Optinose Announces FDA approval of XHANCE™ (fluticasone propionate) nasal spray for the treatment of nasal polyps

September 18, 2017 4:46 PM ET

- *XHANCE uses Optinose® Exhalation Delivery System to uniquely deposit a proven steroid in areas of inflammation deep in the nose*
- *FDA approval based on five clinical trials evaluating over 1,500 adult patients*
- *Availability in the U.S. expected in the second quarter 2018*

YARDLEY, PA, September 18, 2017— Optinose, an ENT / Allergy specialty pharmaceutical company, announced today that the U.S. Food & Drug Administration (FDA) approved the Company's New Drug Application (NDA) for XHANCE (previously referred to by the development name OPN-375) for the treatment of nasal polyps in patients 18 years of age and older. It is estimated that up to 10 million Americans suffer from nasal polyps and the symptoms that accompany them.

"This is a serious disease that causes significant suffering due to inflammation. In fact, the decreased quality of life matches other serious diseases such as congestive heart failure, chronic obstructive pulmonary disease, or coronary artery disease in several studies," said James Palmer, M.D., Professor and Director of the Division of Rhinology at the University of Pennsylvania in Philadelphia and President-Elect of the American Rhinologic Society. "The approval of XHANCE is great news because it will give doctors and patients an effective new option that gets corticosteroid medication deep in the nose to treat the inflammation."

XHANCE (fluticasone propionate) nasal spray, 93 mcg, for intranasal administration, is designed to deliver medicine to targeted areas deep in the nose by using an innovative new approach, called an Exhalation Delivery System (EDS). The development program for XHANCE included five clinical trials evaluating over 1,500 adult patients, including two randomized, double-blinded, placebo-controlled Phase 3 pivotal trials in adults with nasal polyps (NAVIGATE 1 and NAVIGATE 2) and two open-label Phase 3 clinical trials in adults with chronic sinusitis with and without nasal polyps (XHANCE-12 and XHANCE-3). Most patients in both Phase 3 pivotal clinical trials had been treated previously with intranasal steroids and/or had sinus surgery or polypectomy. With XHANCE treatment, patients experienced statistically significant reductions of both nasal congestion/obstruction at week 4 and total polyp grade at week 16, which were the co-primary endpoints.

"Many patients are not satisfied with currently available treatment options, primarily due to inadequate symptom relief. We believe XHANCE has the potential to improve the lives of millions of patients who are searching for new treatment options," said Optinose chief executive officer Peter Miller. "The approval of XHANCE is a significant milestone on our journey towards creating a leading ENT / Allergy company."

"Our team has invested a great deal of energy in creating this product, and in all the research and development necessary to obtain FDA approval, because we are passionate about improving patient care," shared Ramy Mahmoud, M.D., MPH, President of Optinose. "We would like to thank the investigators, and their teams, who participated in the XHANCE clinical research program, and most especially thank the patients who agreed to take part. We very much look forward to making XHANCE available for patients in the second quarter of 2018."

Phase III Pivotal Studies of XHANCE

NAVIGATE 1 and NAVIGATE 2 were designed to test the efficacy and safety of XHANCE versus an EDS with placebo in adults with nasal polyposis and moderate-to-severe nasal congestion/obstruction. Each pivotal clinical trial enrolled

patients in multiple centers in several countries and assessed multiple doses (including 186 and 372 mcg twice daily). The first treatment phase was 16-weeks long, and was followed by an additional eight-week phase when all patients received XHANCE 372 mcg twice daily. During the study, patients were regularly asked about their symptoms and assessed by investigators who checked for objective evidence of change in the disease and for adverse events.

In the NAVIGATE trials, 90.6% of patients reported previous use of topical steroids and 53.6% reported previous sinus surgery or polypectomy. In both studies, the XHANCE 186 and 372 mcg treatment groups achieved statistically significant reductions in both co-primary outcome measures, congestion/obstruction at week 4 and total polyp grade at week 16.

The most commonly reported adverse events (AEs) greater than or equal to 3% and greater than placebo in the NAVIGATE trials were epistaxis, nasal septal ulceration, nasopharyngitis, nasal mucosal erythema, nasal mucosal ulcerations, nasal congestion, acute sinusitis, nasal septal erythema, headache, and pharyngitis. Five percent of subjects treated with XHANCE 186 mcg twice daily, and 1.2% of subjects treated with 372 mcg twice daily, discontinued from the clinical trials during the 16-week double-blind treatment period because of adverse reactions compared to 4.3% of subjects treated with placebo.

Other adverse reactions with XHANCE observed with an incidence < 3% but ≥ 1% and more common than placebo included: nasal dryness, sinusitis, oropharyngeal pain, toothache, intraocular pressure increase, dizziness, abdominal discomfort, and weight increase.

