Supplementary Materials

Table S1. RNA junction sequences of identified chimeric RNAs.

Chimera	RNA Fusion Junction Sequence
MUC1-TRIM46	See Table S5
SH2D4A-CSGALNACT1	TTTCCTCATCGATGCCTCTGCAGACGCCTACAGCTTCCTGGGCGTGGACC AGCTACAGCATGCCACCTTGGCGGATTTGGTGGAATATCACAAG*GTGAG CCTCTATCTCGTGCCTGAACACCAGCATGCCCAGCTGGCCGTGG
CCDC19-VSIG8	CAGCAGAAGGAAGTGCAGAACCGGATTGCCACCTTTGAGGAGGGCCGG CGCCTCAAAGAGGAGGCCCAGAAACGCCGTGAGCGCATCGATGAGATC AAGAGGAAAAAGCTTGAAGAGCTGAG*CACTGCTGTCTGCTGTGCGGAT CAACGGGGATGGACAGGAGGTCCTGTACCTGGCAGAAGGTGATAATGTG AGGCTGGGCTGCCCCTACGTCCTGGACCCTGAGGACTATGGTCCCAATG GGCTGGACATCGAGTGGATGCAGGTCAACT
SFPQ-AL831889	TGGTGGTGGCATAGGTTATGAAGCTAATCCTGGCGTTCCACCAGCAACC ATGAGTGGTTCCATGATGGGAAGTGACATG*GTAAGAATGATTGATGTTG GCTGATATTGGAGTGCTCATTCACATGAAGTGGATAGATACTTCTCAAGA CATCACACAGCGTGAGTCAATCAAGGAGGGAAGCCACAAGCAGACTGA CAACGTTTCTAGGATCAGGTGAGCTGTGTCCAGAAA
CS-CNPY2	CTGCTCACCTTGGTTCCCAAGAGCCGGGCGGCCGCA*CTCCGACTCAGAT TTTGAACGGATGTTTGCATGTATACCACAGTGCTACATTAAAAACCAGTC ATGTGGATGTGGAGAAGGGTGCTGATCAGGACTCCCTGTTTGCTAACAA ATTCTACAGCAGAAACAAAGTATTAAGGTTTGCAGCCAGGAAGCAAGTG CATGGGGAA
SLC16A3-CSNK1D	TTCAAGGAGCTCATACAGGAGTTTGGGATCGGCTACAGCGACACAGCCT GGATCTCCTCCATCCTGCTGGCCATGCTCTACGGGACAG*GGGTCCTGCT GTCACCCAGGCTGGAAGGCAGTGGCACCATCACAGCTCCCTGCAGCCTT AACCTCCCGAACTCTAGCCATCCTCCTGCCTCAGCCTCCAGAGTAGCTGA GACTACAGATGTAAGC
SPINT2-YIF1B	CCCACGCTGGTACTTTGACGTGGAGAGGAACTCCTGCAATAACTTCATCT ATGGAGGCTGCCGGGGCAATAAGAACAGCTACCGCTCTGAGGAGGCCT GCATGCTCCGCTGCTTCCGCCAGCAGGAGAATCCTCCCCTGCCCCTTGGC TCAAAGG*CCCTGGAGCCCACCTCCCAGAAGCCCGGTGTGGG
CTSC-RAB38	TTGCCAACATCTTGGGACTGGAGAAATGTTCATGGTATCAATTTTGTCAG TCCTGTTCGAAACCAAG*GTCAAGAAAGATTTGGAAACATGACGAGGGT CTATTACCGAGAAGCTATGGGTGCATTTATTGTCTTCGATGTCACCAGGC CAGCCACATTTGAAGCAGTGGCAAAGTGGAAAA
JAK3-INSL3	CCGCCTCTTGGAACTGCTGGAGGAGGGCCAGAGGCTGCCGGCGCCTCCT GCCTGCCCTGCTGAG*GTGAGTTGCTACAGTGGCTGGAGAGACGACATCT GCTCCATGGGCTGGTGGCCGACAGTAATCTCACGCT

The nine validated chimeric RNAs along with their RNA fusion junctions are shown. The RNA fusion junction is represented by "*".

