



Tanya Stoyanova

Assistant Professor of Radiology (Cancer Early Detection-Canary Center)

CONTACT INFORMATION

- **Alternate Contact**

Rhea Scott - Administrative Associate

Email rheascott@stanford.edu

Tel (650) 723-4212

Bio

ACADEMIC APPOINTMENTS

- Assistant Professor, Radiology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute

HONORS AND AWARDS

- NCI R37 MERIT Award, National Cancer Institute (2020-2025)
- Society for Basic Urologic Research (SBUR) Young Investigator Award, Society for Basic Urologic Research (2020)
- Idea Development Award, Department of Defense, Prostate Cancer Research Program (2018-2021)
- McCormick and Gabilan Faculty Award, Stanford University (2016-2018)
- K99/R00 Pathway to Independence Award, National Institutes of Health/National Cancer Institute (2014-2019)
- 2014 Stewart Rahr Prostate Cancer Foundation Young Investigator Award, Prostate Cancer Foundation (2014-2017)
- 2014 Department of Pharmacology Retreat Award, University of California, Los Angeles, CA (2014)
- Chancellor's Award for Postdoctoral Research, University of California, Los Angeles, CA (2014)
- Postdoctoral Fellowship, Prostate Cancer Research Program, Department of Defense (2012-2014)
- Postdoctoral Fellowship, California Institute for Regenerative Medicine (2010-2012)
- SIGMA Xi Student Research Forum Award for Graduate and Professional Students 2008, University of Illinois, Chicago, IL (2008)
- SIGMA Xi Student Research Forum Award for Graduate and Professional Students 2007, University of Illinois, Chicago, IL (2007)
- Sally Frost Mason Outstanding Woman Student in Biological Sciences 2003, University of Kansas, Lawrence, KS (2003)
- Sally K. Frost Mason and Kenneth A. Mason Outstanding Senior 2003, Division of Biological Sciences, University of Kansas, Lawrence, KS (2003)
- Ruben Zadigan Environmental Studies Scholarship, University of Kansas, Lawrence, KS (2001-2003)

PROFESSIONAL EDUCATION

- Postdoctoral, University of California, Los Angeles, CA, USA , Stem cell and Cancer Biology (2015)
- PhD, University of Illinois, Chicago, IL, USA , Biochemistry and Molecular Genetics (2009)
- BS, University of Kansas, Lawrence, KS, USA , Genetics (2003)
- BS, Technical University of Varna, Varna, Bulgaria , Ecology and Protection of the Environment (2002)

PATENTS

- Meghan A. Rice, Vineet Kumar, Dhanir Tailor , Sanjay V. Malhotra and Tanya Stoyanova. "United States Patent 17/307,699 Methoxychalcone Derivative and Uses Thereof", Leland Stanford Junior University

LINKS

- Stoyanova Lab: <https://med.stanford.edu/stoyanovlab/research.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Stoyanova lab develops new early cancer detection methods and therapeutic strategies for late stage cancers. The current research focus is on protein-based biomarkers for early cancer detection as well as development of new small molecule inhibitors and antibody-based therapies for prostate and other epithelial cancers. The ultimate goals of the laboratory are to improve the early diagnosis and prognosis of clinically significant cancers and guide the development of novel and effective therapeutic strategies for metastatic prostate and other epithelial cancers.

Teaching

COURSES

2021-22

- Analytical Methods in Biotechnology: EE 235A (Win)
- Analytical Methods in Biotechnology II: EE 235B (Spr)

2020-21

- Analytical Methods in Biotechnology: EE 235 (Spr)
- Cancer Biology Journal Club: CBIO 280 (Win)

2019-20

- Cancer Biology Journal Club: CBIO 280 (Spr)

STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Busola Alabi, Shiqin Liu, Qingqing Yin

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Cancer Biology (Phd Program)

Publications

PUBLICATIONS

- **Correlation of 68Ga-RM2 PET with Post-Surgery Histopathology Findings in Patients with Newly Diagnosed Intermediate- or High-Risk Prostate Cancer.** *Journal of nuclear medicine : official publication, Society of Nuclear Medicine*

