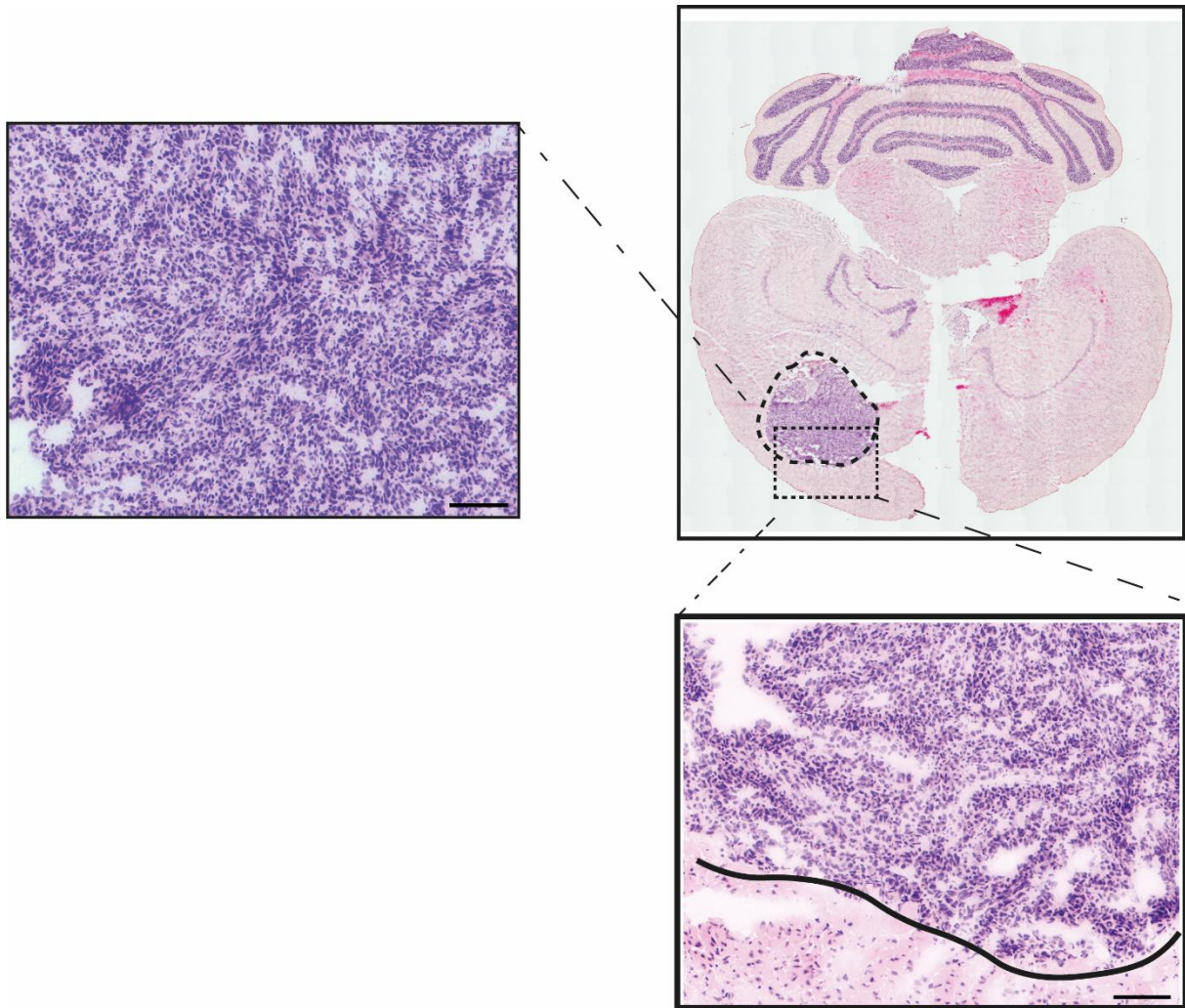


## Supplementary information

**Supplementary Table S1: Parameter for scoring of the experimental animals.**

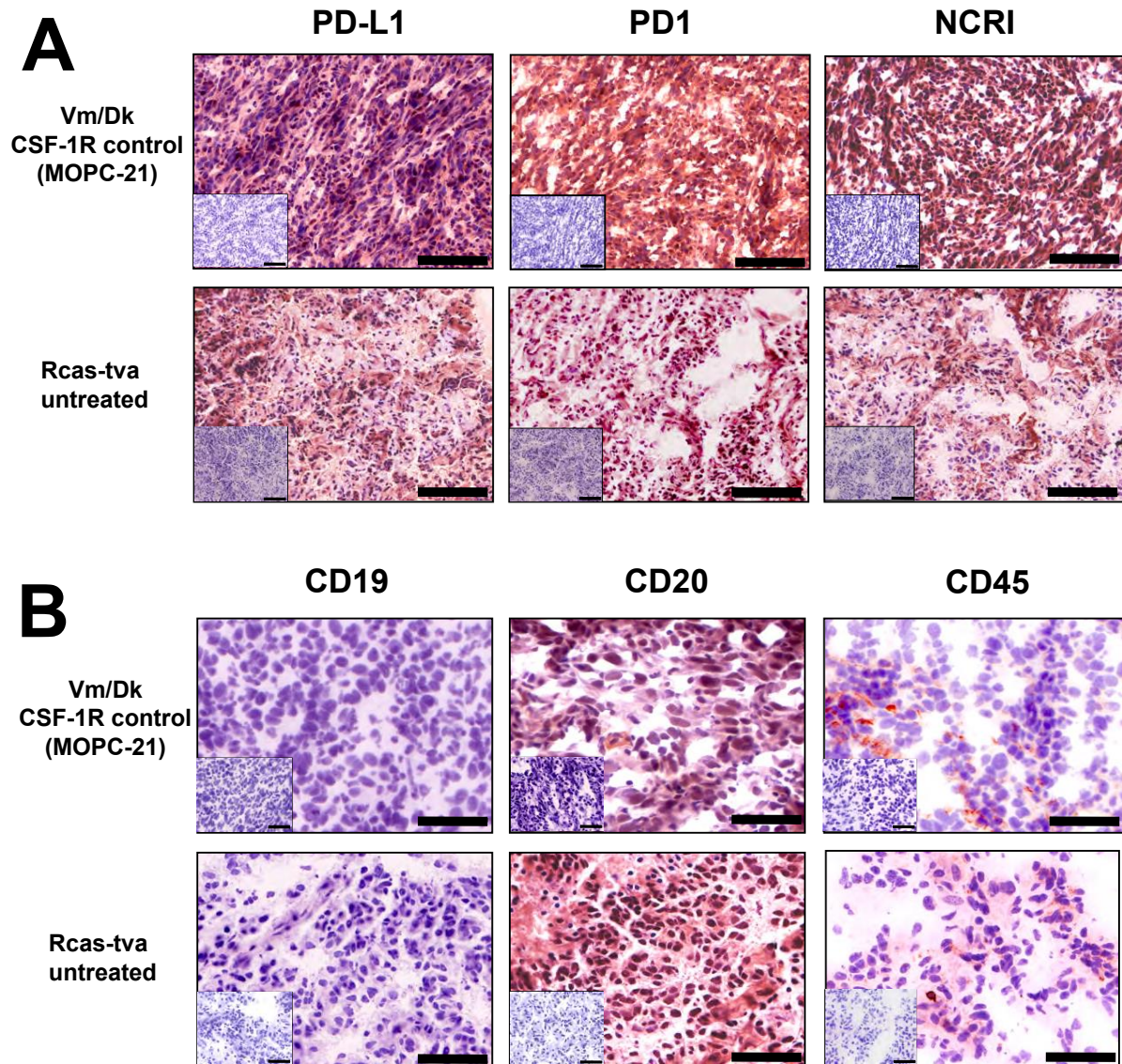
Parameter	Phenotype	Score
<b>General appearance</b>	Clean skin and orifices, no pain, no weight loss	0
	Slight eye or nose discharge, slight pain, up to 10% weight loss	1
	Sticky eyes, moderate pain, up to 19% weight loss	2
	Cramps, dehydration, strong pain, max. 20% weight loss	3
<b>Behavior and motion activity</b>	Normal spontaneous-explorative behavior, normal activity	0
	Reduced spontaneous-explorative behavior, reduced activity	1
	Strongly reduced spontaneous-explorative behavior, strongly reduced activity	2
	Total inactivity	3
<b>Posture, facial expression and assessment of pain with the "grimace score" [1]</b>	Normal posture, normal facial expression	0
	Slightly hunched back, less than 5 facial attributes with score 1, little pain	1
	Moderately hunched back, grimace score: all facial attributes are moderate, moderate pain	2
	Strongly hunched back, grimace score: all facial attributes are severe, severe pain	3
<b>Neurological symptoms</b> (Behavior in the cage and on the grid, left paw paralysis)	None	0
	Slight loss-of-balance, occasionally missed steps, slight paralysis	1
	Moderate loss-of-balance, every third step missed, moderate paralysis	2
	Strong loss-of-balance, total inactivity, strong paralysis	3

