BIOGRAPHICAL SKETCH

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NAME: Parker, Alexander S.

eRA COMMONS USER NAME: APARKER

POSITION TITLE: Professor of Epidemiology and Urology

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of North Carolina, Chapel Hill, NC	B.A.	05/1992	Biology/Chemistry
University of Iowa, Iowa City, IA	M.S.	05/1998	Preventive Medicine
University of Iowa, Iowa City, IA	Ph.D.	08/2000	Epidemiology
Mayo Clinic College of Medicine, Rochester, MN	Fellow	01/2004	Molecular Epidemiology

A. Personal Statement

In this application, Dr. Pahor and colleagues describe plans to build and execute a resource that will address a wide variety of pressing issues related to aging in targeted populaitons. Indeed, this application will support the development and implementation of behavioral, nutritional, and pharmacologic clinical trials, and observational studies of social determinants of health contributing to chronic diseases and functional decline in underserved, minority and low SES older adults. As such, this resource will allow for better understanding of approaches to healthy aging and the management of these issues in both a clinical and community-based population.

Related to this, I am particularly well suited to serve in the role of local Principal Investigator given my complementary expertise in epidemiology, genetics and population health as well as my demonstrated expertise in the field of cancer and biomarker research. Moreover, in my role as the local Dean for Research and Director of Precision Medicine, I can and will provide unfettered access to additional resources as needed from the University of Florida College of Medicine Jacksonville. As such, I am excited about this opportunity to help lead this important and highly translational effort that will help address a wide variety of issues related to aging in both the clinical and community populations.

B. Positions and Honors

Positions and Employment

2000 - 2003	Research Associate, Department of Health Sciences Research, Mayo Clinic, Rochester, MN
2004 - 2010	Assistant Professor of Epidemiology, Mayo Clinic College of Medicine, Jacksonville, FL
2011 - 2014	Associate Professor of Epidemiology, Mayo Clinic College of Medicine, Jacksonville, FL
2011 - 2014	Associate Professor of Urology, Mayo Clinic College of Medicine, Jacksonville, FL
2011 - Present	Chair, Division of Health Sciences Research, Mayo Clinic Florida, Jacksonville, FL
2011 - Present	Associate Director, Center for Individualized Medicine, Mayo Clinic Florida, Jacksonville, FL
2014 - 2018	Vice Chair, Clinical Research Resources, Mayo Clinic Florida, Jacksonville, FL
2014 - 2018	Professor of Epidemiology, Mayo Clinic College of Medicine, Jacksonville, FL
2014 - 2018	Professor of Urology, Mayo Clinic College of Medicine, Jacksonville, FL
2018 – present	Professor of Epidemiology and Urology, University of Florida
2018 – present	Senior Associate Dean for Research, University of Florida College of Medicine – Jacksonville, FL
2018 – present	Director, Precision Medicine Program, University of Florida College of Medicine – Jacksonville, FL

Other Experience and Professional Memberships

2000 - Present	Member, American Association for Cancer Research
2000 - Present	Member, American Society of Preventive Oncology
2000 - Present	Member, American College of Epidemiology
2004 - Present	Finance Committee, American College of Epidemiology
2004 - Present	Membership Committee, American College of Epidemiology
2007 - 2010	Chair, CHS-EPI section, Prostate Cancer Research Program, CDMRP, Department of Defense
2010 - 2011	Chair, Prevention Initiative Study Section, Canadian Cancer Society Research Institute
2010 - Present	Associate Editor, American Journal of Epidemiology
2010 - 2013	Associate Editor, BMC Urology
2013 - Present	Section Editor, BMC Urology

Honors

1990	Phi Sigma Pi National Honor Fraternity, University of North Carolina at Chapel Hill
1998	Pre-doctoral Research Trainee, National Institute of Environmental Health Sciences, National Institutes of Health, Bethesda, MD
1999	Best Student Poster, American College of Epidemiology National Meeting
2000	Milford E. Barnes Outstanding Student Award, Department of Epidemiology, Univ. of Iowa
2001	American Society of Preventive Oncology/Cancer Research Foundation of America Cancer Prevention Research Fellowship
2001	Mayo Cancer Genetic Epidemiology R25 Training Program (MCGETP) Fellowship
2005	Chair, Renal Cancer Working Group, 2nd NCI Epidemiology Leadership Workshop
2007	Best of Posters, American Urological Association, Annual Meeting, Anaheim, CA
2009, 2010	Top Abstract, American Society for Preventive Oncology National Meeting
2014	Healthcare Hero, Jacksonville Business Journal, Jacksonville, FL

