CHEMISTRY: INORGANIC/ORGANIC

Synthesis of Platinum-Malonate-Luteinizing Hormone Releasing Hormone (Pt-Mal-LHRH), an Anti-Cancer Agent. CHARLES E. GREIF IV and DR. MARGRET W. NDINGURI, Department of Chemistry, Eastern Kentucky University, Richmond, KY 40475

Breast cancer effects one in eight women in their lifetime[[1]](#endnote-1). According to the American Cancer Society, the overall survival rate for stage IV breast cancer is around 22%. Despite recent advancements, many patients eventually relapse. Cisplatin is a chemotherapeutic drug used for treatment of numerous human cancers including bladder, head and neck, lung, ovarian, and testicular cancers[[2]](#endnote-2). LHRH is a decapeptide that triggers the production of gonadotropins, which stimulates the growth of eggs in the ovaries and sperm in the testes. The purpose of this research was to synthesize a target-specific anti-cancer agent using cisplatin coupled to LHRH via a malonate linkage that targets the LHRH receptor, which is overexpressed in breast cancer[[3]](#endnote-3) [[4]](#endnote-4). The results of the synthesis will be discussed in the poster presentation.

1. Desantis, C., Ma, J., Bryan, L., and Jemal, A. (2014) Breast cancer statistics, 2013. *CA Cancer J. Clin. 64,* 52-62. [↑](#endnote-ref-1)
2. Dasari, S., and Tchounwou, P. B. (2014) Cisplatin in cancer therapy: Molecular mechanisms of action. *European Journal of Pharmacology* *740*, 364–378. [↑](#endnote-ref-2)
3. Fekete, M., Wittliff, J. L., and Schally, A. V. (1989) Characteristics and distribution of receptors for [D-TRP6]-luteinizing hormone-releasing hormone, somatostatin, epidermal growth factor, and sex steroids in 500 biopsy samples of human breast cancer. *J. Clin. Lab. Anal. 3,* 137-47. [↑](#endnote-ref-3)
4. Calderon, L. E., Keeling, J. K., Rollins, J., Black, C. A., Collins, K., Arnold, N., Vance, D. E., and Ndinguri, M. W. (2016) Pt-Mal-LHRH, a Newly Synthesized Compound Attenuating Breast Cancer Tumor Growth and Metastasis by Targeting Overexpression of the LHRH Receptor. *Bioconjugate Chemistry. 2017, 28,* 461-470. [↑](#endnote-ref-4)