trafficking responsible for both maintaining homeostatic conditions and protecting the host during pathogen insult. During disease processes, chemokines are aberrantly produced causing excess inflammation leading to tissue destruction (for example, the joint during flares of arthritis). Furthermore, certain chemokines have a direct toxic effect on organs, causing them to decline in their ability to fulfill their normal physiological role (for example, insulin producing pancreatic beta cells).

The chemokines and their receptors have a well described overlapping set of interactions. There are examples of where two or more chemokines can activate through one receptor as well as having one chemokine that binds multiple receptors. This example of redundancy in biological targets lends itself to a panspecific approach. By broadening the binding capacity of one single antibody, the potential exists to effectively target these overlapping signaling systems and provide more effective treatments.

NovImmune SA

NovImmune SA ('NovImmune') is a drug discovery and development company with a focus on the development of therapeutic mAbs for inflammatory diseases and immune-related disorders. The company is based in Plan-les-Ouates/Geneva, Switzerland.

NovImmune has generated, to date, seven proprietary mAbs. The pipeline is a balance of preclinical and clinical compounds, with a mix of both clinically validated as well as novel targets. Each of these portfolio products has the potential to become a medicine for multiple medical conditions due to the overlapping mechanism of action under laying these types of diseases.

Two compounds are in clinical development with the most advanced in clinical phase II. The lead product, NI-0401/anti-CD3, is currently being tested in Crohn's disease, type 1 diabetes and transplantation.

The company was established in 1999 and has currently 65 employees.

For more information please visit our website: www.novimmune.com

Notes to the Editor:

Specificity tuning of antibody fragments to neutralize two human chemokines with a single agent

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WEB: <http://www.landesbioscience.com/journals/mabs/>

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