



Everett J. Moding, MD, PhD

Assistant Professor of Radiation Oncology (Radiation Therapy)

Radiation Oncology - Radiation Therapy

 Curriculum Vitae available Online

CLINICAL OFFICE (PRIMARY)

- **Radiation Oncology**

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Bio

BIO

Dr. Moding is a physician scientist in the Department of Radiation Oncology at Stanford University. Clinically, he focuses on the treatment of patients with sarcomas using radiation therapy, and he is engaged in prospective and retrospective clinical research. He has diverse research expertise in pre-clinical models and next-generation sequencing based approaches to analyze human samples. He has used genetically engineered mouse models to study radiation biology and the contribution of the tumor microenvironment to cancer development and response to therapy. In addition, he has applied tumor genomics, transcriptomics, and circulating tumor DNA analysis to enable personalization of radiation therapy and other treatments in human cancers.

CLINICAL FOCUS

- Radiation Oncology
- Neoplasms, Connective and Soft Tissue

ACADEMIC APPOINTMENTS

- Assistant Professor, Radiation Oncology - Radiation Therapy
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute

HONORS AND AWARDS

- Barnes Chemistry Scholarship, Colorado College (8/2004-5/2008)
- First Year Chemistry Award, Colorado College (5/2005)
- William C. Champion Prize in Organic Chemistry, Colorado College (5/2006)
- American Chemistry Society Analytical Chemistry Award, Colorado College (5/2007)
- Summa Cum Laude, Colorado College (5/2008)
- Phi Beta Kappa Honor Society, Colorado College (5/2008)
- Merck Index Award in Biochemistry, Colorado College (5/2008)

- Frank Henry John Figge Award, Colorado College (5/2008)
- Alpha Lambda Delta Book Award, Colorado College (5/2008)
- Medical Scientist Training Program Fellowship, National Institutes of Health (8/2008-5/2015)
- Space Radiation Summer School Scholar, NASA (6/2011)
- Fitzgerald Academic Achievement Award, Duke University Department of Pharmacology and Cancer Biology (3/2013)
- Basic Science Abstract Award, ASTRO Annual Meeting (9/2014)
- Best Abstract Selection, ASTRO Annual Meeting (10/2014)
- B. Leonard Holman Research Pathway, American Board of Radiology (7/2018-6/2020)
- Kaplan Fellowship, Stanford University Department of Radiation Oncology (7/2019-6/2020)
- Fellows' Forum Participant, Society for Translational Oncology (1/2020)
- Young Investigator Award, Connective Tissue Oncology Society (11/2021)
- Invited Collaborative Researcher, Global Center for Biomedical Science and Engineering, Hokkaido University (4/2023)
- Sarah Donaldson Mentorship Award, Stanford Radiation Oncology (6/2023)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Radiation Research Society (2012 - present)
- Member, American College of Radiology (2016 - present)
- Member, Radiological Society of North America (2016 - present)
- Member, American Society for Radiation Oncology (2017 - present)
- Member, American Association for Cancer Research (2018 - present)
- Member, American Society of Clinical Oncology (2019 - present)
- Member, Connective Tissue Oncology Society (2022 - present)

PROFESSIONAL EDUCATION

- Residency: Stanford University Dept of Radiation Oncology (2020) CA
- BA, Colorado College , Biochemistry (2008)
- PhD, Duke University School of Medicine , Molecular Cancer Biology (2015)
- MD, Duke University School of Medicine , Medicine (2015)
- Internship, Moses H. Cone Memorial Hospital , Internal Medicine (2016)
- Residency, Stanford University Medical Center , Radiation Oncology (2020)
- Board Certification: Radiation Oncology, American Board of Radiology (2021)

LINKS

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

Research & Scholarship

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 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.

CLINICAL TRIALS

- 5-Day Preoperative Radiation for Soft Tissue Sarcoma, Recruiting

Teaching

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Marina Francis, Ziwei Wang

Publications

PUBLICATIONS

- **Sarcoma microenvironment cell states and ecosystems are associated with prognosis and predict response to immunotherapy.** *Nature cancer*
Subramanian, A., Nemat-Gorgani, N., Ellis-Caleo, T. J., van IJendoorn, D. G., Sears, T. J., Somani, A., Luca, B. A., Zhou, M. Y., Bradic, M., Torres, I. A., Oladipo, E., New, C., Kenney, et al
2024
- **Monitoring sarcoma response to immune checkpoint inhibition and local cryotherapy with circulating tumor DNA analysis.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
Bui, N. Q., Nemat-Gorgani, N., Subramanian, A., Torres, I. A., Lohman, M., Sears, T. J., van de Rijn, M., Charville, G. W., Becker, H. C., Wang, D. S., Hwang, G. L., Ganjoo, K. N., Moding, et al
2023
- **Detecting Liquid Remnants of Solid Tumors: Circulating Tumor DNA Minimal Residual Disease.** *Cancer discovery*
Moding, E. J., Nabet, B. Y., Alizadeh, A. A., Diehn, M.
2021
- **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., Yoo, C. H., Gojenola, L., Jones, C. D., He, J., Qiao, et al
2020; 1 (2): 176-183
- **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
- **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
- **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
- **56Fe-ion Exposure Increases the Incidence of Lung and Brain Tumors at a Similar Rate in Male and Female Mice.** *Radiation research*
Finkelstein, S. R., Patel, R., Deland, K., Mercer, J., Starr, B., Zhu, D., Min, H., Reinsvold, M., Campos, L. D., Williams, N., Luo, L., Ma, Y., Neff, et al
2024
- **Effect of palliative radiation dose on symptom response in metastatic sarcomas.** *Clinical and translational radiation oncology*
Matsui, J. K., Jackson, S., Fang, J., Million, L., Chin, A. L., Hiniker, S. M., Kalbasi, A., Moding, E. J.
2024; 48: 100803
- **Early Circulating Tumor DNA Shedding Kinetics for Prediction of Platinum Sensitivity in Patients With Small Cell Lung Cancer.** *JCO precision oncology*
Murciano-Goroff, Y. R., Hui, A. B., Araujo Filho, J. A., Hamilton, E. G., Chabon, J. J., Moding, E. J., Bonilla, R. F., Lebow, E. S., Gomez, D., Rimmer, A., Ginsberg, M. S., Offin, M., Kundra, et al
2024; 8: e2400216

