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Continued partnership between gynecologists and cytopathologists in the era of molecular medicine to prevent cervical, ovarian and breast cancers

The cervical screening partnership between gynecologists and cytopathologists has lowered the number of cervical cancer deaths to about 4,000 per year, representing a 70% reduction in the United States. In comparison, 40,290 women and 14,180 women are still expected to die of breast cancer and ovarian cancer each year, respectively, due to a lack of effective cancer risk screening tools for the latter two malignancies. Since the carriers of the germ line *BRCA1* 185delAG, *BRCA1* 5382insC and *BRCA2* 6174delT mutations are known to be at high risk of developing breast cancer and ovarian cancer, universal screening for these 3 mutations for all women at age 30 has been recommended if the cost for such screening can be markedly reduced and the quality of the tests can be assured. Pre-symptomatic salpingo-oophorectomy for these high-risk women after child-bearing ages can reduce breast cancers and ovarian cancers as well as overall mortality. The author will present a simplified technology to use liquid-based Pap smear cytology specimens (SurePath® or ThinPrep®) to detect single nucleotide deletions and insertions by Sanger sequencing for the detection of these *BRCA* mutations (see sample of a *BRCA1* 185delAG mutation with underlined "AG" instead of a normal "AGAG" sequence). If these 3 *BRCA* mutations are tested in conjunction with Pap smear and HPV assays, the cost may be reduced to \$200 per test since all the reagents are generic and inexpensive.

Biography

Sin Hang Lee was graduated from Wuhan Medical College in China. After a Residency Fellowship at Cornell-New York Hospital and Memorial Hospital for Cancer, he was certified by the American Board of Pathology and obtained the FRCP (C) degree by examination in 1966. He was on the Faculty of McGill University and Yale University from 1968-2004 while practicing hospital-based pathology. He is currently the Director of Milford Molecular Diagnostics, Milford, Connecticut. In the past 10 years, he has developed Sanger sequencing-based testing methods for HPV, *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, Lyme disease borreliae and *Ebolavirus* implementable in community hospitals.

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