

Supplementary Materials:

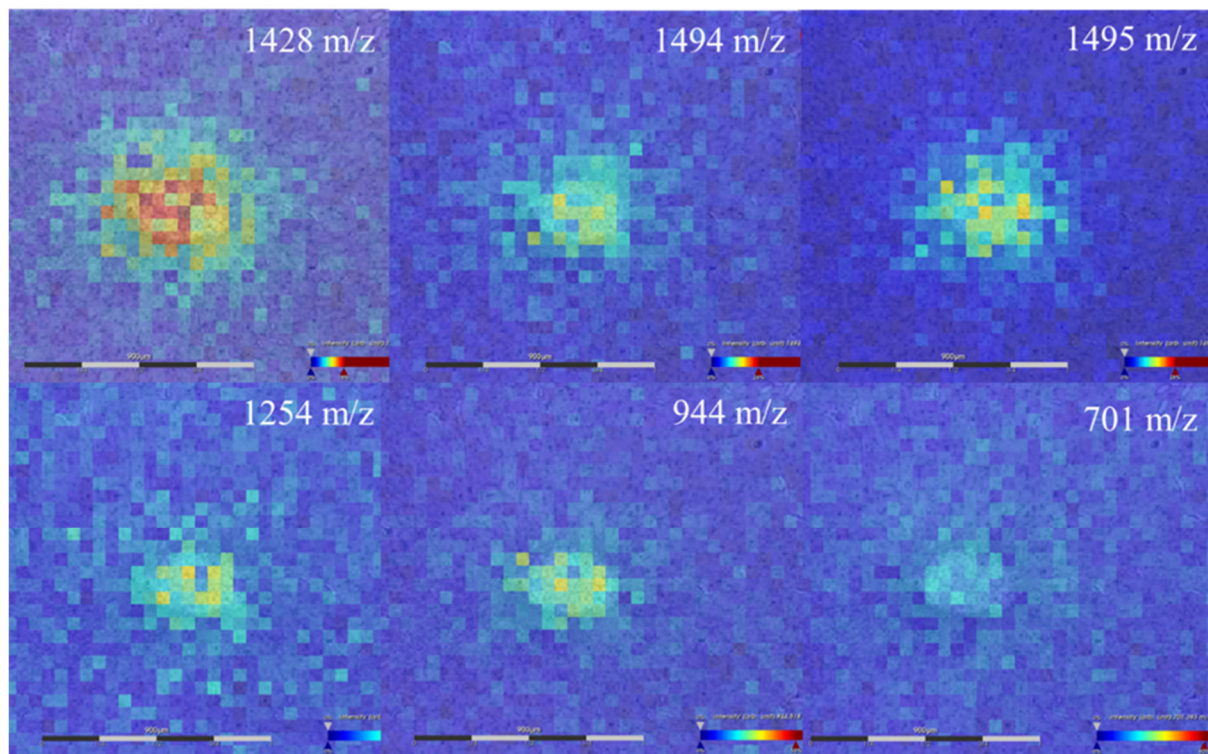


Figure S1. MALDI imaging of one exemplary G7_mCherry tumor. Most relevant tumor specific masses are displayed. No clear tumor border can be visualized.

Table S1. List of discriminative mass values (m/z) for U87MG_mCherry tumors including mean intensities and ROC values of background vs. tumor and tumor vs. background analysis, respectively.

| Mass Value (m/z) | Mean Intensity (200 mDa) | AUC | Distribution |
|----------------------|-----------------------------|-------|--------------|
| 615.3 | 10.84 | 1 | Brain tissue |
| 643.3 | 39.45 | 1 | Brain tissue |
| 705.4 | 29.28 | 1 | Brain tissue |
| 707.4 | 6.04 | 1 | Brain tissue |
| 722.4 | 4.46 | 1 | Brain tissue |
| 836.4 | 2.96 | 0.999 | Tumor |
| 852.5 | 3.39 | 0.997 | Tumor |
| 898.5 | 2.64 | 0.996 | Tumor |
| 914.5 | 2.92 | 0.998 | Tumor |
| 915.5 | 3.06 | 0.996 | Tumor |
| 943.6 | 3.08 | 0.986 | Tumor |
| 944.5 | 10.12 | 0.987 | Tumor |
| 1028.6 | 3.12 | 0.993 | Tumor |
| 1095.6 | 2.04 | 0.996 | Tumor |
| 1106.6 | 2.23 | 0.999 | Tumor |
| 1339.7 | 11.17 | 0.999 | Brain tissue |
| 1428.7 | 3.02 | 0.999 | Tumor |
| 1428.7 | 1.13 | 0.999 | Tumor |
| 1429.7 | 1.12 | 0.999 | Tumor |
| 1459.7 | 0.91 | 0.996 | Tumor |
| 1465.7 | 1.03 | 0.996 | Tumor |
| 1494.7 | 1.48 | 0.997 | Tumor |
| 1495.8 | 1.71 | 0.999 | Tumor |
| 1496.8 | 1.26 | 0.999 | Tumor |
| 1562.8 | 0.5 | 0.994 | Tumor |

Table S2. List of discriminative mass values (m/z) including mean intensities and ROC values of tumors. Several tumor peaks were also present in normal brain tissue since the G7_mCherry tumor cells are much more invasive compared to U87MG mCherry.

| Mass value (m/z) | Mean intensity (150 mDa) | AUC | Distribution |
|----------------------|-----------------------------|-------|----------------------|
| 914.3 | 1.886 | 0.595 | Tumor / Brain tissue |
| 1028.5 | 1.459 | 0.689 | Tumor / Brain tissue |
| 1254.6 | 0.732 | 0.600 | Tumor / Brain tissue |
| 1428.7 | 1.153 | 0.907 | Tumor |
| 1429.6 | 1.036 | 0.671 | Tumor / Brain tissue |
| 1430.7 | 0.672 | 0.664 | Tumor / Brain tissue |
| 1494.7 | 1.025 | 0.587 | Tumor / Brain tissue |
| 1495.8 | 1.325 | 0.737 | Tumor / Brain tissue |
| 1496.1 | 0.955 | 0.743 | Tumor / Brain tissue |
| 1497.8 | 0.621 | 0.727 | Tumor / Brain tissue |