- **Enhancing radiotherapy response via intratumoral injection of a TLR9 agonist in autochthonous murine sarcomas.** *JCI insight*
Su, C., Kent, C. L., Pierpoint, M., Floyd, W., Luo, L., Williams, N. T., Ma, Y., Peng, B., Lazarides, A. L., Subramanian, A., Himes, J. E., Perez, V. M., Hernansaiz-Ballesteros, et al
2024; 9 (14)
- **Opportunity in Complexity: Harnessing Molecular Biomarkers and Liquid Biopsies for Personalized Sarcoma Care.** *Seminars in radiation oncology*
Ewongwo, A., Hui, C., Moding, E. J.
2024; 34 (2): 195-206
- **Enhancing radiotherapy response via intratumoral injection of the TLR9 agonist CpG to stimulate CD8 T cells in an autochthonous mouse model of sarcoma.** *bioRxiv : the preprint server for biology*
Su, C., Kent, C. L., Pierpoint, M., Floyd, W., Luo, L., Williams, N. T., Ma, Y., Peng, B., Lazarides, A. L., Subramanian, A., Himes, J. E., Perez, V. M., Hernansaiz-Ballesteros, et al
2024
- **Predicting Adverse Cardiac Events After Radiotherapy for Locally Advanced Non-Small Cell Lung Cancer.** *JACC. CardioOncology*
No, H. J., Guo, F. B., Park, N. J., Kastelowitz, N., Rhee, J. W., Clark, D. E., Chin, A. L., Vitzthum, L. K., Horst, K. C., Moding, E. J., Loo, B. W., Diehn, M., Binkley, et al
2023; 5 (6): 775-787
- **Patterns of local recurrence and risk of skin recurrence in soft tissue sarcomas after surgical resection.** *Practical radiation oncology*
Ewongwo, A., Oladipo, E. D., Hui, C., Avedian, R. S., Steffner, R. J., Mohler, D. G., Kalbasi, A., Chin, A. L., Million, L., Hiniker, S. M., Moding, E. J.
2023
- **Characterizing the role of Phlda3 in the development of acute toxicity and malignant transformation of hematopoietic cells induced by total-body irradiation in mice.** *Scientific reports*
Hasapis, S., Caraballo, I., Sears, T. J., Brock, K. D., Cart, J. B., Moding, E. J., Lee, C.
2023; 13 (1): 12916
- **Investigating the tissue specificity and prognostic impact of cis-regulatory cancer risk variants.** *Human genetics*
Subramanian, A., Su, S., Moding, E. J., Binkley, M. S.
2023
- **Investigating and modeling positron emission tomography factors associated with large cell transformation from low-grade lymphomas.** *EJHaem*
Obeid, J. P., Hiniker, S. M., Schroers-Martin, J., Guo, H. H., No, H. J., Moding, E. J., Advani, R. H., Alizadeh, A. A., Hoppe, R. T., Binkley, M. S.
2023; 4 (1): 90-99
- **Local control outcomes using stereotactic body radiotherapy or surgical resection for metastatic sarcoma.** *International journal of radiation oncology, biology, physics*
Gutkin, P. M., von Eyben, R., Chin, A., Donaldson, S. S., Oh, J., Jiang, A., Ganjoo, K. N., Avedian, R. S., Bruzoni, M., Steffner, R. J., Moding, E. J., Hiniker, S. M.
2022
- **Inferring gene expression from cell-free DNA fragmentation profiles.** *Nature biotechnology*
Esfahani, M. S., Hamilton, E. G., Mehrmohamadi, M., Nabet, B. Y., Alig, S. K., King, D. A., Steen, C. B., Macaulay, C. W., Schultz, A., Nesselbush, M. C., Soo, J., Schroers-Martin, J. G., Chen, et al
2022
- **Enhanced detection of minimal residual disease by targeted sequencing of phased variants in circulating tumor DNA.** *Nature biotechnology*
Kurtz, D. M., Soo, J., Co Ting Keh, L., Alig, S., Chabon, J. J., Sworder, B. J., Schultz, A., Jin, M. C., Scherer, F., Garofalo, A., Macaulay, C. W., Hamilton, E. G., Chen, et al
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
- **Liquid Biopsies for Molecular Biology-Based Radiotherapy.** *International journal of molecular sciences*
Blomain, E. S., Moding, E. J.
2021; 22 (20)

- **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., Goljenola, 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
- **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., Schroers-Martin, J., Nabet, B. Y., Chen, B., Chaudhuri, A. A., Liu, C. L., Hui, A. B., Jin, et al
2020; 580 (7802): 245-251
- **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
- **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., Hoye, 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
- **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
- **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
- **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