- Duan, H., Baratto, L., Fan, R. E., Soerensen, S. J., Liang, T., Chung, B. I., Thong, A. E., Gill, H., Kunder, C., Stoyanova, T., Rusu, M., Loening, A. M., Ghanouni, et al
2022
- **SU086, an inhibitor of HSP90, impairs glycolysis and represents a treatment strategy for advanced prostate cancer.** *Cell reports. Medicine*
Rice, M. A., Kumar, V., Tailor, D., Garcia-Marques, F. J., Hsu, E., Liu, S., Bermudez, A., Kanchustambham, V., Shankar, V., Inde, Z., Alabi, B. R., Muruganatham, A., Shen, et al
2022; 3 (2): 100502
 - **Protein signatures to distinguish aggressive from indolent prostate cancer.** *The Prostate*
Garcia-Marques, F., Liu, S., Totten, S. M., Bermudez, A., Tanimoto, C., Hsu, E. C., Nolley, R., Hembree, A., Stoyanova, T., Brooks, J. D., Pitteri, S. J.
2022
 - **Identifying a novel glycolytic inhibitor for treatment of aggressive prostate cancer.**
Stoyanova, T., Rice, M. A., Kumar, V., Tailor, D., Garcia-Marques, F., Bermudez, A., Kanchustambham, V., Shankar, V., Inde, Z., Pandrala, M., Nolley, R., Ghoochani, A., Liu, et al
AMER ASSOC CANCER RESEARCH.2021
 - **Trop2 regulates prostate cancer growth and metastasis through distinct molecular mechanisms.**
Stoyanova, T., Hsu, E., Liu, S., Marques, F., Bermudez, A., Aslan, M., Shen, M., Pitteri, S., Brooks, J. D.
AMER ASSOC CANCER RESEARCH.2021
 - **MCM2-7 complex is a novel druggable target for neuroendocrine prostate cancer.**
Stoyanova, T.
AMER ASSOC CANCER RESEARCH.2021
 - **A novel oncogene mediated metabolic gene signature predicts breast cancer outcome.**
Aslan, M., Hsu, E., Marques, F., Bermudez, A., Shen, M., Rice, M. A., Liu, S., West, R., Pitteri, S. J., Gyroffy, B., Stoyanova, T.
AMER ASSOC CANCER RESEARCH.2021
 - **Ferroptosis inducers are a novel therapeutic approach for advanced prostate cancer.** *Cancer research*
Ghoochani, A. n., Hsu, E. C., Aslan, M. n., Rice, M. A., Nguyen, H. M., Brooks, J. D., Corey, E. n., Paulmurugan, R. n., Stoyanova, T. n.
2021
 - **Engineering Polysaccharide-Based Hydrogel Photonic Constructs: From Multiscale Detection to the Biofabrication of Living Optical Fibers.** *Advanced materials (Deerfield Beach, Fla.)*
Guimarães, C. F., Ahmed, R., Mataji-Kojouri, A., Soto, F., Wang, J., Liu, S., Stoyanova, T., Marques, A. P., Reis, R. L., Demirci, U.
2021: e2105361
 - **Quantifying the invasion and migration ability of cancer cells with a 3D Matrigel drop invasion assay.** *Biology methods & protocols*
Aslan, M., Hsu, E. C., Liu, S., Stoyanova, T.
2021; 6 (1): bpab014
 - **MCM2-7 complex is a novel druggable target for neuroendocrine prostate cancer.** *Scientific reports*
Hsu, E. C., Shen, M., Aslan, M., Liu, S., Kumar, M., Garcia-Marques, F., Nguyen, H. M., Nolley, R., Pitteri, S. J., Corey, E., Brooks, J. D., Stoyanova, T.
2021; 11 (1): 13305
 - **Oncogene-mediated metabolic gene signature predicts breast cancer outcome.** *NPJ breast cancer*
Aslan, M., Hsu, E. C., Garcia-Marques, F. J., Bermudez, A., Liu, S., Shen, M., West, M., Zhang, C. A., Rice, M. A., Brooks, J. D., West, R., Pitteri, S. J., Gyroffy, et al
2021; 7 (1): 141
 - **Ultra-high-frequency radio-frequency acoustic molecular imaging with saline nanodroplets in living subjects.** *Nature nanotechnology*
Chen, Y. S., Zhao, Y. n., Beinath, C. n., Zlitni, A. n., Hsu, E. C., Chen, D. H., Achterberg, F. n., Wang, H. n., Stoyanova, T. n., Dionne, J. n., Gambhir, S. S.
2021
 - **The role of Trop2 in prostate cancer: an oncogene, biomarker, and therapeutic target** *AMERICAN JOURNAL OF CLINICAL AND EXPERIMENTAL UROLOGY*
Shen, M., Liu, S., Stoyanova, T.
2021; 9 (1): 73–87

