

Dr Paul Spellman

Development of Drug Response Predictors from In Vitro Systems

We are using a diverse collection of breast cancer cell lines that embody the mutational variation found in breast tumors to identify molecular predictors of response to standard chemotherapeutic agents and to molecularly targeted drugs. The 55 breast cancer cell lines in our collection have been characterized in detail at the molecular level using exon resolution gene expression arrays, high resolution copy number and genotyping arrays, as well as more traditional analyses of protein and phosphoprotein measurements. More than 40 therapeutically relevant compounds have been assayed for growth and cell killing effects on the breast cancer cell line panel. We then associate response characteristics to the molecular profiles and develop clinically validatable predictors. Our work to this point has verified our ability to segregate clinical trial patients on at least one molecularly targeted drug into sensitive and insensitive patient populations.