VCU Innovation Gateway
Office of Research and Innovation

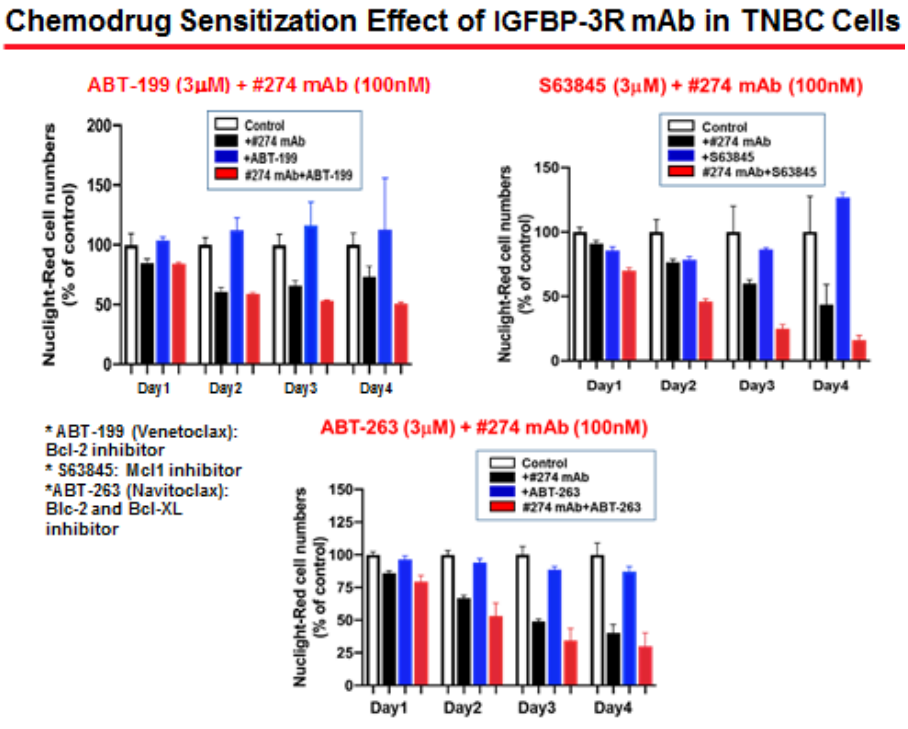
Targeted Immunotherapy

IGFBP-3R agonistic monoclonal antibodies as a mono- or combinational therapy to treat cancer

For certain cancers, such as triple negative breast cancer, few systemic treatment options exist besides the use of chemotherapy. Certain treatment options, in association with chemotherapy, are available but lack consistent benefits and have detrimental side effects; such as the development of resistance. The heterogeneity of certain cancers and the rapid development of chemotherapy resistance have limited successful treatment options. Better targeted therapies are urgently needed.

The technology

Dr. Oh and Dr. Cai have previously generated and characterized IGFBP-3R agonistic monoclonal antibodies (mAbs) that can be used to treat human diseases related to IGFBP-3 and IGFBP-3R; such as cancer, metabolic syndrome and obstructive respiratory disorder (currently patented). Through further development, these IGFBP-3R agonistic mAbs' anti-tumor and anti-metastatic effects have been established using preclinical orthotopic and patient-derived xenograft animal models of human cancers. The findings have clearly indicated that the IGFBP-3R agonistic mAbs are a novel class of targeted therapy, which not only kills tumor cells but also suppresses tumor-activated signaling critical to tumor angiogenesis, metastasis and radio-/chemo-resistance; such as PD-L1. More importantly, IGFBP-3R agonistic mAbs have synergistic anti-tumor effects with therapeutic agents such as carboplatin, cisplatin, and Bcl-2 inhibitors (venetoclax, S36845 and others) in a variety of cancers. These successful preclinical studies have shown that the IGFBP-3R agonistic mAbs are a novel monotherapy and/or combinational therapy with therapeutic agents for a variety of human cancers.



Benefits

- Synergistic anti-tumor effects with therapeutic agents
- Cell killing specific to cancer cells
- No cell killing effect on normal, non-tumor cells
- Suppression of PD-L1
- Reduces drug resistance
- Improves consistent treatment benefits
- Reduces platinum agent cytotoxicity limit

Applications

- Cancer immunotherapy for:
  Acute myeloid leukemia, lymphoma, pancreatic cancer, ovarian cancer, lung cancer, colon cancer, and breast cancer
- PD-L1 positive cancer immunotherapy for:
  Triple negative breast cancer, non-small cell lung cancer, bladder cancer, and Merkel cell carcinoma

Patent status:
Patent pending: U.S. and foreign rights are available. PCT/US2017/059244

License status:
This technology is available for licensing to industry for further development and commercialization.

Category:
Targeted Immunotherapy

VCU Tech #:
OH-19-026 and OH-19-038

Investigators:
Youngman Oh, Ph.D.
Qing Cai, MD, Ph.D.

***In vitro* and *in vivo* data available**

Contact us about this technology

Magdalena K. Morgan, Ph.D.
Director of Licensing
mkmorgan@vcu.edu
(804) 827-6095