



Approaching the Isle of Capri

PIC QUESTION OF THE WEEK: 12/12/11

Q: Please define the term *biosimilars* as it relates to biologic products.

A: Biosimilars, also known as “follow-ons,” are pharmaceutical/biological products with properties almost identical to those of currently marketed preparations. These include substances such as erythropoietin, colony-stimulating factors (e.g. filgrastim and sargramostim), enoxaparin, a variety of monoclonal antibodies, vaccines, human growth hormone, etc. Biologicals are structurally complex molecules and extremely difficult and expensive to manufacture. Subtle changes in the manufacturing process, for example alteration in amino acid sequence, glycosylation, etc. can significantly affect their safety, efficacy, and immunogenic potential; thus the generic duplication of these therapies may be extremely difficult. In order to expedite the approval process for these types of preparations, Congress has passed the Biologics Price Competition and Innovation (BPCI) Act of 2009 which provides the FDA an “abbreviated pathway” for the approval of drugs that are biosimilar to previously available preparations. One potential advantage of the shortened approval process is the elimination of unnecessary and possibly unethical clinical trials. The FDA is now faced with the challenge of determining whether a newly developed biologic product is equivalent to the reference preparation. Currently available testing procedures incorporate a variety of sensitive assays that can result in accurate and consistent comparison. It appears the best approach to ensuring consistent efficacy and safety of biosimilar products is routine application of appropriate assays combined with carefully conducted post-marketing studies. This is of particular importance because of the future potential for “interchangeability” of these therapies. The BCPI Act will hopefully provide sufficient basis for permitting pharmacists to substitute a specific biosimilar product for its respective reference standard without prior approval from a physician. This can only be accomplished if the manufacturer can successfully demonstrate that clinical efficacy and safety of its product are similar to that of the reference standard. The FDA is attempting to finalize regulations for approving biosimilar products and hopes to do so in the near future. The complexity of the issue (s) is understandable and reinforces the difficult task facing the agency. The subject of biosimilars is also being closely evaluated and monitored throughout the European medical community. The reader is encouraged to review some of the references included in this publication for further information on this difficult topic.

References:

- Kozlowski S, Woodcock J, Midthun K, et al. Developing the nation’s biosimilars program. *N Engl J Med* 2011;365:385-8.
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- Food and Drug Administration. Assessing the impact of a safe and equitable biosimilar policy in the United States. <http://www.fda.gov/NewsEvents/Testimony/ucm154017.htm>. Accessed November 23, 2011.

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The PIC Question of the Week is a publication of the Pharmaceutical Information Center, Mylan School of Pharmacy, Duquesne University, Pittsburgh, PA 15282 (412.396.4600).