Genomic copy number variation correlates with survival outcomes in WHO grade IV glioma

Running Title: Genomic copy number variation in WHO grade IV glioma

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Table S1. Univariate analysis of PFS and OS

### Progression Free Survival

| Variable     | Level | N  | Hazard Ratio (95% CI)       | P-value |
|--------------|-------|----|----------------------------|---------|
| KPS          | >70   | 31 | 0.79 (0.424 – 1.4)         | 0.424   |
|              | ≤70   | 23 | -                          |         |
| Surgery Type | Biopsy| 6  | 1.96 (0.81 – 4.78)         | 0.137   |
|              | GTR   | 14 | 0.79 (0.41-1.53)           | 0.491   |
|              | STR   | 35 | -                          |         |
| IDH1 mutated | Yes   | 6  | 0.29 (.10-0.84)            | **0.022**|
|              | No    | 50 | -                          |         |
| MGMT         | Meth  | 25 | 0.63 (0.35-1.13)           | 0.121   |
|              | Unmeth| 31 | -                          |         |
| 1p19q co-deleted | Yes | 4  | 0.29 (0.09-0.98)           | **0.046**|
|              | No    | 51 | -                          |         |
| ASCAT log R seg. count | >402 | 21 | 0.32 (0.17-0.63)           | <**0.001**|
|              | ≤402  | 35 | -                          |         |
| ASCAT BAF seg. count | >277 | 25 | 0.49 (0.27-0.9)            | <**0.022**|
|              | ≤277  | 31 | -                          |         |
| ASCAT ACF    | >0.73 | 31 | 0.36 (0.20-0.67)           | **0.001**|
|              | ≤0.73 | 25 | -                          |         |

### Overall Survival

| Variable     | Level | N  | Hazard Ratio (95% CI)       | P-value |
|--------------|-------|----|----------------------------|---------|
| KPS          | >70   | 31 | 0.46 (0.26 – 0.84)         | **0.011**|
|              | ≤70   | 23 | -                          |         |
| Surgery Type | Biopsy| 6  | 3.89 (1.52 – 9.94)         | **0.005**|
|              | GTR   | 14 | 0.94 (0.48-1.87)           | 0.867   |
|              | STR   | 35 | -                          |         |
| Feature                        | Status | Count | Odds Ratio (95% CI) | p-Value |
|-------------------------------|--------|-------|---------------------|---------|
| IDH1 mutated                  | Yes    | 6     | 0.41 (.15-1.14)     | 0.077   |
|                               | No     | 50    | --                  | --      |
| MGMT                          | Meth   | 25    | 0.38 (0.21-0.71)    | **0.002** |
|                               | Unmeth | 31    | --                  | --      |
| 1p19q co-deleted              | Yes    | 4     | 0.56 (0.17-1.82)    | 0.335   |
|                               | No     | 51    | --                  | --      |
| ASCAT log R seg. count        | >402   | 21    | 0.45 (0.24-0.83)    | **0.010** |
|                               | ≤402   | 35    | --                  | --      |
| ASCAT BAF seg. count          | >359   | 9     | 0.49 (0.27-0.9)     | 0.052   |
|                               | ≤359   | 47    | --                  | --      |
| ASCAT ACF                     | >0.65  | 40    | 0.14 (0.07-0.31)    | <0.001  |
|                               | ≤0.65  | 1     | --                  | --      |

Abbreviations: GTR, gross total resection; STR, subtotal resection; KPS, Karnofsky performance status; ASCAT, allele-specific copy number analysis of tumors; ACF, aberrant cell fraction; log R, log ratio; BAF, B-allele frequency; CI, confidence interval; PFS, progression free survival; OS, overall survival.
**Table S2. Summary of survival endpoints by ASCAT variables**

| Endpoint/cohort | Variable | Optimal cut-point | Median survival in months (95% CI) | 12-month survival | 24-month survival | Log-rank p-value |
|-----------------|----------|-------------------|-------------------------------------|-------------------|------------------|------------------|
| **PFS/institutional** | ACF      | ≤0.73             | 5.9 (4, 8.7)                        | 8.5%              | 0%               | <0.001           |
|                  |          | >0.73             | 10.4 (7.3, 13.9)                    | 36.7%             | 17.1%            |                  |
|                  | Log R seg. count | ≤402           | 6.5 (5.1, 8.2)                      | 11.9%             | 0%               | <0.001           |
|                  |          | >402              | 11.4 (7.9, 19.7)                    | 45%               | 27%              |                  |
| **OS/institutional** | ACF      | ≤0.65             | 7.3 (4, 10.2)                       | 13.6%             | 0%               | <0.001           |
|                  |          | >0.65             | 19.1 (15.5, 22.1)                   | 77.3%             | 30.9%            |                  |
|                  | Log R seg. count | ≤402           | 10.6 (7.4, 15.9)                    | 46.3%             | 9.3%             | 0.009            |
|                  |          | >402              | 19.7 (12.4, 34.1)                   | 81%               | 42.9%            |                  |
|                  | BAF seg. count | ≤359            | 12.4 (10, 16.7)                     | 54.1%             | 18%              | 0.052            |
|                  |          | >359              | 21.3 (2.5, 43.4)                    | 88.9%             | 44.4%            |                  |
| **OS/validation cohort** | Log R seg. count | ≤471            | 12.9 (11.8, 14.5)                   | 55.2%             | 23.2%            | 0.070            |
|                  |          | >471              | 15.1 (13.6, 16.5)                   | 63.6%             | 24.2%            |                  |
|                  | BAF seg. count | ≤97             | 12.2 (10.8, 14.3)                   | 51.9%             | 19.6%            | 0.013            |
|                  |          | >97               | 15 (13.9, 15.9)                     | 62.3%             | 25.6%            |                  |

Abbreviations: Log R, log ratio; ACF, aberrant cell fraction, BAF, B-allele frequency, CI, confidence interval; PFS, progression free survival; OS, overall survival