A Multi-Omic View of NPM1-mutated AML

Abstract: In the US in 2021, about 20,000 people will be diagnosed with acute myeloid leukemia (AML) and about 11,000 will die of the disease. The five-year median survival rate is 29.5%. The standard chemotherapy known as "3+7" remained unchanged from the mid 1970's until just a few years ago when the FDA began approving therapies based on the presence of specific gene mutations. About 30% of adult patients with AML have a mutation of nucleophosmin (NPM1), which is associated with good prognosis but for which no specific therapy exists. As part of the Alliance for Clinical Trials in Oncology, OSU has collected patient samples and clinical data from a large cohort of AML patients, including almost 600 patients with NPM1 mutations. They have also applied a wide variety of molecular and omics technologies to these samples. Many of these data sets have been studied separately. As part of a Pilot Grant from the Department of Biomedical Informatics, we are now trying to perform a unified analysis of these data to find the best markers of prognosis for NPM1-mutated AML. This talk will discuss our progress to date.

About the Speaker: Dr. Coombes is a Professor in the Department of Biomedical Informatics at The Ohio State University. He received his BS in Mathematics from Lehigh University in 1977 and his Ph.D. in pure mathematics from the University of Chicago in 1982. After working on problems in algebraic K-theory and arithmetic algebraic geometry for several years, he switched his interests to the field of bioinformatics and moved to the University of Texas M.D. Anderson Cancer Center in 1999. Along with his colleague, Keith Baggerly, he spent some time there performing "forensic bioinformatics" analyses to understand why some published analyses were irreproducible (and often wrong). He has become an expert in the analysis of many kinds of high-throughput data, including gene expression microarrays, mass spectrometry, reverse phase protein arrays, second generation sequencing, and more. He has directed bioinformatics and/or biostatistics cores on Cancer Center Support Grants (at M.D. Anderson and now for the James Cancer Center) and for multiple P01 and SPORE grants. His research combines interests in data quality and reproducibility with a focus on extracting robust signatures from omics datasets to predict clinically relevant outcomes.

Kevin Coombes, PhD
Professor of Biomedical Informatics
Ohio State University
Friday, August 27th, 11:00am-12:00pm
Carmen Zoom