# Methods to Prevent and Treat Diffuse Large and Other B Cell Lymphomas

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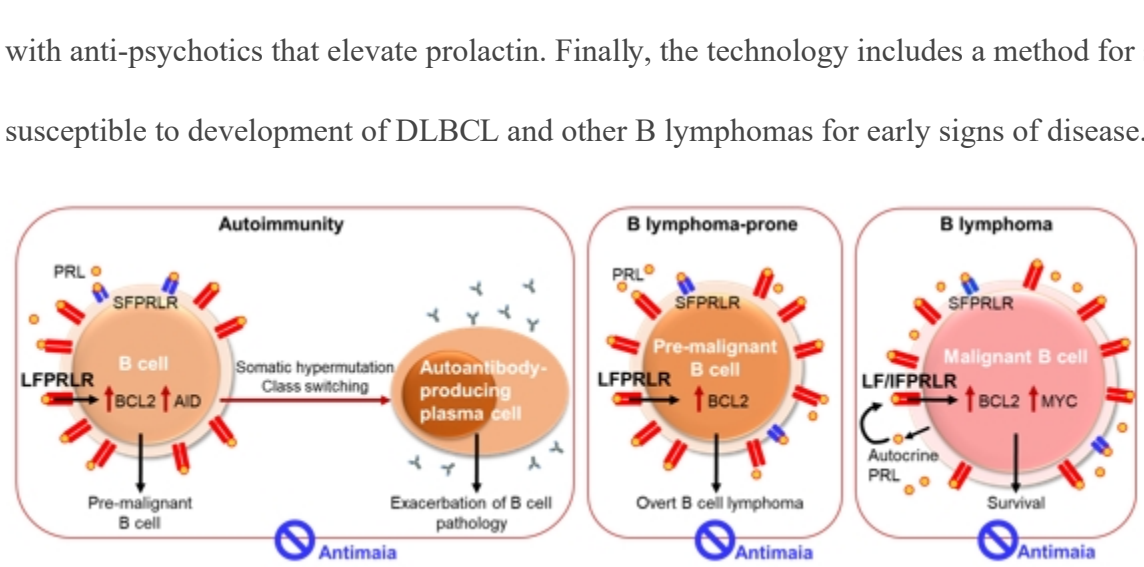
## BACKGROUND

Diffuse large B-cell lymphoma (DLBCL) is the most common type of non-Hodgkin lymphoma (NHL), accounting for about 22% of newly diagnosed cases of B-cell NHL in the United States. More than 18,000 people are diagnosed with DLBCL each year. Treatment for advanced DLBCL, R-CHOP, combines an antibody with traditional, debilitating chemotherapeutics. Other treatments in trials for recurrent disease include expensive, custom CAR-T cells and use of immune checkpoint inhibitors that can initiate cytokine storm and autoimmune disease.

## BRIEF DESCRIPTION

Professor Ameae Walker from the University of California, Riverside, Professor Srividya Swaminathan from the City of Hope Beckman Research Institute and their colleagues have developed a method for the prevention and treatment of B cell lymphomas. This technology works by systemically inhibiting expression of one form of the set of cell surface molecules that allow cells to respond to prolactin. This highly specific technology suppresses the deleterious downstream effects of prolactin that promote and sustain abnormal B cells.

This invention is advantageous compared to existing technologies: all measures in mouse models and analysis of human cells suggest it is nontoxic and therefore will have significantly fewer, if any, side effects. It may also be used together with anti-psychotics that elevate prolactin. Finally, the technology includes a method for screening populations susceptible to development of DLBCL and other B lymphomas for early signs of disease.




**Antimaia Acts at Three Stages of B Lymphoma Development:** 1) Antimaia, a splice modulating oligonucleotide (SMO) that decreases expression of the long form of the prolactin receptor, reduces the number of premalignant cells and the formation of abnormal antibody-producing cells. This also improves the symptomatology of **autoimmune disease**. 2) Antimaia prevents the conversion of premalignant to overt malignant B cells. 3) Antimaia kills B lymphoma cells. Antimaia works by reducing the number of long and intermediate form prolactin receptors (LF/IF PRLR) without effect on short receptors (SFPRLR). PRL, prolactin; Bcl2, B cell

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## OTHER INFORMATION

### KEYWORDS

Lupus erythematosus, Diffuse large B cell lymphoma, Long form prolactin receptor, prolactin

### CATEGORIZED AS

- Medical
  - Disease: Autoimmune and Inflammation
  - Disease: Cancer
  - Disease: Women's Health

### RELATED CASES

2021-849-0, 2012-794-0

lymphoma 2; Myc, a proto-oncogene.

## APPLICATIONS

- To screen for, prevent and treat B cell lymphomas
- To impede the development of B cell mediated disorders such as lupus

## PATENT STATUS

Patent Pending

## RELATED MATERIALS

- Khani, A; Kumar, A; Radecki,KC; Lee, S; Lorenson, MY; Wu, X; Gu, Z; Walker, AM; Swaminathan,S. (2021). Suppressing Synthesis of the Long Isoform of the Prolactin Receptor Is a Targeted Strategy to Prevent and Treat B Cell Malignancies. Blood. 138. 1135. DOI:10.1182/blood-2021-147055 - 11/05/2021

## RELATED TECHNOLOGIES

- Splice Modulating Oligonucleotides as a Breast Cancer Therapy

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