OvaScienceSM Announces Corporate Update

January 3, 2018

– Reporting Safety Data from First 20 Patients in Phase 1 Study of the OvaPrimeSM Treatment; Advancing OvaPrime into Phase 1b/2a Multi-Center Trial –

– James Lillie, Ph.D., Joining as Chief Scientific Officer to Lead Ongoing Preclinical Research & Development Efforts –

– Improving Financial Position Through Corporate Restructuring –

WALTHAM, Mass.--(BUSINESS WIRE)--Jan. 3, 2018-- OvaScience (NASDAQ:OVAS), a company focused on the discovery, development and commercialization of new treatment options for women and families struggling with infertility, today provided a corporate update. The Company announced initial clinical data from its ongoing Phase 1 trial of OvaPrime in women with primary ovarian insufficiency (POI) and poor ovarian response (POR). In an interim safety analysis of the first 20 patients followed for six months post-egg precursor (EggPC^{SM}) cell reintroduction, OvaPrime was generally safe and well-tolerated. OvaScience has decided to close enrollment in this Phase 1 study at 78 patients, for a modified intent-to-treat (mITT) population of 60, and to progress OvaPrime into a multi-center Phase 1b/2a trial in women with POI or POR. The Company also announced the appointment of James Lillie, Ph.D., as Chief Scientific Officer, effective January 16, 2018. Dr. Lillie brings extensive *in vitro* and cell biology experience to OvaScience, and will lead the Company's preclinical research and development efforts, including the continued advancement of OvaPrime and OvaTure^{SM}.

"We are pleased to announce these preliminary first-in-human results for OvaPrime. Based on these data, coupled with recent improvements to our cell processing capabilities that will enable us to consistently administer a higher number of EggPC cells per treatment, we have decided to close enrollment in our Phase 1 study and advance OvaPrime into a multi-center Phase 1b/2a trial in women with POI and POR," said Dr. Christopher Kroeger, Chief Executive Officer of OvaScience. "I am also pleased to welcome Dr. Jim Lillie as Chief Scientific Officer. Jim is a seasoned leader, with over 25 years of experience driving preclinical research and development across diverse therapeutic areas. His deep expertise will provide proven leadership to the OvaTure program and our scientific efforts more broadly."

"Together, the initiation of our Phase 1b/2a trial and the hiring of Dr. Lillie represent key advancements in our research and development-focused strategy and reflect our commitment to building robust and compelling clinical and preclinical datasets for each of our treatments."

Reports Initial Safety Data from Phase 1 Study of OvaPrime

Initial clinical data from OvaScience's single center, prospective, blinded and placebo-controlled Phase 1 safety study of the OvaPrime treatment in women with POI or POR suggest that the OvaPrime treatment is generally safe and well-tolerated. Among the first 20 patients evaluable for safety six-months post-EggPC cell reintroduction, there were no treatment related serious adverse events (SAEs) and no adverse events (AEs) related to the EggPC cells. There were seven mild AEs, four of which were deemed unrelated to OvaPrime and three of which were related to the standard laparoscopic procedure used to reintroduce EggPC cells into the ovary. No patients discontinued treatment because of an AE. The mean duration of follow-up among these 20 patients was nine months.

This Phase 1 study is a single center, prospective, blinded and placebo-controlled trial evaluating the safety of OvaPrime in 60 women with either POI or POR. Additional exploratory endpoints include OvaPrime's effect on patients' anti-mullerian hormone (AMH), follicle stimulating hormone (FSH) and estradiol (E2) levels, as well as follicular development as measured by ultrasound.

OvaScience has completed biopsies in 58 patients in this Phase 1 study. The Company expects a readout of six-month safety data of all patients by year-end 2018 and a readout of embryo transfers by the end of the third quarter of 2019.

Plans to Initiate Phase 1b/2a Study of OvaPrime

OvaScience plans to initiate a multi-center, prospective, controlled, Phase 1b/2a clinical trial of OvaPrime to evaluate the safety and tolerability of administering a higher number of EggPC cells per OvaPrime treatment in women with POI or POR. Secondary endpoints will include measures of reproductive physiology and fertility outcomes.

This study will enroll up to 60 women with POI or POR, for a mITT population of 40. It will include 20 POI patients who are between 21 and 39 years of age at reintroduction and 20 POR patients who are between 38 and 42 years of age at reintroduction and have failed or canceled two to four *in vitro* fertilization (IVF) cycles.

OvaScience expects to begin patient enrollment in the first half of 2018 and to report initial clinical data in 2019.

Hires New Chief Scientific Officer to Lead Preclinical Programs

OvaScience also announced the appointment of James Lillie, Ph.D., as Chief Scientific Officer, effective January 16, 2018. Dr. Lillie will be responsible for leading

the Company's preclinical efforts with the EggPC technology platform, including the ongoing OvaTure program.

