

# Proteins key to unlocking cancer for National Cancer Moonshot

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The National Cancer Moonshot initiative needs to move beyond genomics to target the proteins that are driving cancer, according to an Inova Health System and George Mason University collaborative paper published Thursday in the *American Association for Cancer Research*.

President Barack Obama announced the National Cancer Moonshot during his 2016 State of the Union Address. About \$1 billion is expected next year to fund the initiative's goal of achieving a decade's worth of research in five years by focusing on immunotherapy, genomics and combination therapies.

Thomas P. Conrads, associate director of Scientific Technologies for the Inova Schar Cancer Institute and chief scientific officer of the Department of Defense Gynecologic Cancer Center of Excellence, partnered with Emanuel "Chip" Petricoin, co-director of George Mason's Center for Applied Proteomics and Molecular Medicine, on a thought piece to draw attention to the importance of proteins in personalized medicine, especially [cancer](#).

While the pair lauded the Moonshot initiative, they agreed it needs to center on more than genomics—proteomics is essential.

"After all, while the genome is the information archive, it is the proteins that actually do the work of the cell and represent the structural cellular machinery," Petricoin and Conrads wrote. "It is the proteins that comprise most of the biomarkers that are measured to detect cancers,

constitute the antigens that drive immune response and inter- and intracellular communications, and it is the proteins that are the drug targets for nearly every targeted therapy that is being evaluated in cancer trials today."

Northern Virginia's largest health system, Inova, and Virginia's largest public research university, George Mason, announced a strategic partnership in December to conduct translational research and share resources for the benefit of patients, the community and the region.

"Establishment of the Inova-George Mason University Center for Clinical Proteomics affirms the strong commitment of these two prominent Northern Virginia institutions to the [precision medicine](#) renaissance and the recognition that major strides will only be possible through dedicated support for and inclusion of proteomics in this initiative," Conrads said.

Mason researchers have used proteomics to find personalized treatments for [metastatic breast cancer](#) patients, giving new treatment options to patients who previously didn't have any.

"The involvement of our existing clinical proteomics efforts in a variety of cutting-edge precision medicine trials today, and the results we are seeing firsthand by including proteomics in a 'multi-omic' engine for precision medicine, serve to validate our investment in the area as well as reaffirm the need to be a world leader in the arena," Petricoin said.

**More information:** T. P. Conrads et al, The Obama Administration's Cancer Moonshot: A Call for Proteomics, *Clinical Cancer Research* (2016). [DOI: 10.1158/1078-0432.CCR-16-0688](https://doi.org/10.1158/1078-0432.CCR-16-0688)

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