C. Contribution to Science

1. **Improved understanding of the etiology of RCC.** We must make advancements in our understanding of the factors that increase risk of developing RCC if we are to make meaningful advances in prevention and inform on high-risk groups for potential targeted screening. To date however, smoking, obesity and hypertension are the only established risk factors for RCC. More troubling is that these factors account for only 50% of the cases diagnosed each year and there is little evidence regarding how these exposures act within the kidney at a molecular level to in risk RCC risk. The manuscripts below indicate my success in exploring new risk factors for ccRCC, including an inverse association with alcohol consumption (the first report to focus on this association) and a positive association with history of urinary tract infections that is strongest among male smokers (OR=9.7; 95%CI 5.0 -18.1). In addition to exploring new risk factors, Dr. Eckel Passow and I have published together the first reports to provide evidence that obesity may be linked to risk of ccRCC through up-regulation of the ENRAGE protein while smoking may affect RCC risk through overexpression of ANKS1B. From a public health standpoint, I was also the first to report on the lack of awareness regarding risk factors for RCC, supporting a movement at our institution and others to enhance education efforts in the Urology practice. Finally, I have successfully partnered with my clinical colleagues to underscore that the incidence of RCC is increasing across gender, race and age groups. Related to the latter, our age-period-cohort models suggest that period-related factors alone cannot account for these unfavorable temporal trends. Thus, my work in this area has not only illuminated new risk factors for RCC and novel mechanisms through which the established risk factors act to increase RCC risk, but I have also underscored the need to continue these important efforts.
    a. Parker AS, Cerhan JR, Lynch CF, Ershow AG, Cantor KR. Gender, alcohol consumption, and renal cell carcinoma. Am J Epidemiol. 2002 Mar 1; 155(5):455-62. PMID:11867357.
    b. Eckel-Passow JE, Serie DJ, Bot BM, Joseph RW, Hart SN, Cheville JC, Parker AS. Somatic expression of ENRAGE is associated with obesity status among patients with clear cell renal cell carcinoma. Carcinogenesis. 2014 Apr; 35(4):822-7. PMC3977147.
    c. Eckel-Passow JE, Serie DJ, Bot BM, Joseph RW, Cheville JC, Parker AS. ANKS1B is a smoking-related molecular alteration in clear cell renal cell carcinoma. BMC Urol. 2014; 14:14. PMC3944917.

d. Parker AS, Arnold ML, Diehl ND, Hassan L, Thiel DD. Evaluation of awareness of risk factors for kidney cancer among patients presenting to a urology clinic. Scand J Urol. 2014 Jun; 48(3):239-44. PMID:24328689.

2. **Identified clinical and lifestyle factors associated with risk of ccRCC-specific death.** Mortality for ccRCC has remained steady for over three decades and this is due in part to the lack of an ability to accurately determine which patients with localized disease will be among the 25-30% who develop metastasis and die from their disease following curative surgery. The ultimate goal is to provide the urologic surgeon with easy, low cost measures that can provide more robust forecasting of ccRCC prognosis that will allow more effective counseling of patients with regard to post-operative care (e.g. imaging surveillance, enrollment on trials for adjuvant therapies). To this end, I have had considerable success in identifying clinical features associated with ccRCC patient outcome, most notably the Mayo Progression score (which combines 4 routine pathologic features in to a more robust algorithm to predict ccRCC recurrence after surgery) and more recently the Mayo Adhesion Probability (MAP) score (which combines features on radiographic imaging related to peri-nephric fat to predict both the difficultness of laparoscopic surgery and risk of ccRCC specific death). Both algorithms were developed in to web-based applications to help counsel patients both inside and outside of Mayo Clinic. My resident and I were also the first to report on the role of kidney size and ccRCC outcome, which lead to eventual papers (not shown) on the value of using three-dimensional tumor volume relative to kidney size rather than tumor size alone when calculating outcome predictions. Finally, I have also reported on the association of smoking and poor outcome following surgery as well as the association of higher body mass index with better outcome. Of note, the latter has been combined with our results from the MAP score paper to launch a new inquiry in to the obesity paradox in ccRCC (that is, obesity increases risk but is associated with better outcome). Below I provide a sample of publications showing my range of involvement from first and senior author to that of collaborative author with my clinical colleagues.
    a. Leibovich BC, Blute ML, Cheville JC, Lohse CM, Frank I, Kwon ED, Weaver AL, Parker AS, Zincke H. Prediction of progression after radical nephrectomy for patients with clear cell renal cell carcinoma - A stratification tool for prospective clinical trials. Cancer. 2003 Apr 1; 97(7):1663-71. PMID:12655523.
    b. Davidiuk AJ, Parker AS, Thomas CS, Leibovich BC, Castle EP, Heckman MG, Custer K, Thiel DD. Mayo Adhesive Probability Score: An Accurate Image-based Scoring System to Predict Adherent Perinephric Fat in Partial Nephrectomy. Eur Urol. 2014 Dec; 66(6):1165-71. PMID:25192968
    c. Jorns JJ, Thiel DD, Lohse C, Williams A, Arnold M, Cheville J, Leibovich B, Parker AS. Kidney size and cancer-specific survival for patients undergoing nephrectomy for pT1 clear cell renal cell carcinoma. Urology. 2012 Jul; 80(1):147-50. PMID:22748870.
    d. Parker A, Lohse C, Cheville J, Leibovich B, Igel T, Blute M. Evaluation of the association of current cigarette smoking and outcome for patients with clear cell renal cell carcinoma. Int J Urol. 2008 Apr; 15(4):304-8. PMID:18380816.

