

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Impedance Analysis of Ovarian Cancer Cells upon Challenge with C-terminal Clostridium Perfringens Enterotoxin¹ GEOFFREY GORDON, CHUN-MIN LO, University of South Florida — Both in vitro and animal studies in breast, prostate, and ovarian cancers have shown that clostridium perfringens enterotoxin (CPE), which binds to CLDN4, may have an important therapeutic benefit, as it is rapidly cytotoxic in tissues overexpressing CLDN4. This study sought to evaluate the ability of C-terminal clostridium perfringens enterotoxin (C-CPE), a CLDN4-targetting molecule, to disrupt tight junction barrier function. Electric cell-substrate impedance sensing (ECIS) was used to measure both junctional resistance and average cell-substrate separation of ovarian cancer cell lines after exposure to C-CPE. A total of 14 ovarian cancer cell lines were used, and included cell lines derived from serous, mucinous, and clear cells. Our results showed that junctional resistance increases as CLDN4 expression increases. In addition, C-CPE is non-cytotoxic in ovarian cancer cells expressing CLDN4. However, exposure to C-CPE results in a significant ($p < 0.05$) dose- and CLDN4-dependent decrease in junctional resistance and an increase in cell-substrate separation. Treatment of ovarian cancer cell lines with C-CPE disrupts tight junction barrier function.

¹Support: Florida Space Grant Consortium.

Chun-Min Lo
University of South Florida

Date submitted: 22 Nov 2006

Electronic form version 1.4