Structural variation detection of adolescent thyroid cancer using optical mapping

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Abstract

Abstract:Structural variation (SV) is a fundamental genetic cause for cancer, with demonstrated correlation to disease progression and treatment response. Traditional sequencing method cannot provide full genomic landscape especially large-scale and complex structural variation. To overcome these limitations, we adopted a combined sequencing approaches, including optical mapping, single molecular sequencing and short reads shotgun sequencing, to evaluate the SV in thyroid cancer. Different numbers, length and types of structural variation, with genes affected by SV were scrutinized. Integrating these results could showed comprehensive scenario for thyroid cancer in a genomic view. We demonstrate that integrated approaches could provide a powerful tool for capturing a higher level of genomic SV, creating new interpretation of sequencing data of particular relevance to human cancer.

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