

# Cancer Epidemiology Program

Peter Kanetsky, PhD, MPH

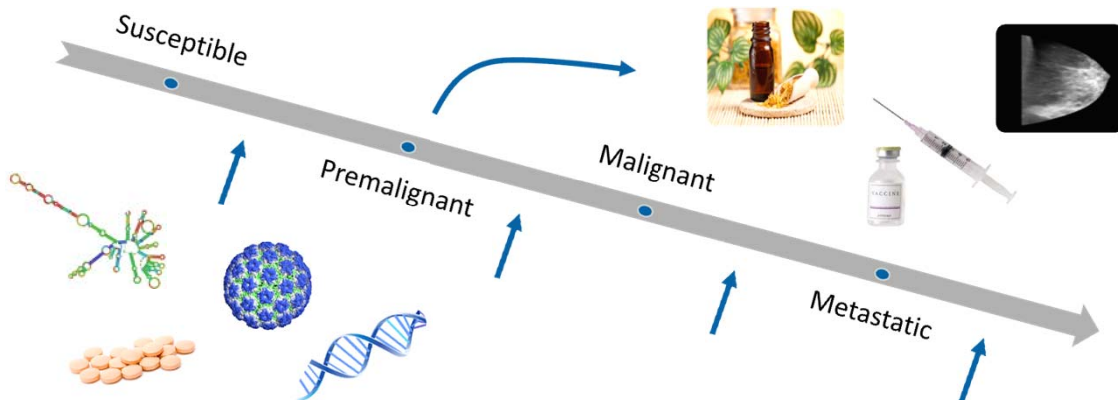
Program Leader and Chair

Moffitt Distinguished Scholar



## Program Goal

Reduce the cancer burden by identifying determinants of disease development, progression and outcome and by translating findings into successful prevention approaches and interventions



# Program Appraisals

## CCSG Renewal 2016

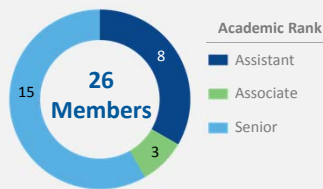
- Exceptional merit
- No major criticisms

## EAC Meeting 2018

- Program recruitment
- Program co-Leader
- Publication statistics
- Aim 3
- Future directions

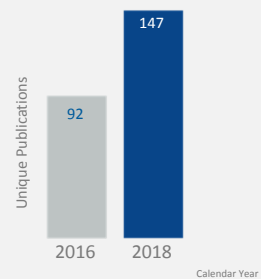
# Cancer Epidemiology

## Membership

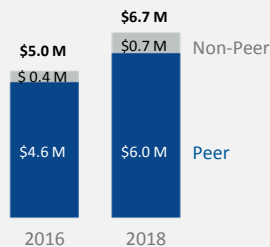
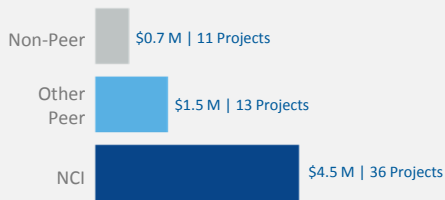


Peer Review Funded PIs  
**19**

## Publications



## Grants (Annual Direct Costs)



Current  
**R01/Equivalent Projects**  
**15 (11 PIs)**  
**Annual Direct Costs**  
**\$4.8M**

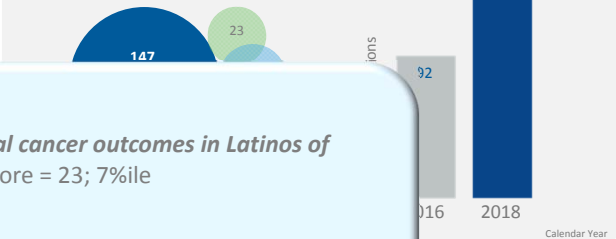
2016 – Application | 2018 – Calendar Year

