Shri Ramniklal J. Kinarivala Cancer Research Oration Award - 2022

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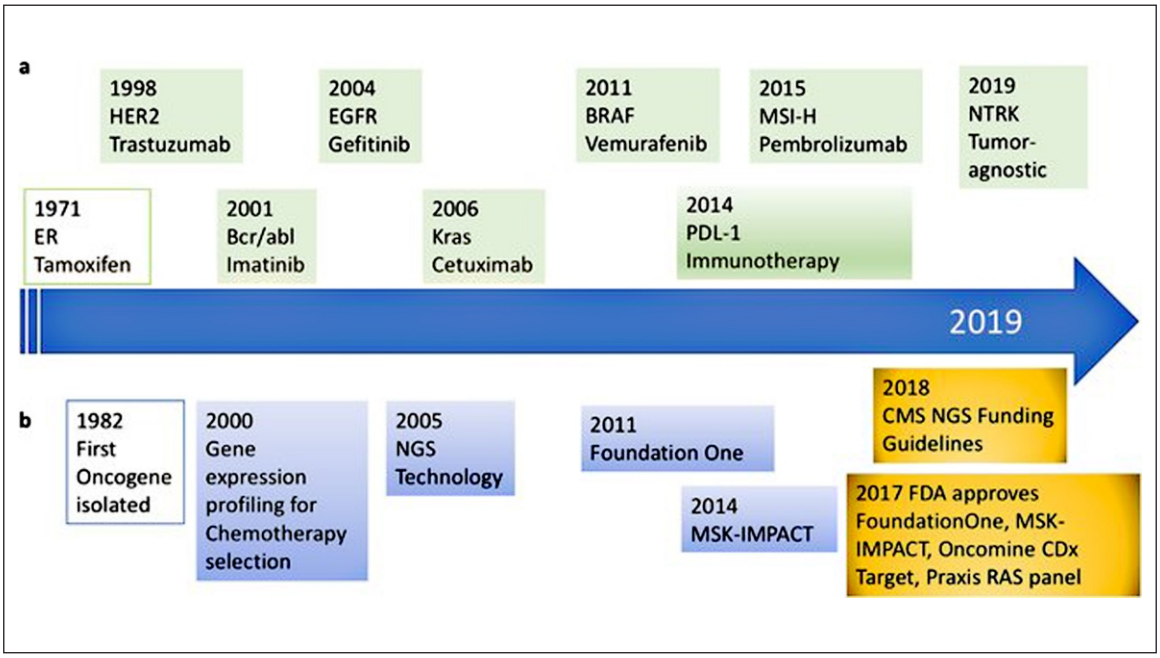
Time Line of Genomic Profiling and Precision Medicine in Oncology

Cancer genomics research contributes to precision medicine by defining cancer types and subtypes based on a patient's genetics. Hereditary factors also play a key role in development of many cancers, as do somatic mutations. Identifying genetic predispositions for certain cancers can have significant implications for treatment decisions, interventions, cancer screenings, and genetic testing for patients and their close relatives.

Precision medicine has transformed cancer care in both common and rare malignancies and can be targeted with specific therapies to improve clinical outcomes in patients. Owing to the genomic complexity of cancers, precision medicine has been enabled by a growing body of knowledge that identifies key drivers of oncogenesis, coupled with advances in tumor analysis by next-generation sequencing (NGS) and other profiling technologies, and by the availability of new therapeutic agents.

The basic idea is to use patients' genetic tests to then identify the drugs that will work best for them, irrespective of the tissue of origin of their tumor. This molecular taxonomy of cancer can provide patients with a more precise diagnosis, and therefore a more personalized treatment strategy. The various timeline in genomic profiling and precision medicine has shown new horizons in the field of oncology.

Personalized treatment strategy.



Following are the druggable cancer driver genes amplified across TCGA datasets