Matthew A. Coleman, Ph.D.

Clinical Interests

Dr. Coleman is pursuing research to identify the cellular mechanisms associated with ionizing radiation (IR) exposures. This work relies on using genomic and proteomic techniques to identify and characterize transcriptional networks, such as TP53, MYC and NF-kB, that play a role in controlling cell fate in response to IR exposures. Importantly, these regulatory pathways are also utilized by the cell for cancer progression. Such information can be utilized for developing diagnostic assays and tools for biodosimetry as well as the treatment and prevention of cancer. Dr. Coleman is also very active in the development of advance biochemical techniques using nanoparticles made of apolipoproteins and phospholipids called nanolipoproitein particles (NLPs). NLPs closely mimic the cellular membrane bilayer, and represent an ideal platform for characterizing membrane proteins involved in signal transduction. For example, NLPs are proving useful for the characterization of the structure and function of G-protein coupled protein receptors. NLPs are also proving useful for drug delivery, immuno-modulation and in vivo imaging in the treatment of cancer.

Title

Adjunct Professor

Specialty

Cancer

Department

Radiation Oncology

Division

Radiation Oncology

Center/Program Affiliation

UC Davis Comprehensive Cancer Center

Address/Phone

Center for Biophotonics, Science and Technology, 2700 Stockton Blvd. Sacramento, CA 95817

Education

Ph.D., Boston University, Boston, Massachusetts, 1997
B.S., University of Massachusetts, Boston, Massachusetts, 1987

Professional Memberships

American Chemical Society
Environmental Mutagen Society
Protein Society (FASEB)
Radiation Research Society

Honors and Awards

Nanotechnology 50 award recipient, 2008
NIH scientific achievement award, Radiation Oncology Gordon Conference, 2005
Merck travel award, Radiation Oncology Gordon Conference, 2005

UCDAVIS HEALTH

Matthew A. Coleman, Ph.D.

Research & Development 100 award recipient for ?Gene Microdissection?, 2001
Stein Moore Graduate Student Award, Protein Society, 1996
Travel Award. Biology Department, Boston University, 1994

Select Recent Publications

Coleman MA, Escobar PA, Mahadevan B. Omics-current applications in toxicology. Mutat Res. 2011 Jun 17;722(2):93. Epub 2011 Feb 17.

Gao T, Blanchette CD, He W, Bourguet F, Ly S, Katzen F, Kudlicki WA, Henderson PT, Laurence TA, Huser T, Coleman MA. Characterizing diffusion dynamics of a membrane protein associated with nanolipoproteins using fluorescence correlation spectroscopy. *Protein* Sci. 2011 Feb;20(2): 437-47. doi: 10.1002/pro.577.

Wyrobek AJ, Manohar CF, Krishnan VV, Nelson DO, Furtado MR, Bhattacharya MS, Marchetti F, Coleman MA. Low dose radiation response curves, networks and pathways in human lymphoblastoid cells exposed from 1 to 10cGy of acute gamma radiation. Mutat Res. 2011 Jun 17; 722(2):119-30. Epub 2011 Apr 15.

Khnouf R, Olivero D, Jin S, Coleman MA, Fan ZH. Cell-free expression of soluble and membrane proteins in an array device for drug screening. *Anal Chem.* 2010 Aug 15;82(16):7021-6.

Mart?nez A, Coleman M, Romero-Talam?s CA, Frias S. An assessment of immediate DNA damage to occupationally exposed workers to low dose ionizing radiation by using the comet assay. *Rev Invest Clin.* 2010 Jan-Feb;62(1):23-30.

Thompson, D., Pearson, F., Rao, R., Matthews, D. Albala, A., Wachsmann-Hogiu, S., and Coleman, M.A. A portable hand-held microarray reader for biodetection. Sensors. 9: 2524-2537. 2009

Baker, S.E., Hopkins, R.C., Blanchette, C.D., Walsworth, V.L., Sumbad, R., Fischer, N.O., Kuhn, E. A., Coleman, M.A., Chromy, B.A., L?tant, S.E., Hoeprich, P.D., Adams, M.W., and Henderson, P.T. (2009) Active Membrane-Bound Hydrogenase Incorporation into Soluble Nanoparticles. J. Am. Chem. Soc. 22:7508-9. 2009

Beller HR, Legler TC, Bourguet F, Letain TE, Kane SR, Coleman MA. Identification of c-type cytochromes involved in anaerobic, bacterial U(IV) oxidation. *Biodegradation.* 2009 Feb;20(1):45-53. Epub 2008 May 11.

Blanchette CD, Cappuccio JA, Kuhn EA, Segelke BW, Benner WH, Chromy BA, Coleman MA, Bench G, Hoeprich PD, Sulchek TA. Atomic force microscopy differentiates discrete size distributions between membrane protein containing and empty nanolipoprotein particles. *Biochim Biophys Acta.* 2009 Mar;1788(3):724-31. Epub 2008 Dec 8.

Blanchette, C.D., Segelke, B.W., Fischer, N., Corzett, M., Kuhn, E.A., Cappuccio, J.A., Benner, H., Coleman, M.A., Chromy, B.A., Bench, G., Hoeprich, P.D. and Sulchek, T.A. Characterization and purification of polydispere reconstituted lipoproteins and nanolipoprotein particles. Int J Mol Sci.

UCDAVIS HEALTH

Matthew A. Coleman, Ph.D.

10:2958-71. 2009

Blanchette CD, Law R, Benner WH, Pesavento JB, Cappuccio JA, Walsworth V, Kuhn EA, Corzett M, Chromy BA, Segelke BW, Coleman MA, Bench G, Hoeprich PD, Sulchek TA. Quantifying size distributions of nanolipoprotein particles with single-particle analysis and molecular dynamic simulations. *J Lipid Res.* 2008 Jul;49(7):1420-30. Epub 2008 Apr 9.

UCDAVIS HEALTH