**Supplementary file 1**

**sgRNA sequences used in this study.**

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| sgRNA name | Sequence | Use |
| sgRNA 505 | TGGAAAACGAGCCAATGAG | *STAG2* inactivation |
| sgRNA 502 | TTTCGACATACAAGCACCC | *STAG2* inactivation |
| sgRNA STAG2\_16 | GATTTGAACTTCTTCCACTG | *STAG2* inactivation and competition assay |
| sgRNA STAG2\_ 19 | GGAAAACGAGCCAATGAG | *STAG2* inactivation and competition assay (control sgRNA KBM-7) |
| STAG1\_3 | GTCTGACAAACCCGTCAAAA | Competition assay |
| STAG1\_18 | GAATCATATAAACAAGACA | Competition assay |
| STAG2\_5 | GAACTCCTGCTACAAAAG | Competition assay |
| STAG2\_16 | GATTTGAACTTCTTCCACTG | Competition assay |
| RAD21\_2 | GATCGTGAGATAATGAGAGA | Competition assay |
| SMC3\_9 | GGATGCAAGAGATAAAATGG | Competition assay |
| CTRL | GTAGCGAACGTGTCCGGCGT | Competition assay (control sgRNA HCT 116) |