3. **Discovery/validation of tumor-based biomarkers of ccRCC aggressiveness and cancer-specific death.** As discussed above, a primary concern for ccRCC patients in the uncertainty regarding prognosis following surgery for what appears to be a localized tumor (~20-30% will progress to metastasis and die). Related to this, the available biological therapies for ccRCC in the adjuvant and metastatic setting are limited and very ineffective. As such, I have spent considerable effort understanding what molecular features within ccRCC tumors portend a bad prognosis (to assist further in counseling patients) and at the same are logical targets for the development of new therapies. To this end, I have built and leveraged one of the largest cohorts of ccRCC patients with long-term follow-up in order to identify several prognostic biomarkers for ccRCC, highlighted by the combination of a panel of three markers (survivin, B7H1 and ki-67) in to the first biomarker-based scoring algorithm for ccRCC outcome (which we termed “BioScore”). Related to this, Dr. Eckel Passow and I have partnered more recently to report on strong positive associations with over expression of topoisomerase IIa and loss of BAP1 expression and risk of ccRCC-specific death. As part of my R01, Dr. Eckel Passow and I are currently merging selected biomarkers in to our original BioScore panel and will then move it in to CLIA production through a partnership with our Department of Pathology. With regard to treatment and new therapeutics, I have a patent that Mayo has licensed to MedImmune to target survivin and B7H1 that was based off of my co-senior author paper with Dr. Eugene Kwon. Finally, Dr. Eckel Passow and I have furthered the discourse in the literature (including

letters to the Editor in leading journals) regarding the most relevant utilization of tumor-based biomarkers for ccRCC prognosis given the existing strong predictive ability of scoring systems like the Mayo Progression score, MAP score and others (which are based on features that are readily available and free).

a. Parker AS, Leibovich BC, Lohse CM, Sheinin Y, Kuntz SM, Eckel-Passow JE, Blute ML, Kwon ED. Development and evaluation of BioScore: a biomarker panel to enhance prognostic algorithms for clear cell renal cell carcinoma. Cancer. 2009 May 15; 115(10):2092-103. PMC:2789398.
b. Parker AS, Eckel-Passow JE, Serie D, Hilton T, Parasramka M, Joseph RW, Wu KJ, Cheville JC, Leibovich BC. Higher Expression of Topoisomerase II Alpha Is an Independent Marker of Increased Risk of Cancer-specific Death in Patients with Clear Cell Renal Cell Carcinoma. Eur Urol. 2013 Dec 25. PMC4071134.
c. Joseph RW, Kapur P, Serie DJ, Eckel-Passow JE, Parasramka M, Ho T, Cheville JC, Frenkel E, Rakheja D, Brugarolas J, Parker A. Loss of BAP1 protein expression is an independent marker of poor prognosis in patients with low-risk clear cell renal cell carcinoma. Cancer. 2014 Apr 1; 120(7):1059-67. PMC:4075029.
d. Eckel-Passow JE, Igel DA, Serie DJ, Joseph RW, Ho TH, Cheville JC, Parker AS. Assessing the clinical use of clear cell renal cell carcinoma molecular subtypes identified by RNA expression analysis. Urol Oncol. 2015 Feb;33(2):68.e17-23. PMID:25175426.

