

# Christopher E. Barbieri, M.D., Ph.D.

## *Curriculum Vitae*

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### EDUCATION

1998	Dartmouth College (Hanover, NH)	A.B.	Biophysical Chemistry
2005	Vanderbilt University (Nashville, TN)	Ph.D.	Biochemistry
2007	Vanderbilt University (Nashville, TN)	M.D.	Medicine

### PROFESSIONAL EXPERIENCE

2015-current	<b>Assistant Professor of Cell and Developmental Biology</b> Weill Cornell Medical College (New York, NY)
2014-current	<b>Assistant Professor of Urology</b> Weill Cornell Medical College (New York, NY)
2014-current	<b>Member, Sandra and Edward Meyer Cancer Center</b> Weill Cornell – New York Presbyterian Hospital (New York, NY)
2013-2014	<b>Fellow, Urologic Oncology</b> Weill Cornell – New York Presbyterian Hospital (New York, NY)
2012-2013	<b>Chief Resident, Urology</b> Weill Cornell – New York Presbyterian Hospital (New York, NY)
2008-2012	<b>Resident, Urology</b> Weill Cornell – New York Presbyterian Hospital (New York, NY)
2007-2008	<b>Intern, General Surgery</b> Weill Cornell – New York Presbyterian Hospital (New York, NY)
2001-2005	<b>Ph.D. Dissertation Research</b> Vanderbilt University School of Medicine, Department of Biochemistry (Nashville, TN). Mentor: Jennifer A. Pietsenpol, Ph.D.
1998-1999	<b>Research Intern, Janssen Research Foundation</b> (Springhouse, PA)

### HONORS AND AWARDS

2016	Damon Runyon Clinical Investigator Award
2016	AUA Rising Star in Urology Research Award
2015	AACR NextGen Star
2014	Prostate Cancer Foundation Challenge Award
2014	European Urology Reviewer of the Year
2014	European Urology Reviewer of the Month, October
2014	Career Development Award – National Cancer Institute
2013	Best Poster – SUO Winter Meeting
2013	Best Poster – AUA National Meeting, Prostate Cancer Basic Science Session
2012	Urology Care Foundation Research Scholar Award
2011	Prostate Cancer Foundation Young Investigator Award
2007	John G. Coniglio Prize in Biochemistry, Vanderbilt University
2007	Dean's Award for Research, Vanderbilt University
2006	Alpha Omega Alpha – Officer and Junior member

2005 First Place – Vanderbilt Ingram Cancer Center Poster Competition  
2003 Cunningham Award (awarded annually to top graduate student in Biochemistry)

## LICENSURE AND BOARD CERTIFICATION

NY Medical License  
Board Certified: American Board of Urology

## PEER REVIEW AND OTHER EXPERIENCE

2014 CDMRP Prostate Cancer Research Program Grant Review Panel  
2014 Prostate Cancer Foundation Movember – PCF Challenge Awards Review Panel  
2015- Member, AUA Research Council, Research Grants and Investigator Support Committee  
2016 Prostate Cancer Foundation Movember – PCF Challenge Awards Review Panel

Editorial Board: *European Urology*

Ad Hoc Reviewer: *Cancer Research* *Clinical Cancer Research*  
*Journal of Clinical Oncology* *Genes and Development*  
*Nature Genetics* *Journal of Urology*

## PUBLICATIONS

### For an up-to date full list, please see:

<http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/47889693/?sort=date&direction=ascending>

Mateo J, Boysen G, **Barbieri CE**, Bryant HE, Castro E, Nelson PS, Olmos D, Pritchard CC, Rubin MA, de Bono JS. [DNA Repair in Prostate Cancer: Biology and Clinical Implications](#). *Eur Urol*. 2016 Aug 30. pii: S0302-2838(16)30504-8. doi: 10.1016/j.eururo.2016.08.037. PMID: 27590317.

**Barbieri CE**, Chinnaiyan AM, Lerner SP, Swanton C, Rubin MA. [The Emergence of Precision Urologic Oncology: A Collaborative Review on Biomarker-driven Therapeutics](#). *Eur Urol*. 2016 Aug 23. pii: S0302-2838(16)30491-2. doi: 10.1016/j.eururo.2016.08.024. PMID: 27567210. **Corresponding author.**

Stone BV, Shoag J, Halpern JA, Mittal S, Lewicki P, Golombos DM, Bedretdinova D, Chughtai B, **Barbieri CE**, Lee RK. [Prostate size, nocturia and the digital rectal examination: a cohort study of 30 500 men](#). *BJU Int*. 2016 Aug 1. doi: 10.1111/bju.13613. PMID: 27480499.

