New Immune Data from Ongoing ADXS-NEO Phase 1 Study Support Clinical Potential for Neoantigen-Directed Immunotherapies

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- *CD8+ T Cell Reactivity Against 90% of Personalized Neoantigen Targets Confirmed in First of Two Patients*
- *Proof-of-Mechanism for Off-the-Shelf ADXS-HOT Program with CD8+ T Cells Against Hotspot Mutations*
- *Antigen Spreading Confirmed*

PRINCETON, N.J.--(BUSINESS WIRE)--**Advaxis, Inc.** (NASDAQ: ADXS), a clinical-stage biotechnology company focused on the discovery, development and commercialization of immunotherapy products, today announced new immune data from its ongoing ADXS-NEO Phase 1 clinical trial that further support the clinical potential for the company's platform in neoantigen-directed immunotherapies.

ADXS-NEO is a personalized immunotherapy that is designed to help a patient's immune system recognize and respond to mutation-derived tumor antigens, or neoantigens, that are unique to his or her tumor. ADXS-NEO is designed to express tLLO fused to up to 40 patient-specific neoantigens arranged sequentially as beads-on-a-string. As a live attenuated bacterial vector, ADXS-NEO can be rapidly taken up by antigen presenting cells, which recognize it as foreign and present the tLLO-NEO fusion proteins to T cells by the major histocompatibility complex class I and II pathways.

ADXS-NEO is being evaluated in an open-label, dose-escalation, multicenter Phase 1 clinical trial in the United States. Part A of the study is open to patients with metastatic non-small cell lung cancer (NSCLC), metastatic microsatellite stable colorectal cancer (MSS-CRC) and metastatic squamous cell carcinoma of the head and neck (SCCHN) who will receive ADXS-NEO as monotherapy. Part B of the study, anticipated to begin later this year, will be open to NSCLC patients as well as patients with melanoma SCCHN and bladder cancer and, for this part, ADXS-NEO will be administered in combination with a checkpoint inhibitor.

The new data were derived from deconvolution of neoantigen pools using single peptides and *in vitro* stimulation ELISpot assays (minimal CD8+ peptides). This has now been completed for the first two patients enrolled in this study, one with NSCLC and one with MSS-CRC. Highlights of the new post-vaccination data with ADXS-NEO are as follows:

- CD8+ T cells were generated against 90% of the 40 neoantigen targets contained in the drug construct for the MSS-CRC patient (the NSCLC patient did not have 40 neoantigen targets and there were certain other issues with this patient's sample that, together, made it unsuitable for inclusion in this "hit rate" analysis). This is consistent with Advaxis' previously reported data from its preclinical studies as well as from clinical studies using pooled neoantigen peptides which were presented at the American Association of Cancer Research Annual Meeting last year and earlier this year, respectively. This is the highest "hit rate" publicly reported to-date in the neoantigen field. This high "hit rate", along with the rapid immune responses seen and antigen spreading, lay the foundation for the ADSX-NEO platform to be best-in-class for personalized, neoantigen-directed immunotherapies.

- CD8+ T cells were also generated against the hotspot mutations found within each of the two patients' tumors (i.e., EGFRL858R in the NSCLC patient and KRAS G12A in the MSS-CRC patient). This is important for the ADXS-NEO program as Advaxis believes a number of patient tumors likely will present with hotspot mutations, and generating or maintaining CD8+ T cell activity against these targets may increase the potential for killing cancer cells. All of the first four patients in this Phase 1 trial had a hotspot mutation. This is also relevant for the company's ADXS-HOT program in that this is the first time Advaxis has observed the ability to generate or maintain specific CD8+ T cell activity against hotspot mutations. Hotspot mutations are important targets contained within the numerous drug constructs within the ADXS-HOT program and the specific hotspot mutations in these two patients, EGFRL858R and KRAS G12A, are included in the company's ADXS-503 (HOT Lung) and ADXS-508 (HOT Colorectal) drug constructs, respectively.

- Antigen spreading was confirmed in the MSS-CRC patient showing specific CD8+ T cells against neoepitopes that were not contained in the drug construct prepared for this patient (the NSCLC patient's sample was not re-tested for antigen spreading). Thus, Advaxis believes ADXS-NEO may be able to induce a specific immune response against neoantigen-bearing tumor cells with the resultant cell death releasing secondary (nontargeted) tumor antigens. These secondary antigens can then prime subsequent immune responses (antigen spread) that are thought to be responsible for the improved clinical outcomes documented with other immunotherapies. Of note, antigen spreading has also been induced with other *Lm* constructs such as ADXS-HPV and ADXS-PSA in cervical and prostate cancer patients, respectively.

- To date, 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 with reversible Grade 3 hypoxia (n=2) and Grade 3

hypotension (n=1) dose-limiting toxicities.

“This preliminary dataset of the deconvolution assays shows the generation of specific CD8+ T cell response in one MSS-CRC patient against 90% of the neoantigens in that patient’s personalized *Lm* construct together with antigen spreading, both of which we believe are critical for potential clinical benefit. These encouraging results are consistent with data from our previous preclinical and ELISpot-pooled clinical studies, and we look forward to presenting data from all patients in the monotherapy arm later in the year,” said Andres Gutierrez, M.D., Ph.D., Chief Medical Officer of Advaxis. “In addition, we are gaining valuable insight from our ADXS-NEO platform to help advance our ADSX-HOT drug constructs, as for the first time we observed the ability to generate specific CD8+ T cell activity against hotspot mutations in the clinic. We continue to enroll patients in this Phase 1 study for ADXS-NEO and look forward to starting Part B with ADXS-NEO in combination with a checkpoint inhibitor later this year.”

About Advaxis, Inc.

Advaxis, Inc. is a clinical-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 development: ADXS-NEO, a personalized neoantigen-directed therapy in principle for any solid tumor; ADXS-503 for non-small cell lung cancer, from its ADXS-HOT off-the-shelf neoantigen-directed program, ADXS-PSA for prostate cancer and ADXS-HPV for HPV-associated cancers.

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 impact of the discontinuation on relationships related to the AIM2CERV Study; the success and timing of our clinical trials, including subject accrual; our ability to avoid and quickly resolve any clinical holds; 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, including to support current and planned clinical activities; 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 our existing 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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