Supplementary Material

DKK3 expression is associated with immunosuppression and poor prognosis in glioblastoma, in contrast to lower-grade gliomas

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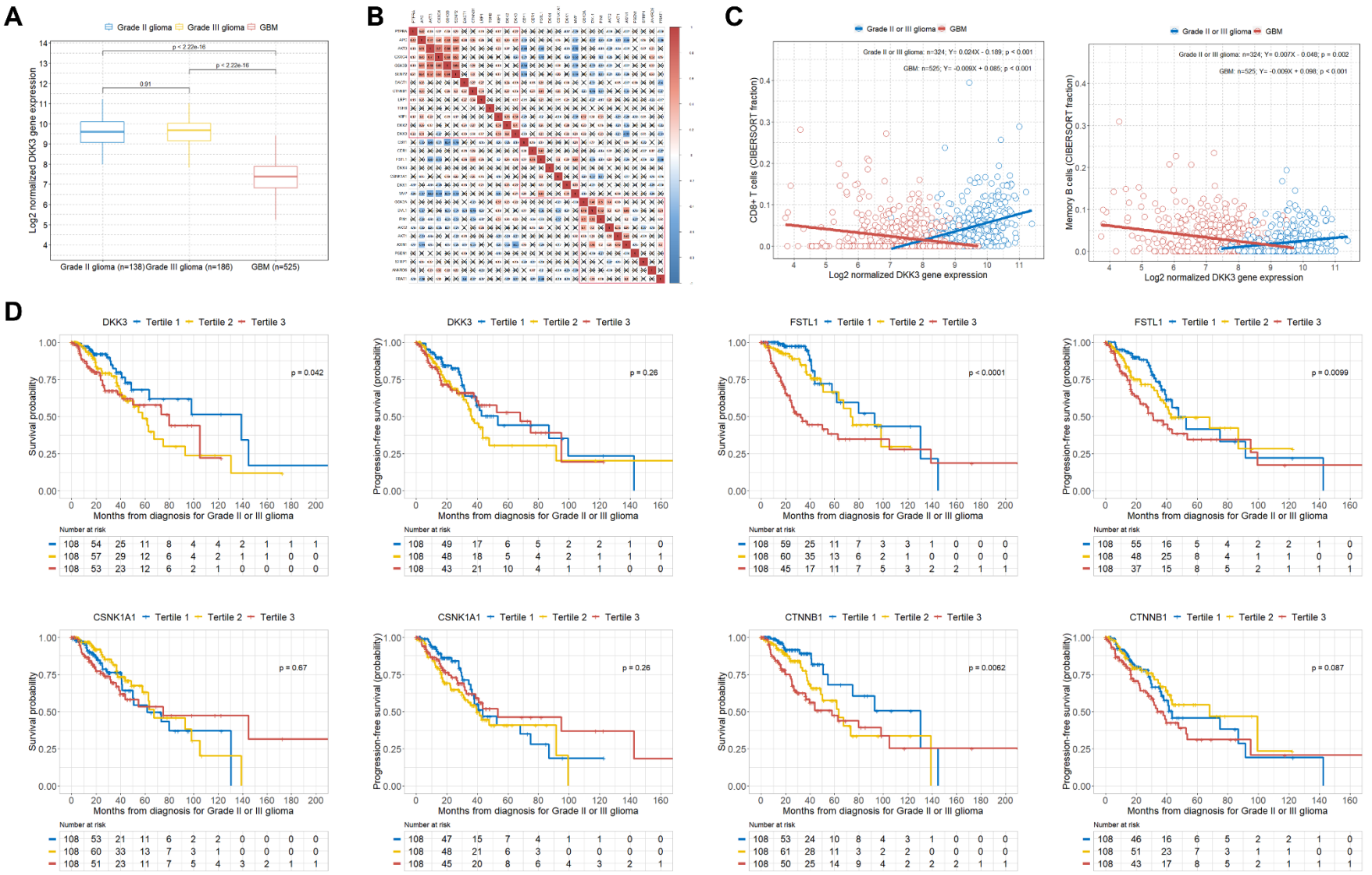
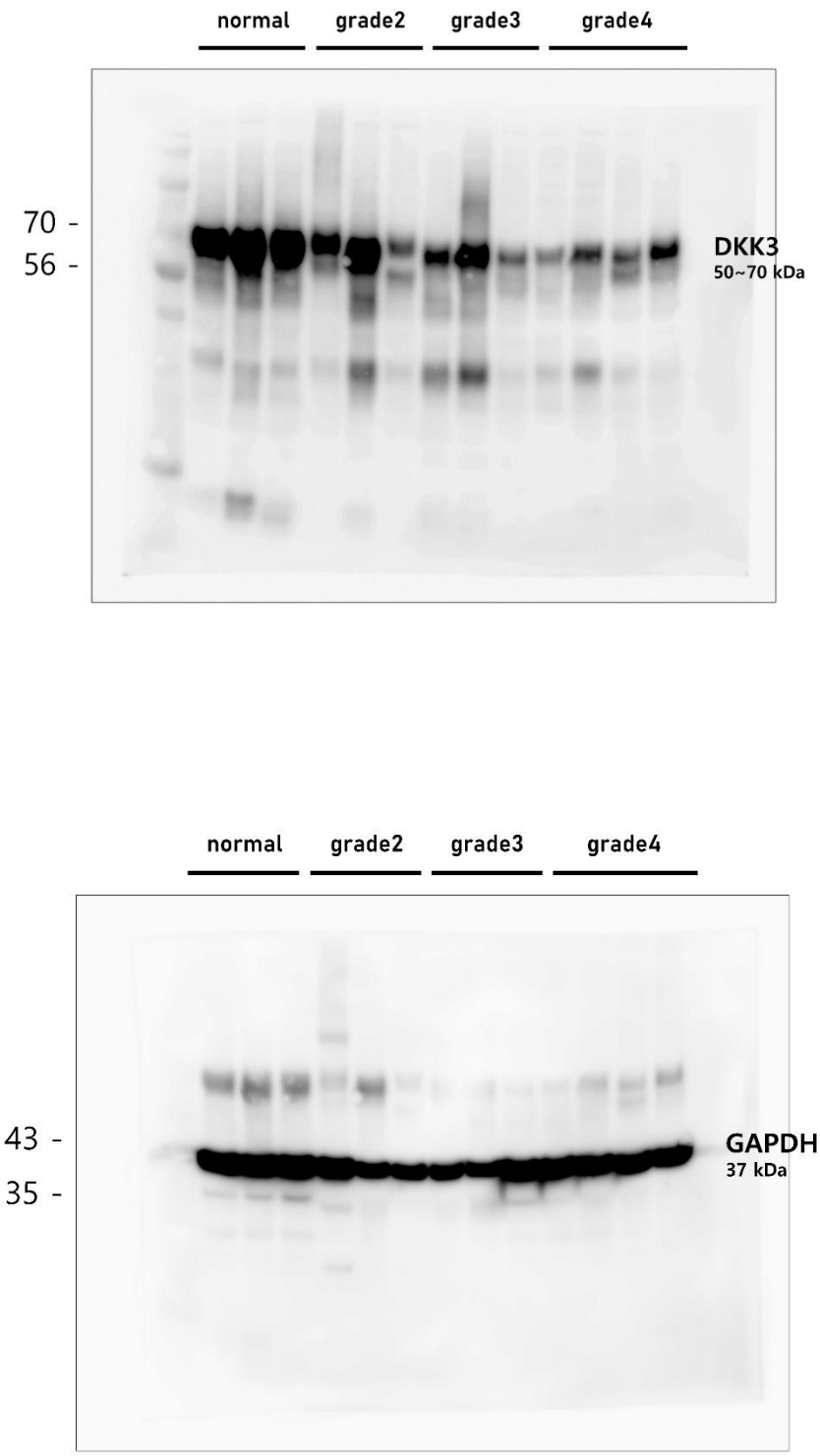
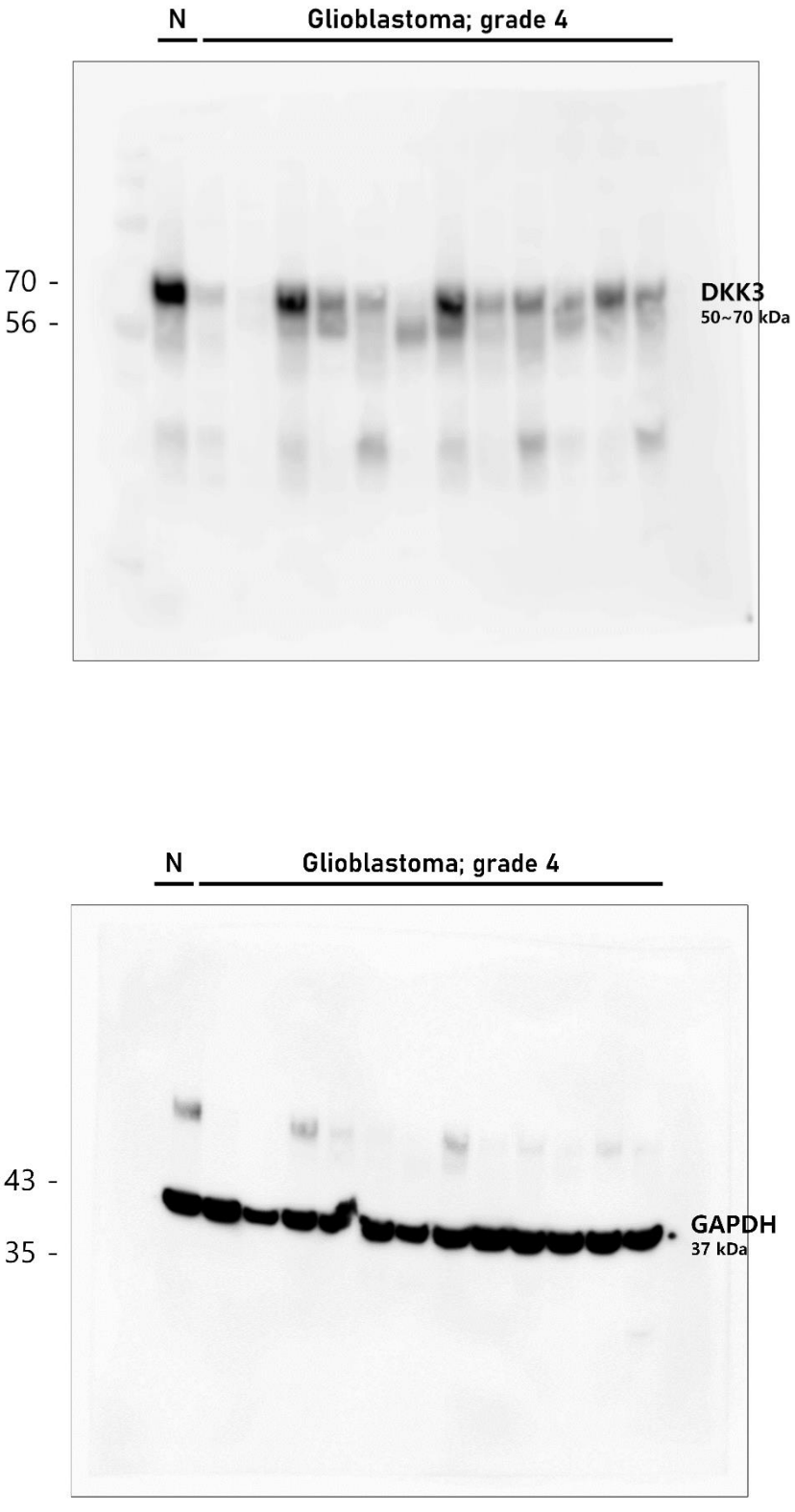