Shoag J, Mittal S, Halpern JA, Scherr D, Hu JC, **Barbieri CE**. Lethal Prostate Cancer in the PLCO Cancer Screening Trial. (2016) *Eur Urol*. 2016 Mar 17. pii: S0302-2838(16)00060-9. doi: 10.1016/j.eururo.2016.01.009.

Shoag J, **Barbieri CE**. Clinical variability and molecular heterogeneity in prostate cancer. (2016) *Asian J Androl*. Apr 15. doi: 10.4103/1008-682X.178852.

Shoag J, Halpern JA, Lee DJ, Mittal S, Ballman KV, **Barbieri CE**, Hu JC. Decline in prostate cancer screening by primary care physicians: an analysis of trends in the use of digital rectal examination and prostate specific antigen testing. (2016) *J Urol*. Apr 5. pii: S0022-5347(16)30126-4. doi: 10.1016/j.juro.2016.03.171. **\*Shared senior authorship**

Kaffenberger SD, **Barbieri CE**. Invited Review: Molecular subtyping of prostate cancer. (2016) *Curr Opin Urol*. May;26(3):213-8. doi: 10.1097/MOU.0000000000000285.

Haffner MC, **Barbieri CE**. Invited Editorial: Shifting Paradigms for High-grade Prostatic Intraepithelial Neoplasia. (2015) *European Urology*. Dec 1. pii: S0302-2838(15)01170-7. doi: 10.1016/j.eururo.2015.11.020.

**The Cancer Genome Atlas Research Network**. The molecular taxonomy of primary prostate cancer. (2015) *Cell*. Nov 5;163(4):1011-25. doi: 10.1016/j.cell.2015.10.025.

Boysen G\*, **Barbieri CE\***, Prandi D, Blattner M, Chae SS, Dahiya A, Nataraj S, Huang D, Marotz C, Xu L, Huang J, Lecca P, Chhangawala S, Liu D, Zhou P, Sboner A, de Bono JS, Demichelis F, Houvras Y, and Rubin, MA. SPOP mutation leads to genomic instability in prostate cancer. (2015) *eLife*. In Press. **Co-first author, co-corresponding author**.

Shoag J, Halpern J, Eisner B, Lee R, Mittal S, **Barbieri CE**, and Shoag, D. Efficacy of Prostate-Specific Antigen Screening: Use of Regression Discontinuity in the PLCO Cancer Screening Trial. (2015) *JAMA oncology*. 1(7):984-6. doi: 10.1001/jamaoncol.2015.2993.

**Barbieri C.E.** and Rubin, M.A. Invited Review: Genomic Rearrangements in Prostate Cancer. (2014) *Curr Opin Urol*. 66(1): 40-1. doi: 10.1016/j.eururo.2013.08.056.

Miyahira AK, Kissick HT, Bishop JL, Takeda DY, **Barbieri CE**, Simons JW, Pienta KJ, Soule HR. Beyond immune checkpoint blockade: New approaches to targeting host-tumor interactions in prostate cancer: Report from the 2014 Coffey-Holden prostate cancer Academy meeting. (2014) *Prostate*. doi: 10.1002/pros.22920. *In Press*.

Prandi D, Baca SC, Romanel A, **Barbieri CE**, Mosquera J, Fontugne J, Beltran H, Sboner A, Garraway LA, Rubin MA, Demichelis F. Unraveling the clonal hierarchy of somatic genomic aberrations. (2014) *Genome Biol*. Aug 26;15(8):439.

Khani F., Mosquera J.M., Park K., Blattner M., O'Reilly C., MacDonald T.Y., Chen Z., Srivastava A., Tewari A.K., **Barbieri C.E.**, Rubin M.A., Robinson B.D. Evidence for Molecular Differences in Prostate Cancer between African American and Caucasian Men. (2014) *Clin Cancer Res*. pii: clincanres.2265.2013.

Fontugne, J., Lee, D., Cantaloni, C., **Barbieri, C.E.**, Caffo, O., Hanspeter, E., Mazzoleni G., Dalla Palma P., Rubin M.A., Fellin G., Mosquera J.M., Barbareschi M., and Demichelis, F. (2014). Recurrent Prostate Cancer Genomic Alterations Predict Response to Brachytherapy Treatment. *Cancer Epidemiology Biomarkers & Prevention*, 23(4):594-600. doi: 10.1158/1055-9965.

