**Supplementary Table S1.** AIC/BIC of parametric function fitting for OS, PFS and ToT

|  |  |  |
| --- | --- | --- |
|  | **AIC** | **BIC** |
| **OS: Pembrolizumab plus chemotherapy (one-piece)** |  |  |
| Exponential | 1870.08 | 1873.48 |
| Weibull | 1868.41 | 1875.20 |
| Log-normal | 1855.67 | 1862.46 |
| Log-logistic | 1852.94 | 1859.72 |
| Gompertz | 1872.06 | 1878.85 |
| Gamma | 1865.86 | 1872.64 |
| Generalized Gamma | 1854.60 | 1864.78 |
| **OS: Chemotherapy (one-piece)** |  |  |
| Exponential | 956.97 | 959.61 |
| Weibull | 956.27 | 961.54 |
| Log-normal | 947.49 | 952.76 |
| Log-logistic | 953.38 | 958.65 |
| Gompertz | 958.97 | 964.24 |
| Gamma | 954.59 | 959.86 |
| Generalized Gamma | 953.31 | 961.21 |
| **PFS: Pembrolizumab plus chemotherapy (two-piece, cut off: 9 weeks)** |  |  |
| Exponential | 1230.33 | 1233.53 |
| Weibull | 1221.35 | 1227.74 |
| Log-normal | 1206.27 | 1212.67 |
| Log-logistic | 1212.66 | 1219.06 |
| Gompertz | 1202.31 | 1208.71 |
| Gamma | 1225.26 | 1231.66 |
| Generalized Gamma | 1213.53 | 1223.13 |
| **PFS: Chemotherapy (two-piece, cut off: 9 weeks)** |  |  |
| Exponential | 638.88 | 641.31 |
| Weibull | 636.66 | 641.53 |
| Log-normal | 619.15 | 624.02 |
| Log-logistic | 619.36 | 624.22 |
| Gompertz | 623.83 | 628.69 |
| Gamma | 639.49 | 644.36 |
| Generalized Gamma | 618.06 | 625.35 |
| **TOT: Pembrolizumab plus chemotherapy (one-piece)** |  |  |
| Exponential | 2097.45 | 2100.84 |
| Weibull | 2090.49 | 2097.26 |
| Log-normal | 2107.92 | 2114.70 |
| Log-logistic | 2129.10 | 2135.88 |
| Gompertz | 2093.98 | 2100.76 |
| Gamma | 2090.28 | 2097.06 |
| Generalized Gamma | 2092.24 | 2102.40 |
| **TOT: Chemotherapy (one-piece)** |  |  |
| Exponential | 932.41 | 935.05 |
| Weibull | 934.34 | 939.61 |
| Log-normal | 924.84 | 930.11 |
| Log-logistic | 940.32 | 945.59 |
| Gompertz | 931.88 | 937.15 |
| Gamma | 933.66 | 938.93 |
| Generalized Gamma | 931.76 | 939.67 |

**Abbreviations:** AIC, Akaike information criterion; BIC, Bayesian information criterion; OS, overall survival; PFS, progression-free survival; TOT, time on treatment