A
Grade II glioma
Grade III glioma
GBM
p < 2.22e-16
p < 2.22e-16
0.91
Log2 normalized DKK3 gene expression
Grade II glioma (n=138)
Grade III glioma (n=186)
GBM (n=525)
B
C
Grade II or III glioma
GBM
Grade II or III glioma: n=324; Y= 0.024X - 0.189; p < 0.001
GBM: n=525; Y= -0.009X + 0.085; p < 0.001
CD8+ T cells (CIBERSORT fraction)
Log2 normalized DKK3 gene expression
Grade II or III glioma: n=324; Y= 0.007X - 0.048; p = 0.002
GBM: n=525; Y= -0.009X + 0.098; p < 0.001
Memory B cells (CIBERSORT fraction)
Log2 normalized DKK3 gene expression
D
DKK3 Tertile 1 Tertile 2 Tertile 3
p = 0.042
Survival probability
Months from diagnosis for Grade II or III glioma
Number at risk
108 54 25 11 8 4 4 2 1 1 1
108 57 29 12 6 4 2 1 1 0 0
108 53 23 12 6 2 1 0 0 0 0
DKK3 Tertile 1 Tertile 2 Tertile 3
p = 0.26
Progression-free survival (probability)
Months from diagnosis for Grade II or III glioma
Number at risk
108 49 17 6 5 2 2 1 0
108 48 18 5 4 2 1 1 1
108 43 21 10 4 1 1 0 0
FSTL1 Tertile 1 Tertile 2 Tertile 3
p < 0.0001
Survival probability
Months from diagnosis for Grade II or III glioma
Number at risk
108 59 25 11 7 3 3 1 0 0 0
108 60 35 13 6 2 1 0 0 0 0
108 45 17 11 7 5 3 2 2 1 1
FSTL1 Tertile 1 Tertile 2 Tertile 3
p = 0.0099
Progression-free survival (probability)
Months from diagnosis for Grade II or III glioma
Number at risk
108 55 16 5 4 2 2 1 0
108 48 25 8 4 1 1 0 0
108 37 15 8 5 2 1 1 1
CSNK1A1 Tertile 1 Tertile 2 Tertile 3
p = 0.67
Survival probability
Months from diagnosis for Grade II or III glioma
Number at risk
108 53 21 11 6 2 2 0 0 0 0
108 60 33 13 7 3 1 0 0 0 0
108 51 23 11 7 5 4 3 2 1 1
CSNK1A1 Tertile 1 Tertile 2 Tertile 3
p = 0.26
Progression-free survival (probability)
Months from diagnosis for Grade II or III glioma
Number at risk
108 47 15 7 4 1 1 0 0
108 48 21 6 3 0 0 0 0
108 45 20 8 6 4 3 2 1
CTNNB1 Tertile 1 Tertile 2 Tertile 3
p = 0.0062
Survival probability
Months from diagnosis for Grade II or III glioma
Number at risk
108 53 24 10 8 4 3 1 0 0 0
108 61 28 11 3 2 2 0 0 0 0
108 50 25 14 9 4 2 2 2 1 1
CTNNB1 Tertile 1 Tertile 2 Tertile 3
p = 0.087
Progression-free survival (probability)
Months from diagnosis for Grade II or III glioma
Number at risk
108 46 16 6 5 2 2 1 0
108 51 23 7 3 1 1 0 0
108 43 17 8 5 2 1 1 1

Supplementary Fig. 1. Additional analysis excluding patients with oligodendroglioma from the LGG group. (A) Boxplots showing the differences in DKK3 expression levels according to the WHO grade of glioma; (B) Pearson correlation coefficients and significance levels calculated between Wnt/β-catenin pathway-related genes in WHO grades II and III gliomas; (C) Scatterplots with linear regression lines showing the associations between DKK3 expression and the CD8+ T-cell and memory B-cell fractions according to WHO grades II or III gliomas and GBM; (D) Kaplan–Meier curves showing the OS and PFS rates according to DKK3, FSTL1, CSNK1A1, and CTNNB 1 tertiles in WHO grades II or III gliomas.

DKK3, dickkopf Wnt signaling pathway inhibitor 3; GBM, glioblastoma multiforme; OS, overall survival; PFS, progression-free survival



Supplementary Fig. 2. Full-length blots/gels of Fig. 6A



Supplementary Fig. 3. Full-length blots/gels of Fig. 7A