Tislelizumab uniquely binds to the CC’ loop of PD-1 with slow-dissociated rate and complete PD-L1 blockage

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Supporting information

Table S1. Data collection and refinement statistics

| Data collection | 7CGW |
|-----------------|------|
| **Beamline**    | BL17U1, SSRF |
| **Space group** | C 2 2 21 |
| **Cell dimensions (Å)** | a=142.64, b=145.57, c=175.55 |
| **Angles (°)** | α=90.00, β=90.00, γ=90.00 |
| **Resolution (Å)** | 101.88-3.20 (3.37-3.20) * |
| **Total number of reflections** | 346745 (49703) |
| **Number of unique reflections** | 30470 (4399) |
| **Completeness (%)** | 99.9 (99.8) |
| **Average redundancy** | 11.4 (11.3) |
| **Rmerge** | 0.155 (1.093) |
| **I/sigma (I)** | 11.8 (2.4) |
| **Wilson B factor (Å)** | 95.76 |

| Refinement |  |
|------------|---|
| **Resolution (Å)** | 101.88-3.20 |
| **Number of reflections** | 30423 |
| **rmsd bond lengths (Å)** | 0.006 |
| **rmsd bond angles (°)** | 1.095 |
| **Rwork (%)** | 21.79 |
| **Rfree (%)** | 25.40 |
| **Average B-factors of protein** | 103.9 |
| **Ramachandran plot (%)** |  |
| Favored | 94.53 |
| Allowed | 5.19 |
| Outliers | 0.28 |

* Values in parentheses refer to the highest resolution shell.
Table S2. The original tumor measurement data of the *in vivo* efficacy study

| Treatment  | Mouse ID | Individual animal’s tumor volume (mm³) |  |
|------------|----------|----------------------------------------|--|
|            |          | Day 1 | Day 15 | Day 20 | Day 23 | Day 27 | Day 30 |
| **Vehicle**|          |       |        |        |        |        |        |
| # 1        |          | -     | 81     | 666    | 1672   | 3609   | 5088   |
| # 2        |          | -     | 34     | 400    | 1224   | -      | -      |
| # 3        |          | -     | 7      | 253    | 708    | 2296   | 4520   |
| # 4        |          | -     | 0      | 89     | 247    | 668    | -      |
| # 5        |          | -     | 0      | 12     | 98     | 394    | 986    |
| # 6        |          | -     | 176    | 399    | -      | -      | -      |
| # 7        |          | -     | 151    | 702    | 1067   | 3010   | 4943   |
| # 8        |          | -     | 208    | 839    | 1878   | -      | -      |
| **Tislelizumab (10 mg/kg)** |          |       |        |        |        |        |        |
| # 9        |          | -     | 7      | 5      | 14     | 39     | 76     |
| # 10       |          | -     | 0      | 0      | 0      | 0      | 0      |
| # 11       |          | -     | 0      | 3      | 18     | 75     | 103    |
| # 12       |          | -     | 0      | 35     | 100    | 294    | 673    |
| # 13       |          | -     | 74     | 405    | 724    | -      | -      |
| # 14       |          | -     | 8      | 108    | 310    | 1324   | 2753   |
| # 15       |          | -     | 0      | 0      | 0      | 0      | 0      |
| # 16       |          | -     | 0      | 0      | 0      | 8      | 25     |

Data unavailable after the Day 20 indicated mice that were found dead or euthanized according to study protocol.
Figure S1. Continued.
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Figure S1. The SPR profile of tislelizumab, pembrolizumab and nivolumab against PD-1 mutants. The data presented here are representatives of three independent experiments with similar results. Abbreviations: RU, responsive units.