# Cancer Epidemiology

## Membership

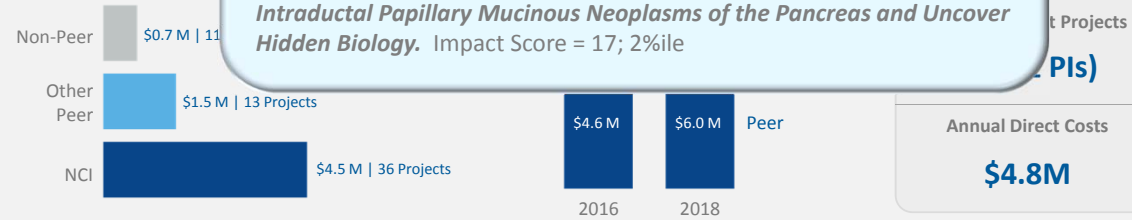


## Publications



- Stephanie Schmit  
*Biological determinants of colorectal cancer outcomes in Latinos of diverse ancestral origins.* Impact Score = 23; 7%ile
- Jennifer Permut  
*Using Radiogenomics to Noninvasively Predict the Malignant Potential of Intraductal Papillary Mucinous Neoplasms of the Pancreas and Uncover Hidden Biology.* Impact Score = 17; 2%ile

## Grants (Annual Direct Costs)



2016 – Application | 2018 – Calendar Year

# New Members



### Anna Coghill, Assistant Member

- Infections and immunoepidemiology
- Epstein-Barr virus-related cancers
- Interest in HIV and cancer



### Lauren Peres, Assistant Member

- Ovarian cancer disparities
- Interest in multiple myeloma
- R00 – Inflammation and ovarian cancer



### Manish Kohli, Senior Member

- Vice Chair, Genitourinary Oncology
- Director, DeBartolo Family Personalized Medicine Institute
- R01 – circulating biomarkers in prostate cancer



# Ongoing Recruitment

## Assistant Member

- Research in hematological malignancies
- Three candidate visits (January/February)



## Program Co-Leader

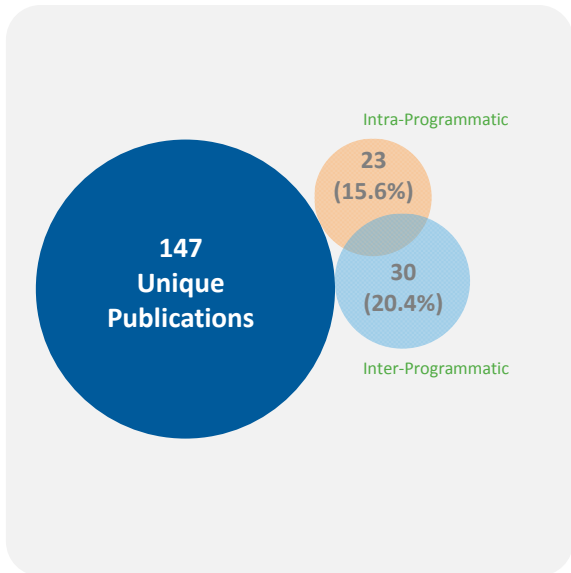
- Risk prediction or clinical epidemiology and large health records databases
- Recruitment initiated Jan 2019



9 established leaders  
6 targeted individuals

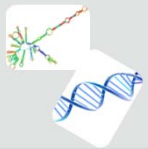
# Publication Metrics

- Mean IF = 5.5
- 14% with IF > 8
- Strategic discussions at meetings
- Monthly tracking
- Assistant members – ramp up time
- Senior members – consortia involvement

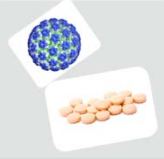


# Program Aims


**Aim 1** Examine the association of inherited susceptibility biomarkers with cancer risk and outcome  
**Identify inherited susceptibility biomarkers of cancer risk, progression, and outcome and explore underlying mechanisms**



**Aim 2** Identify and test whether acquired biomarkers can predict cancer risk and outcome  
**Identify and validate acquired biomarkers predicting cancer risk, progression, and outcome and explore underlying mechanisms**




