Advaxis Announces Two Poster Presentations at the Frontiers in Cancer Immunotherapy Conference

May 14, 2019

- *Updated data from Phase 1/2 ADXS-PSA study combination arm show prolonged survival in heavily pretreated prostate cancer patients with microsatellite-stable (MSS) disease*
- *Updated early findings from Phase 1 ADXS-NEO study show encouraging safety, immunogenicity and clinical signals in MSS colorectal cancer patients*

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PRINCETON, N.J.--(BUSINESS WIRE)--Advaxis, Inc. **(NASDAQ: ADXS)**, a late-stage biotechnology company focused on the discovery, development and commercialization of immunotherapy products, announces the presentation of two posters at the Frontiers in Cancer Immunotherapy conference, being held today at the New York Academy of Sciences in New York City. Both posters were first presented at the recent American Association for Cancer Research (AACR) Annual Meeting, and each has updated findings being presented today.

The first presentation regarding a poster entitled "*Effects of ADXS-PSA With or Without Pembrolizumab on Survival and Antigen Spreading in Metastatic, Castration-Resistant Prostate Cancer Patients (Results from KEYNOTE-046)"* is conference poster #31, and will be presented by Robert Petit, Ph.D., Advaxis Chief Scientific Officer, and Mark N. Stein, M.D., FACS, Associate Professor of Medical Oncology at Columbia University Medical Center, from 4:45 to 5:30 p.m. Eastern time.

The Phase 1/2 KEYNOTE-046 study is being conducted in conjunction with Merck (known as MSD outside the U.S. and Canada) in metastatic, castration-resistant prostate cancer (mCRPC). This trial and is evaluating ADXS-PSA, one of Advaxis' *Listeria monocytogenes (Lm)*-based immunotherapies, alone and in combination with KEYTRUDA® (pembrolizumab), Merck's anti-PD-1 therapy.

KEYNOTE-046 is an open-label, multicenter, dose-determining safety and tolerability Phase 1/2 trial of 50 heavily pretreated patients conducted in two parts (Part A and Part B), with a Phase 2 expansion cohort. The objective of the study is to evaluate ADXS-PSA alone (Part A) and in combination with KEYTRUDA® (Part B) for primary endpoints that include safety, tolerability and dosing. Secondary endpoints include anti-tumor activity and progression-free survival, and exploratory endpoints include associations between biomarkers of immunologic response (serum PSA) with clinical outcomes.

Key findings from 37 patients treated in the combination arm (Part B) of KEYNOTE-046 as reported at AACR include the following:

- The majority of treatment-related adverse events consisted of transient and reversible Grade 1-2 chills/rigors, fever, hypotension, nausea and fatigue. The combination of ADXS-PSA and pembrolizumab has been well-tolerated to date, with no additive toxicity observed.
- Median overall survival (OS) was 21.1 months at data cutoff (February 1, 2019) (95% CI, range 16.0 months to not-yet-reached) in this dataset of 37 patients.
- Correlative immune analyses showed T-cell responses against PSA in 75% of subjects and antigen spreading in 85% of subjects.
- Broader immune stimulation, including B-cell activation, was observed in the combination arm (n=37) than in the ADXS-PSA monotherapy arm (n=13).

Updated findings being presented at the Frontiers in Cancer Immunotherapy conference include:

- Microsatellite Instability-High (MSI-High), the condition of genetic hypermutability that results from defective DNA mismatch repair, is observed in 5-12% of all mCRPC patients and often leads to a higher likelihood of response to immunotherapy. In this study, 36 of the patients in the combination arm, which observed prolonged survival, were MSI-High negative (with one subject not tested), thereby making them unlikely to respond to checkpoint blockade.
- There are 16 patients in the combination therapy part of this trial who are alive and continue to be monitored.

