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**Degree Objective:** Ph.D. Endocrinology and Reproductive Physiology

**Background:** MD, Ross University.

**Current Research Project:**

Conjugated linoleic acid (CLA) has long been recognized to exert protective effects on carcinogenesis in breast, prostate and colon malignancies. Recent data suggests that CLA plays a key role in inhibiting several important survival pathways in breast cancer cell. However, data on effects of CLA in epithelial ovarian carcinoma are lacking and was the focus of this study.

Methods: A2780 and SKOV3 ovarian cancer cell were treated with increasing concentrations of two different isomers of CLA (9:11, 10:12) and effect of CLA on cell viability was determined using 3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay at different time points with and without several chemotherapeutic agents (Oxaliplatin, Cisplatin, Taxol, Doxorubicin). Additionally, effect of CLA isomer 10:12 were evaluated on A2780 ovarian cancer cell apoptosis by flow (Annexin V/PE).

Results: CLA isomer-10:12 significantly affected the ovarian cancer cell viability in a time and dose dependent fashion. Seventy-two to 96h of CLA treatment (isomer 10:12,  $7\mu\text{M}$ ) resulted in ~50% reduction in cell viability compared to control ( $p < 0.01$ ). A  $20\mu\text{M}$  dose of the CLA isomer 10:12 resulted in >80% reduction in live cell compared to controls. However, CLA isomer 9:11 had no effect in all doses and time points tested ( $0.001\mu\text{M}$ -  $50\text{mM}$ ). Additionally, at IC50 dose of oxaliplatin treatment, the addition of CLA, resulted in a substantial reduction (by ~50%,  $p < 0.05$ ) in percent live cell compared to oxaliplatin monotherapy.

Conclusion: Our data indicate that CLA can significantly hamper the survival of ovarian cancer cell. These findings may have therapeutic implications for ovarian cancer management and needs further exploration.

**Honors:**

NIH/T32: Physician-Scientist Training in Cancer Medicine (T32) Program, Project: Novel approaches to lyse tumor cells using magnetic gold-nanoparticles. Mentor: Manish S. Patankar, Ph.D. (2010-2011)

Deborah Gonzalez Women's Health Fellowship Award for contributions to the field of ovarian cancer research, The Foundation for Women's Wellness (FWW), New York, NY. (07/2010).



SGO Basic Science Poster Award for work on Stress Reduces Effectiveness of Chemotherapy in Ovarian Carcinoma, presented at the Society of Gynecologic Oncology's 41st Annual Meeting on Women's Cancer, San Francisco, California, (2010).

## **Grants Received:**

NIH/T32: Physician-Scientist Training in Cancer Medicine (T32) Program, Project: Novel approaches to lyse tumor cells using magnetic gold-nanoparticles. Mentor: Manish S. Patankar, Ph.D. (2010-2011)

## **Publications:**

Shahzad, M. Arevalo, J. Lu, C. Moreno-Smith, M. Stone, R. Jennings, N. Lee, J. Nishimura, M. Carroll, A. Pena, G. Vivas, P. Lutgendorf, S. Bernstein, G. Bar-Eli, M. Cole, S. Sood, AK. Stress Effects on IL-8 and FosB Driven Ovarian Cancer Growth. *J Biol Chem.* 2010 Nov 12;285(46):35462-70.

Matsuo, K. Eno, M. Ahn, E. Shahzad, M. Im, D. Rosenshein, N. Sood, A. Multi-drug Resistance Gene (MDR-1) and Risk of Brain Metastasis in Epithelial Ovarian, Fallopian Tube, and Peritoneal Cancer. *Am J Clin Oncol*-2010 Oct 1. in press

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## **National Presentations:**

Shahzad, M. Al-Niimi, A. Felder, M. Kapur, A. Claussen, N. Jallow, F. Van Galder, H. Connor, J. Patankar, M. Biological Significance of Conjugated Linoleic Acid in Ovarian Carcinoma. Proceedings of the 102nd Annual Meeting of the American Association of Cancer Research (AACR), Orlando, FL-04/2010 Submitted

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Carroll A, Kim S, Nick A, Stone R, Spannuth W, Pena G, Matsuo K, Vivas-Mejia P, Mangala S, Mora E, Shahzad M, Lopez-Berestein G, Sood A. Breaking Scaffolds: Targeting Paxillin in Ovarian Cancer. Proceedings of the 101st Annual Meeting of the American Association of Cancer Research (AACR), Washington DC. Apr. 2010; 2010:

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**Other Presentations:**

**ERP Service:**