**Aim 3** Discover and test the efficacy of promising approaches for the prevention and early detection of cancer  
**Discover and test the efficacy of promising approaches and novel interventions to reduce cancer burden across the continuum**



## Aim 3

**Aim 3** Discover and test the efficacy of promising approaches and novel interventions to reduce cancer burden across the continuum



# Scientific Progress



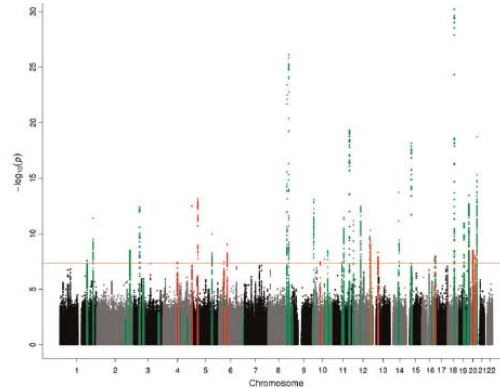
Stephanie Schmit

- Meta analysis
- 12,952 European cases & 48,383 controls
- 12,085 multi-ethnic cases & 22,083 controls
- 9 novel loci
- ~15% increase in familial risk
- Polygenic risk score identifies 4% of population with OR≥2

JNCI | Natl Cancer Inst (2019) 111(2): dyy099  
doi: 10.1093/jnci/dyy099  
Article

## Novel Common Genetic Susceptibility Loci for Colorectal Cancer

Stephanie L. Schmit<sup>1</sup>, Christopher K. Edlund<sup>2</sup>, Fredrick R. Schumacher<sup>3</sup>, Jian Gong<sup>4</sup>, Tabitha A. Harrison<sup>5</sup>, Jeroen R. Huyghe<sup>6</sup>, Chenxu Qu<sup>7</sup>, Marilena Melas<sup>8</sup>, David J. Van Den Berg<sup>9</sup>, Hansong Wang<sup>10</sup>, Stephanie Tring<sup>11</sup>, Sarah J. Plummer<sup>12</sup>, Demetrius Albanes<sup>13</sup>, M. Henar Alonso<sup>14</sup>, Christopher I. Amos<sup>15</sup>, Kristen Anton<sup>16</sup>, Aaron K. Aragaki<sup>17</sup>, Volker Arndt<sup>18</sup>, Elizabeth L. Barry<sup>19</sup>, Sonja I. Berndt<sup>20</sup>, Stéphane Bezieau<sup>21</sup>, Stephanie Bien<sup>22</sup>, Amanda Bloomer<sup>23</sup>, Juergen Boehm<sup>24</sup>, Marie-Christine Boutron-Ruault<sup>25</sup>, Hermann Brenner<sup>26</sup>, Stefanie Brezina<sup>27</sup>, Daniel D. Buchanan<sup>28</sup>, Katja Butterbach<sup>29</sup>, Bette J. Caan<sup>30</sup>, Peter T. Campbell<sup>31</sup>, Christopher S. Carlson<sup>32</sup>, Jose E. Castela<sup>33</sup>, Andrew T. Chan<sup>34</sup>, Jenny Chang-Claude<sup>35</sup>, Stephen J. Chanock<sup>36</sup>, Iona Cheng<sup>37</sup>, Ya-Wen Cheng<sup>38</sup>, Lee Soo Chin<sup>39</sup>, James M. Church<sup>40</sup>, Timothy Church<sup>41</sup>, Gerhard A. Coetzee<sup>42</sup>, Michelle Cotterchio<sup>43</sup>, Marcia Cruz Correa<sup>44</sup>, Keith R. Curtis<sup>45</sup>, David Duggan<sup>46</sup>, Ulrike Peters<sup>47</sup>, Graham Casey<sup>48</sup>, Li Hsu<sup>49</sup>, David V. Conti<sup>50</sup>, Stephen B. Gruber<sup>51</sup>



# Scientific Progress



Shelley Tworoger

- 200,000+ nurses in NHS I & II
- 1000+ cases of ovarian cancer
- Pre-diagnostic use of aspirin and NSAID associated with better survival
- Survival advantage also seen among “switchers” to analgesics post-diagnosis