Table S2. Recurrence profile of identified chimeric RNAs. The validated chimeric RNAs are shown along with their recurrence in the 130 TCGA sample cohort by bioinformatics analysis. Since TCGA transcriptome sequencing collection does not contain organ specific controls, we examined these nine chimeric RNAs using our in-house non-cancerous ovary samples by RT-PCR to answer the question of whether these candidates are also present in non-cancerous tissue.

Chimera	Type	Chromosome	Recurrence among 130 TCGA Samples	Recurrence among 11 Non-Cancer Donor Ovary Samples
MUC1-TRIM46	Intrachromosomal	1	9	0
SH2D4A-CSGALNACT1	Intrachromosomal	8	22	11
CCDC19-VSIG8	Intrachromosomal	1	10	1
SFPQ-AL831889	Intrachromosomal	1	98	11
CS-CNPY2	Intrachromosomal	12	23	n.d.
SLC16A3-CSNK1D	Intrachromosomal	17	18	5
SPINT2-YIF1B	Intrachromosomal	19	55	11
CTSC-RAB38	Intrachromosomal	11	6	11
JAK3-INSL3	Intrachromosomal	19	7	11

n.d.: not determined.

Table S3. Paired chimeric reads for *MUC1-TRIM46* identified from TCGA database. These 25 reads were obtained from nine patient samples. These nine patient sample IDs are: TCGA-04-1348, TCGA-10-0931, TCGA-13-0720, TCGA-13-1403, TCGA-13-1482, TCGA-23-1122, TCGA-24-0979, TCGA-24-1560 and TCGA-24-1604.

Read 1 (Aligning to MUC1 Gene)	Read 2 (Aligning to TRIM46 Gene)
CATTTCAAACCTCCAGTTTAATTCCTCTCTGGA AGATCCCAGCACCGACTACTACCAAGAGCTGC AGAGAGACAT	TGCGACAGGGAGGAAATAATGCGTCGAGGG GGCATCCTCGGCCACCGCCCTGGTCCTCAGG CTTTCCTCGTACCT
CGAGTACCCCACCTACCACACCCATGGGCGCT ATGTGCCCCCTAGCAGTACCGATCGTAGCCCC TATGAGAAGAG	GAGGAAATAATGCGTCGAGGGGGCATCCTC GGCCACCGCCCTGGTCCTCAGGCTTTCCTCGT ACCTGGTGCGTCT
GATACCTACCATCCTATGAGCGAGTACCCCAC CTACCACACCCATGGGCGCTATGTGCCCCCTA GCAGTACCGAT	GCAGCGCCCTCTTGCGACAGGGAGGAAATA ATGCGTCGAGGGGGCATCCTCGGCCACCGCC CTGGTCCTCAGGCT
ATCCTATGAGCGAGTACCCCACCTACCACACC CATGGGCGCTATGTGCCCCCTAGCAGTACCGA TCGTAGCCCCT	TCGAGGGGGCATCCTCGGCCACCGCCCTGGT CCTCAGGCTTTCCTCGTACCTGGTGCGTCTGC TGCCACTCTTCT
GAAGAATGCTTTTAATTCCTCTCTGGAAGATCC CAGCACCGACTACTACCAAGAGCTGCAGAGA GACATTTCTGA	AGGGGGCATCCTCGGCCACCGCCCTGGTCCT CAGGCTTTCCTCGTACCTGGTGCGTCTGCTGC CACTCATTTCAG
ATCCTATGAGCGAGTACCCCACCTACCACACC CATGGGCGCTATGTGCCCCCTAGCAGTACCGA TCGTAGCCCCT	CCTGGACGCAGCGCCCTCTTGCGACAGGGAG GAAATAATGCGTCGAGGGGGCATCCTCGGCC ACCGCCCTGGTCC
CGGGATACCTACCATCCTATGAGCGAGTACCC CACCTACCACACCCATGGGCGCTATGTGCCCC CTAGCAGTACC	GTCGAGGGGGCATCCTCGGCCACCGCCCTGG TCCTCAGGCTTTCCTCGTACCTGGTGCGTCTG CTGCCACTCTTC
GAATTAAACTGGAGGTTTGAAATGTGAAAAGA CAGGAAAAAGAAAGAGACCCCAGTAGACAAC TGGGGAGAAGTG	GGTACGAGGAAAGCCTGAGGACCAGGGCGG TGGCCGAGGATGCCCCCTCGACGCATTATTT CCTCCCTGTCGCAA
GAGTACCCCACCTACCACACCCATGGGCGCTA TGTGCCCCCTAGCAGTACCGATCGTAGCCCCT ATGAGAAGAGT	TCTCCTCTTTCTTCCTCTCAGTGCCTGGACGC AGCGCCCTCTTGCGACAGGGAGGAAATAAT GCGTCGAGGGGGC