Compare [1].



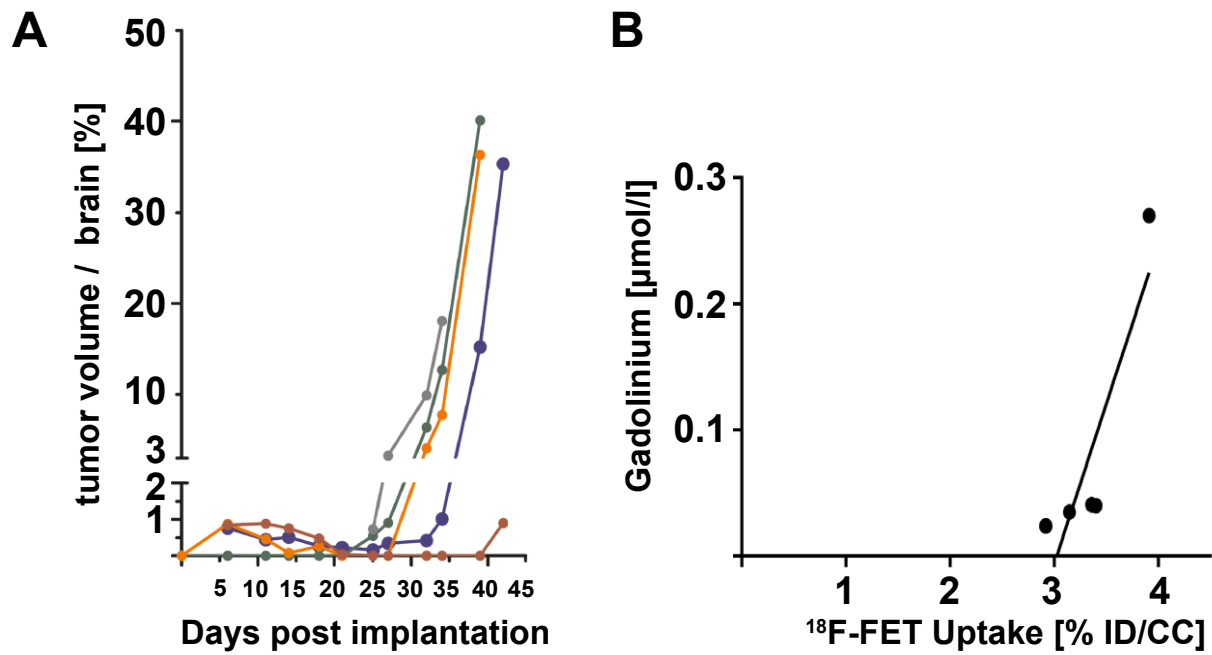
**Supplementary Figure S1. Representative H&E images of SMA560 glioma.**

Representative H&E staining of SMA560 glioma on day 18 after orthotopic tumor cell implantation into the brain of syngeneic VM/Dk mice. Morphologic features include infiltrating growth, neovascularization, and high cellular density. The black line highlights the tumor margin and the infiltration zone. Scale bars are 100  $\mu\text{m}$ .



