conferenceseries.com

4th World Congress on

MASS SPECTROMETRY June 19-21, 2017 London, UK

Measurement of DNA repair proteins in cancer by mass spectrometry

Miral Dizdaroglu

National Institute of Standards and Technology, USA

DNA damage occurs in living organisms by exogenous and endogenous sources. Unless repaired, DNA damage can cause genomic instability that may give rise to disease processes including carcinogenesis. Cancer tissues overexpress DNA repair proteins, leading to therapy resistance. Evidence suggests that DNA repair capacity may be a predictive biomarker of patient response. Thus, accurate measurement of DNA repair proteins in disease-free tissues and malignant tumors of patients may be essential in cancers, and for the development and use of inhibitors of these proteins in cancer therapy, and for determining the response of patients. We developed methodologies involving LC-MS/MS with isotope-dilution to positively identify and accurately quantify DNA repair proteins in human tissues. For this purpose, we produced and purified full length 15N-labeled analogs of human DNA repair proteins by their full scan and product ion spectra. Next, we identified and quantified several DNA repair proteins in various human cultured cell lines, and in human disease-free breast tissues and malignant breast tumors. Extreme expression of the proteins for survival. The approach described is expected to be applicable to the measurement of expression levels of DNA repair proteins in malignant tumors vs. surrounding disease-free tissues in patients. This attribute may help develop novel treatment strategies and DNA repair inhibitors as potential anticancer drugs, and guide therapies.

Biography

Dizdaroglu has obtained his PhD at the Karlsruhe Technical University, Germany, and subsequently worked for 7 years at the Max-Planck-Institute for Radiation Chemistry, before moving to USA. He has been at the National Institute of Standards and Technology (NIST) for more 30 years. In 2006, Dr. Dizdaroglu was conferred upon the rank of NIST Fellow. To date, he published highly cited 247 papers. Dr. Dizdaroglu received numerous scientific awards including the Hillebrand Prize of the American Chemical Society, and the Silver and Gold Medal Awards of the US Department of Commerce. He was also awarded two Honorary Doctorates.

miral.dizdar@nist.gov

Notes: