Accepted Manuscript

Statistical considerations concerning dissimilar regulatory requirements for dissolution similarity assessment. the example of immediate release dosage forms

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PII: S0022-3549(17)30006-0

DOI: 10.1016/j.xphs.2017.01.003

Reference: XPHS 611

To appear in: *Journal of Pharmaceutical Sciences*

Received Date: 14 November 2016

Revised Date: 17 December 2016

Accepted Date: 3 January 2017

Please cite this article as: Jasińska-Stroschein M, Kurczewska U, Orszulak-Michalak D, Statistical considerations concerning dissimilar regulatory requirements for dissolution similarity assessment. the example of immediate release dosage forms, *Journal of Pharmaceutical Sciences* (2017), doi: 10.1016/j.xphs.2017.01.003.

ORIGINAL RESEARCH

STATISTICAL CONSIDERATIONS CONCERNING DISSIMILAR REGULATORY REQUIREMENTS FOR DISSOLUTION SIMILARITY ASSESSMENT. THE EXAMPLE OF IMMEDIATE RELEASE DOSAGE FORMS.

Running title: dissolution – requirements and statistics

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ABSTRACT

When performing *in vitro* dissolution testing, especially in the area of biowaivers, it is necessary to follow regulatory guidelines to minimize the risk of an unsafe or ineffective product being approved. The present study examines model-independent and model-dependent methods of comparing dissolution profiles based on various compared and contrasted international guidelines**.** Dissolution profiles for immediate release solid oral dosage forms were generated. The test material comprised tablets containing several substances, with at least 85% of the labeled amount dissolved within 15 minutes, 20-30 minutes or 45 minutes. Dissolution profile similarity can vary with regard to the following criteria: time point selection (including the last time point), coefficient variation and statistical method selection. Variation between regulatory guidance and statistical methods can raise methodological questions and result potentially in a different outcome when reporting dissolution profile testing. The harmonization of existing guidelines would address existing problems concerning the interpretation of regulatory recommendations and research findings.

Keywords: dissolution study, similarity of profiles, regulatory requirements, immediate release dosage forms, statistical methods