**Barbieri, C.E.**, Demichelis, F., and Rubin, M.A. Invited Editorial: The Lethal Clone in Prostate Cancer – Redefining the Index. (2014) *Eur Urol*. Jan 2. doi: 10.1016/j.eururo.2013.12.052.

Blattner, M., Lee, D., O'Reilly, C., Park, K., MacDonald, T.Y., Khani, F., Turner, K.R., Chiu, Y.L., Peter J Wild, P.J., Igor Dolgalev, I., Heguy, A., Sboner, A., Sinan Ramazangolu, S., Hieronymus, H., Sawyers, C.L., Tewari, A.K., Moch, H., Yoon, G.S, Known, Y.C., Andr n, O., Fall, K., Demichelis, F., Mosquera, J.M., Robinson, B.D., **Barbieri, C.E.\***, and Rubin, M.A.\* SPOP mutations in prostate cancer across demographically diverse patient cohorts. (2014) *Neoplasia*. 16(1):14-20. **\*Shared senior authorship**

Park, K., Dalton, J.T., Narayanan, R., **Barbieri, C.E.**, Hancock, M.L., Bostwick, D.G., Steiner, M.S., and Rubin, M.A. TMPRSS2:ERG Gene Fusion Predicts Subsequent Detection of Prostate Cancer in Patients with High-Grade Prostatic Intraepithelial Neoplasia. (2014) *J Clin Oncol*. 20;32(3):206-11. doi: 10.1200/JCO.2013.49.8386.

**Barbieri C.E.**, Invited Editorial: Evolution of Novel Biomarkers for Detection of Prostate Cancer. (2013) *J Urol*. Dec;190(6):1970-1. doi: 10.1016/j.juro.2013.09.018.

**Barbieri C.E.** and Rubin, M.A. Invited Editorial: Molecular Characterization of Prostate Cancer Following Androgen Deprivation: The Devil in the Details. (2013) *Eur Urol*. 66(1): 40-1. doi: 10.1016/j.eururo.2013.08.056.

**Barbieri C.E.** and Tomlins, S.A. The Prostate Cancer Genome: Perspectives and Potential. (2014) *Urol Oncol.* 32(1):53.e15-22. doi: 10.1016/j.urolonc.2013.08.025.

**Barbieri C.E.**, Bangma C.H., Bjartell A., Catto J.W., Culig Z., Grönberg H., Luo J., Visakorpi T., Rubin M.A. The Mutational Landscape of Prostate Cancer. (2013) *Eur Urol.* doi: 10.1016/j.eururo.2013.05.029.

**Corresponding author.**

Geng, C., He, B., Xu, L., **Barbieri, C.E.**, Eedunuri, V.K., Chew, S.A., Zimmermann, M., Bond, R., Shou, J., Li, C., Blattner, M., Lonard, D.M., Demichelis, F., Coarfa, C., Rubin, M.A., Zhou, P., O'Malley, B.W., and Mitsiades, N. Prostate cancer-associated mutations in speckle-type POZ protein (SPOP) regulate steroid receptor coactivator 3 protein turnover. (2013) *PNAS.* 110 (17):6997-7002

Baca, S.C., Prandi, D., Lawrence, M.S., Mosquera, J.M., Romanel, A., Drier, Y., Park, K., Kitabayashi, N., MacDonald, T.Y., Ghandi, M., Van Allen, E., Kryukov, G.V., Sboner, A., Theurillat, J.P., Soong, T.D., Nickerson, E., Auclair, D., Tewari, A., Beltran, H., Onofrio, R.C., Boysen, G., Guiducci, C., **Barbieri, C.E.**, Cibulskis, K., Sivachenko, A., Carter, S.L., Saksena, G., Voet, D., Ramos, A.H., Winckler, W., Cipicchio, M., Ardlie, K., Kantoff, P.W., Berger, M.F., Gabriel, S.B., Golub, T.R., Meyerson, M., Lander, E.S., Elemento, O., Getz, G., Demichelis, F., Rubin, M.A., and Garraway, L.A. Punctuated Evolution of Prostate Cancer Genomes. (2013) *Cell.* 153(3):666-77.

Stahl P.J., Mielnik A., **Barbieri C.E.**, Schlegel P.N., and Paduch D.A. Deletion or underexpression of the Y-chromosome genes CDY2 and HSFY is associated with maturation arrest in American men with nonobstructive azoospermia.. (2012). *Asian J Androl.* 14 (5):676-82.

