Improve in mutation detection by adding exosomal RNA to the analysis

To assess the increase in mutant copy detection that can be achieved by reverse transcribing the exoRNA component in co-isolates of exoRNA and cfDNA, the nucleic acids from 6 mL plasma of 15 patients with late-stage metastatic colorectal cancer (mCRC) were extracted using ExoLution™ Plus. Subsequently, the sample was split and either reverse transcribed by adding SuperScript™ VILO™ Master Mix and cycling according to the manufacturers instructions (exoNA) or by adding the same amount of nuclease-free water (cfDNA). Both sample types were analyzed in parallel for mutations in BRAF, EGFR and KRAS using the EXO1000 liquid biopsy platform. The total number of molecules detected by EXO1000 was increased when including the exoRNA component (Figure S11 A). Seven patients with low mutant copies were negative in the cfDNA analysis, but positive when using exoNA (Figure S11 B).

Supplementary Figure S11. Increase in detected molecules by reverse transcribing exoNA. Comparison of the molecule numbers detected by the EXO1000 liquid biopsy platform when using ExoLution Plus to extract both exoRNA and cfDNA from plasma and a reverse transcription step to include the RNA component (exoNA) or when excluding it (cfDNA). (A) Total gene copies of BRAF, EGFR, and KRAS detected in exoNA versus cfDNA (B) Mutant gene copies of BRAF, EGFR, and KRAS detected in exoNA versus cfDNA.