Siemens Competition
Math : Science : Technology
Regional Finalist

Names: Hyunsoo Chung
High School: Thomas S. Wootton High Scool
Mentor: Hanbyoul Cho, MD, Ph.D
Project Title: *Custom-tailored therapy: Discovery of new molecular and clinicopathological markers of prognosis using tissue microarray technology in cervical cancer* (Genetics)

Cervical cancer is one of the most common gynecologic malignancies worldwide and remains a leading cause of cancer-related female deaths in developing countries. Such high mortality rates are ascribed to disease recurrence despite cervical resection, as well as ineffective treatment options for advanced disease. Currently, a limited number of prognostic parameters has been used in the clinic. In this study, I investigated the clinical significance of *ARID1A*/BAF250a and ERp57 in the progression of cervical cancer. Compared to normal cervical epithelial tissue samples, *ARID1A*/BAF250a and *ERp57* mRNA expression were decreased in cervical cancer tissue specimens. *ARID1A*/BAF250a and ERp57 expression was predominantly detected in nuclear and cytosolic fractions of CaSki cells, respectively. Immunohistochemistry revealed that the expression of both proteins in cervical cancer was downregulated significantly when compared to both cervical intraepithelial neoplasia and normal tissue. Low expression of *ARID1A*/BAF250a and ERp57 showed a worse overall survival rate than in the high-expression group. When combined together, low expression of both proteins was an independent prognostic factor for overall survival. In conclusion, loss of both proteins independently predicts poor outcome for patients with cervical cancer, suggesting that *ARID1A*/BAF250a and ERp57 may both be promising molecular markers and novel targets in cervical cancer.