# Dynavax Debuts Novel IRS Technology: New Platform for Autoimmune Disease Drug Discovery

BERKELEY, Calif., Jan 10, 2005 /PRNewswire-FirstCall via COMTEX/ -- Dynavax Technologies (Nasdaq: DVAX) has pioneered a new approach to treating autoimmune disease based upon a novel class of oligonucleotides, named immunoregulatory sequences (IRS), that specifically inhibit the toll-like receptor (TLR)-induced inflammatory response implicated in disease progression. Dynavax is exploring development of an IRS-based treatment for autoimmune disease, including systemic lupus erythematosis (SLE or lupus). The development of Dynavax' IRS inhibitors and their potential role as a treatment for lupus were presented for the first time at a Keystone Symposia conference, Innate Immunity to Pathogens, in a presentation entitled, "Oligonucleotide-based Inhibitors of Toll-Like Receptors -7, -8 and -9 and their Potential for the Treatment of Systemic Lupus Erythematosis," by Dynavax researcher Franck J. Barrat, Ph.D., Senior Scientist. Robert L. Coffman, Ph.D., Vice President and Chief Scientific Officer, is a co-author.

Based upon this initial research, a $500,000 grant has been awarded to Dynavax from the Alliance for Lupus Research (ALR) to explore new treatment approaches for SLE based on the company's novel IRS technology. The grant to Dynavax represents the first time ALR has provided funding to a private company.

"Dynavax's novel IRS-based approach builds upon our expertise in modifying the immune response through highly selective targeting of TLR signaling pathways," said Dino Dina, M.D., President and Chief Executive Officer. "Our ability to reprogram the immune system using our complementary immunostimulatory sequence (ISS) technology has been clinically validated in both hepatitis B vaccine and ragweed allergy programs. We believe that the ability of IRS to specifically intervene in the inappropriate immune signaling cascade leading to autoimmunity offers a new therapeutic approach for the treatment of multiple autoimmune diseases. We deeply appreciate ALR's generous financial support which affords us the opportunity to explore the therapeutic potential of IRS-based treatment for lupus."

Lupus, a chronic autoimmune disease in which the immune system attacks the kidneys and other organs, affects over one million people in the United States and primarily strikes women between the ages of 15 and 45. ALR is a national voluntary health organization whose mission is to find better treatments and ultimately prevent and cure SLE.

About IRS and Lupus

SLE or lupus results from inappropriate recognition of some of the bodies own molecules leading to the activation of B cells responsible for the production of auto-antibodies. Researchers believe that this uncontrolled activation of B cells as well as other symptoms of SLE in patients may be caused by high levels of interferon (IFN)-alpha, a cytokine normally involved in the immune response to virus infections. Increased serum levels of IFN-alpha have been observed in SLE patients and correlate with disease severity as well as with essential markers of the disease process, such as auto-antibodies. Increasing evidence links IFN-alpha production with activation of plasmacytoid dendritic cells (PDC). Immune complexes consisting of autoantibodies to chromatin and RNA-protein particles (snRNP or ribonucleoproteins) are diagnostic for SLE and are thought to play an important role in the pathogenesis of the disease. Recent studies suggest that these immune complexes can trigger IFN-alpha production from PDC in much the same way as a virus does. Researchers believe that both viruses and immune complexes induce IFN-alpha from PDC through the activation of Toll-like receptors or TLRs. Interfering with the PDC activation by inhibiting TLRs can potentially reduce the amount of circulating IFN-alpha, and therefore symptoms, in SLE patients.

The TLR gene family, particularly TLR-7, TLR-8 and TLR-9, are relevant to SLE as they are expressed by human PDC and are capable of inducing IFN- alpha.from PDC. Dynavax's new class of IRS inhibits TLR-9 activation, and, with equal efficiency, inhibits TLR-7 and TLR-8 signaling in human PDC. This unique activity enables IRS to block IFN-alpha specifically from PDC, whether it is induced by DNA or RNA-containing immune complexes or by DNA or RNA viruses. The development of IRS at Dynavax extends the pioneering work of Dr. Eyal Raz, a cofounder of Dynavax. Dr. Raz's discoveries are the subject of an issued U.S Patent (6,225,292), licensed by Dynavax.

Under the two-year grant from ALR, Dynavax proposes using IRS to further define the effects of TLR-7, -8 and -9 inhibition on of the control of IFN-alpha production in SLE, and to evaluate IRS in mouse models of SLE with the goal of determining a potential clinical development course.

About Dynavax

Dynavax Technologies Corporation discovers, develops, and intends to commercialize innovative products to treat and prevent

allergies, infectious diseases, and chronic inflammatory diseases using versatile, proprietary approaches that alter immune system responses in highly specific ways. Our clinical development programs are based on immunostimulatory sequences, or ISS, which are short DNA sequences that enhance the ability of the immune system to fight disease and control chronic inflammation. ISS are being developed in three initial indications: ragweed allergy immunotherapeutic, currently in a Phase 2/3 clinical trial; a Hepatitis B vaccine that is currently in a Phase 2/3 clinical trial; and an asthma immunotherapeutic that has completed a Phase 2 exploratory trial.

Dynavax cautions you that statements included in this press release that are not a description of historical facts are forward-looking statements, including without limitation all statements related to plans to apply its IRS technology to development of potential therapies for SLE or lupus, and to demonstrate the potential of its ISS technology. Words such as "believes," "anticipates," "plans," "expects," "intend," "will," "slated," "goal" and similar expressions are intended to identify forward-looking statements. The inclusion of forward-looking statements should not be regarded as a representation by Dynavax that any of its plans will be achieved. Actual results may differ materially from those set forth in this release due to the risks and uncertainties inherent in Dynavax's business including, without limitation, risks relating to: using IRS to further define the effect of TLR 7, 8 and 9 inhibition on normal and abnormal immune response, especially relative to the pathology of IFN-alpha in SLE, and evaluate this therapeutic approach in mouse models of SLE with the goal of determining a potential clinical development course; the progress and timing of its clinical trials; difficulties or delays in developing, testing, obtaining regulatory approval of, producing and marketing its products; the scope and validity of patent protection for its products; competition from other pharmaceutical or biotechnology companies; its ability to obtain additional financing to support its operations; its ability to maintain effective financial planning and internal controls; and other risks detailed in the "Risk Factors" section of Dynavax's Annual Report on Form 10-K filed on March 30, 2004, and in the section titled "Additional Factors That May Affect Future Results" within Dynavax's quarterly report on Form 10-Q filed on November 8, 2004. You are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. All forward-looking statements are qualified in their entirety by this cautionary statement and Dynavax undertakes no obligation to revise or update this news release to reflect events or circumstances after the date hereof.

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