

Supplementary material

QKI-5 regulates the alternative splicing of cytoskeletal gene *ADD3* in lung cancer

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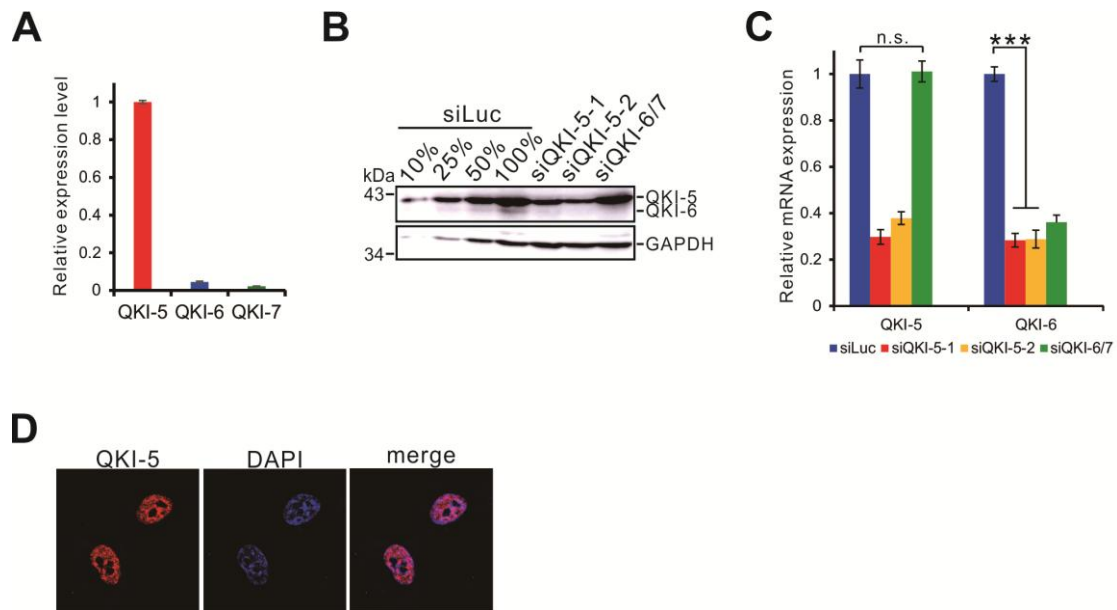
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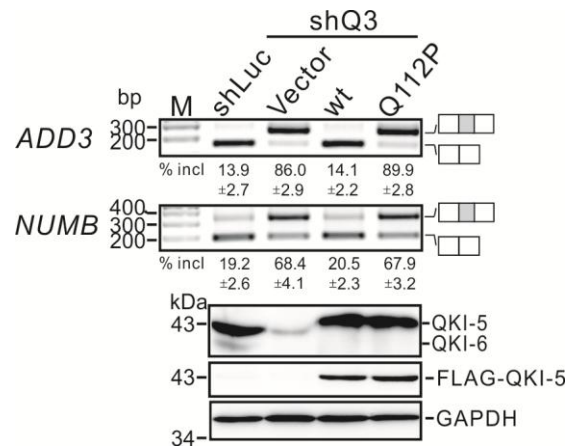
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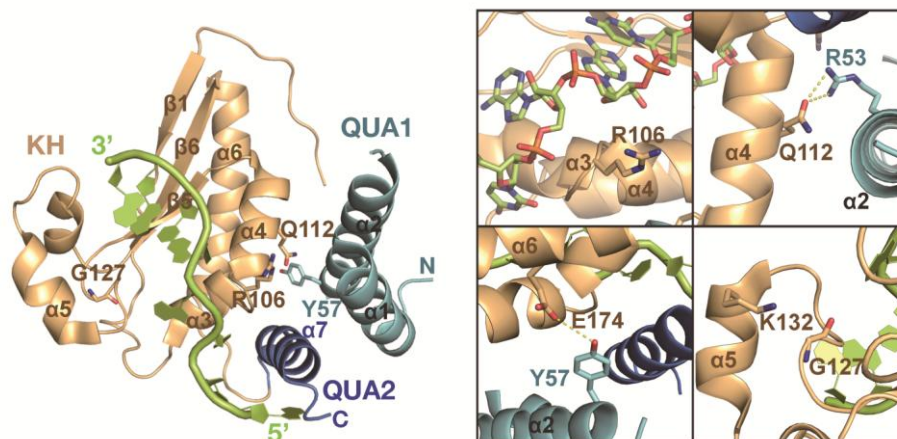
1 Supplementary Table



Supplementary Figure S1 QKI-5 is the dominant form of QKI proteins in lung cancer cells and required for QKI-6 expression. **(A)** RT-qPCR analysis of QKI-5, QKI-6, and QKI-7 mRNAs in BEAS2B cells. **(B)** Western blot analysis of QKI expression in BEAS2B cells transfected with control-, QKI-5, QKI-6/7 siRNAs. **(C)** RT-qPCR analysis of QKI-5 and QKI-6 mRNAs in cells treated as in **(B)**. **(D)** Immunofluorescent staining of QKI-5 (red) and DAPI (blue) in A549 cells.



Supplementary Figure S2 Q112P mutation in QKI does not affect the splicing of ADD3 and NUMB. RT-PCR analysis of the splicing patterns of ADD3 and NUMB in control- or QKI-specific knockdown BEAS2B cells or QKI-knockdown cells expressing wildtype or Q112P mutant QKI-5. The average percentages of exon inclusion with standard deviations are shown below (n=3).



