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Resistance Mechanisms to Palbociclib in Hormone Positive Metastatic Breast Cancer Lay Description of Outcomes

Newer drugs including Ibrance, Kisquali and Verzenio when combined with hormone therapies produce longer responses in women with metastatic breast cancer. However, we still do not know precisely which women will benefit and why those that benefit invariably stop responding. We have discovered a gene that when inactivated results in drug resistance. We are currently collecting blood from patients that experience progression on these medications at Johns Hopkins Hospital. We will use circulating tumor DNA to look for changes in related genes that we have identified. If we confirm these changes in patient samples, our data suggests that tumors could bypass Ibrance and similar medications by increasing target protein levels. In this event, medications that destroy the target or bind irreversibly could be effective in overcoming resistance. This type of strategy already works for treating metastatic breast cancer, for example Faslodex works by protein destruction.

METAvisor's support lead to data that comprised a successful application to Vanderbilt University's K12. This is to support the investigator as an Instructor of Medicine for two years while applying for a K08 (mentored early research award).

An open trial at Johns Hopkins is collecting circulating tumor DNA from patients progressing on CDK inhibitors and these samples will be available to look for genetic mutations that are correlated with resistance.