



## Everett J. Moding, MD, PhD

Assistant Professor of Radiation Oncology (Radiation Therapy)

Radiation Oncology - Radiation Therapy

 Curriculum Vitae available Online

### CLINICAL OFFICES

- **Radiation Oncology**

875 Blake Wilbur Dr

MC 6560

Stanford, CA 94305

**Tel** (650) 723-5510

**Fax** (650) 725-8231

### Bio

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#### BIO

Dr. Moding is a physician scientist in the Department of Radiation Oncology at Stanford University. He received his bachelor's degree in Biochemistry from Colorado College in 2008 where he performed population genetics and analytical chemistry research. He completed the Medical Scientist Training Program at Duke University School of Medicine in 2015. For his PhD, Dr. Moding worked in the laboratory of Dr. David Kirsch studying the mechanisms regulating tumor response to radiation therapy. He performed his postdoctoral research in the laboratory of Dr. Maximilian Diehn at Stanford University as part of the Holman Research Pathway using circulating tumor DNA to monitor the response of patients with lung cancer to radiation therapy.

#### CLINICAL FOCUS

- Radiation Oncology
- Neoplasms, Connective and Soft Tissue

#### ACADEMIC APPOINTMENTS

- Assistant Professor, Radiation Oncology - Radiation Therapy
- Member, Stanford Cancer Institute

#### HONORS AND AWARDS

- Fellows' Forum Participant, Society for Translational Oncology (1/2020)
- Scholars-in-Training Travel Award, Radiation Research Society (11/2019)
- Kaplan Fellowship, Stanford University Department of Radiation Oncology (7/2019-6/2020)
- B. Leonard Holman Research Pathway, American Board of Radiology (7/2018-6/2020)
- Best Abstract Selection, ASTRO Annual Meeting (10/2014)
- Basic Science Abstract Award, ASTRO Annual Meeting (9/2014)
- Scholars-in-Training Travel Award, Radiation Research Society (9/2013)
- Fitzgerald Academic Achievement Award, Duke University Department of Pharmacology and Cancer Biology (3/2013)

- Winner-Retreat Poster Contest, Duke University Department of Pharmacology and Cancer Biology (9/2012)
- 2nd Place-Graduate Student Poster Contest, NASA Space Radiation Investigators' Workshop (7/2012)
- Travel Support, NASA Space Radiation Investigators' Workshop (7/2012)
- Travel Support, NASA Space Radiation Investigators' Workshop (9/2011)
- Space Radiation Summer School Scholar, NASA (6/2011)
- Medical Scientist Training Program Fellowship, National Institutes of Health (8/2008-5/2015)
- Summa Cum Laude, Colorado College (5/2008)
- Phi Beta Kappa Honor Society, Colorado College (5/2008)
- Frank Henry John Figge Award, Colorado College (5/2008)
- Alpha Lambda Delta Book Award, Colorado College (5/2008)
- Merck Index Award in Biochemistry, Colorado College (5/2008)
- Amgen Scholar, University of California San Francisco (6/2007-8/2007)
- American Chemistry Society Analytical Chemistry Award, Colorado College (5/2007)
- William C. Champion Prize in Organic Chemistry, Colorado College (5/2006)
- Biology in Chinese Culture Program Scholar, Colorado College (3/2006-5/2006)
- Dean's List, Colorado College (5/2005-5/2008)
- Alpha Lambda Delta Honor Society, Colorado College (5/2005)
- First Year Chemistry Award, Colorado College (5/2005)
- Barnes Chemistry Full Tuition Scholarship, Colorado College (8/2004-5/2008)
- Service Scholarship, Mother Moon Foundation (8/2004)
- Valedictorian, Manitou Springs High School (5/2004)
- Mayor's 100 Teens, City of Colorado Springs (9/2003)

## **BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS**

- Member, American Society of Clinical Oncology (2019 - present)
- Member, American Association for Cancer Research (2018 - present)
- Member, American Society for Radiation Oncology (2017 - present)
- Member, Radiological Society of North America (2016 - present)
- Member, American College of Radiology (2016 - present)
- Member, Radiation Research Society (2012 - present)

## **PROFESSIONAL EDUCATION**

- Residency: Stanford University Radiation Oncology Residency (2020) CA
- Internship: Cone Health Dept of Internal Medicine (2016) NC
- Medical Education: Duke University School of Medicine (2015) NC
- Residency, Stanford University Medical Center , Radiation Oncology (2020)
- Internship, Moses H. Cone Memorial Hospital , Internal Medicine (2016)
- BA, Colorado College , Biochemistry (2008)
- PhD, Duke University School of Medicine , Molecular Cancer Biology (2015)
- MD, Duke University School of Medicine , Medicine (2014)

## LINKS

- Lab Website: <http://modinglab.stanford.edu>

## Research & Scholarship

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### CURRENT RESEARCH AND SCHOLARLY INTERESTS

My laboratory focuses on three main areas: 1) studying the genetics underlying the response of tumors to radiation therapy, 2) developing personalized treatment approaches for sarcomas and gastrointestinal malignancies, and 3) understanding tumor clonal evolution during cancer therapy. We perform translational cancer research by analyzing human tissue and blood samples with next-generation sequencing to understand the genetic underpinnings and expression signatures that determine treatment response and resistance. We use genetically engineered mouse models to validate our findings, perform mechanistic experiments, and test new therapies. Clinically, I specialize in the treatment of sarcomas, and I am interested in prospective and retrospective clinical research.

