Kaleido Biosciences Announces New Clinical and Preclinical Data Supporting Advancement of KB295 to a Phase 2 Clinical Study in Mild-to-Moderate Ulcerative Colitis

October 5, 2021

KB295 reached its primary endpoint demonstrating favorable safety and tolerability profile

Reduction in key ulcerative colitis biomarkers correlated with disease activity and inflammation - fecal calprotectin, fecal lactoferrin, and FimH - observed at end of study

Virtual R&D Presentation, highlighting the ulcerative colitis and chronic obstructive pulmonary disease programs, to be held today at 8:00 a.m. ET

LEXINGTON, Mass., Oct. 05, 2021 (GLOBE NEWSWIRE) -- Kaleido Biosciences, Inc. (Nasdaq: KLDO), a clinical-stage biotech company with a differentiated, small-molecule approach to treating inflammatory conditions and diseases by selectively targeting the resident microbiome to restore gut-immune homeostasis, today announced topline data from the non-IND/CTA clinical study evaluating KB295, a novel Microbiome Metabolic Therapy (MMT™), in mild-to-moderate ulcerative colitis (UC). The primary objective of safety and tolerability was achieved as KB295 was well tolerated and no safety concerns were observed. In the study, subjects receiving KB295 experienced a reduction in three biomarkers, fecal calprotectin (FCP), fecal lactoferrin, and FimH that are known to be associated with UC disease activity. These results are complemented by preclinical studies conducted with Kaleido's unique translational *ex vivo* platform using human donor-derived microbiome communities.

Highlights from the Topline KB295 Dataset for Mild-to-Moderate in UC

Clinical Data Observed at the End of an Eight-Week Intake Period

- Achieved primary objective of safety and tolerability with KB295 being well tolerated across subjects (n=12) with no product-emergent serious adverse events reported
- Observed a meaningful reduction in three key biomarkers: FCP, fecal lactoferrin, and FimH, known to be strongly correlated with inflammation and disease activity:
    - Median FCP levels decreased by 69% in subjects with evaluable FCP (n=11), and 74% in subjects identified as responders (8 of 11); responders were defined as those subjects with FCP reduction greater than 50%
    - Fecal lactoferrin decreased by a median of 69% in subjects with currently available samples (n=6), including five out of six subjects with a reduction of at least 50%
    - FimH decreased by a median of 93% in subjects evaluated with currently available samples (n=5)
    - Further fecal lactoferrin and FimH analysis is expected as additional subject samples become available

Pre-Clinical Data from Ex-Vivo Studies

- *Ex-vivo* data demonstrated community-wide changes and desired modulation of multiple remission-associated taxa
- Total short chain fatty acid (SCFA) production increased in *ex-vivo* studies to levels that are pharmacologically relevant to UC

Anticipated Milestones

- Observations from both preclinical and clinical data support the Company's plans to initiate a phase 2 study, under an Investigational New Drug (IND) application and Clinical Trial Application (CTA), with KB295 for mild-to-moderate UC patients in the first half of 2022
- Manufacturing and toxicity work has commenced to support future studies under CTA and IND applications

"The data we shared today highlight the potential of our MMT platform and its ability to work with a person's microbiome as opposed to replacing it," said Dan Menichella, President and Chief Executive Officer of Kaleido. "Ulcerative colitis is largely driven by gut microbiome dysbiosis, and KB295 modulates microbiome composition and metabolic output, thereby driving immune activity both locally and systemically to restore gut immune homeostasis in those with UC. We are excited about the data package and look forward to advancing KB295 in a phase 2 ulcerative colitis study under an IND."

KB295 was evaluated in an exploratory, open-label, single arm non-IND clinical study in subjects with mild-to-moderate UC. Subjects received KB295 for eight weeks, titrated up to 40g twice daily and then entered a two-week follow-up period. The study was designed to evaluate the safety and tolerability of KB295 with other exploratory assessments including changes in microbiome composition, SCFA levels in stool and biomarkers of inflammation (fecal calprotectin and lactoferrin and FimH). The trial was originally designed to enroll 30 subjects at a single site in Ireland, however, due to COVID-19 related enrollment impacts, 12 subjects were enrolled, primarily from Ireland. Primary pharmacology data were generated with Kaleido's unique translational *ex vivo* platform using human donor-derived microbiome communities as well as microbiome and biomarker read-outs on the currently available samples from the first six subjects that entered the study.

UC is an inflammatory bowel disease that can cause debilitating symptoms, including abdominal pain, bowel urgency and diarrhea. Evidence shows that a feature of UC is alteration of the gut microbiome, including an increase in inflammatory bacteria and decrease in commensal microbe diversity

and short chain fatty acids, which interfere with the normal immune response. Major scientific advances have demonstrated that the microbiome is a legitimate intervention target in the management of this disease.

