|  |  |  |  |
| --- | --- | --- | --- |
| Table S1 Correlation parameters in the multi-target, single-hit model | | | |
| Group | SF2 | D0 | Dq |
| E | 0.518 | 1.443 | 1.338 |
| E/N | 0.636 | 1.901 | 1.603 |

D0 is the single radiation dose of radiation producing a 63% lethality rate; SF2 is the survival fraction with 2 Gy radiation;

Dq is the quasi threshold dose required for sublethal damage.

Table S2 clinicopathological characteristics of patient samples with esophagus cancer following Radical radiotherapy

|  |  |
| --- | --- |
| characteristics | Number of cases (%) |
| Age(y) |  |
| ≥60 | 29（65.9） |
| <60 | 15（34.1） |
| Gender | |
| Male | 29（65.9） |
| Female | 15（34.1） |
| clinical stage | |
| I-II | 33（75） |
| III-IV | 11（25） |
| Tumor size | |
| ≥5cm | 30（68.2） |
| ＜5cm | 14（31.8） |
| lymph nodes metastasis (LNM) | |
| Yes | 26（59.1） |
| No | 18（40.9） |
| Synchronous chemotherapy | |
| Yes | 29（65.9） |
| No | 15（34.1） |
| Curative efficacy | |
| effectivity | 36（81.8） |
| inefficacy | 8（18.2） |
| Events | |
| [Censored](javascript:;) | 18(40.9) |
| Dead | 26(59.1) |
| Expression of NRAGE | |
| Weak positive | 17(38.64) |
| Positive | 18(40.91) |
| Strongly positive | 9(20.45) |
| Expression of NRAGE nuclear | |
| Weak positive | 21(47.73) |
| Positive | 17(38.64) |
| Strongly positive | 6(13.64) |
| Expression of β-catenin | |
| Weak positive | 23(52.27) |
| Positive | 16(36.36) |
| Strongly positive | 5(11.36) |
| Expression of β-catenin nuclear | |
| Weak positive | 33(75) |
| Positive | 7(15.91) |
| Strongly positive | 4(9.09) |

Table S3 The linear correlation between NRAGE nuclear protein and β-catenin nuclear protein

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Expression of β-catenin nuclear** | | | ***χ*2** | ***P*** |
| **Weak positive** | **Positive** | **Strongly positive** |
| **Expression of NRAGE nuclear** | **Weak positive** | 18 | 3 | 0 | 4.106 | 0.043 |
| **Positive** | 12 | 2 | 3 |
| **Strongly positive** | 3 | 2 | 1 |