

Alyssum Therapeutics announces Nature Nanotechnology publication on first B cell-activating drug to treat solid tumors

Recruitment of B cells to tumors is shown to result in long-term survival in multiple types of cancer

CAMBRIDGE, MA, UNITED STATES, June 29, 2026 /EINPresswire.com/ -- Alyssum Therapeutics, a clinical-stage biopharmaceutical company pioneering a new era of technology-enabled drug discovery with a focus on B cells, today announced the [publication of a seminal study in Nature Nanotechnology](#): "Activating a B cell immune response regresses immunologically cold tumors".

A central finding of the study is the identification of a novel therapeutic target to treat cancer, CMTR2. Inhibiting CMTR2 causes cancer cells to produce RNA that resembles viral RNA. This viral-like cancer-cell RNA triggers B cells, a component of the immune system, to attack the cancer cells. In preclinical models, AT-1965, a first in class inhibitor of CMTR2, regressed immunologically cold tumors and prevented tumor relapses, consistent with the long-term immune memory associated with B cell activation.

"Current immunotherapy agents have hit an efficacy plateau, largely due to their focus on T cell activation. By mobilizing B cells—a powerful, untapped immune cell type—AT-1965 breaks through this plateau, converting immunologically 'cold' tumors into 'hot' tumors. This has resulted in superior single-agent efficacy in preclinical models." said Dr. Richard Fahrner, Ph.D., CEO of Alyssum, "We also saw dramatic synergy with combination of AT-1965 and PD1 inhibition in lung cancer."

Clinically, the recruitment of B cells to tumors has been shown to result in long-term survival in multiple types of cancer. This is particularly exciting as currently there are no therapies that activate B-cells and thus AT-1965 could potentially open a whole new immunotherapy avenue, as single agent and/or combination therapy, for patients with solid tumors.

"This paper reveals the importance of B lymphocytes. By depleting B cells, the immune system is dampened leading to the path to treat autoimmune diseases. On the other hand, B cells can activate every component of the immune system, including T cells and NK cells, therapeutically unleashing these powerful lymphocytes against the cancer cells. This is the first study to show the role of B cells and its potential to add to the cytotoxic T cell and NK cell " said Dr. Patrick Soon-Shiong, MD, Chairman of Alyssum. "This publication in Nature Nano bridges state of the art techniques from quantum mechanics to single cell analysis and genetic knockouts to develop the

first drug that activates B cells and shifts the paradigm in the treatment of cancer".

The AT-1965 clinical trial is currently ongoing and open at multiple sites in US ([NCT06234098](https://clinicaltrials.gov/ct2/show/study/NCT06234098)).

About Alyssum Therapeutics

Alyssum Therapeutics is a clinical stage company developing first-in-class molecules that modulate B cell immune response as potential treatments for immunological conditions and oncology. The company's lead candidate is AT-1965, a first-in-class small molecule liposomal formulation, targeting CMTR2 in cancer cells to make them immunologically hot and activate B cells. B cells act as antigen presenting cells to activate T cells, secrete antibodies that recruit innate immune cells (macrophages, NK cells etc.), and release cytokines to create an immunologically inflamed environment.

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