XL-protein
Superior Biopharmaceuticals

PASylated Cytokines

Cytokines, like interleukins and interferons as well as its antagonists, are secreted proteins which play a key role in inflammation and immunity. Due to their typically small size (5-20 kDa), they are quickly eliminated via renal clearance. PASylation® enables the generation of long-acting cytokines for the treatment of autoimmune diseases and cancer. Beside the half-life extension effect, the PAS moiety may decrease systemic side-effects, leading to improved safety while tumor accumulation via the EPR-effect may further enhance therapeutic efficacy.

Extended plasma half-life

- Expanded hydrodynamic volume leading to extended circulation time
- Reduced injection frequencies

Efficient & cheap production

- Genetic fusion, no need for chemical conjugation
- Compatible with various industry standard expression systems

Tumor accumulation

- Tumor targeting via the EPR effect
- Enhanced therapeutic efficacy

Improved safety

- Potentially reduced systemic toxicity

Related publications:

Powers N. E. et al. (2019) PASylation of IL-1 Receptor antagonist (IL-1Ra) retains IL-1 blockade and extends its duration in mouse urate crystal-induced peritonitis. J. Biol. Chem. 295, 868 –882.

Xia Y. et al. (2018) PASylated interferon α efficiently suppresses hepatitis B virus and induces anti-HBs seroconversion in HBV-transgenic mice. Antiviral Res. 161, 134-143.

Nganou-Makamdop K. et al. (2018) Type I IFN signaling blockade by a PASylated antagonist during chronic SIV infection suppresses specific inflammatory pathways but does not alter T cell activation or virus replication. PLoS Pathog. 14, e1007246.

Zvonova E. A. et al. (2017) PASylation technology improves recombinant interferon-β1b solubility, stability, and biological activity. Appl. Microbiol. Biotechnol. 101, 1975-1987.

Harari D. et al. (2014) Enhanced in vivo efficacy of a type I interferon superagonist with extended plasma half-life in a mouse model of multiple sclerosis. J. Biol. Chem. 289, 29014-29029.

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