Gayle E Woloschak, PhD

Professor in Radiation Oncology and Radiology

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Web Site Link

http://janus.northwestern.edu/wololab/

Affiliated Centers

- Center for Cancer Nanotechnology Excellence (CCNE)
- Center for Genetic Medicine
- Center for Molecular Innovation and Drug Discovery
- Institute for BioNanotechnology in Medicine (IBNAM)
- Robert H. Lurie Comprehensive Cancer Center

Research Collaborators

Learn more about Gayle Woloschak's research collaboration network

Interests

Biotechnology; Nanotechnology; Radiation Oncology; Radiology

Description of Interests

My research is focused on two general areas: radiobiology and bionanotechnology. Work in radiobiology includes studies of the molecular biology of radiation responses, particularly radiation toxicities, radiation effects, dose-, dose-rate, and radiation quality issues and other general areas of radiobiology. In addition, my laboratory houses the tissues and data from mojority of the radiobilogical experiments conducted in US between 1950-1990's (http://janus.northwestern.edu). In addition to sharing these data and materials with the radiobiological community, my group is investigating the archive as well; we are applying new statistical approaches on old datasets and new experimental approaches for investigation of formalin fixed and paraffin embedded materials. Work with micro-RNA microarrays, and use of X-ray fluorescence microscopy for histopathological analysis fall into this research. Work in bionanotechnology includes development and investigation of multifunctional nanoconstructs,

increasing contrast for biomedical imaging (MRI and CT), enabling delivery of small molecules (such as chemotherapeutic drugs, flavonoids etc.) and producing cytotoxic reactive oxygen species to fortify effect of radiotherapy.

Professional Education

PhD: Med Coll OH-Toledo, Microbiology (1980)
Postdoctoral Fellowship: Mayo Medical School (1983)

Most Recent Publications

Negatively charged metal oxide nanoparticles interact with the 20S proteasome and differentially modulate its biologic functional effects
Falaschetti CA, Paunesku T, Kurepa J, Nanavati D, Chou SS, De M, Song M, Jang J-T, Wu A, Dravid VP, Cheon J, Smalle J, Woloschak GE.
ACS Nano. 2013 Sep 24;7(9):7759-7772.doi:10.1021/nn402416h.
ISSN: 19360851

Survivin-associated adaptive response in radiation therapy
Grdina DJ, Murley JS, Miller RC, Mauceri HJ, Sutton HG, Li JJ, Woloschak GE, Weichselbaum RR.
Cancer Research. 2013 Jul 15;73(14):4418-4428.doi:10.1158/0008-5472.CAN-12-4640.
ISSN: 00085472

CyclinB1/Cdk1 phosphorylates mitochondrial antioxidant MnSOD in cell adaptive response to radiation stress
Candas D, Fan M, Nantajit D, Vaughan AT, Murley JS, Woloschak GE, Grdina DJ, Li JJ.
Journal of Molecular Cell Biology. 2013 Jun;5(3):166-175.doi:10.1093/jmcb/mjs062.
ISSN: 16742788

Comparing radiation toxicities across species: An examination of radiation effects in Mus musculus and Peromyscus leucopus
Liu W, Haley B, Kwasny MJ, Li JJ, Grdina DJ, Paunesku T, Woloschak GE.
International Journal of Radiation Biology. 2013 Jun;89(6):391-400.doi:10.3109/09553002.2013.767994.
PMID: 23362954 ISSN: 09553002

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External Professional Relationships

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