"The latest results from our KEYNOTE-046 study demonstrate that practically all the patients in the combination arm of this study are microsatellite stable and therefore are not expected to respond to treatment with a checkpoint inhibitor," said Kenneth A. Berlin, President and Chief Executive Officer of Advaxis. "These data suggest that the combination of ADXS-PSA and pembrolizumab appears to show activity and to be associated with prolonged OS in this population."

The second poster discussion entitled "*Safety and Immunogenicity of a Personalized Neoantigen-Listeria Vaccine in Cancer Patients"* is conference

poster #9, and will be presented by Frank Tsai, M.D., Medical Oncologist and Investigator at Honor Health Research Institute and one of the lead investigators of the ADXS-NEO clinical study, from 4:45 to 5:30 p.m. Eastern time.

ADXS-NEO is a live, attenuated *Lm* immunotherapy using personalized antigen delivery based on whole-exome sequencing of a patient's tumor to identify personal neoantigens. The ongoing Phase 1 trial is designed to evaluate the safety, tolerability and preliminary clinical immunological activity of ADXS-NEO alone (Part A) and in combination with anti-PD-1 antibody therapy (Part B) in subjects with certain types of advanced or metastatic solid tumors. Part C of the trial will be an expansion of the combination therapy arm and will be initiated based on emerging data from the first two parts of the trial.

Preliminary findings from the ADXS-NEO Phase 1 study as reported at AACR include the following:

- Substantial anti-tumor immunity, including T cell responses to neoantigens and antigen spreading, was observed within one week of first dose at both dose levels.
- Dosing of ADXS-NEO at $1x10^8$ colony forming units (CFU) has been well-tolerated in two patients.
- ADXS-NEO dosed at $1x10^9$ CFU was beyond the maximum tolerated dose (MTD)
    - Reversible Grade 3 hypoxia (n=2) and Grade 3 hypotension (n=1) were dose-limiting toxicities (DLTs).
- Manufacturing of ADXS-NEO, comprised of 40 personal neoantigens, was successfully completed within seven to eight weeks for each subject.

Updated findings being presented at the Frontiers in Cancer Immunotherapy conference include:

- Data from the two MSS colorectal cancer patients dosed with ADXS-NEO at $1x10^8$ CFU demonstrated increased CD8+ T cell infiltration in the tumor microenvironment after three doses of ADXS-NEO. Both patients had metastatic colorectal cancer, which is considered to be a "cold" tumor and typically exhibits little CD8+ T cell infiltration and resistance to immunotherapy, yet both successfully transitioned from "cold" tumors into "hot" tumors with ADXS-NEO therapy. An estimated 80-85% of colorectal cancer patients are MSS.
- Two patients (one treated at $1x10^9$ and one at $1x10^8$ CFU) achieved stable disease per RECIST 1.1 criteria. Another patient has yet to be evaluated but has experienced normal performance status and an active lifestyle over the three months of therapy with ADXS-NEO at $1x10^8$ CFU.

"Although we have just started to define the safety, immunogenicity and changes in the tumor microenvironment with ADXS-NEO monotherapy, it is possible that these effects may have a positive impact in the sensitivity to checkpoint inhibitors in 'cold' tumors," said Dr. Tsai. "We look forward to further documenting the effects of ADXS-NEO monotherapy in MSS metastatic colorectal cancer (CRC) and in other tumors. Also, since the majority of patients with MSS-CRC do not respond well to immunotherapy, we are also looking forward to starting the combination therapy of ADXS-NEO and a checkpoint inhibitor, as called for in the current study."

Mr. Berlin added, "We are pleased to report encouraging updated findings from both of these ongoing studies at the Frontiers in Cancer Immunotherapy conference. We are encouraged given that we are seeing clinical benefit from our immunotherapy drug candidates in difficult-to-treat patient populations in furtherance of our mission to helping improve the lives of people with cancer. We look forward to sharing further data from our programs throughout the balance of the year."

Both posters will be available at www.advaxis.com today at 4:45 p.m. ET.