- **Increasing Diversity in Radiology and Molecular Imaging: Current Challenges** *Molecular Imaging and Biology*
Fite, B. Z., Hinostroza, V., States, L. J., Hicks-Nelson, A., Baratto, L., Kallianos, K., Codari, M., Yu, B., Jha, P., Shams, M., Stoyanova, T., Chapelin, F. F., Liu, et al
2021
- **Discovery of CASP8 as a potential biomarker for high-risk prostate cancer through a high-multiplex immunoassay.** *Scientific reports*
Liu, S. n., Garcia-Marques, F. n., Zhang, C. A., Lee, J. J., Nolley, R. n., Shen, M. n., Hsu, E. C., Aslan, M. n., Koul, K. n., Pitteri, S. J., Brooks, J. D., Stoyanova, T. n.
2021; 11 (1): 7612
- **In vivo imaging of methionine aminopeptidase II for prostate cancer risk stratification.** *Cancer research*
Xie, J. n., Rice, M. A., Chen, Z. n., Cheng, Y. n., Hsu, E. C., Chen, M. n., Song, G. n., Cui, L. n., Zhou, K. n., Castillo, J. B., Zhang, C. A., Shen, B. n., Chin, et al
2021
- **Plectin is a regulator of prostate cancer growth and metastasis.** *Oncogene*
Buckup, M., Rice, M. A., Hsu, E., Garcia-Marques, F., Liu, S., Aslan, M., Bermudez, A., Huang, J., Pitteri, S. J., Stoyanova, T.
2020
- **Trop2 is a driver of metastatic prostate cancer with neuroendocrine phenotype via PARP1.** *Proceedings of the National Academy of Sciences of the United States of America*
Hsu, E. C., Rice, M. A., Bermudez, A. n., Marques, F. J., Aslan, M. n., Liu, S. n., Ghoochani, A. n., Zhang, C. A., Chen, Y. S., Zlitni, A. n., Kumar, S. n., Nolley, R. n., Habte, et al
2020
- **Discovery of PTN as a serum-based biomarker of pro-metastatic prostate cancer.** *British journal of cancer*
Liu, S. n., Shen, M. n., Hsu, E. C., Zhang, C. A., Garcia-Marques, F. n., Nolley, R. n., Koul, K. n., Rice, M. A., Aslan, M. n., Pitteri, S. J., Massie, C. n., George, A. n., Brooks, et al
2020
- **Gold Nanoclusters for NIR-II Fluorescence Imaging of Bones.** *Small (Weinheim an der Bergstrasse, Germany)*
Li, D. n., Liu, Q. n., Qi, Q. n., Shi, H. n., Hsu, E. C., Chen, W. n., Yuan, W. n., Wu, Y. n., Lin, S. n., Zeng, Y. n., Xiao, Z. n., Xu, L. n., Zhang, et al
2020: e2003851
- **Novel Aza-podophyllotoxin derivative induces oxidative phosphorylation and cell death via AMPK activation in triple-negative breast cancer.** *British journal of cancer*
Tailor, D. n., Going, C. C., Resendez, A. n., Kumar, V. n., Nambiar, D. K., Li, Y. n., Dheeraj, A. n., LaGory, E. L., Ghoochani, A. n., Birk, A. M., Stoyanova, T. n., Ye, J. n., Giaccia, et al
2020
- **Second-Generation Antiandrogens: From Discovery to Standard of Care in Castration Resistant Prostate Cancer** *FRONTIERS IN ONCOLOGY*
Rice, M. A., Malhotra, S., Stoyanova, T.
2019; 9
- **Loss of Notch1 Activity Inhibits Prostate Cancer Growth and Metastasis and Sensitizes Prostate Cancer Cells to Antiandrogen Therapies** *MOLECULAR CANCER THERAPEUTICS*
Rice, M. A., Hsu, E., Aslan, M., Ghoochani, A., Su, A., Stoyanova, T.
2019; 18 (7): 1230–42
- **Quantitative Proteomic Profiling Reveals Key Pathways in the Anticancer Action of Methoxychalcone Derivatives in Triple Negative Breast Cancer** *JOURNAL OF PROTEOME RESEARCH*
Going, C. C., Tailor, D., Kumar, V., Birk, A. M., Pandrala, M., Rice, M. A., Stoyanova, T., Malhotra, S., Pitteri, S. J.
2018; 17 (10): 3574–85
- **Defining new drivers of castration- resistant prostate cancer**
Hsu, E., Rice, M., Nolley, R., Bermudez, A., Huang, J., Peehl, D., Kunder, C., Pitteri, S., Brooks, J., Stoyanova, T.
AMER ASSOC CANCER RESEARCH.2018: 90
- **Methionine aminopeptidase II (MetAP2) activated in situ self-assembly of small-molecule probes for imaging prostate cancer.**
Xie, J., Rice, M., Cheng, Y., Song, G., Kunder, C., Brooks, J. D., Stoyanova, T., Rao, J.
AMER ASSOC CANCER RESEARCH.2018: 115–16

