Eyes on New Product Development

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IN THIS PERIOD, several novel treatments of dry eye disease and infectious conjunctivitis are in clinical trials, as well as the subject of licensing deals. A novel biologic received a positive review from a regulatory advisory committee for the treatment of thyroid eye disease. Several ophthalmic drugs are in various stages of European regulatory review and approval. A novel agent for the potential treatment of geographic atrophy (GA) was licensed, and a stem cell therapy for retinal disease is in clinical trials. Several US FDA approvals for systemic medicines establish precedents that may be relevant to ophthalmology, including an approval for an oral eicosapentaenoic acid for a chronic indication, a novel antibiotic, a biosimilar, and a treatment for sickle cell disease (SCD). Some of these were designated for FDA rapid review programs and conditional approvals.¹ The US federal government continues to respond to public concerns about drug costs and availability, given the current laws. These include a pending law to allow Medicare to negotiate drug prices, a new center to deal with quality issues in medications from compounding pharmacies, guidance to deal with novel excipients (of particular concern to new ophthalmic drugs), and increased attention to, and enforcement of regulations about investigational drugs, cannabinoids, and dietary supplements.

Ophthalmic Pharmaceuticals and Biologics

- Acucela continues development of emixustat for the treatment of retinal degeneration based on a recent publication (December 2019).²
- Aerie Pharmaceuticals submitted a marketing authorization application (MAA) for Roclanda[®] (netarsudil and latanoprost ophthalmic solution, Rocklatan[®] in the United States) 0.02%/0.005% with the European Medicines Agency (EMA, December 2019).
- Aldeyra announced results from Part 1 of the adaptive Phase 3 RENEW Trial of topical ocular reproxalap in patients with dry eye disease (December 2019).
- Alimera received marketing authorization for Iluvein[®] (fluocinolone acetonide intravitreal implant) in the Benelux countries for prevention of relapse in recurrent noninfectious uveitis affecting the posterior segment of the eye (December 2019).
- Catalyst Biosciences licensed to Biogen its pegylated CB 2782 (CB 2782-PEG) for the potential treatment of

GA associated dry age-related macular degeneration (December 2019).

- Horizon Therapeutics received a positive decision from an FDA advisory committee for its teprotumumab for the treatment of thyroid eye disease (December 2019).
- iView commenced enrollment in a Phase 2 Clinical Trial of its IVIEW-1201 (a broad spectrum antiseptic gel forming ophthalmic solution) in patients with acute adenoviral conjunctivitis (December 2019).
- Novaliq licensed to Bausch Health its NOV03 (per-fluorohexyloctane), a first-in-class investigational drug with a novel mechanism of action to treat dry eye disease associated with Meibomian gland dysfunction (December 2019).
- Oyster Point Pharma presented results from a systemic safety study ("ZEN") of its OC-01 (varenicline nasal spray, November 2019).

Regulatory, Government, and Pharmaceutical Industry

- Amarin received FDA approval for an additional indication for its Vascepa[®] (icosapent ethyl). The indication is an adjunctive (secondary) therapy to reduce the risk of cardiovascular events among adults with elevated triglyceride levels (December 2019).
- Amgen received approval from the FDA for its Avsola[®] (infliximab-axx), a biosimilar to Johnson & Johnson's Remicade[®] for intravenous use in several indications (infliximab, December 2019).
- Global Blood Therapeutics received FDA approval for its Oxbryta[™] (voxelotor) for the treatment of SCD in adults and pediatric patients ≥12 years. This approval was based on accelerated approval based on increase in hemoglobin (November 2019).
- Shionogi received approval from the FDA for its Fetroja[®] (cefiderocol, Shionogi), an antibacterial drug for intravenous treatment of patients with complicated urinary tract infections, who have limited or no alternative treatment options. Fetroja received the FDA's Qualified Infectious Disease Product (QIDP) designation and was granted Priority Review (November 2019).
- The impact of rude reviews of articles from peers were reported to be pervasive and sometimes harmful, particularly in marginalized groups.³

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- The US House of Representatives passed HR 3, The “Elijah E. Cummings Lower Drug Costs Now” Act, allowing Medicare to negotiate drug prices. Former FDA Commissioner Scott Gottlieb stated that this price control would stifle innovation (December 2019).⁴
- The US National Eye Institute (NEI) is starting a clinical trial to test the safety of a novel patient-specific stem cell-based therapy to treat GA (December 2019).
- The US FDA:
 - appointed Stephen Hahn, MD, an oncologist from MD Anderson, to be FDA commissioner;
 - created a “Compounding Quality Center of Excellence” to be focused on improving the quality of compounded drugs, primarily those made at outsourcing facilities. They note “compounded drugs pose unique risks to patients because they are not reviewed by the agency for safety, effectiveness or quality before they are marketed for patient use” (December 2019);
 - is seeking input on a voluntary pilot program to evaluate the toxicology and quality of novel excipients (December 2019);
 - continues its reorganization of the Center for Drug Evaluation and Research (CDER), with changes in the Office of Clinical Pharmacology, including the review of new ophthalmic drugs (December 2019);
 - is being encouraged to update the Dietary Supplement Health and Education Act of 1994 (DSHEA) to provide more protection for Americans from novel molecules being marketed through this pathway⁵;
 - issued warning letters to 15 US businesses engaged in the sale of products containing cannabidiol (CBD). Among the issues were an inappropriate claim that “...CBD is generally recognized as safe (GRAS)” for use in human or animal food. The Office of Prescription Drug Promotion (OPDP) sent a letter to the sponsor of an investigational new drug that is being studied to treat brain cancer. According to OPDP, the sponsor’s corporate website represented in a promotional context (including its website) that the investigational new drug was safe and effective for the treatment of brain cancer;
 - issued guidance on several issues, including “Compounding Animal Drugs from Bulk Drug Substances,” which extends FDA’s discretion in allowing compounding from bulk drug substances under certain circumstances when no other medically appropriate treatment options exist; “Clinical immunogenicity considerations for biosimilar and interchangeable insulin Products,” “Bridging for Drug-Device and Biologic-Device Combination Products,” and “Importation of Certain FDA Approved Human Prescription Drugs, Including Biological Products” (December 2019).

Author Disclosure Statement

The author consults for numerous ophthalmic, pharmaceutical, and medical device firms. A complete listing of all of Dr. Novack’s consulting affiliations can be found online.

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