## THE LANCET Oncology

Articles

### Pre-diagnosis and post-diagnosis use of common analgesics and ovarian cancer prognosis (NHS/NHSII): a cohort study

Melissa A Merritt, Megan S Rice, Mallie E Barnard, Susan E Hankinson, Ursula A Matulonis, Elizabeth M Poole\*, Shelley Tworoger\*

www.thelancet.com/oncology Vol 19 August 2018

	Pooled analysis*		
	Events (n)	Participants (N)	HR (95% CI)
<b>Pre-diagnosis aspirin use†</b>			
Total	623	1022	-
Never	143 (23%)	250 (24%)	1.00 (reference)
Past	202 (32%)	342 (33%)	0.95 (0.79-1.22)
Recent	278 (45%)	430 (42%)	0.99 (0.79-1.25)
<b>Post-diagnosis aspirin use†</b>			
Total	491	940	-
Never (pre-diagnosis or post-diagnosis)	119 (24%)	231 (25%)	1.00 (reference)
Past‡	227 (46%)	395 (42%)	0.94 (0.73-1.21)
Recent	145 (30%)	314 (33%)	0.68 (0.52-0.89)
<b>Pre-diagnosis NSAID use†</b>			
Total	491	824	-
Never	191 (39%)	278 (34%)	1.00 (reference)
Past	144 (29%)	263 (32%)	0.83 (0.66-1.05)
Recent	156 (32%)	283 (34%)	0.94 (0.73-1.18)
<b>Post-diagnosis NSAID use†</b>			
Total	433	881	-
Never (pre-diagnosis or post-diagnosis)	174 (40%)	335 (38%)	1.00 (reference)
Past‡	160 (37%)	292 (33%)	0.93 (0.74-1.19)
Recent	99 (23%)	254 (29%)	0.67 (0.51-0.87)

# Scientific Progress



Shelley Tworoger

- 200,000+ nurses in NHS I & II
- 1000+ cases of ovarian cancer
- Pre-diagnostic use of aspirin and NSAID associated with better survival
- Survival advantage also seen among “switchers” to analgesics post-diagnosis
- Use of NSAID increased risk
- Low-dose aspirin associated with decreased risk of ovarian cancer
- Risk reduction not observed for regular dose aspirin

Research

JAMA Oncology | Original Investigation

## Association of Analgesic Use With Risk of Ovarian Cancer in the Nurses' Health Studies

Mollie E. Barnard, ScD; Elizabeth M. Poole, PhD; Gary C. Curhan, MD, ScD; A. Heather Ellissen, ScD; Bernard A. Rosner, PhD; Kathryn L. Terry, ScD; Shelley S. Tworoger, PhD

# Scientific Progress



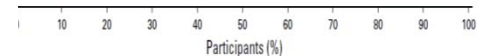
Matt Schabath

- Survey of 450 oncologist at 45 comprehensive cancer centers
- 149 (33%) completed
- 66% - important to know gender identity
- 40% - importance to know sexual orientation
- 70% - interested in LGBTQ education
- Significant decrease in confidence of health knowledge for both LBG and trans patients post survey
- Identifies need for development of curriculum & guidelines addressing LGBTQ cancer disparities

original report

## National Survey of Oncologists at National Cancer Institute–Designated Comprehensive Cancer Centers: Attitudes, Knowledge, and Practice Behaviors About LGBTQ Patients With Cancer

### KNOWLEDGE ABOUT TRANS HEALTH NEEDS



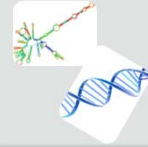


# Discussion

①

Aim

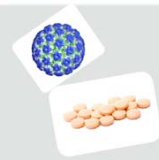
Identify inherited susceptibility biomarkers of cancer risk, progression, and outcome and explore underlying mechanisms



②

Aim

Identify and validate acquired biomarkers predicting cancer risk, progression, and outcome and explore underlying mechanisms



③

Aim

Discover and test the efficacy of promising approaches and novel interventions to reduce cancer burden across the continuum

