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Analytical next-generation sequencing approaches for CRISPR-Cas9-mediated cell engineering

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CRISPR-Cas9-mediated cell lines hold great promise to transform therapeutics in various disease areas. Next-generation sequencing (NGS) is a powerful analytical tool with applications designed throughout the CRISPR-Cas9 workflow from discovery, through screening, and to validation of CRISPR-Cas9 effects. Here we will review contemporary workflows for CRISPR-Cas9 knockout libraries and briefly highlight how NGS and advanced informatics facilitates drug target identification. We will also detail various routes for optimizing and screening CRISPR-Cas9 pools and isolates for on- and off-target activity. Moving beyond screening and lead identification, we will review novel unguided NGS approaches to demonstrate on-target specificity while confirming low/no off-target activity prior to clinical trials.

Biography

Haythem Latif is a life science professional with a passion for next-generation sequencing technologies and applications. His interests in NGS began during his time as a graduate student pursuing a PhD in Bioengineering from the University of California, San Diego. There, he generated, analyzed, and integrated multi-omic datasets to deeply characterize the genome organization of various microbial organisms in search of novel biological insights. Upon graduation, he worked for ThermoFisher in the Ion Torrent applications team focusing on AmpliSeq panel development. He is currently managing NGS Business & Strategic Partnerships at GENEWIZ.

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