# Big Data Training for Cancer Research

## *Special Lecture Series*

## Endogenous and exogenous mutational processes in lung cancer

## *Maria Teresa Landi, M.D., Ph.D.*

**National Cancer Institute, NIH**

**May 23, 2023, 1:00 – 2:15 PM (EDT)**

**Abstract:** The interplay of exogenous and endogenous mutagenic processes can affect mutational signature presentation and tumor evolution.

I will describe how mutational signatures can capture mutational processes in cancer. I will then present the mutational signature landscape in lung cancer from never smokers and smokers. Finally, I will provide an example on the effect of co-occurrence of endogenous and exogenous processes on tumor evolution. Specifically, I will describe the impact of APOBEC deaminases- and tobacco smoking-associated activities on age at lung cancer diagnosis. Similar competing processes may operate in other cancer types and affect cancer treatment.

**Speaker Bio:** Dr. Landi received an M.D. *summa cum laude* from the University of Milan, Italy, and was trained in oncology and general medicine at the San Raffaele Hospital, University of Milan. She received a Ph.D. in occupational medicine and industrial hygiene, subgroup of molecular epidemiology, from an Italian University Consortium in 1993, and qualified for the associate professorship in occupational medicine and industrial hygiene in the Italian Universities in 1998. Dr. Landi received tenure in the Division of Cancer Epidemiology and Genetics (DCEG), NCI in 2006. She is an Associate Professor of Epidemiology at the Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland. Dr. Landi has assembled a team of investigators, including intramural and extramural scientists, to conduct complex germline and somatic genomic analyses in population studies. In 2021, she was appointed Senior Advisor for Genomic Epidemiology in DCEG's Trans-Divisional Research Program.

Dr. Landi's research focuses on understanding tumor etiology and evolution for potential translational applications. She leads large-scale multidisciplinary research projects primarily on genetic and environmental determinants of lung cancer and melanoma. Dr. Landi pioneers cutting-edge analyses of genomic, transcriptomic, and epigenomic data, and integrates molecular data with histological and radiological imaging and clinical and epidemiological data.

Please click the following link to join the webinar: https://purdue-edu.zoom.us/j/95118072973