Dr. Lillie joins OvaScience from Sanofi Genzyme where he was Vice President, In Vitro Biology. In this role, Dr. Lillie was responsible for developing a scientific strategy for creating a sustainable, high value portfolio in rare diseases. He established a strong pipeline of small molecule drugs and supported the U.S. Food and Drug Administration's approval of Eliglustat and acceptance of two investigational new drug applications. Previously, he was Senior Director, In Vitro Biology at Sanofi Genzyme and, before that, he held roles of increasing responsibility at Millennium Pharmaceuticals, Inc. Earlier, he worked as Senior Director, Biology at Scriptgen Pharmaceuticals, and as co-founder at AMIRA, which was later sold to Repligen Corporation. Dr. Lillie holds a Ph.D. in Biochemistry and Molecular Biology from Harvard University and B.A. in German Literature from Wesleyan University.

"I'm excited to join OvaScience at this pivotal time in the Company's evolution," said Dr. Lillie. "OvaScience's novel EggPC technology has demonstrated enormous potential to revolutionize the infertility landscape by providing women with opportunities to have genetic children of their own. I look forward to working with the Company's scientists to further develop the EggPC platform and advance OvaTure and OvaPrime for women and couples in need."

Under Dr. Lillie's leadership, OvaScience will continue to progress the preclinical development of OvaTure through its ongoing efforts to fertilize both bovine and human EggPC cell-derived eggs. The Company's work will focus on optimizing culture conditions for maturing human and bovine EggPC cells into fertilizable eggs, as well as several other maturation strategies, including approaches developed in collaboration with its academic partners. OvaScience will also continue to work with its academic partners toward securing authorization to fertilize human EggPC cell-derived eggs outside of the United States.

Implements Corporate Restructuring to Strengthen Financial Position

OvaScience has decided to implement a corporate restructuring to streamline its operations and reduce its cost structure. As part of this restructuring, OvaScience is reducing headcount by approximately 50 percent. The majority of the reduction in personnel is expected to be completed by March 2018. As a result, the Company expects to realize annualized cost savings beginning in the second quarter of 2018. OvaScience estimates that it will incur one-time costs of approximately $1.0 million to $1.5 million related to the restructuring plan.

"In its early years, OvaScience grew rapidly to accommodate the global commercialization of the AUGMENT treatment. Following the strategic decision to focus our resources on the advancement of OvaPrime and OvaTure, however, we are now operating with a tighter research and development focus," continued Dr. Kroeger. "After a careful review of our business, we have determined that our revised strategy can be executed most efficiently by a leaner, more versatile organization. While the decision to reduce headcount is extremely difficult, we believe this corporate restructuring will provide us additional financial flexibility, enabling us to achieve an initial data readout on our Phase 1b/2a OvaPrime clinical trial and advance our OvaTure program without additional financing."

About OvaScience
OvaScience℠, Inc. (NASDAQ:OVAS) is a company focused on the discovery, development and commercialization of new treatment options for women and families struggling with infertility. Each OvaScience treatment is based on the Company's proprietary technology platform that leverages the breakthrough discovery of egg precursor (EggPC℠) cells – immature egg cells found inside the protective ovarian lining. OvaScience is developing OvaPrime℠, which could increase a woman's egg reserve and OvaTure℠, a potential *in vitro* fertilization (IVF) treatment that could help a woman produce new, fertilizable eggs without hormone injections. OvaScience's AUGMENT℠ treatment, a fertility option designed to improve IVF success rates, is available in certain IVF clinics in Canada and Japan. OvaScience treatments are not available in the U.S. For more information, visit www.ovascience.com.

Forward Looking Statements
This press release includes forward-looking statements about the Company's plans for its OvaPrime and OvaTure programs, including statements relating to the Company's (i) plans to initiate a new Phase 1(b)/2(a) multi-center OvaPrime clinical trial, and expected patient composition, timing of enrollment and report of initial clinical data, (ii) expected timing of safety data and embryo transfers in the ongoing OvaPrime Phase 1 study, (iii) belief that the corporate restructuring will enable the achievement of an initial data readout of the planned Phase 1(b)/2(a) multi-center OvaPrime clinical trial and advance the OvaTure program prior to needing additional financing, (iv) expected restructuring costs, (v) planned start date for the Company's new Chief Scientific Officer, and (vi) plans to advance the OvaTure program under new scientific leadership. Actual results may differ materially from those indicated by these forward-looking statements as a result of various important factors, including risks related to: the science underlying our treatments (including the OvaPrime, OvaTure and AUGMENT treatments), which is unproven; our ability to obtain regulatory approval or licenses where necessary for our treatments; our ability to develop our treatments on the timelines we expect, if at all; risks associated with clinical and other studies, including risks relating to patient enrollment, trial site additions and data readouts; development risk; risks associated with dependence on third parties, including our commercial and academic partners; operational risks; as well as those risks more fully discussed in the "Risk Factors" section of our most recently filed Quarterly Report on Form 10-Q and/or Annual Report on Form 10-K. The forward-looking statements contained in this press release reflect our current views with respect to future events. We anticipate that subsequent events and developments will cause our views to change. However, while we may elect to update these forward-looking statements in the future, we specifically disclaim any obligation to do so. These forward-looking statements should not be relied upon as representing our view as of any date subsequent to the date hereof.

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