### Supplementary information

**Table S1. Severity and attribution of adverse events**

| Adverse Event                  | Grade | Attribution | SAE* | DLT† |
|-------------------------------|-------|-------------|------|------|
| **50 mg Cohort**              |       |             |      |      |
| Patient 1                     |       |             |      |      |
| Day 16 Pain                   | 1     | Unrelated   | No   | No   |
| Patient 2                     |       |             |      |      |
| Day 16 Fatigue                | 1     | Unrelated   | No   | No   |
| Day 16 Wound infection        | 1     | Unrelated   | No   | No   |
| Day 16 Localized edema        | 1     | Unrelated   | No   | No   |
| Day 30 Arthralgia             | 1     | Unrelated   | No   | No   |
| Patient 3                     |       |             |      |      |
| Day 30 Edema limbs            | 2     | Unrelated   | No   | No   |
| Patient 5                     |       |             |      |      |
| Day 16 Confusion              | 2     | Unrelated   | No   | No   |
| Day 30 Confusion              | 1     | Unrelated   | No   | No   |
| **100 mg Cohort**             |       |             |      |      |
| Patient 7                     |       |             |      |      |
| Day 16 Memory impairment      | 1     | Unrelated   | No   | No   |
| Patient 8                     |       |             |      |      |
| Day 2 Vestibular disorder     | 1     | Unrelated   | No   | No   |
| Day 2 Hearing impaired        | 1     | Unrelated   | No   | No   |
| Day 2 Concentration impairment| 1     | Unrelated   | No   | No   |
| Day 2 Gait disturbance        | 1     | Unrelated   | No   | No   |
| Day 2 Hypertension            | 1     | Unrelated   | No   | No   |
| Day 16 Vestibular disorder    | 1     | Unrelated   | No   | No   |
| Day 16 Confusion              | 1     | Unrelated   | No   | No   |
| Day 16 Memory impairment      | 1     | Unrelated   | No   | No   |
| Day 16 Muscle weakness right-sided| 1 | Unrelated | No | No |
| Day 16 Headache               | 1     | Unrelated   | No   | No   |
| Day 16 Fatigue                | 1     | Unrelated   | No   | No   |
| Day 16 Dysphasia              | 1     | Unrelated   | No   | No   |
| Day 30 Confusion              | 1     | Unrelated   | No   | No   |
| Day 30 Memory impairment      | 1     | Unrelated   | No   | No   |
| Day 30 Muscle weakness right-sided| 1 | Unrelated | No | No |
| Day 30 Headache               | 1     | Unrelated   | No   | No   |
| Day 30 Fatigue                | 1     | Unrelated   | No   | No   |
| Day 30 Dysphasia              | 1     | Unrelated   | No   | No   |
| Patient 10                    |       |             |      |      |
| Day 1 Seizure                 | 3     | Unrelated   | No   | No   |
| Day 1 Muscle weakness upper limb| 1 | Unrelated | No | No |
| Day 1 Fatigue                 | 1     | Unrelated   | No   | No   |
| Day 1 Myalgia                 | 1     | Unrelated   | No   | No   |
| Day 1 Tinnitus                | 1     | Unrelated   | No   | No   |
| Day 1 Dysphasia               | 1     | Unrelated   | No   | No   |
| Day 1 Seizure                 | 1     | Unrelated   | No   | No   |
| Day 2 Seizure                 | 1     | Unrelated   | No   | No   |
| Day 30 Seizure                | 1     | Unrelated   | No   | No   |
| Day 30 Seizure                | 1     | Unrelated   | No   | No   |
| Day 30 Seizure                | 1     | Unrelated   | No   | No   |
| Day 30 Seizure                | 1     | Unrelated   | No   | No   |
| Patient 11                    |       |             |      |      |
| Day 30 Headache               | 1     | Unrelated   | No   | No   |

* SAE = serious adverse event; † DLT = dose limiting toxicity
Figure S1. Fresh tissue fluorescence at three different imaging windows. Linear regression (with 95% confidence intervals) of mean fluorescence intensity (MFI) normalized to panitumumab-IRDye800 dose (mg/kg) against tissue weight of fresh tissue pieces removed 1 day, 2 days and 3 days after panitumumab-IRDye800 infusion.
Figure S2. MFI (*left y-axis*) of tumor (T) and normal (N) tissue sections and tumor TBR (*left y-axis*) for low and high dose cohorts. *Dotted lines:* MFI cutoff values (0.5545, red; 0.7445, blue) for maximal specificity and sensitivity of respective ROC curves in Figure 4B; $P < 0.0001$ (50 mg T vs 50 mg N; 100 mg T vs 100 mg N; 50 mg T vs 100 mg T) and $P = 0.018$ (50 mg N vs 100 mg N) for MFI comparisons; $P = 0.0035$ (50 mg TBR vs 100 mg TBR). Statistical test: unpaired t-test with Welch’s correction.
Figure S3. NIR fluorescence in gliotic brain tissue. Histological and immunohistochemical stainings of resected HGG tissue containing gliosis (*dotted outlines*).