Andrew Vaughan, Ph.D.

Clinical Interests

One of the earliest steps in either the generation of leukemia, or the genesis of a solid tumor is a break in DNA that is mis-repaired. In each case, the null hypothesis is that such breaks occur at random. In the case of leukemia, it is apparent that such breaks may be targeted to specific genes by aberrant action of normal gene products such as Activation Induced Cytidine Deaminase (AID). For the generation of solid tumors, the deletion of large tracts of DNA containing tumor suppressor genes may also be regulated by local DNA secondary structure and/or epigenetic modification. Proof of cellular control over such early events in tumorigenesis would disprove the null hypothesis and open up new areas for suppressing such tumor promoting events.

Title

Professor

Specialty

Cancer, Radiation Oncology

Department

Radiation Oncology

Division

Radiation Oncology

Center/Program Affiliation

UC Davis Comprehensive Cancer Center

Education

Ph.D., Birmingham University, Birmingham, UK, 1978
M.Sc., Birmingham University, Birmingham, UK, 1975
B.Sc., Portsmouth Polytechnic, Portsmouth, UK, 1974

Professional Memberships

American Association for Cancer Research
American Society for Therapeutic Radiology and Oncology
Institute of Biology: Chartered Biologist
Radiation Research Society of North America
Royal Society for Chemistry: Chartered Chemist

Select Recent Publications

Ho B, Baker PM, Singh S, Shih SJ, Vaughan AT. Localized DNA cleavage secondary to genotoxic exposure adjacent to an Alu inverted repeat. *Genes Chromosomes Cancer*. 2012 Feb 15. doi: 10.1002/gcc.21938. [Epub ahead of print]

Klein EA, Guiou M, Farwell DG, Luu Q, Lau DH, Stuart K, Vaughan A, Vijayakumar S, Chen AM. Primary radiation therapy for head-and-neck cancer in the setting of human immunodeficiency virus. *Int J Radiat Oncol Biol Phys*. 2011 Jan 1;79(1):60-4. Epub 2010 Apr 10.

Chen AM, Chen LM, Vaughan A, Farwell DG, Luu Q, Purdy JA, Vijayakumar S. Head and neck cancer among lifelong never-smokers and ever-smokers: matched-pair analysis of outcomes after

Andrew Vaughan, Ph.D.

radiation therapy. *Am J Clin Oncol.* 2011 Jun;34(3):270-5.

Chen AM, Chen LM, Vaughan A, Sreeraman R, Farwell DG, Luu Q, Lau DH, Stuart K, Purdy JA, Vijayakumar S. Tobacco smoking during radiation therapy for head-and-neck cancer is associated with unfavorable outcome. *Int J Radiat Oncol Biol Phys.* 2011 Feb 1;79(2):414-9. Epub 2010 Apr 14.

Du N, Baker PM, Do TU, Bien C, Bier-Laning CM, Singh S, Shih SJ, Diaz MO,Vaughan AT. 11q21. 1-11q23.3 Is a site of intrinsic genomic instability triggered by irradiation. *Genes Chromosomes Cancer.* 2010 Sep;49(9):831-43.

Singh S, Le H, Shih SJ, Ho B, Vaughan AT. Suberoylanilide hydroxyamic acid modification of chromatin architecture affects DNA break formation and repair. *Int J Radiat Oncol Biol* Phys. 2010 Feb 1;76(2):566-73.

Mooso B, Madhav A, Johnson S, Roy M, Moore ME, Moy C, Loredo GA, Mehta RG,Vaughan AT, Ghosh PM. Androgen Receptor regulation of Vitamin D receptor in response of castration-resistant prostate cancer cells to 1a-Hydroxyvitamin D5 - a calcitriol analog. *Genes Cancer.* 2010 Nov 16;1 (9):927-940.

Schnyder S, Du NT, Le HB, Singh S, Loredo GA, Vaughan ATM. Estrogen treatment induces MLL aberrations in human lymphoblastoid cells. Leuk Res, 2009 Oct; 33: 1400-1404. 2009.

Yang C, Betti C, Singh S, Toor A, Vaughan A. Impaired NHEJ function in multiple myeloma. Mutat Res, 2009 Jan 15; 660(1-2): 66-73. 2008.

Le H, Singh S, Shih SJ, Du N, Schnyder S, Loredo GA, Bien C, Michaelis L, Toor A, Diaz MO, Vaughan ATM. Rearrangements of the MLL gene are influenced by DNA secondary structure, potentially mediated by topoisomerase II binding. Genes Chromosomes Cancer, 2009 Sep; 48(9): 806-15. 2009.

UCDAVIS HEALTH SYSTEM