

### Supplementary data

#### Validation of *DNMT3A* R882H quantitative PCR (qPCR)

We prepared serial concentrations ( $1 \times 10^2$  copies/mL to  $1 \times 10^6$  copies/mL) of *DNMT3A* R882H mutation by serial dilutions of plasmid DNA. A linear regression analysis of *DNMT3A* qPCR showed a valid linearity, with  $R^2=0.9954$ , slope=-3.4327, and the y-axis intercept points=41.042. We also performed a sensitivity test using 40 replicates at different concentrations (5,000 copies/mL, 2,500 copies/mL, 1,000 copies/mL, 500 copies/mL, 250 copies/mL, 100 copies/mL, and 50 copies/mL). The detection limit of this qPCR method was estimated to be 189 copies/mL for *DNMT3A* mutations. We analyzed 95% probity using the IBM SPSS Statistics 20. The number of copies for *DNMT3A* mutations confirmed in patient samples ranged from 189 copies/mL to 11,192,661 copies/mL. The median number of *DNMT3A* mutant copies was 4,736,001 (60-11192661).