

JOINT EVENT

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STRING v9.1: Edges and nodes provide global functional association to protein crosstalk and integration in urinary proteomes of prostate cancerLeonora V Autus-Geniston^{1,2}¹United Bayanihan Foundation, Philippines²St. Paul University-Quezon City, Philippines

Prostate cancer was the number one cause of cancer in men in Asia. Urine like blood has a similar source of proteins making it an ideal matrix for the study. The research aims to identify proteins in the urinary proteomes of normal controls, benign prostate hyperplasia (BPH) and prostate cancer by initial separation using SDS-PAGE followed by nanoLC-Orbitrap MS/MS aided by ProteinProspector and XCalibur. STRING v9.1 predicted their functional protein association networks among the gene lists. Three hub proteins (B2M, GSN, IGHG1) and FN1 were seen in normal state and BPH, respectively. Six functional modules in normal controls and BPH were seen and 12 in prostate cancer. Five and 15 unique proteins were seen in normal and BPH. HBA1, HBB and TTR were the distinct proteins observed in prostate cancer. A unique BPH module emerged from the normal state when their networks were overlapped. The modules at the center of the prostate cancer networks were tight and multiply connected with loosely-arranged periphery. The protein markers of prostate cancer, HBA1-HBB edge in module 1 in the periphery, while TTR in module 6 at the center was connected by haptoglobin (HP) from module 5. Prostate carcinopathogenesis from the normal state involved three protein switches: GSN-FN1, B2M-IGHG1 and CTSB-CSTB edges independent from BPH pathogenesis. From these switches, the expression of the known cancer functional modules emerged that linked further to HBA1-HBB-TTR hub. The details of these events will be discussed. Thus, the present study provides a solid framework for further understanding of prostate pathocarcinogenesis.

Biography

Leonora V Autus-Geniston has completed her PhD from University of Santo Tomas. She is the Officer of United Bayanihan Foundation and an Assistant Professor at Saint Paul University-Quezon City, Philippines. She has published several papers in reputed journals on proteomics and pharmacogenomics, specifically on SNPs on drug metabolizing enzymes among Filipinos. She received the Best Poster Award in Health Science from National Academy of Science and Technology (Philippines) on "Method Development of nanoLC-MS/MS for Identification of Protein Biomarkers in the Urinary Proteomes of Prostate Cancer" and Best Poster in Penang, Malaysia on "Protective Effects of Thiamin on Genotoxicity in Mice".

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