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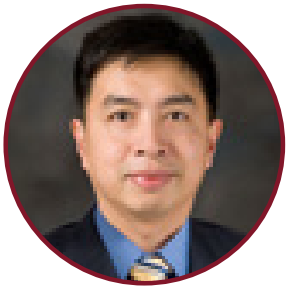
Signature-guided approaches for targeting DNA damage response defects in cancer



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Defects of DNA damage response are considered as a hallmark of human cancer. Deficiencies in these responses, particularly in repair of different damaged DNA are of tremendous importance in the etiology of human cancers and at the same time offer great opportunities for designing targeted therapeutic strategies. Based on transcriptome analysis, we have established gene signature that faithfully predicted the defect of homologous recombination repair (HRD), replication stress response defect (RSRD) and mismatch repair defect (MMRD) in cells. In addition, based on these signatures, we identified effective drugs that can target on cancer with these specific DNA repair defects. Our studies, therefore, provide a unique platform to develop personalized cancer therapy based on the unique deficiency of DNA repair in the individual cancer.

Biography

Shiaw-Yih Lin is a Tenured Professor and Deputy Chair of Department of Systems Biology at The University of Texas MD Anderson Cancer Center. His research efforts are focused within an overall theme of DNA damage response defects in cancer with the specific emphasis on systems and translational precision cancer therapy. He serves on Editorial Boards of 10 international journals and has served on numerous Grant Review Committees for NIH, DOD and other funding organizations both nationally and internationally.

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