About KEYNOTE-046

KEYNOTE-046 (NCT02325557) is a Phase 1/2 open-label, multicenter, dose-determination and expansion trial that evaluates the safety, tolerability and preliminary clinical activity of ADXS-PSA as monotherapy (Part A; n=14 [13 treated]), and in combination with KEYTRUDA® (Part B; n=37) in heavily pretreated patients with progressive and refractory mCRPC.

About ADXS-PSA

ADXS-PSA, one of Advaxis' *Lm*-based immunotherapies, utilizes live, attenuated, bioengineered *Lm* as a vector to deliver PSA directly to antigen presenting cells. Development is being pursued in a clinical trial collaboration and supply agreement with Merck.

About ADXS-NEO

ADXS-NEO is an investigational personalized *Lm*-based immunotherapy designed to generate immune response against mutation-derived tumor-specific neoantigens identified through DNA sequencing of a patient's own tumor. The program focuses on creating a customized treatment for each patient targeting multiple neoantigens found in a biopsy of the patient's tumor.

About Advaxis, Inc.

Advaxis, Inc. is a late-stage biotechnology company focused on the discovery, development and commercialization of proprietary *Lm*-based antigen delivery products. These immunotherapies are based on a platform technology that utilizes live attenuated *Listeria monocytogenes* (*Lm*) bioengineered to secrete antigen/adjuvant fusion proteins. These *Lm*-based strains are believed to be a significant advancement in immunotherapy as they integrate multiple functions into a single immunotherapy and are designed to access and direct antigen presenting cells to stimulate anti-tumor T cell immunity, activate the immune system with the equivalent of multiple adjuvants, and simultaneously reduce tumor protection in the tumor microenvironment to enable T cells to eliminate tumors. Advaxis has four programs in various stages of clinical development: ADXS-HPV for cervical cancer; ADXS-NEO, a personalized neoantigen-directed therapy for multiple cancers; ADXS-503 for non-small cell lung cancer, from its ADXS-HOT off-the-shelf neoantigen-directed program; and ADXS-PSA for prostate cancer.

To learn more about Advaxis, visit www.advaxis.com and connect on Twitter, LinkedIn, Facebook and YouTube.

Advaxis Forward-Looking Statement

Some of the statements included in this press release may be forward-looking statements that involve a number of risks and uncertainties. For those statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. The factors that could cause our actual results to differ materially include: the success and timing of our clinical trials, including subject accrual; our ability to avoid any clinical holds and to resolve FDA's partial clinical hold; our ability to obtain and maintain regulatory approval and/or reimbursement of our product candidates for marketing; our ability to obtain the appropriate labeling of our products under any regulatory approval; our plans to develop and commercialize our products; the successful development and implementation of our sales and marketing campaigns; the size and growth of the potential markets for our product candidates and our ability to serve those markets; our ability to successfully compete in the potential markets for our product candidates, if commercialized; regulatory developments in the United States and other countries; the rate and degree of market acceptance of any of our product candidates; new products, product candidates or new uses for existing products or technologies introduced or announced by our competitors and the timing of these introductions or announcements; market conditions in the pharmaceutical and biotechnology sectors; our available cash; the accuracy of our estimates regarding expenses, future revenues, capital requirements and needs for additional financing; our ability to obtain additional funding; our ability to obtain and maintain intellectual property protection for our product candidates; the success and timing of our preclinical studies including IND-enabling studies; the timing of our IND submissions; our ability to get FDA approval for study amendments; the timing of data read-outs; the ability of our product candidates to successfully perform in clinical trials; our ability to initiate, enroll, and execute pilots and clinical trials; our ability to maintain collaborations; our ability to manufacture and the performance of third-party manufacturers; the performance of our clinical research organizations, clinical trial sponsors and clinical trial investigators; our ability to successfully implement our strategy; and, other risk factors identified from time to time in our reports filed with the SEC. Any forward-looking statements set forth in this press release speak only as of the date of this press release. We do not intend to update any of these forward-looking statements to reflect events or circumstances that occur after the date hereof.

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