Norris Comprehensive Cancer Center
Request for Applications Announcement: Multi-level cancer risk prediction models

As part of USC Norris Strategic Plan 2020-2025, advancing multi-level cancer risk assessment for personalized cancer prevention was identified as a key priority to help us achieve precision oncology among our diverse multi-ethnic populations in Los Angeles County. USC Norris has a rich tradition of high impact cancer epidemiology and genomics investigations that have advanced our understanding of cancer etiology and progression. As we look to the future, there is a tremendous opportunity to extend beyond traditional risk factors and germline genomic sequencing to harness and integrate advances in exposure biology, geospatial coding, social determinants of health, immunology, virology, and the microbiome to assess and monitor cancer risk across the cancer continuum from cancer prevention to survivorship. Machine learning approaches enable the integration of multi-level measurements of risk to identify comprehensive models that may identify those individuals at higher risk of cancer in the community, or cancer progression or worse outcomes after completing treatment. We recognize that across USC Norris we count with outstanding expertise in all aspects required to develop multi-level risk prediction models, including unique population-based resources, expertise in exposure assessment and social determinants, genomics and other omics, clinical determinants, and novel biostatistical methods that use artificial intelligence. Therefore, we are uniquely poised to develop the next generation of multi-level risk models for cancer risk, uniquely tailored to our diverse multi-ethnic populations.

Objective of this RFA: To accelerate this work, this RFA invites pilot grant applications for funding to support novel, high-impact pilot projects that will focus on developing novel multi-level risk prediction models that could be validated and translated in the community or clinic to promote individualized cancer prevention. Models can be focused on any of the three levels of prevention. Examples:

- Models that can predict the impact of targeted cancer prevention strategies (e.g., tobacco cessation, diet/exercise)
- Models for identifying individuals who show cancer indicators and may benefit from additional diagnostic procedures versus less invasive surveillance
- Models to identify risk for post-treatment cancer recurrence or other survivorship outcomes

Application requirements:

- Projects must propose a minimum of two risk exposures (e.g. genomic, environmental, immune, lifestyle, behavioral, microbiome, social), in addition to considering socio-demographics
- Projects must use at least one Norris CCSG Shared Resource. These include: Flow Cytometry/Immune Monitoring (Martin Kast, Rong Lu); Molecular Genomics (John Carpten); Liquid-Biopsy (Amir Goldkorn); Data Science (Ming Li), Translational Pathology (Sue Ellen Martin, Wendy Cozen), and Population Research (Myles Cockburn). Check here: [http://uscnorriscancer.usc.edu/core/](http://uscnorriscancer.usc.edu/core/)
- We also encourage the use of data from the ORIEN network (David Craig: davidwcr@usc.edu)
- Projects must include members from more than one NCCC research program (as a true collaborator)
- For this first RFA, projects must focus on a catchment area cancer priority (breast, colorectal, lung, prostate, liver, acute lymphoblastic leukemia)
- Preference may be given to projects that: a) Include a focus on underrepresented minorities or cancer disparities; b) Leverage artificial intelligence/machine learning

Application Instructions for Submission:

- 5-page document including the following sections: A) Specific Aims; B) Significance for Reducing the Cancer Burden; C) Short Innovation section; D) Study Design and Approach (including statistical considerations); E) Plans for validation and translation to the community or the clinic; E) Clear metrics of success and impact, with time line
- NIH Biosketch of all members of the team
- NIH Budget page:
  - Projects that propose new data collection can request up to $150,000 in direct costs and a renewal may be considered if substantial progress is made.
  - Projects that propose to use existing data can request up to $50,000 in direct costs for one year of funding, starting September 2020.
  - Salary for PI can be requested up to 2%. Salary for co-investigators will not be considered. Two PIs are allowed if properly justified, one should be designated as Contact PI.

Proposals should be submitted as one PDF document to Raquel Carla Martinez by 5:00PM PST on August 1st [raquel.martinez@med.usc.edu](mailto:raquel.martinez@med.usc.edu). Questions can be referred to Mariana Stern, PhD, Associate Director of Population Sciences [marianas@usc.edu](mailto:marianas@usc.edu)