**Barbieri, C.E.\***, Baca, S.C.\* , Lawrence, M.S.\* , Demichelis F., Blattner, M., Theurillat, J.P., White, T.A., Stojanov, P., Van Allen, E., Stransky, N., Nickerson, E., Chae, S.S., Boysen, G., Auclair, D., Onofrio, R., Park, K., Kitabayashi, N., MacDonald, T.Y., Sheikh, K., Vuong, T., Guiducci, C., Cibulskis, K., Sivachenko, A., Carter, S.L., Saksena, G., Voet, D., Hussain W.M., Ramos, A.H., Winckler, W., Redman, M.C., Ardlie, K., Mosquera, J.M., Rupp, N., Wild, P.J., Moch, H., Morissey, C., Nelson, P.S., Kantoff, P.W., Gabriel, S.B., Golub, T.R., Meyerson, M., Lander, E.S., Getz, G., Rubin, M.A. and Garraway, L.A. Exome sequencing identifies recurrent SPOP, FOXA1 and MED12 mutations in prostate cancer. (2012) *Nat Genet.* 44(6):685-9.

Esgueva, R., Park, K., Kim, R., Kitabayashi, N., **Barbieri, C.E.**, Dorsey, P.J., Abraham, C., Banerjee, S., Leung, R.A., Tewari, A.K., Terry, S., Shevchuk, M.M., Rickman, D.S., and Rubin, M.A. Next generation prostate cancer biobanking: towards a processing protocol amenable for the International Cancer Genome Consortium. (2012) *Diagn Mol Pathol.* 21 (2): 61-8.

**Barbieri C.E.**, Demichelis F., and Rubin M.A. Molecular genetics of prostate cancer: emerging appreciation of genetic complexity. (2011) *Histopathology.* 60(1):187-98.

Shariat S.F., Chromecki T.F., Hofer J., **Barbieri C.E.**, Scherr D.S., Karakiewicz P.I., Roehrborn C.G., Montorsi F., Culig Z., Cavarretta I.T. Soluble gp130 regulates prostate cancer invasion and progression in an interleukin-6 dependent and independent manner. (2011) *J Urol,* 186 (5): 2107-14.

**Barbieri C.E.**, Cha E.K., Chromecki T.F., Dunning A., Lotan Y., Svatek R.S., Scherr D.S., Karakiewicz P.I., Sun, M., Robinson B., and Shariat S.F. Decision Curve Analysis Assessing the Clinical Benefit of NMP22 in the Detection of Bladder Cancer: Secondary Analysis of a Prospective Trial. (2012) *BJU Int.,* 109 (5): 685-90.

**Barbieri, C.E.**, Schwartz, M.J., Boorjian, S.A., Lee, M.M., and Scherr, D.S. Ureteroileal anastomosis with intraluminal visualization: technique and outcomes. (2010) *Urology,* 76(6): 1496-1500.

Barton C.E.\*, Tahinci E.\*, **Barbieri C.E.\***, Johnson K.N., Hanson A.J., Jernigan K.K., Chen T.W., Lee E., and Pietenpol J.A. DeltaNp63 antagonizes p53 to regulate mesoderm induction in *Xenopus laevis*. (2009) *Dev Biol.,* 329(1): 130-9. \*These authors contributed equally to this work

**Barbieri, C.E.**, Lee, B., Cookson, M.S., Bingham, J., Clark, P.E., Smith, J.A. Jr, and Chang, S.S. Association of procedure volume with radical cystectomy outcomes in a nationwide database. (2007) *J. Urol.*, 178 (4 Pt 1): 1418-21.

**Barbieri, C.E.**, Tang, L.J., Brown, K.A., and Pietenpol J.A. Loss of p63 leads to increased cell migration and up-regulation of genes involved in invasion and metastasis. (2006) *Cancer Res.*, 66(15): 7589-97.

Hinow, P., Rogers, C.E., **Barbieri, C.E.**, Pietenpol, J.A., Kenworthy, A.K., and DiBenedetto, E. The DNA binding activity of p53 displays reaction-diffusion kinetics. (2006) *Biophys J.*, 91(1): 330-42.

**Barbieri, C.E.** and Pietenpol, J.A. p63 and epithelial biology. (2006) *Exp Cell Res.*, 312(6): 695-706.

**Barbieri, C.E.** and Pietenpol, J.A. p53 family members: similar biochemistry, different biology. (2005) *Cancer Biol Ther.*, 4(4): 419-420.

