**Associations between Antioxidants and High-risk HPV Infection in Women**

Hui-Yi Lin1,\*, Qiufan Fu1, Yu-Hsiang Kao2, Tung-sung Tseng2, Krzysztof Reiss3, Jennifer E. Cameron4, Martin J. Ronis5, Joseph Su6, Navya Nair7, Hsiao-Man Chang8, Michael E. Hagensee9

1Biostatistics Program, School of Public Health, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA, 2Behavior and Community Health Sciences Program, School of Public Health, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA, 3Department of Hematology and Oncology, School of Medicine, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA, 4Department of Microbiology, Immunology & Parasitology, School of Medicine, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA,5Department of Pharmacology & Experimental Therapeutics, School of Medicine, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA, 6Department of Epidemiology, Fay W. Boozman College of Public Health, University of Arkansas for Medical Sciences, Little Rock, Arkansas, USA, 7Department of Obstetrics and Gynecology, School of Medicine, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA, 8Emory University, 9Section of Infection Diseases, Department of Medicine, School of Medicine, Louisiana State University Health Sciences Center, New Orleans, Louisiana, USA.

**Background:** Human papillomavirus (HPV) infection is a major risk factor for cervical cancer and precancerous lesions. Oxidative stress, which could be reflected by some antioxidant markers, may act as a co-factor by affecting the host immune system to induce HPV carcinogenesis. However, the association between antioxidants and oncogenic or high-risk HPV infection remains unclear.  **Objective:** This study’s objective is to identify antioxidants associated with vaginal HR-HPV infection in women. **Methods:** Data from 11,070 women who participated in the 2003-2016 National Health and Nutrition Examination Survey (NHANES) were included. Both univariate and multivariate multiple logistic models (controlled for selected covariates) were used to identify the associations between the 15 antioxidants and vaginal HPV infection status (no/low/high-risk HPV). The sampling weights were applied in all analyses so the results can be generalized to the US women population. **Results:** We identified serum albumin, and four nutritional antioxidants (vitamin-A, -B2, -E, and folate) were inversely associated with HR-HPV infection. Based on these four dietary antioxidants, we developed the nutritional antioxidant score (NAS). Women with a high albumin level (Odds ratio [OR]=0.76 and 0.71 for 41.1-44 and >44 vs. ≤39 g/L) and a high NAS in the top quartile (OR=0.76 vs. the low NAS quartile group) had a lower risk of HR-HPV. **Conclusions:** Our findings support a high-level of these selected antioxidants were negatively associated with HR-HPV infection. Our findings provide valuable information on understanding antioxidants’ impact on HPV infection and cervical cancer prevention.