Complete List of Published Work in My Bibliography:
http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/48362922/?sort=date&direction=ascending

D. Research Support

Ongoing Research Support

R01 CA116161-1 (Goodison) 04/01/2015 - 03/31/2020
NIH
Towards a non-invasive molecular test for bladder cancer
The goal of this grant is to identify mRNA and miRNA biomarkers for the detection of bladder cancer.
Role: Co-Investigator

Completed Research Support

P30 CA15083 (Diasio) 07/11/2014 - 02/28/2019
NCI
Program Leadership with Dr Robert Diasio Comprehensive Cancer Center Grant

Dr. Parker is co-leader of the Genetic Epidemiology and Risk Assessment program within the Mayo Clinic Cancer Center. The major goal of GERA is to combine molecular and genetic technologies with epidemiologic study design and statistical analysis to advance understanding of human cancer.
Role: Co-Investigator

R01 CA13446-5 (Parker) 07/01/2010 - 08/30/2016
NCI
Design and Validation of a Biomarker-enhanced System to Predict RCC Progression
The goal of this proposal is to externally validate a second generation biomarker enhanced scoring system for predicting progression among patients with localized ccRCC.
Role: Principal Investigator

R21 CA176422-2 (Eckel-Passow) 04/01/2014 - 03/31/2017
NCI
Evaluation of Patient-Matched Primary and Metastatic Samples to Identify and Validate Molecular Events in Metastatic Renal Cell Carcinoma
The goal of this project is to identify molecular features that are associated with metastatic progression in clear cell renal cell carcinoma.
Role: Co-Investigator

R21 DK101738-1 (Parker/Haley) 08/01/2014 - 07/31/2016
NIDDK
Evaluation of germline mutations associated with risk of nephrolithiasis
The goal of this investigation is to utilize a large case control study explore the role of common variants in 8 genes linked to familial forms of nephrolithiasis in determining risk of sporadic, non-familial nephrolithasis.
Role: Co-Principal Investigator

4BB1302 (Parker) 12/1/2013 – 11/30/2015
Bankhead-Coley Cancer Research Program
Exploration of patient and biofluid markers of benign versus malignant renal masses
Goal: To identify and validate a panel of serum based miRNA biomarkers that distinguish benign from malignant renal masses for the potential use as a screening tool in high risk individuals.
Role: Principal Investigator

PR093067P1 (Parker) 04/01/2010 - 03/31/2014
Department of Defense
Tissue and Metabolomic Biomarkers of Recurrent Renal Cell Carcinoma (PR093967P1)
The overarching goal of our proposed study is to harness new, high-resolution technologies to identify novel tumor associated proteins and metabolic profiles directly in histopathological specimens that correlate with RCC aggressiveness and have the potential to significantly improve the ability to accurately identify individuals most at risk of RCC recurrence.
Role: Principal Invesitgator

1KG13J01 (Parker) 07/01/2010 - 12/31/2015
James and Esther King Biomedical Research Program
Molecular Epidemiology of RCC.
We will establish the infrastructure to ultimately examine the molecular epidemiology of sporadic RCC subtypes in a large clinic-based case control study. Our specific aims are to build the case and control resources necessary examine associations of cigarette smoking, obesity and a history of urinary tract infections with distinct RCC subtypes defined by expression levels of candidate protein biomarkers.
Role: Principal Investigator

1KT-01 (Rosser) 09/01/2010 - 06/30/2013
James and Esther King Biomedical Research Program
A Multidisciplinary Approach to Improve Patient Outcome in Bladder Cancer-A Tobacco-related Disease (sub w/ Dr C Rosser at MD Anderson Orlando). This project is part of a multi-institutional Team Science Project application entitled “A Multidisciplinary Approach to Improve Patient Outcome in Bladder Cancer - A Tobacco-related Disease”. Our understanding of the molecular epidemiology and etiology of bladder cancer lags. This project harness microarray technology and real time PCR validation to indentify novel gene expression patterns unique to smoking-related bladder cancer.
Role: Site Principal Investigator

R21CA113855 (Parker) 07/21/2006 - 03/30/2009
NIH/NCI
Type II TGF Beta Receptor and RCC Progression
This project will evaluate the association between somatic loss of TBRII expression and RCC recurrence in a cohort of 350 patients treated surgically for localized RCC at Mayo Rochester from 1999-2003.
Role: Principal Investigator