**Barbieri, C.E.**, Perez, C.A., Johnson, K.N., Ely, K.A., Billheimer, D., and Pietenpol, J.A. IGFBP-3 is a direct target of transcription regulation by  $\Delta Np63\alpha$  in squamous epithelium. (2005) *Cancer Res.*, 65(6): 2314-20.

Westfall, M.W., Joyner, A.S., **Barbieri, C.E.**, Livingstone M., and Pietenpol, J.A. Ultraviolet radiation induces phosphorylation and ubiquitin-mediated degradation of  $\Delta Np63\alpha$ . (2005) *Cell Cycle*, 4(5): 710-6.

**Barbieri, C.E.**, Barton, C.E., and Pietenpol, J.A.  $\Delta Np63\alpha$  expression is regulated by the phosphoinositide-3-kinase pathway. (2003) *J. Biol. Chem.*, 278(51): 51408-14.

Matheny, K.E.\*, **Barbieri, C.E.\***, Sniezek, J.C., Arteaga, C.L., and Pietenpol, J.A. Inhibition of EGF receptor signaling decreases p63 expression in head and neck squamous carcinoma cells. (2003) *Laryngoscope*, 113: 936-939. \*These authors contributed equally to this work

## INVITED PRESENTATIONS

- 2015 Genomic Classification of Prostate Cancer. Columbia University Medical Center Department of Urology Grand Rounds, New York, NY. (Invited talk).
- 2015 Genomic Instability in Prostate Cancer. University of Mississippi Medical Center Cancer Institute Seminar, Jackson, MS (Invited Talk)
- 2015 SPOP Mutation is Associated with Genomic Instability in Prostate Cancer. 2015 AACR Annual Meeting, Philadelphia PA (Invited talk)
- 2014 SPOP Mutations in Prostate Cancer. AUA-NCI Joint SPORE Workshop, 2014 AUA Annual Meeting, Orlando, FL. (Invited talk).
- 2014 Genomic Classification of Prostate Cancer – Present and Future. Emory University Department of Urology Grand Rounds, Atlanta, GA. (Invited talk).
- 2013 Prognostic PCA3 and TMPRSS2-ERG Urinary Biomarkers. 2013 NCI Prostate SPORE-SUO Workshop at Society of Urologic Oncology Winter Meeting, Bethesda, MD. (Invited talk).
- 2013 Prostate Biomarkers Wrap-up Panel. 2013 NCI Prostate SPORE-SUO Workshop at Society of Urologic Oncology Winter Meeting, Bethesda, MD. (Panel Member).
- 2013 SPOP Mutations: Defining a Distinct Molecular Class of Prostate Cancer. 20<sup>th</sup> Annual PCF Scientific Retreat, National Harbor, MD (Invited talk).

## GRANT SUPPORT

### ACTIVE

K08 CA187417 (PI Barbieri) 7/1/14-6/30/19  
National Cancer Institute (NIH)

*“Genomic instability and DNA repair in a distinct molecular class of prostate cancer”*

The major goals of this project are to define mechanisms of DNA repair alterations and translational implications in *SPOP* mutant prostate cancers.

2014 PCF Challenge Award (PI Barbieri) 1/01/15-12/31/16  
Prostate Cancer Foundation

*“Targeting genomic instability in SPOP mutant prostate cancer”*

The major goals of this project are to use preclinical models to define therapeutic agents specifically targeting *SPOP* mutant prostate cancers and define response of *SPOP* mutant prostate cancers in clinical trials of DNA damaging therapeutic agents.

2016 Damon Runyon Clinical Investigator Award (PI Barbieri) 7/01/16-6/30/19  
Damon Runyon Cancer Research Foundation

*Presurgical Trials to Target Distinct Subclasses of Localized Prostate Cancer*

The major goals of this project are to use presurgical trials to define predictors of response to novel therapeutic agents in clinically localized prostate cancer.

### COMPLETED

2013 Research Scholar Award (PI Barbieri) 7/1/13-6/30/14  
Urology Care Foundation

2011 PCF Young Investigator Award (PI Barbieri) 11/01/11-10/31/14  
Prostate Cancer Foundation

The major goals of this project are to develop *in vivo* models of *SPOP* mutation and define the role of collaborating genomic events.

2014 CTSC Pilot Award (PI Barbieri) 6/1/14-5/30/16  
Weill Cornell CTSC

*“Molecular Profiling of Benign Prostatic Hyperplasia”*

The major goals of this project are to perform integrative molecular analysis of BPH to discover novel alterations and therapeutic targets.