Environmental Risk Assessment Summary
Ronapreve (Casirivimab and Imdevimab)

Introduction

The publication of environmental risk assessment summaries is part of Roche's engagement on developing a better understanding of issues regarding pharmaceuticals in the environment (PiE).

New pharmaceutical substances are investigated for biodegradability and initial ecotoxicity during their development. For registration, a full state-of-the-art environmental risk assessment is developed based on chronic environmental effects and advanced environmental fate data, as required by the pertinent regulations. While not a regulatory requirement, Roche also investigates older pharmaceutical substances, normally at a simpler scale, in order to assess their environmental risks.

The EMA Guideline on Environmental Risk Assessment (ERA) for Non-GMO Human Medicinal Products [1] requires an ERA for the Marketing Authorisation Application (MAA) of all new medicinal products in the European Union. For proteins and peptides, however, the 'ERA may consist of a justification for not submitting ERA studies, e.g., due to their nature they are unlikely to result in a significant risk to the environment'.

Summary

The Roche product Ronapreve (Casirivimab and Imdevimab) is a combination of two recombinant monoclonal antibodies [2][3][4]. Ronapreve (Casirivimab and Imdevimab) is approved for treating COVID-19 in adults and adolescents (from 12 years of age and weighing at least 40 kilograms) who do not require supplemental oxygen and who are at increased risk of their disease becoming severe, and for preventing COVID-19 in people aged 12 years and older weighing at least 40 kilograms (pre- or post-exposure prophylaxis) [2].

Ecotoxicity and biodegradability tests with Ronapreve (Casirivimab and Imdevimab) were not performed. However, acute ecotoxicity limit tests with green algae, daphnids and fish with other monoclonal antibodies consistently showed no adverse effects at the only tested concentration of 100 mg/L nominal concentration relating to the active substances, Also biodegradability tests with other monoclonal antibodies showed ready biodegradability [5].

Considering human metabolism and the suggested rapid biodegradability and the suggested low acute ecotoxicological properties of Ronapreve (Casirivimab and Imdevimab), no exposure levels of concern to the environment are to be expected. This confirms the general finding that monoclonal antibodies and other protein or peptide active pharmaceutical substances are not expected to pose any risk to the environment [5].

References

[1] European Medicines Agency (EMA) (2006/2015): Guideline on the environmental risk assessment of medicinal products for human use. European Medicines Agency, Committee for Medicinal Products for Human Use (CHMP), 01 June 2006, EMA/CHMP/SWP/447/00 corr 2

[2] F. Hoffmann-La Roche Ltd (2021): Media & Investor Release. Ronapreve approved by European Commission to treat non-hospitalised COVID-19 patients and for prophylaxis of the disease. 12 November 2021.

[3] F. Hoffmann-La Roche Ltd (2021): Safety data sheet for Casirivimab, 3 March 2021. https://www.roche.com/sustainability/environment/global_product_strategy_and_safety_data_sheets.htm

[4] F. Hoffmann-La Roche Ltd (2021): Safety data sheet for Imdevimab, 3 March 2021. https://www.roche.com/sustainability/environment/global_product_strategy_and_safety_data_sheets.htm

[5] Straub JO (2010): Protein and Peptide Therapeuticals: An Example of "Benign by Nature" Active Pharmaceutical Ingredients. *In* Kümmerer K, Hempel M, eds: Green and Sustainable Pharmacy. Springer, Heidelberg, pp 127–133