



Inhibitors of Cell Adhesion by Nectin Peptides

Peptides that functionally block ovarian cancer cell adhesion by targeting Nectin-4

IP Status: US Patent Issued; Patent No. 10,907,212

Applications

- Ovarian cancer metastasis
- Inhibition of spheroid formation
- Lung cancer
- Bladder cancer
- Breast cancer

Key Benefits & Differentiators

- **Prevent cancer cell adhesion:** Nectin-derived peptides prevent Nectin-4/Nectin-1 interaction, limiting cancer metastasis
- **Improves cell sensitivity to chemotherapy:** Peptides limit spheroid formation

Technology Overview

Ovarian cancer is the most lethal gynecologic malignancy, resulting in over 14,000 deaths annually in the U.S. Due to the vague symptoms and lack of a screening test suitable for the general population, most women are diagnosed at a late stage of the disease, when patients have a poor prognosis. Although most ovarian cancer patients will respond to initial treatment with surgery and chemotherapy, the majority relapse with chemoresistant disease. Metastasis is a major contributor to disease progression and death in these patients. Tumor cells use cell-cell adhesion to adhere to other sites or form cell-cell aggregates that are resistant to chemotherapy and migrate into the vasculature. By blocking these adhesions, it may be possible to limit or block cancer metastasis. Specifically, the cell adhesion molecule Nectin-4 is overexpressed in epithelial cancers, including ovarian cancer. Studies have shown that Nectin-4 promotes cell-cell adhesion, migration, and proliferation

Researchers at the University of Minnesota have developed synthetic peptides that can functionally block cell adhesion. The synthetic peptides prevent binding to the Nectin-4 protein expressed on the surface of ovarian cancer cells. The synthetic peptides have been demonstrated to inhibit ovarian cancer cell aggregation and spheroid formation in vitro. Furthermore, Nectin-4 peptide N4-P10 was shown to decrease the LD50 of cisplatin using cell lines and ascites cells from ovarian cancer patients.

Phase of Development

TRL: 3

Synthetic peptides demonstrate the capacity to inhibit cell adhesion and spheroid formation in vitro

Desired Partnerships

Technology ID

20160280

Category

All Technologies
Life Sciences/Biomarkers
Life Sciences/Biochemicals & Small Molecules
Life Sciences/Human Health
Life Sciences/Research Tools
Life Sciences/Therapeutics

Learn more



This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- [Amy Skubitz, PhD](#) Professor, Department of Laboratory Medicine & Pathology
- [Kristin Boylan, PhD](#) Assistant Director, Ovarian Cancer Early Detection Program

References

1. Kristin L. M. Boylan, Caitlin Walz, Alexandra M. Schefter, and Amy P. N. Skubitz(2025) , <https://www.mdpi.com/2072-6694/17/5/901>, Cancers, 17(5), 901
2. Kristin L.M. Boylan, Rory D. Manion, Heena Shah, Keith M. Skubitz, and Amy P. N. Skubitz(2020) , <https://www.mdpi.com/1422-0067/21/13/4637>, International Journal of Molecular Sciences, 21, 4637
3. Kristin LM Boylan, Petra C Buchanan, Rory D Manion, Dip M Shukla, Kelly Braumberger, Cody Bruggemeyer, Amy PN Skubitz(2016) , <https://www.oncotarget.com/article/14206/text/>, Oncotarget, 8, 9717-9738
4. Derycke MS, Pambuccian SE, Gilks CB, Kalloger SE, Ghidouche A, Lopez M, Bliss RL, Geller MA, Argenta PA, Harrington KM, Skubitz AP(2010) , <https://academic.oup.com/ajcp/article/134/5/835/1766625>, American Journal of Clinical Pathology, 134, 835-845