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Drug sensitivity and drug repurposing platform for cancer precision medicine

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Abstract

One of the critical Global challenges in achieving the UN Sustainable Development Goals 3 Good Health and Well Being is optimizing drug discovery and translational research for unmet medical need in both communicable and non-communicable diseases. Recently, the WHO reports there has been a shift from communicable diseases to non-communicable diseases with respect to being the leading cause of death globally and particularly in low- and middle-income countries such as South Africa. Hence, there is current drive to establish functional precision medicine program that addresses the unmet medical need using high throughput drug sensitivity and drug repurposing platform. Here, this paper serves as a perspective to showcase the recent development in high throughput drug sensitivity screening platform for the cancer precision medicine. We also elaborate on the benefit and applications of high-throughput drug screening platform for Precision Medicine. From a future perspective, this paper aims to showcase the possibility to integrate existing high-throughput drug sensitivity screening platform with the newly developed platform technologies such as microfluidics based single cell drug screening.