OMICS Group Conferences
Accelerating Scientific Discovery
3rd World Congress on
Cell Science & Stem Cell Research
November 20- 22, 2013 DoubleTree by Hilton Baltimore-BWI Airport, USA

An empirical assay for assessing genomic sensitivity and for improving cancer diagnostics

Diana Anderson
University of Bradford, UK

Abstract

Detection tests have been developed for many cancers, but there is no single test to identify cancer in general. We have developed such an assay. In this modified patented Comet assay, we investigated lymphocytes of 208 individuals: 20 melanoma, 34 colon cancer, 4 lung cancer patients 18 suspect melanoma, 28 polyposis, 10 COPD patients and 94 healthy volunteers. The natural logarithm of the Olive tail moment was plotted for exposure to UVA through different agar depths for each of the above groups and analysed using a repeated measures regression model. Response patterns for cancer patients formed a plateau after treating with UVA where intensity varied with different agar depths. In comparison, response patterns for healthy individuals returned towards control values and for pre/suspected cancers, were intermediate with less of a plateau. All cancers tested exhibited comparable responses. Analyses of Receiver Operating Characteristic curves, of mean log Olive tail moments, for all cancers plus pre/suspected-cancer versus controls gave a value for the area under the curve of 0.87; for cancer versus pre/suspected-cancer plus controls the value was 0.89; and for cancer alone versus controls alone (excluding pre/suspected-cancer), the value was 0.93. By varying the threshold for test positivity, its sensitivity or specificity can approach 100% whilst maintaining acceptable complementary measures. Evidence presented indicates that this modified assay shows promise as both a stand-alone test and as a possible adjunct to other investigative procedures, as part of detection programmes for a range of cancers.

Biography

Professor Anderson holds the Established Chair in Biomedical Sciences at the University of Bradford. She obtained her first degree in the University of Wales and second degrees in the Faculty of Medicine, University of Manchester. She has 432 peer-reviewed papers, 8 books, has successfully supervised 26 PhDs, and been a member of editorial boards of 10 international journals. She has been or is Editor in Chief of a book Series on Toxicology for J.Wiley and sons and the Royal Society of Chemistry respectively. She gives key note addresses at various international meetings. She is a consultant for many international organisations, such as the WHO, NATO, TWAS, UNIDO and the OECD.