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Stem Cell Research and Regenerative Medicine

Antigen presentation and tumor immunogenicity in cancer immunotherapy response prediction

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Biography

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Abstract

Immunotherapy, represented by immune checkpoint inhibitors (ICI), is transforming the treatment of cancer. However, only a small percentage of patients show response to ICI and there is an unmet need for biomarkers that will identify patients who are more likely to respond to immunotherapy. The fundamental basis for ICI response is the immunogenicity of a tumor, which is primarily determined by tumor antigenicity and antigen presentation efficiency. Here, we propose a method to measure tumor immunogenicity score (TIGS), which combines tumor mutational burden (TMB) and an expression signature of the antigen processing and presenting machinery (APM). In both correlation with pan-cancer ICI objective response rates (ORR) and ICI clinical response prediction for individual patients, TIGS consistently showed improved performance compared to TMB and other known prediction biomarkers for ICI response. This study suggests that TIGS is an effective tumor-inherent biomarker for ICI-response prediction.

4th International conference and Expo on Cell & Stem Cell Research | Paris, France, June 24-25, 2020

Citation: Shixiang Wang: University of Chinese Academy of Sciences, China: *Antigen presentation and tumor immunogenicity in cancer immunotherapy response prediction,* Stem Cell 2020: 4th International Conference and Expo on Cell & Stem Cell Research, Paris, France, June 24-25, 2020 : page no: 39