- **Biomarkers for Diagnosis and Prognosis of Prostate Cancer** *Prostatectomy*
Rice, M. A., Stoyanova, T.
2018
- **Therapeutic inhibition of Notch1 in metastatic prostate cancer**
Rice, M. A., Hsu, E., Stoyanova, T.
AMER ASSOC CANCER RESEARCH.2017
- **The Exosome Total Isolation Chip.** *ACS nano*
Liu, F. n., Vermesh, O. n., Mani, V. n., Ge, T. J., Madsen, S. J., Sabour, A. n., Hsu, E. C., Gowrishankar, G. n., Kanada, M. n., Jokerst, J. V., Sierra, R. G., Chang, E. n., Lau, et al
2017
- **Low CD38 Identifies Progenitor-like Inflammation-Associated Luminal Cells that Can Initiate Human Prostate Cancer and Predict Poor Outcome** *CELL REPORTS*
Liu, X., Grogan, T. R., Hieronymus, H., Hashimoto, T., Mottahedeh, J., Cheng, D., Zhang, L., Huang, K., Stoyanova, T., Park, J. W., Shkhyan, R. O., Nowroozizadeh, B., Rettig, et al
2016; 17 (10): 2596-2606
- **v-Src Oncogene Induces Trop2 Proteolytic Activation via Cyclin D1** *CANCER RESEARCH*
Ju, X., Jiao, X., Ertel, A., Casimiro, M. C., Di Sante, G., Deng, S., Li, Z., Di Rocco, A., Zhan, T., Hawkins, A., Stoyanova, T., Ando, S., Fatatis, et al
2016; 76 (22): 6723-6734
- **Activation of Notch1 synergizes with multiple pathways in promoting castration-resistant prostate cancer** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Stoyanova, T., Riedinger, M., Lin, S., Faltermeier, C. M., Smith, B. A., Zhang, K. X., Going, C. C., Goldstein, A. S., Lee, J. K., Drake, J. M., Rice, M. A., Hsu, E., Nowroozizadeh, et al
2016; 113 (42): E6457-E6466
- **Phosphoproteome Integration Reveals Patient-Specific Networks in Prostate Cancer** *CELL*
Drake, J. M., Paull, E. O., Graham, N. A., Lee, J. K., Smith, B. A., Titz, B., Stoyanova, T., Faltermeier, C. M., Uzunangelov, V., Carlin, D. E., Fleming, D. T., Wong, C. K., Newton, et al
2016
- **N-Myc Drives Neuroendocrine Prostate Cancer Initiated from Human Prostate Epithelial Cells** *CANCER CELL*
Lee, J. K., Phillips, J. W., Smith, B. A., Park, J. W., Stoyanova, T., McCaffrey, E. F., Baertsch, R., Sokolov, A., Meyerowitz, J. G., Mathis, C., Cheng, D., Stuart, J. M., Shokat, et al
2016; 11 (29)
- **NEW HORIZONS IN INTACT PROTEIN ANALYSIS: OPTIMIZATION OF TOP-DOWN PROTEIN ANALYSIS** *CHEMICAL & ENGINEERING NEWS*
Sharma, S., Mallick, P., Stoyanova, T., Mullen, C., Weisbrod, C., Canterbury, J., Horn, D., Zabrouskov, V.
2015: 12-14
- **Notch1 as a key mediator in promoting advanced castration-resistant prostate cancer**
Stoyanova, T., Faltermeier, C., Smith, B., Goldstein, A., Zhang, X., Drake, J., Lee, J., Orellana, S., Blum, S., Cheng, D., Pienta, K., Huang, J., Witte, et al
AMER ASSOC CANCER RESEARCH.2015
- **Multidisciplinary intervention of early, lethal metastatic prostate cancer: Report from the 2015 Coffey-Holden Prostate Cancer Academy Meeting** *PROSTATE*
Miyahira, A., Lang, J., Den, R., Garraway, I., Lotan, T., Ross, A., Stoyanova, T., Cho, S., Simons, J., Pienta, K., Soule, H.
2015
- **Distinct phases of human prostate cancer initiation and progression can be driven by different cell-types** *CANCER CELL MICROENVIRON*
Stoyanova, T., Goldstein, A.
2014
- **Metastatic castration-resistant prostate cancer reveals inpatient similarity and interpatient heterogeneity of therapeutic kinase targets** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Drake, J. M., Graham, N. A., Lee, J. K., Stoyanova, T., Faltermeier, C. M., Sud, S., Titz, B., Huang, J., Pienta, K. J., Graeber, T. G., Witte, O. N.
2013; 110 (49): E4762-E4769