XHANCE dosage and administration

XHANCE is delivered into the nose by actuating the pump spray into one nostril while simultaneously blowing into the mouthpiece of the device. The recommended adult dosage is one spray per nostril twice daily (total daily dose of 372 mcg). Two sprays per nostril twice daily may also be effective in some patients (total daily dose of 744 mcg).

IMPORTANT SAFETY INFORMATION for XHANCE (fluticasone propionate) nasal spray, 93 mcg

CONTRAINDICATIONS:
Hypersensitivity to any ingredient in XHANCE.

WARNINGS AND PRECAUTIONS:

- Local Nasal Effects: epistaxis, erosion, ulceration, septal perforation, *Candida albicans* infection, and impaired wound healing. Monitor patients periodically for signs of possible changes on the nasal mucosa. Avoid use in patients with recent nasal ulcerations, nasal surgery, or nasal trauma.
- Close monitoring for glaucoma and cataracts is warranted.
- Hypersensitivity reactions (e.g., anaphylaxis, angioedema, urticaria, contact dermatitis, rash, hypotension, and bronchospasm) have been reported after administration of fluticasone propionate. Discontinue XHANCE if such reactions occur.
- Immunosuppression: potential increased susceptibility to or worsening of infections (e.g., existing tuberculosis; fungal, bacterial, viral, or parasitic infection; ocular herpes simplex). Use with caution in patients with these infections. More serious or even fatal course of chickenpox or measles can occur in susceptible patients.
- Hypercorticism and adrenal suppression may occur with very high dosages or at the regular dosage in susceptible individuals. If such changes occur, discontinue XHANCE slowly.
- Assess for decrease in bone mineral density initially and periodically thereafter.

ADVERSE REACTIONS:

The most common adverse reactions (incidence ≥ 3%) are epistaxis, nasal septal ulceration, nasopharyngitis, nasal mucosal erythema, nasal mucosal ulcerations, nasal congestion, acute sinusitis, nasal septal erythema, headache, and pharyngitis.

DRUG INTERACTIONS:

Strong cytochrome P450 3A4 inhibitors (e.g., ritonavir, ketoconazole): Use not recommended. May increase risk of systemic corticosteroid effects.

INDICATIONS AND USAGE:

XHANCE is a corticosteroid indicated for the treatment of nasal polyps in patients 18 years of age or older.

Please see full Prescribing Information at www.XHANCE.com.

About XHANCE™

XHANCE (fluticasone propionate) nasal spray, 93 mcg, combines the novel Optinose Exhalation System with an aqueous suspension of microfine fluticasone propionate for topical intranasal administration by means of a metering, atomizing spray pump and exhaled breath. XHANCE also contains microcrystalline cellulose and carboxymethylcellulose sodium, dextrose, benzalkonium chloride, polysorbate 80, edetate disodium dihydrate, and purified water. XHANCE is a prescription medication indicated for the treatment of nasal polyps in patients 18 years of age or older. Local exposure within the nasal cavity with XHANCE will differ when used without exhalation through the device.

About Optinose®

Optinose is a specialty pharmaceutical company on a mission to improve lives with a focus on patients cared for directly by, or in consultation with, otolaryngology (ENT) or allergy specialists. The Company's first two products rely on patented Exhalation Delivery Systems (EDS) capable of deep intranasal deposition of medication. These exhalation delivery systems enable creation of products with the potential for meaningful new clinical benefits. OptiNose successfully developed and out-licensed its first product at the end of Phase 3 development, Onzetra® Xsail® (sumatriptan nasal powder), to Avanir Pharmaceuticals (since acquired by Otsuka Pharmaceutical Co., Ltd.) Onzetra Xsail received FDA approval and was launched in the U.S. in 2016. The Company's second product, XHANCE (fluticasone propionate) nasal spray, is approved for the treatment of nasal polyps in patients 18 years of age and older and is in development for the treatment of chronic sinusitis. We expect subsequent Optinose pipeline products will aim to serve the needs of patients treated by ENT and allergy specialists and are expected to include those using EDS and other technologies. The Company is also currently engaged in the early development of products for neurologic orphan diseases where the "nose-to-brain" application of an EDS may enable improved treatment. This includes OPN-300 (Prader-Willi Syndrome, Autism, others) and OPN-21 (narcolepsy and others). Optinose has corporate offices in the U.S., U.K. and Norway. To learn more, please visit www.optinose.com.

Forward Looking Statements

This press release contains forward looking statements. Forward looking statements include statements about our future plans and other potential future events and may be indicated by words such as, "anticipate," "plan," "expect," "aim" or other similar words, including the expected launch of XHANCE in the second quarter of 2018. While these forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could cause actual results to differ materially. You are cautioned not to place undue reliance on these forward-looking statements, which reflect our opinions only as of the date of this press release (September 18, 2017). We are not obligating ourselves to revise or publicly release the results of any revision to these forward looking statements in light of new information or future events.

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