Targeted Multiple Myeloma Therapy Reduces Side Effects

Background: Multiple Myeloma (MM) is the second most prevalent hematological malignancy with a median survival of three to five years. The vast majority of patients will relapse within a few years and often do not respond to follow-up therapy. Bortezomib (Btz), the most common drug, is plagued with severe and often intolerable side effects. This seriously limits dosing and affects treatment outcome. MM patients would greatly benefit from approaches that enable higher or more frequent dosage regimes. To address this unmet need, scientists from Washington University in St. Louis developed a new MM cell targeted treatment.

Technology Description: The team led by Dr. Azab developed a biocompatible and biodegradable delivery vehicle decorated with anti-CD38 monoclonal antibodies. This vehicle safely encapsulates Btz (or other chemotherapy), while it targets the cell-surface CD38 receptor present on MM cells. The studies reveal selective release of the drug in MM cells. Subsequent endosomal transport to the proteasome enable its inhibition of processes crucial for MM cell survival. This approach limits side effects, is poised to maximize treatment tolerance, and hence, increase treatment success. The platform technology is amenable to other (chemo)therapeutics and cell-targeting strategies.

Key Advantages:
- Targeted Bortezomib therapy that reduces side effects
- Mitigates the intolerability of Bortezomib treatment
- Prone to increase Bortezomib treatment success
- Biocompatible and biodegradable drug delivery vehicle
- Platform technology suitable for other (chemo)therapeutics
- Both in vitro and in vivo data
- Extensive targeting, delivery, and uptake data available


Patents: PCT application

Lead Inventor: A. Kareem Azab, PhD, Professor of Radiation Oncology, Division Department of Radiation Oncology Washington University School of Medicine.

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<td>Oncology, Multiple Myeloma, Therapeutics, Targeting,</td>
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