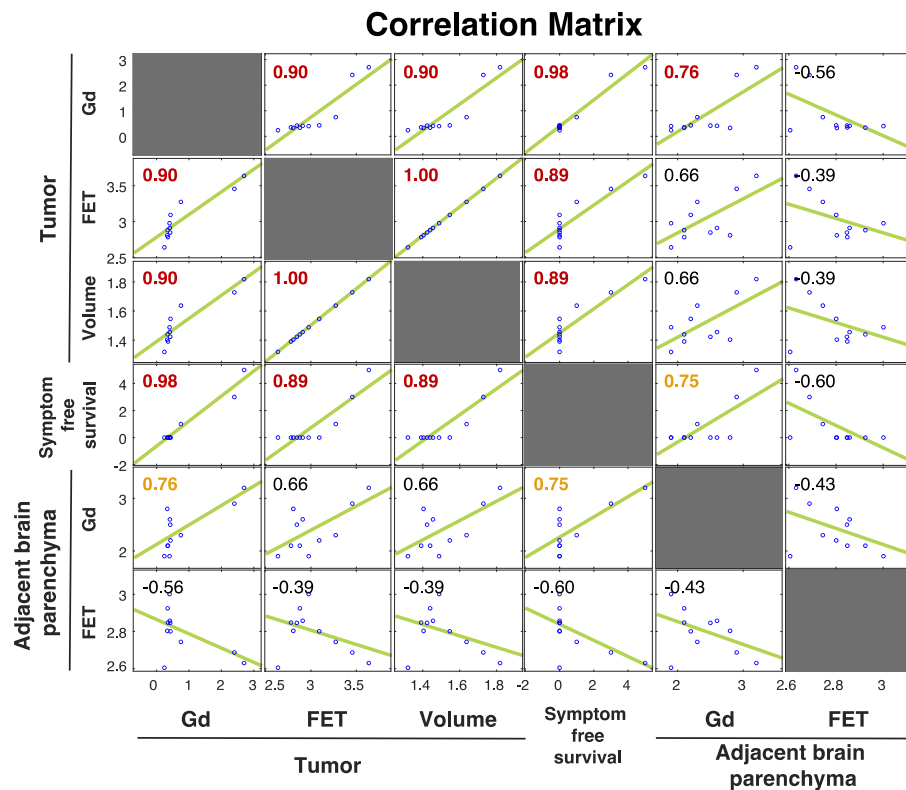
**Supplementary Figure S2. Selected immunohistochemistry staining in SMA560 and PDGFB-driven glioma.**

(A) Immunohistochemical staining of the PD1/PD-L1 axis and (B) cell markers in SMA560 glioma and PDGFB-driven glioma using the RCAS-tva delivery system (small inserts show isotype controls). Scale bars are (A) 100  $\mu$ m in (B) 50 $\mu$ m.



**Supplementary Figure S3: Longitudinal MRI dynamics and correlation with  $^{18}\text{F}$  FET uptake**

(A) Longitudinal tumor volume curve; values on y axis indicate the relative tumor volume within the whole brain (in percentage). (B) Correlation of gadolinium to  $^{18}\text{F}$ -FET uptake at 42 days post-implantation.



**Supplementary Figure S4: Correlation matrix of all imaging parameters to the primary outcome parameter**

Pearson correlations showed a correlation of tumor volume, tumor FET uptake, and tumor Gd uptake. These imaging parameters also correlated with the timepoints when animals reached the primary outcome parameter (symptom-free survival). (Pearson correlations are shown per graph on the top left corner, with red symbolizing a significant correlation under  $p < 0.001$  and orange a  $P$ -value between 0.01 and 0.001).

## References

1. Langford, D.J.; Bailey, A.L.; Chanda, M.L.; Clarke, S.E.; Drummond, T.E.; Echols, S.; Glick, S.; Ingrao, J.; Klassen-Ross, T.; Lacroix-Fralish, M.L.; et al. Coding of facial expressions of pain in the laboratory mouse. *Nat. Methods*. 2010, 7, 447–449. <https://doi.org/10.1038/nmeth.1455>