Commentary

Follow-on biologic drug competition – No need for new marketing exclusivities

Journal of Commercial Biotechnology (2010) **16,** 5–7. doi:10.1057/jcb.2009.27;
published online 22 September 2009

In June 2009, the Federal Trade Commission (FTC) issued a Report that analyzed how competition from follow-on biologic (FOB) drugs is likely to develop.[1] The Report's purpose was to inform the legislative debate over whether special regulatory features would be necessary to foster FOB competition. It concluded that FOB market dynamics are likely to resemble brand-to-brand drug competition, rather than brand-generic drug competition. The implication of this conclusion is that existing market structures – the patent system and the ability to charge a monopoly price during the patent term – are likely to continue to incentivize further innovation by brand firms and entry by FOB firms. No special procedures similar to the ones used to encourage generic drug entry under the Hatch-Waxman Act are necessary. Indeed, they are likely to harm consumers by delaying FOB entry, decreasing the pace of biologic drug innovation, prolonging patent litigation, and providing a means of collusion among existing and potential biologic drug competitors.[2]

The FTC Report describes how a marketing exclusivity period for the first interchangeable FOB applicant is unnecessary to incentivize entry because subsequent interchangeable FOB entry is unlikely to cause a severe price drop in the FOB price. As a result, competitive prices after FOB entry provide sufficient entry incentives. This situation contrasts dramatically with generic small-molecule entry in which additional generic competitor entry can drive generic prices down to 80 per cent of the branded product's price.

The FTC Report also explains how specialized pre-approval patent resolution procedures are unlikely to resolve efficiently biologic patent disputes between brand and FOB manufacturers. The Report explains that because of the complexity of the patent coverage for biotech drugs, an early start to patent litigation merely ensures that the litigation starts earlier, not that it ends earlier.

Finally, without a pre-approval patent resolution process and Hatch-Waxman type incentives to file FOB applications early to claim a marketing exclusivity period, biologic drug patents will not be degraded and will continue to incentivize biotechnology innovation. Thus, a 12–14 year exclusivity period to bolster patent protection is an unnecessary as insurance against the failure of patents to maintain exclusivity sufficient to justify innovation investment. Further, the Report explains the methodological and conceptual weaknesses in the economic model upon which the industry relies in justifying a 12–14 year period of exclusivity.

A review of three recent biologic drug patent infringement cases reveals the strength of biotech patents to keep competitors off the market. In each of these cases, the brand manufacturer successfully defended its brand biologic drug against a competing biologic drug. In two cases involving anemia and human growth hormones drugs, the brand manufacturers (Amgen[3] and

Genetech[4]) successfully kept the competitor off the market until patent expiry. In the third case involving Tumor Necrosis Factor inhibitors, the brand manufacturer (Johnson & Johnson) won a US$1.67 billion infringement judgment, one of the largest patent judgments ever issued.[5]

The results in these three cases are not surprising. Biologic drugs require a much more complicated manufacturing process than their chemical equivalents. As a result, many stages of the process can be patented – from the drug products themselves to the genes that produce them to the cells in which they are made. These cases illustrate the immense difficulty FOB manufacturers will face trying to design around the brand's patents while trying to rely on previous FDA findings of safety and efficacy about the brand product. Indeed, in these cases, the new entrants were not trying to be similar to the brand product, and yet they were unsuccessful in designing around the brand's patents.

These cases support the FTC Report's conclusion that patents will continue to provide all the necessary exclusivity needed by the industry, government entities, angel investors and venture capitalists to justify the investment needed for biologic drug innovation in the future, even after an FOB pathway is established. Moreover, unlike the market for small molecule drugs, in which the entrance of a generic competitor cuts sharply into the profits of a brand-name innovator, the imperfect substitution between biologics means that brand products retain a large market share even when biosimilar drugs are introduced, allowing brand manufacturers a lengthy period in which to recoup their investment.

Finally, a 12–14 year exclusivity period could undermine the pace of innovation and replace the patent system as the means to encourage and reward innovation. An FOB approval process eliminates unnecessary clinical tests and allows competition to generate better consumer products at lower prices. The potential harm posed by a 12–14 year exclusivity period is that firms will direct scarce R&D dollars toward developing low-risk clinical and safety data for drugs with proven method of actions rather than toward new inventions to address unmet medical needs that can be patented. Thus, a 12–14 year exclusivity period imperils the efficiency benefits of an FOB approval process in the first place and it risks over-investment in well-tilled areas.

An FOB approval process also could undermine the patent system's disclosure function as brand manufacturers rely on trade secrets, rather than patents, to protect their investment.

Because the patent system requires public disclosure, it promotes the dissemination of scientific and technical information that would not occur but for the grant of a patent. The ability to design around is prevalent for patent claims covering the formulation or dosage claims, product-by-process claims and process claims – all of which currently protect biologic products. To the extent that a 12–14 year exclusivity period replaces the need for patents, the scientific community loses the disclosure of inventions that occurs when patents are granted and published, and innovation could be harmed.

REFERENCES AND NOTES

1. See FTC, *Emerging Health Care Issues: Follow-On Biologic Drug Competition*, http://www.ftc.gov/os/2009/06/P083901biologicsreport.pdf(herein, 'FTC Report'). Biologic drugs are protein-based and are derived from living matter or manufactured in living shells using recombinant DNA technologies. They are more complex and larger than chemically synthesized, small molecule drugs. The R&D costs for biologic drugs are the same, if not lower, than they are for small-molecule drugs. However, development costs of biosimilar drugs are substantially greater than they are for small-molecule generic drugs.
2. See FTC Report at iii–x.

3. Amgen, Inc. v. Hoffmann-LaRoche Ltd., 2008 U.S. Dist. LEXIS 77343 (D. Mass. 2008); Amgen v. F. Hoffman-LaRoche, 08-1300, (Fed. Cir. 10 October 2008).
4. Genentech, Inc. v. Insmed Inc., 436 F. Supp. 2d 1080, 1091-92 (N.D. Cal. 2006).
5. Centocor, Inc. *et al* v. Abbott Laboratories, Civ. Action No. 2:2007cv00139 (E.D. Tex. 16 April 2009).

Michael S. Wroblewski
Office of Policy Planning, Federal Trade Commission,
Washington DC, USA

Elizabeth A. Jex
FTC Office of Policy Planning,
Washington DC, USA

Disclaimer The opinions described herein are the authors' own, and should not be attributed to the FTC or any Commissioner.