IPRP
International Pharmaceutical Regulators Programme

Mapping and exchange of requirements for nanomedicine / nanotechnology in drug product class specific guidance (e.g. liposomal formulations)

Respondents:
Canada - Health Canada
USA - Food and Drug Administration/ Center for Drug Evaluation and Research (CDER)
Europe - European Medicines Agency
Brazil - Agência Nacional de Vigilância Sanitária - ANVISA
Japan - Ministry of Health, Labour and Welfare/Pharmaceutical and Medical Devices Agency
Taiwan - Taiwan Food and Drug Administration
Singapore - Health Products Regulation Group (HPRG) of the Health Sciences Authority

Disclaimer:

This document reflects the views of subject matter experts participating in the IPRP Nanomedicines Working Group (NWG) and should not be construed to represent the official views of any given regulatory authority participating in the IPRP.

Question 1: Which type of products does your organization regulate?

All respondents regulate drugs, medical devices and some regulate natural health products.

Question 2: How does you organization classify/define liposomal products?

No responding regulatory agency currently has an official definition of a liposome. Most use either a classical or scientific definition where particles composed of one or more lipid bilayers enclose an aqueous space. It should be noted that one responder explicitly stated that non bilayer forming lipids are not included in their guidance documents regarding liposomal drugs.

Question 3: Has your organization approved liposomal products and what regulatory framework is used within your organization to regulate liposomal products?

All responding agencies have approved liposomal drugs products using existing regulatory frameworks without the need for regulations specifically for these products. Three of the seven respondents have written guidance documents regarding liposomal drug products and a number of respondents indicated they have utilized these documents. No specific regulations regarding lipid excipients were noted, suggesting that lipid excipients be regulated in a similar manner to liposomes using existing frameworks.

Question 4: What initiatives is your organization involved in with respect to developing/strengthening regulations or guidelines associated with liposomal drug products?

Most respondents have internal working groups for nanomedicines and/or participate in international activities.

Question 5: What areas related to the regulation of liposomal drug products do you feel should be the focus of the IPRP Nano WG?

Respondents highlighted a number of issues, the most common being:

- Approaches for regulation of follow-on/generic liposomal medicines
- Correlation of *in vitro* and *in vivo* data
- Limitations on analytical methodology
- Identify which quality attributes are critical during the manufacturing process
- Selection of reference standards0

Question 6: What challenges does your organization face in the regulation of liposomal drug products and how can they be addressed? Would one guidance document be able to address various liposomal formulations?

The most common challenge noted among respondents is how to approach the regulation of follow on/nanosimilar products and how to assess comparability. The utility of a shared guidance document may depend on the scope of the document and sharing of submission data may be of more use in identifying critical/useful attributes.

Question 7: Should there be a consideration for product specific or similar formulation specific guidance?

Due to limited resources any new guidance should be focused on addressing identified needs and be beneficial to a large number/class of innovative or follow on product however it could be difficult to develop a single document that covers all liposomal products.

Question 8: Does your organization have specific requirements for the post-market assessment of safety and efficacy of liposomal products?

No unique requirements for the post-market assessment of safety and efficacy of liposomal products are noted with existing regulatory frameworks being deemed sufficient.

Question 9: How does you organization deal with natural health products (NHP) that contain liposomes (i.e vitamins and minerals, herbal remedies or homeopathic medicines)?

Question 10: Should the burden of efficacy evidence and product characterization required for NHP liposomal consumer products be contingent upon the seriousness of the health claims made?

Respondents either do not regulate natural health products or regulate liposomal formulations of natural health products with existing frameworks.

Summary

As liposomal pharmaceutical products are currently being regulated with existing frameworks for each jurisdiction responding to this survey, a common guidance document for these products is most likely not necessary. Respondents, nearly universally, indicated that a critical challenge is the assessment of follow on/nanosimilar liposomal products and sharing of information regarding critical attributes for these types of products could be of benefit. As all respondents use either a classical or scientific definition of a liposome it may be possible to produce a common definition that would be acceptable to all respondents.

References supplied:

MHLW: Guideline for the development of liposome drug products. Link

FDA: Liposome Drug Products Chemistry, Manufacturing, and Controls; Human Pharmacokinetics and Bioavailability; and Labeling Documentation Guidance for Industry. Link

EMA: Reflection paper on the data requirements for intravenous liposomal products developed with reference to an innovator liposomal product. Link