Background: Patient-derived xenografts (PDXs) are a powerful tool for cancer research and personalized medicine. We have previously built the National Cancer Institute (NCI) Patient-Derived Models Repository (PDMR), which contains 994 patient-derived xenografts representing 26 major tumor types and other rare cancers.

RESULTS

We showed that PDX models exhibited genomic stability with a low mutation burden. Comparing mutant gene frequencies between PDX samples and corresponding primary tumors, we found no significant differences between passages. Some models exhibited putative gene expression profiles of PDX samples and primary tumors. Samples were obtained from patients with the highest mutation burden. As MSI status is increasing, we observed a marked response to treatment.

CLINICALLY ACTIONABLE MUTATIONS PRESENT ACROSS PDMR MODELS

Panel A: Density plot of somatic mutation burden across PDMR models

Panel B: Dominant mutational signatures present in different histologies across PDMR models

Panel C: Distribution of somatic mutational burden, mutational signatures, and MSI status across PDMR models

REFERENCES


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