



Figure S1. Breast milk characterization as liquid biopsy specimen and comparison to plasma. (A). Concentration of cfDNA in ng/ml of BM from control samples (n=21) and case samples from the affected breast (+ tumor) (n=15) or unaffected breast (- tumor) (n=13) separately, and compared to blood-derived cfDNA from obtained from case cohort (n=12) Individual values, mean and CI 95% are included. non-parametric two-sided Mann-Whitney Wilcoxon test was performed (**** pval<0.0001). (B) cfDNA concentration of the affected breast versus non affected breast of case groups. Individual values of each breast from the same individual are connected by a line. Parametric two-sided Mann-Whitney Wilcoxon test was performed (pval not significant). (C) cfDNA concentration from all BM samples, controls and

cases from both breasts, according to age of the individual. Each value, mean and CI 95% are included. non-parametric two-sided Mann-Whitney Wilcoxon test was performed (***) $p_{val} < 0.001$). (D) Fragmentome analysis of the cfDNA from the affected breast milk from cases in the cohort, compared to the healthy control H-02 BM cfDNA and a plasma cfDNA from case 3 (BC-03) as average examples. (E) Total genomic equivalents (GEs) analyzed per patient in plasma and BM in ddPCR. (F). Theoretical calculation of detectable mutant GEs still detectable in BM upon normalization by total GEs available in its corresponding plasma sample. Cases 1 and 2 were excluded from the analysis due to lack of plasma sample. (G). Association between MAF % and milk maturation, exclusively from patients with Invasive Ductal Carcinoma (IDC) (Mann-Whitney Wilcoxon test, * p -value < 0.05).