Supplementary Figure S3 Cartoon representation of the structure of QKI-5-RNA complex (PDB 4JVH). Key residues Y57, R106, Q112, and G127 are shown in stick.

Supplementary Table S1

Oligonucleotide name	Oligonucleotide sequences (5'-3')
ADD3- <i>Hind</i> III-for	TTAAAAAGCTTGAAGATGATGATCATGGCCC
ADD3- <i>Xho</i> I-rev	TTAAACTCGAGTCGCTTAGCAAGCTCATCTTC
ligation primer1	TAGCTACTCTGGTTTTCTAATGCTAGCAAGA
ligation primer2	TTAGAAAACCAGAGTAGCTAGGACTAC
ligation primer 3	GCTGAGGCAGGAATTAACATCTCCCAATCAG
ligation primer 4	TGTTTAATTCCTGCCTCAGCCTCCCAA
ADD3 Mut1 for	GGCTTTTGACTGAACTCTTATCCAACAGATGCT
ADD3 Mut1 rev	AAGAGTTCAGTCAAAAGCCATGCAAAACAAAAC
ADD3 Mut2 for	TGCGCTGACCTCCCTGAAATCATATGCTGCTTTGTTTT
ADD3 Mut2 rev	TTTCAGGGAGGTCAGCGCATAACATCAATGCCTGTAT
ADD3 Mut4 for	AATGTTGACACATTGACCTCCTCTTGATGTATGATTATGGATATATGGGAT GACTGTTAGCA
ADD3 Mut4 rev	AGGTCAATGTGTCAACATTTCTGGCTGCTAATGGTCATTTACGTACAG GTCACAAAAGATG
ADD3 Mut5 for	GCCAGAAATGTTGACACATTGACCTCCTCTTAATGTATGATTATGGAT
ADD3 Mut5 rev	GCATGCTAACAGTCATCCCATATATCCATAATCATAACATTAAGAGG
ADD3 Mut6 for	TTTGTGACCTGTACGTGAAATGACCATT
ADD3 Mut6 rev	GCATGCTAACAGTCATCCCATATATCCATAATCATAACATTAAGAGG
QKI5-FLAG-rev	TTAAATCTAGATTACTTGTGTCGTCATCGTCTTTGTAGTCGTTGCCGGTGGC GGCTC
QKI5-for	TTAAAGGATCCATGGTCGGGGAAATGGAAAC
QKI5 Mut1 for	AAGACATGCACAATGACACATTAATGGCA
QKI5 Mut1 rev	TGTGTCATTGTGCATGTCTTTCCGTA CTCTGC
QKI5 Mut2 for	GACCTACAGGACTTACAGCCAAACA
QKI5 Mut2 rev	GGCTGTAAGTCCTGTAGGTCCAAGGATTCTCCC
QKI5 Mut3 for	AAACCACTTGAAGCAGAAACCGGATG
QKI5 Mut3 rev	GTTTCTGCTTCAAGTGGTTTGGCTGTAAGTCCTCTA
QKI5 Mut4 for	ATTATTGGTACGTGCAGCAGAAGGAGAAGACA
QKI5 Mut4 rev	CTGCTGCACGTACCAATAATTTCTTCACTTCT
QKI5 Mut5 for	GAGGCAAAGTCTCAATGAGGGATAAAAAA
QKI5 Mut5 rev	CCTCATTGAGACTTTGCCTCGGACCATGAT
QKI5 Mut6 for	GCAGTTGAAAAAGTGAAGAAATTATTGGTA

QKI5 Mut6 rev	TTCTTCACTTTTTCAACTGCTCTCTTCAATTT
QKI5 Mut7 for	AAGCAGAAACCAGATGTAAAATCATGGTCCGA
QKI5 Mut7 rev	TTTACATCTGGTTTCTGCTTCAAGTTGTTT
QKI5 Mut8 for	TGATAGAGCTTGCGATTCTGAATGG
QKI5 Mut8 rev	CAGAATCGCAAGCTCTATCAGCTGCATCTTCTTC
QKI5 Mut9 rev	TTAAATCTAGACTTGTGCGTCATCGTCTTTGTAGTCTCCTTCTGCTGCA GGTAC
ADD3 for	ACCAGCTCCTCCTAACCCA
ADD3 rev	CATCCTTGCCATTTACTACC
NUMB for	AGGGGAGGCAGAGAGCAT
NUMB rev	TCTATGACCGGCCTGGAA
ctrl ASO	CCUAUAGGACUAUCCAGGAA (each base with 2'-O-methoxyethyl-phosphorothioate modifications)
ADD3 ASO-1	ACAUUGAGUACCUUCUAAUUUU (each base with 2'-O-methoxyethyl-phosphorothioate modifications)
ADD3 ASO-2	CUGCUCAGCAUCUGUUGGAUAA (each base with 2'-O-methoxyethyl-phosphorothioate modifications)
shLuc target sequence	CGTACGCGGAATACTTCGA
shQ3 target sequence	GAAGAGAGCAGTTGAAGAA
siRNA-QKI5-1	CUAUGACCUUCUGACCUCUGAAUU
siRNA-QKI5-3	AGUAGAUACUUUUACUUAACAAGGUU
siRNA-QKI6/7	GAAUUCAAGAACGGUCUUAUUU