- **Identification, characterization and targeting of Docetaxel-resistant prostate cancer cells** *ASIAN JOURNAL OF ANDROLOGY*
Stoyanova, T. I., Goldstein, A. S.
2013; 15 (1): 83-84
- **Prostate cancer originating in basal cells progresses to adenocarcinoma propagated by luminal-like cells** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Stoyanova, T., Cooper, A., Drake, J., Liu, X., Armstrong, A., Pienta, K., Zhang, H., Kohn, D., Huang, J., Witte, O., Goldstein, A.
2013
- **Regulated proteolysis of Trop2 drives epithelial hyperplasia and stem cell self-renewal via beta-catenin signaling** *GENES & DEVELOPMENT*
Stoyanova, T., Goldstein, A. S., Cai, H., Drake, J. M., Huang, J., Witte, O. N.
2012; 26 (20): 2271-2285
- **Collaboration of Kras and Androgen Receptor Signaling Stimulates EZH2 Expression and Tumor-Propagating Cells in Prostate Cancer** *CANCER RESEARCH*
Cai, H., Memarzadeh, S., Stoyanova, T., Beharry, Z., Kraft, A. S., Witte, O. N.
2012; 72 (18): 4672-4681
- **Oncogene-specific activation of tyrosine kinase networks during prostate cancer progression** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Drake, J. M., Graham, N. A., Stoyanova, T., Sedghi, A., Goldstein, A. S., Cai, H., Smith, D. A., Zhang, H., Komisopoulou, E., Huang, J., Graeber, T. G., Witte, O. N.
2012; 109 (5): 1643-1648
- **p21 Cooperates with DDB2 Protein in Suppression of Ultraviolet Ray-induced Skin Malignancies** *JOURNAL OF BIOLOGICAL CHEMISTRY*
Stoyanova, T., Roy, N., Bhattacharjee, S., Kopanja, D., Valli, T., Bagchi, S., Raychaudhuri, P.
2012; 287 (5): 3019-3028
- **Cul4A is essential for spermatogenesis and male fertility** *DEVELOPMENTAL BIOLOGY*
Kopanja, D., Roy, N., Stoyanova, T., Hess, R. A., Bagchi, S., Raychaudhuri, P.
2011; 352 (2): 278-287
- **SU086, a New Inhibitor of HSP90, Impairs Glycolysis and Represents a New Treatment Strategy for Advanced Prostate Cancer**
Rice, M., Kumar, V., Tailor, D., Garcia-Marques, F., Bermudez, A., Kanchustambham, V., Shankar, V., Inde, Z., Pandrala, M., Nolley, R., Liu, S., Aslan, M., Ghoochani, et al
2011
- **Primitive origins of prostate cancer: In vivo evidence for prostate-regenerating cells and prostate cancer-initiating cells** *MOLECULAR ONCOLOGY*
Goldstein, A. S., Stoyanova, T., Witte, O. N.
2010; 4 (5): 385-396
- **DDB2 (Damaged-DNA binding protein 2) in nucleotide excision repair and DNA damage response** *CELL CYCLE*
Stoyanova, T., Roy, N., Kopanja, D., Raychaudhuri, P., Bagchi, S.
2009; 8 (24): 4067-4071
- **Proliferation defects and genome instability in cells lacking Cul4A** *ONCOGENE*
Kopanja, D., Stoyanova, T., Okur, M. N., Huang, E., Bagchi, S., Raychaudhuri, P.
2009; 28 (26): 2456-2465
- **DDB2 decides cell fate following DNA damage** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Stoyanova, T., Roy, N., Kopanja, D., Bagchi, S., Raychaudhuri, P.
2009; 106 (26): 10690-10695
- **The xeroderma pigmentosum group E gene product DDB2 activates nucleotide excision repair by regulating the level of p21(Waf1/Cip1)** *MOLECULAR AND CELLULAR BIOLOGY*
Stoyanova, T., Yoon, T., Kopanja, D., Mokyry, M. B., Raychaudhuri, P.
2008; 28 (1): 177-187