## Teaching

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### STANFORD ADVISEES

#### Postdoctoral Faculty Sponsor

Ziwei Wang

## Publications

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### PUBLICATIONS

- **Investigating gene expression profiles associated with clinical radiation resistance in KEAP1/NFE2L2 wildtype lung cancer.**  
Binkley, M. S., Jeon, Y., Nesselbush, M., Moding, E. J., Nabet, B., Almanza, D., Yoo, C., Kurtz, D. M., Owen, S., Backhus, L. M., Berry, M. F., Shrager, J. B., Ramchandran, et al  
AMER ASSOC CANCER RESEARCH.2021
- **Circulating tumor DNA kinetics to identify genomic predictors of rapid response to chemoradiation in non-small cell lung cancer.**  
Moding, E. J., Liu, Y., Hui, A. B., He, J., Qiao, Y., Xu, T., Yao, L., Gandhi, S., Liao, Z., Das, M., Ramchandran, K. J., Padda, S. K., Neal, et al  
AMER ASSOC CANCER RESEARCH.2021
- **The Ami and Yami aborigines of Taiwan and their genetic relationship to East Asian and Pacific populations.** *European journal of human genetics : EJHG*  
Tatte, K., Metspalu, E., Post, H., Palencia-Madrid, L., Luis, J. R., Reidla, M., Rea, A., Tamm, E., Moding, E. J., de Pancorbo, M. M., Garcia-Bertrand, R., Metspalu, M., Herrera, et al  
2021
- **A mathematical model of ctDNA shedding predicts tumor detection size.** *Science advances*  
Avanzini, S., Kurtz, D. M., Chabon, J. J., Moding, E. J., Hori, S. S., Gambhir, S. S., Alizadeh, A. A., Diehn, M., Reiter, J. G.  
2020; 6 (50)
- **A noninvasive approach for early prediction of therapeutic benefit from immune checkpoint inhibition for lung cancer**  
Nabet, B. Y., Esfahani, M. S., Hamilton, E. G., Chabon, J. J., Moding, E. J., Rizvi, H., Steen, C. B., Chaudhuri, A. A., Liu, C., Hui, A. B., Stehr, H., Gojenola, L., Jin, et al  
AMER ASSOC CANCER RESEARCH.2020
- **Chromatin accessibility patterns in cell-free DNA reveal tumor heterogeneity**  
Esfahani, M., Mehrmohamadi, M., Steen, C. B., Hamilton, E. G., King, D. A., Soo, J., Macaulay, C., Jin, M., Kurtz, D. M., Nabet, B., Moding, E., Chabon, J., Newman, et al  
AMER ASSOC CANCER RESEARCH.2020
- **Circulating tumor DNA dynamics predict benefit from consolidation immunotherapy in locally advanced non-small-cell lung cancer** *NATURE CANCER*  
Moding, E. J., Liu, Y., Nabet, B. Y., Chabon, J. J., Chaudhuri, A. A., Hui, A. B., Bonilla, R. F., Ko, R. B., Gojenola, L., Jones, C. D., He, J., Qiao, Y., Heymach, et al  
2020; 1: 176–183

