Biomarker analysis in cancer immunotherapy

Recent advances in cancer immunotherapy demonstrate the power of the immune system to recognize and eradicate tumors. Currently approved therapies and therapies in development are aimed at improving clinical response, overcoming immune checkpoints and inhibiting negative regulators of the immune system’s response to cancer. At the same time, we are gaining a deeper appreciation for the molecular determinants and complexity that underlie the interaction between the tumor and immune system. This has in some part resulted from the use of next generations sequencing (NGS) in the clinic. The use of NGS for large scale genomic analysis is also becoming more common in clinical trials given the ever decreasing costs of the technology. However, the challenge of analyzing these large datasets and producing actionable results that can guide translational and clinical scientists remains a challenge. The seminar will provide an introduction to cancer immunotherapy, discuss the role of bioinformatics in the identification and validation of clinical biomarkers, and describe how tumor mutation burden and gene expression profiling are used in cancer immunotherapy studies.