CRISPR-based genetic interaction maps inform therapeutic strategies in cancer

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In an editorial in Translational Cancer Research, Kampmann lab postdoctoral fellow Dr. Poornima Ramkumar and Dr. Martin Kampmann highlight the relevance of genetic interaction maps for cancer therapy. Genetic interaction maps systematically reveal functionally related genes, and were first established in mammalian cells by Dr. Kampmann and colleagues (Bassik*, Kampmann* et al 2013 Cell 152:909 [1]). In this editorial, Ramkumar and Kampmann highlight new CRISPR-based approaches to generate genetic interaction maps, and discuss how results from these maps can inform cancer therapy. In particular, genetic interaction maps can point to therapeutic targets, biomarkers, resistance mechanisms and combination therapy targets. Of note, a new platform recently co-developed by the Kampmann lab combines CRISPR-based gain- and loss-of-function perturbation within the same cells and enables the generation of directional genetic interaction maps (Boettcher et al 2018 Nature Biotech 36:170 [2]).


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