- **Circulating tumor DNA analysis to assess risk of progression after long-term response to PD-(L)1 blockade in NSCLC.** *Clinical cancer research : an official journal of the American Association for Cancer Research*  
Hellmann, M. D., Nabet, B. Y., Rizvi, H. n., Chaudhuri, A. A., Wells, D. K., Dunphy, M. P., Chabon, J. J., Liu, C. L., Hui, A. B., Arbour, K. C., Luo, J. n., Preeshagul, I. R., Moding, et al  
2020
- **Integrating genomic features for non-invasive early lung cancer detection.** *Nature*  
Chabon, J. J., Hamilton, E. G., Kurtz, D. M., Esfahani, M. S., Moding, E. J., Stehr, H. n., Schroers-Martin, J. n., Nabet, B. Y., Chen, B. n., Chaudhuri, A. A., Liu, C. L., Hui, A. B., Jin, et al  
2020; 580 (7802): 245–51
- **KEAP1/NFE2L2 mutations predict lung cancer radiation resistance that can be targeted by glutaminase inhibition.** *Cancer discovery*  
Binkley, M. S., Jeon, Y. J., Nesselbush, M. n., Moding, E. J., Nabet, B. Y., Almanza, D. n., Kunder, C. n., Stehr, H. n., Yoo, C. H., Rhee, S. n., Xiang, M. n., Chabon, J. J., Hamilton, et al  
2020
- **Noninvasive Early Identification of Therapeutic Benefit from Immune Checkpoint Inhibition.** *Cell*  
Nabet, B. Y., Esfahani, M. S., Moding, E. J., Hamilton, E. G., Chabon, J. J., Rizvi, H. n., Steen, C. B., Chaudhuri, A. A., Liu, C. L., Hui, A. B., Almanza, D. n., Stehr, H. n., Gojenola, et al  
2020
- **Predictors of Respiratory Decline Following Stereotactic Ablative Radiotherapy to Multiple Lung Tumors.** *Clinical lung cancer*  
Moding, E. J., Liang, R. n., Lartey, F. M., Maxim, P. G., Sung, A. n., Diehn, M. n., Loo, B. W., Gensheimer, M. F.  
2019
- **Prognostic factors and patterns of failure in advanced stage Hodgkin lymphoma treated with combined modality therapy.** *Radiotherapy and oncology : journal of the European Society for Therapeutic Radiology and Oncology*  
Moding, E. J., Advani, R., Rosenberg, S. A., Hoppe, R. T.  
2018; 129 (3): 507–12
- **Notch-Induced Myeloid Reprogramming in Spontaneous Pancreatic Ductal Adenocarcinoma by Dual Genetic Targeting** *CANCER RESEARCH*  
Cheung, P. F., Neff, F., Neander, C., Bazarna, A., Savvatakis, K., Liffers, S., Althoff, K., Lee, C., Moding, E. J., Kirsch, D. G., Saur, D., Bazhin, A. V., Trajkovic-Arsic, et al  
2018; 78 (17): 4997–5010
- **Mice Lacking RIP3 Kinase are not Protected from Acute Radiation Syndrome** *RADIATION RESEARCH*  
Castle, K. D., Daniel, A. R., Moding, E. J., Luo, L., Lee, C., Kirsch, D. G.  
2018; 189 (6): 627–33
- **Circulating tumor DNA testing in advanced non-small cell lung cancer.** *Lung cancer (Amsterdam, Netherlands)*  
Moding, E. J., Diehn, M., Wakelee, H. A.  
2018; 119: 42–47
- **Survival Impact of Postoperative Radiotherapy Timing in Pediatric and Adolescent Medulloblastoma.** *Neuro-oncology*  
Chin, A. L., Moding, E. J., Donaldson, S. S., Gibbs, I. C., Soltys, S. G., Hiniker, S. M., Pollom, E. L.  
2018
- **The Impact of Post-Operative Therapy on Primary Cardiac Sarcoma** *The Journal of Thoracic and Cardiovascular Surgery*  
Wu, Y., Million, L., Moding, E. J., Scott, G., Berry, M., Ganjoo, K. N.  
2018
- **Concurrent Imatinib and Radiation Therapy for Unresectable and Symptomatic Desmoid Tumors.** *Sarcoma*  
Moding, E. J., Million, L., Avedian, R., Ghanouni, P., Kunder, C., Ganjoo, K. N.  
2017; 2017: 2316839
- **An extra copy of p53 suppresses development of spontaneous Kras-driven but not radiation-induced cancer** *JCI INSIGHT*  
Moding, E. J., Min, H. D., Castle, K. D., Ali, M., Woodlief, L., Williams, N., Ma, Y., Kim, Y., Lee, C., Kirsch, D. G.  
2016; 1 (10)
- **Opportunities for Radiosensitization in the Stereotactic Body Radiation Therapy (SBRT) Era** *CANCER JOURNAL*  
Moding, E. J., Mowery, Y. M., Kirsch, D. G.

