

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Comparison of AYA and OA clinical characteristics. Statistical differences were assessed using two-sided Fisher's exact test, followed by Benjamini-Hochberg method for multiple hypothesis testing.

File Name: Supplementary Data 2

Description: Comparison of TMB between AYAs and OAs. Statistical differences were assessed using two-sided Wilcoxon rank sum test, followed by Benjamini-Hochberg method for multiple hypothesis testing.

File Name: Supplementary Data 3

Description: Comparison of gene mutation rates between AYA and OA.

File Name: Supplementary Data 4

Description: Output of Logistic regression model for gene mutation rate comparison.

File Name: Supplementary Data 5

Description: Comparison of TERT promoter mutations. Statistical differences were assessed using two-sided Fisher's exact test, followed by Benjamini-Hochberg method for multiple hypothesis testing.

File Name: Supplementary Data 6

Description: Comparison of genome instability and gene level copy number alterations. Statistical differences of genome instability were assessed using two-sided Wilcoxon rank sum test, followed by Benjamini-Hochberg method for multiple hypothesis testing.

File Name: Supplementary Data 7

Description: Comparison of gene fusion based on panel MSK468. Statistical differences were assessed using two-sided Fisher's exact test, followed by Benjamini-Hochberg method for multiple hypothesis testing.

File Name: Supplementary Data 8

Description: Mutation signatures of hypermutators in AYAs and OAs. Statistical differences were assessed using two-sided Fisher's exact test, followed by Benjamini-Hochberg method for multiple hypothesis testing.

File Name: Supplementary Data 9

Description: Logistic regression model results for gene mutation rate comparison in MSKMET dataset.