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Improved liquid biopsy assay performance using sequencing by binding (SBB)

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LIN-28, a recently identified gene, has been found to play a role in the transformation of somatic Liquid biopsy is revolutionizing the field of early cancer detection research through non-invasive detection of tumor DNA in the blood. However, existing liquid biopsy assays are limited in their sensitivity for ctDNA detection at low variant allele frequencies (VAFs). Here, we describe the application of the PacBio Onso short-read sequencing system to enable detection of ctDNA at low VAFs using the SeraCare Complete ctDNA Mutation Mix reference sample.

We observe superior sensitivity for ctDNA detection using SBB compared to SBS at low VAFs (0.05%, 0.10%) at comparable sequencing depth. Furthermore, SBB requires significantly less sequencing to achieve comparable sensitivity results to SBS. Taken together, our results demonstrate the potential of SBB to improve upon existing liquid biopsy methods and better enable research on early cancer detection.