ALBUMIN-BASED NANOMEDICINES

THERAPEUTICS
Albumin-based drug to induce apoptosis for treatment of blood malignancies, rheumatoid arthritis, and autoimmune diseases.

TECHNOLOGY SUMMARY
Over 70,000 new cases of Non-Hodgkin’s Lymphoma (NHL) were diagnosed in 2015, while nearly 20,000 people died from the disease. Most NHL cases derive from B cell lymphocytes and are treated with rituximab and chemotherapy. Almost 40 percent of patients, however, develop resistance to these therapies. Research indicates the proposed albumin-based nanoconjugate can trigger direct and specific apoptosis of B-cell lymphomas without the help of effector cells. Hybridization of two complementary morpholino oligonucleotides or complementary coiled-coil forming peptides at B cell surface mediates crosslinking of receptors to initiate apoptosis. One oligonucleotide (MORF1) or coiled-coil forming peptide (CCE) is bound to an antibody fragment recognized by the CD20 receptor (nanoconjugate 1); the complementary oligonucleotide (MORF2) or oligonucleotide (CCK) is bound in multiple copies to human albumin.

FEATURES AND BENEFITS
• Increases intravascular half-life of the biocompatible nanoconjugate.
• Can be scalably synthesized in GMP environment.
• Alleviates the need for low molecular weight cytotoxic drugs.

RECENT PUBLICATIONS

INVENTOR PROFILE
Jindrich Kopecek, Ph.D., Distinguished Professor - Pharmaceutical Chemistry and Bioengineering
Jiyuan Yang, Ph.D., Research Professor - Pharmaceutical Chemistry