Eyes on New Product Development

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IN THIS REPORTING period, there was substantial activity in retinal therapeutics. A new agent is in phase 2 evaluation for treatment of diabetic macular edema, results of evaluation of an oral product for impaired dark adaptation were presented, regulatory authorities granted special classification to several therapies, and a business relationship was established. In uveitis, a new drug delivery system and a novel agent are being evaluated in patients. In glaucoma, a novel agent is entering clinical trials, and another novel agent is in advanced phase 3 development. A novel fluoroquinolone was approved for a topic otic indication. A glaucoma drug was approved for pediatric use in Europe. As drugs go off patent, generic applications are being made. As well, health authorities and the court system continue to make decisions about fine points on generic competition and off-label promotion. A biosimilar product was approved by a U.S. Food and Drug Administration (FDA) panel, which might be a precedent. Finally, an updated estimate for the cost of developing a new drug far exceeds previous estimates.

Ophthalmic Pharmaceuticals

- Aerie completed patient enrollment in its phase 3 clinical trial of AR-13324 for the treatment of elevated intraocular pressure (December 2014).
- Aerie completed patient enrollment in its phase 2 study of AKB-9778, a human protein tyrosine phosphatase- β inhibitor and Tie2 activator, alone and in combination with ranibizumab for the treatment of diabetic macular edema (December 2014).
- Akorn has filed an abbreviated new drug application (generic) for difluprednate ophthalmic emulsion (January 2015).
- Alcon received an additional approval from the European Commission for travoprost ophthalmic solution (Travatan[®]) for the treatment of elevated intraocular pressure in pediatric patients with glaucoma (December 2014).
- Aldeyra Therapeutics, Inc., filed an Investigational New Drug application to conduct phase 2 clinical testing of its NS2 for the treatment of noninfectious anterior uveitis (December 2014).
- Alimera received approval for Iluvien[®] (fluocinolone acetonide intravitreal implant) in the Netherlands (December 2014) and Portugal (January 2015).

- Allegro Ophthalmics and Hanmi Pharmaceutical have entered into a license agreement for ALG-1001 (an integrin peptide therapeutic) in the Republic of Korea and the People's Republic of China (January 2015).
- Amaranthus received orphan drug designation for MANF (mesencephalic astrocyte-derived neurotrophic factor) from the U.S. FDA for the treatment of retinitis pigmentosa (December 2014).
- Carl Zeiss Meditec will be supporting Oraya Therapeutics in its development of low-energy radiation therapy for macular degeneration (December 2014).
- Clearside Biomedical enrolled the first patient in a phase 2 randomized, controlled, masked, multicenter clinical trial for the treatment of macular edema associated with noninfectious uveitis using Clearside's proprietary formulation of triamcinolone acetonide (CLS-TA) administered via suprachoroidal injection using a proprietary microinjector (January 2015).
- Genentech received breakthrough therapy designation from the FDA for ranibizumab (Lucentis[®]) for treatment of diabetic retinopathy (December 2014).
- Isarna Therapeutics has submitted a Clinical Trial Authorization application with the German Regulatory Authority to begin human studies on ISTH0036, a selective transforming growth factor- β 2 antisense oligonucleotide, with potential therapeutic application in glaucoma, secondary cataract, and proliferative vitreoretinopathy (January 2015).
- QLT announced the results of evaluation of oral QLT091001 in patients with early age-related macular degeneration and impaired dark adaptation (December 2014).
- Regeneron has received priority review for aflibercept for the treatment of diabetic retinopathy in patients with diabetic macular edema (December 2014).

Regulatory, Government, and Pharmaceutical Industry

- Actavis was ordered by a federal district court judge not to discontinue sales of its now off-patent immediate-release memantine (Namenda-IR[®]) in favor of its on-patent extended-release memantine (Namenda-XR[®]) (January 2015).
- Aegerion Pharmaceuticals chief executive officer's public statement about his previous misleading claims

about lomitapide (Juxtapid®) were apparently the result of the FDA's warning letter, demonstrating the agency's review of television media for industry claims (December 2014).

- Alcon received approval from the FDA for Xtoro® (finafloxacin otic suspension), a new chemical-entity fluoroquinolone used to treat acute otitis externa (December 2014).
- Because of differential expiration dates for patents on composition of matter versus use, Pfizer's pregabalin (Lyrica®) has generic competition in the United Kingdom for some (generalized anxiety disorder, epilepsy) but not all (neuropathic pain) indications for this drug (December 2014).
- Janssen Pharmaceuticals is working with a consortia of global research institutions and nongovernment organizations to accelerate the development of its Ebola vaccine (January 2015).
- The Novartis agent Zarxio® (filgrastim) was recommended for approval by an FDA panel for five indications. If approved by the FDA, this could be the first "biosimilar" to be approved in the United States (January 2015).
- Otsuka has agreed to purchase Avanir Pharmaceuticals (December 2014).
- Roche received FDA authorization for emergency use of its Ebola test (December 2014).
- The Tufts Center for the Study of Drug Development estimated that the cost to develop a new drug is \$2.6 billion (November 2014).
- The FDA announced the membership of the Pharmacy Compounding Advisory Committee (December 2014).
- The FDA is amending its regulations governing the content and format of the "Pregnancy," "Labor and Delivery," and "Nursing Mothers" subsections of the

"Use in Specific Populations" section of the labeling for human prescription drug and biological products (December 2014).

- The U.S. Institute of Medicine has released a report titled "Sharing Clinical Trial Data: Maximizing Benefits, Minimizing Risk" (January 2015).¹
- The U.S. National Institutes of Health and the U.S. Department of Health and Human Services issued separate notices announcing plans to enforce the sharing and reporting of trial outcomes, implementing requirements of the Food and Drug Administration Amendments Act of 2007 (November 2014).²

Author Disclosure Statement

The author consults for numerous ophthalmic pharmaceutical and medical device firms.

References

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2. Zarin DA, Tse T, Sheehan J. The proposed rule for U.S. clinical trial registration and results submission. *N Engl J Med* 2015;372:174–180.

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