Conference Call and Webcast Information
Kaleido management will host a conference call with accompanying slides today at 8:00 a.m. ET. Analysts and investors are invited to participate in the conference call by dialing (833) 423-0448 from the U.S. and Canada or (956) 394-3566 internationally and using the conference ID 5754389. The live webcast can be accessed on the investor page of Kaleido's website at investors.kaleido.com. A replay of the webcast will be available on Kaleido's website approximately two hours after the completion of the event and will be archived for at least 30 days.

The agenda will feature an update on the Company's corporate strategy, data from the non-IND study evaluating KB295 in mild-to-moderate UC as well as supportive preclinical data, and data supporting the advancement of KB109 into COPD. The program will also feature presentations by Bruce Sands, M.D., Dr. Burrill B. Crohn Professor of Medicine at the Icahn School of Medicine at Mount Sinai and Ruth Tal-Singer, Ph.D., President and Chief Scientific Officer of the COPD Foundation.

About Ulcerative Colitis
Ulcerative colitis ("UC") is a chronic disease of the large intestine, in which the lining of the colon becomes inflamed and develops tiny open sores, or ulcers. Those ulcers produce pus and mucus, cause abdominal pain and result in the need to frequently empty the colon. Although UC is the result of several factors that are not yet well understood, abnormal immune response, genetics, microbiome, and environmental factors all contribute to the disease. UC can occur at any age, though most people are diagnosed prior to their mid-30s. In the United States, approximately one million people are affected with UC, and reported symptoms include loose stool and urgent bowel movements, bloody stool, abdominal cramps and pain, and persistent diarrhea accompanied by abdominal pain and blood in the stool.

There is no known curative treatment for UC. Treatment is multifaceted and includes the use of medication, alterations in diet and nutrition, and sometimes surgical procedures to repair or remove affected portions of a patient's gastrointestinal tract. Several types of medication can be used to suppress UC symptoms (induce remission) and decrease the frequency of symptom flares (maintain remission) including anti-inflammatory drugs, immunosuppressants, and biologics. UC is often a progressive disease meaning that over time patients respond less to a specific medication and need to progress to other treatments. Current therapies, such as anti-inflammatory drugs, immunosuppressants, and biologics can also be associated with significant side effects. There is a clinical need for new therapeutic options with durable efficacy and an improved safety profile.

About Microbiome Metabolic Therapies (MMT™)
Kaleido's Microbiome Metabolic Therapies, or MMTs, are designed to drive the function and distribution of the microbiome's existing microbes in order to decrease or increase the production of metabolites, or to advantage or disadvantage certain bacteria in the microbiome community. The Company's initial MMT candidates are targeted, synthetic glycans that are orally administered, have limited systemic exposure, and are selectively metabolized by enzymes in the microbiome. Kaleido utilizes its discovery and development platform to study MMTs in microbiome samples to rapidly advance MMT candidates into clinical studies in healthy subjects and patients. These human clinical studies may be conducted under regulations supporting research with food, evaluating safety and tolerability and impact on the microbiome. For MMT candidates that are developed as therapeutics, the Company currently conducts and will conduct clinical trials under an Investigational New Drug (IND) or regulatory equivalent outside the U.S., often in Phase 2 or later development.

About Kaleido Biosciences
Kaleido Biosciences is a clinical-stage biotech company with a differentiated, small-molecule approach to treating inflammatory conditions and diseases by selectively targeting the resident microbiome to restore gut-immune homeostasis. The Company has built a proprietary product platform to enable the rapid and cost-efficient discovery and development of novel Microbiome Metabolic Therapies (MMT™). MMTs are designed to modulate the metabolic output and profile of the microbiome by driving the function and distribution of the gut's existing microbes. Kaleido is advancing a broad pipeline of MMT candidates with the potential to address a variety of diseases and conditions with significant unmet patient needs. To learn more, visit https://kaleido.com/.

Forward-Looking Statements
This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including, without limitation, statements regarding clinical study plans and timelines, regulatory plans, and the Company's business focus. The words "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "predict," "project," "potential," "continue," "target" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Any forward-looking statements in this press release are based on management's current expectations and beliefs and are subject to a number of risks, uncertainties and important factors that may cause actual events or results to differ materially from those expressed or implied by any forward-looking statements contained in this press release, including, without limitation, those related to the breadth of our pipeline of product candidates, the strength of our proprietary product platform, the efficiency of our discovery and development approach, the clinical development and safety profile of our MMT candidates and their therapeutic potential, whether and when, if at all, regulatory agencies will approve our IND application or clinical trial applications for KB295 or KB109, whether and when, if at all, our MMT candidates will receive approval from the U.S. Food and Drug Administration or other regulatory agencies and for which, if any, indications, competition from other biotechnology companies, and other risks identified in our SEC filings, including our most recent Form 10-K, and subsequent filings with the SEC. We caution you not to place undue reliance on any forward-looking statements, which speak only as of the date they are made. We disclaim any obligation to publicly update or revise any such statements to reflect any change in expectations or in events, conditions or circumstances on which any such statements may be based, or that may affect the likelihood that actual results will differ from those set forth in the forward-looking statements.

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