2016; 22 (4): 267–73

- **A dual energy CT study on vascular effects of gold nanoparticles in radiation therapy**  
Ashton, J. R., Hoyer, J., Deland, K., Whitley, M., Qi, Y., Moding, E., Kirsch, D. G., West, J., Badea, C. T., Gimi, B., Krol, A.  
SPIE-INT SOC OPTICAL ENGINEERING.2016
- **Acute DNA damage activates the tumour suppressor p53 to promote radiation-induced lymphoma** *NATURE COMMUNICATIONS*  
Lee, C., Castle, K. D., Moding, E. J., Blum, J. M., Williams, N., Luo, L., Ma, Y., Borst, L. B., Kim, Y., Kirsch, D. G.  
2015; 6: 8477
- **Tumor cells, but not endothelial cells, mediate eradication of primary sarcomas by stereotactic body radiation therapy** *SCIENCE TRANSLATIONAL MEDICINE*  
Moding, E. J., Castle, K. D., Perez, B. A., Oh, P., Min, H. D., Norris, H., Ma, Y., Cardona, D. M., Lee, C., Kirsch, D. G.  
2015; 7 (278): 278ra34
- **A Plasmonic Gold Nanostar Theranostic Probe for In Vivo Tumor Imaging and Photothermal Therapy** *THERANOSTICS*  
Liu, Y., Ashton, J. R., Moding, E. J., Yuan, H., Register, J. K., Fales, A. M., Choi, J., Whitley, M. J., Zhao, X., Qi, Y., Ma, Y., Vaidyanathan, G., Zalutsky, et al  
2015; 5 (9): 946–60
- **A next-generation dual-recombinase system for time- and host-specific targeting of pancreatic cancer** *NATURE MEDICINE*  
Schoenhuber, N., Seidler, B., Schuck, K., Veltkamp, C., Schachtler, C., Zukowska, M., Eser, S., Feyerabend, T. B., Paul, M. C., Eser, P., Klein, S., Lowy, A. M., Banerjee, et al  
2014; 20 (11): 1340–47
- **Atm deletion with dual recombinase technology preferentially radiosensitizes tumor endothelium** *JOURNAL OF CLINICAL INVESTIGATION*  
Moding, E. J., Lee, C., Castle, K. D., Oh, P., Mao, L., Zha, S., Min, H. D., Ma, Y., Das, S., Kirsch, D. G.  
2014; 124 (8): 3325–38
- **Reining in Radiation Injury: HIF2 alpha in the Gut** *SCIENCE TRANSLATIONAL MEDICINE*  
Lee, C., Moding, E. J., Kirsch, D. G.  
2014; 6 (236): 236fs20
- **Dual-Energy Micro-CT Functional Imaging of Primary Lung Cancer in Mice Using Gold and Iodine Nanoparticle Contrast Agents: A Validation Study** *PLOS ONE*  
Ashton, J. R., Clark, D. P., Moding, E. J., Ghaghada, K., Kirsch, D. G., West, J. L., Badea, C. T.  
2014; 9 (2): e88129
- **Strategies for optimizing the response of cancer and normal tissues to radiation** *NATURE REVIEWS DRUG DISCOVERY*  
Moding, E. J., Kastan, M. B., Kirsch, D. G.  
2013; 12 (7): 526–42
- **Dual-Energy Micro-Computed Tomography Imaging of Radiation-Induced Vascular Changes in Primary Mouse Sarcomas** *INTERNATIONAL JOURNAL OF RADIATION ONCOLOGY BIOLOGY PHYSICS*  
Moding, E. J., Clark, D. P., Qi, Y., Li, Y., Ma, Y., Ghaghada, K., Johnson, G., Kirsch, D. G., Badea, C. T.  
2013; 85 (5): 1353–59
- **In vivo characterization of tumor vasculature using iodine and gold nanoparticles and dual energy micro-CT** *PHYSICS IN MEDICINE AND BIOLOGY*  
Clark, D. P., Ghaghada, K., Moding, E. J., Kirsch, D. G., Badea, C. T.  
2013; 58 (6): 1683–1704
- **A comparison of radial keyhole strategies for high spatial and temporal resolution 4D contrast-enhanced MRI in small animal tumor models** *MEDICAL PHYSICS*  
Subashi, E., Moding, E. J., Cofer, G. P., MacFall, J. R., Kirsch, D. G., Qi, Y., Johnson, G.  
2013; 40 (2): 022304
- **p53 Functions in Endothelial Cells to Prevent Radiation-Induced Myocardial Injury in Mice** *SCIENCE SIGNALING*  
Lee, C., Moding, E. J., Cuneo, K. C., Li, Y., Sullivan, J. M., Mao, L., Washington, I., Jeffords, L. B., Rodrigues, R. C., Ma, Y., Das, S., Kontos, C. D., Kim, et al  
2012; 5 (234): ra52
- **Generation of primary tumors with Flp recombinase in FRT-flanked p53 mice** *DISEASE MODELS & MECHANISMS*  
Lee, C., Moding, E. J., Huang, X., Li, Y., Woodlief, L. Z., Rodrigues, R. C., Ma, Y., Kirsch, D. G.

2012; 5 (3): 397-402

- **p53 acts during total-body irradiation to promote lymphomagenesis**

Lee, C., Bium, J. M., Moding, E. J., Sullivan, J. M., Jeffords, L. B., Rodrigues, R. C., Ma, Y., Kim, Y., Kirsch, D. G.

AMER ASSOC CANCER RESEARCH.2012