News

Lugano, March 18th, 2019

APPROACHING PAYLOAD PROCESS DEVELOPMENT USING QBD

Thomas Matt , Senior Manager R&D Chemical Division at Cerbios, looks at some practical experiences in projects for ADC payloads.

"During all stages of R&D activities, a process has to be developed, while also considering the containment system required and the design of the plant, so as to ensure reproducible manufacturing, of the compound with defined quality and yield, while also keeping safety, costs and timelines under control.

For a CDMO, the work generally starts with laboratory procedures. The quality requirements and the batch sizes of the material increase depending on the intended use. In the early stages, the target quality of payloads is often not yet totally defined; requests for HPLC purity of at least 90% with single unknown impurity of less than 2% (HPLC) are common. Due to the chemical complexity of the payloads, which are derived from auristatins, such as monomethyl auristatin E or F, maytansinoids, PBDs or other toxins, HPLC purity profiles with up to 20 impurity peaks or even more, mostly with unknown structures, are not unusual at this stage. (...)".

FOCUS ON HIGH POTENCY APIS

Approaching payload process development using QbD

Thomas Matt of Cerbios-Pharma looks at some practical experiences in projects for ADC payloads

THE MARKET FOR high potency APIs (HPAPIs) is expected to experience strong growth over the next few years. Furthermore, the increasing number of antibody-drug conjugates (ADCs) being discovered and moved along clinical development programmes is bringing very highly potent toxins and payloads with complex chemistry and process engineering to the tables of R&D and technology teams.

The exact potency of new payloads is often not known and occupational exposure limits (OELs) are set at very conservative levels of $<1\ \mu g/m^3$ in order to guarantee safety while developing and manufacturing the compounds. As a CDMO, Cerbios-Pharma has been active in this field for years and has experienced the challenge of developing, scaling up and validating a cGMP process for this class of highly potent drugs.

The chemical complexity of the new molecules is increasing. Quite often they are not solid and their purification can be carried out only by using chromatographic purifications.

The use of innovative technologies, such as continuous flow chemistry, can give the benefits of enhanced control, with faster and cleaner reactions. At the same time, the safety procedure has to be assessed continuously, in order to ensure adequacy. This is also the case with regard to the need for reclassification, due to additional toxicological data becoming available.

Developing a process

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Throughout the development process, strong analytical capabilities, including techniques

Thomas Matt – ADC boom is creating complex process engineering demands

High potency manufacturing at Cerbios-Pharma

50 · SPECIALITY CHEMICALS MAGAZINE · MARCH 2019 www.specchemonline.com

Cerbios-Pharma SA
Via Figino 6
CH – 6527 Barbengo/Lugano (TI)
Switzerland

Phone : +41 (0) 91 985 63 11
Fax : +41 (0) 91 985 63 25

Courtesy of **Specialty Chemicals Magazine**, March 2019 Edition.

You can download and read the full article following this link.

For more information please contact:

Cerbios-Pharma SA
sales@cerbios.ch

About Cerbios-Pharma SA
Cerbios is a private company with its headquarters in Lugano, Switzerland, specialized in developing and producing active pharmaceutical ingredients (APIs), both chemical and biological, for its clients around the world. Cerbios is a world leader for some generic products used primarily to treat respiratory, dermatological and oncological diseases.

Cerbios also offers its clients an exclusive service to develop and produce highly active pharmaceutical ingredients (HAPIs) and biological monoclonal antibody tablets, recombinant proteins, conjugated monoclonal antibodies (ADCs) and probiotics for pharmaceutical use.

Cerbios is capable of offering a complete service to develop and register pharmaceutical products, tablets supplied for clinical research phases, the necessary regulatory documentation and subsequent marketing supplies. Cerbios products are marketed around the entire world, primarily in the USA, Japan and Europe.

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