Table S3. *Cont.*

Read 1 (Aligning to MUC1 Gene)	Read 2 (Aligning to TRIM46 Gene)
GTCAGTGCCGCCGAAAGAACTACGGGCAGCT GGACATCTTTCCAGCCCGGGATACCTACCATC CTATGAGCGAG	GGACGCAGCGCCCTCTTGCGACAGGGAGGA AATAATGCGTCGAGGGGGCATCCTCGGCCAC CGCCCTGGTCCTCA
AGCTGGACATCTTTCCAGCCCGGGATACCTAC CATCCTATGAGCGAGTACCCCACCTACCACAC CCATGGGCGCT	GGAAATAATGCGTCGAGGGGGCATCCTCGG CCACCGCCCTGGTCCTCAGGCTTTCCTCGTAC CTGGTGCGTCTGC
CCACCTGGGGACAGGATGTCACCTCGGTCCCA GTCACCAGGCCAGCCCTGGGCTCCACCACCC	GCGCTCAGCGCTGCTTCTCCCTCTCTTTGTTTG TAGGCTGTGGCCACCGCGGACTCTGCTCCGG AGCACCCCAGG
GTACCCCACCTACCACACCCATGGGCGCTATG TGCCCCCTAGCAGTACCGATCGTAGCCCCTAT GAGAAGAGTGG	CTCTTGCGACAGGGAGGAAATAATGCGTCGA GGGGGCATCCTCGGCCACCGCCCTGGTCCTC AGGCTTTCCTCGT
GGCTACGATCGGTACTGCTAGGGGGCACATAG CGCCCATGGGTGTGGTAGGTGGGGTACTCGCT CATAGGATGG	TGCGTCGAGGGGGCATCCTCGGCCACCGCCC TGGTCCTCAGGCTTTCCTCGTACCTGGTGCGT CTGCTGCCACTC
TGTCTTTTCACATTTCAAACCTCCAGTTTAATTC CTCTCTGGAAGATCCCAGCACCGACTACTACC AAGAGCTGC	GAAATAATGCGTCGAGGGGGCATCCTCGGCC ACCGCCCTGGTCCTCAGGCTTTCCTCGTACCT GGTGCGTCTGCT
ACCACACCCATGGGCGCTATGTGCCCCCTAGC AGTACCGATCGTAGCCCCTATGAGAAGAGTGG CAG	AGGGAGGAAATAATGCGTCGAGGGGGCATC CTCGGCCACCGCCCTGGTCCTCAGGCTTTCCT CGTACCTGGTGCG
CCTACCACACCCATGGGCGCTATGTGCCCCCT AGCAGTACCGATCGTAGCCCCTATGAGAAGAG TGGCAG	GCCCTCTTGCGACAGGGAGGAAATAATGCGT CGAGGGGGCATCCTCGGCCACCGCCCTGGTC CTCAGGCTTTCCT
CCATCCTATGAGCGAGTACCCCACCTACCACA CCCATGGGCGCTATGTGCCCCCTAGCAGTACC GATCGTAGCCC	CAGTGCCTGGACGCAGCGCCCTCTTGCGACA GGGAGGAAATAATGCGTCGAGGGGGCATCC TCGGCCACCGCCCT
ATGAGCGAGTACCCCACCTACCACACCCATGG GCGCTATGTGCCCCCTAGCAGTACCGATCGTA GCCCCTATGAG	GTCGAGGGGGCATCCTCGGCCACCGCCCTGG TCCTCAGGCTTTCCTCGTACCTGGTGCGTCTG CTGCCACTCTTC
ACAATGGCCAGCGCAACCAGAACACAGACCA GCACCAGCAGCGCGATG	ATGCGTCGAGGGGGCATCCTCGGCCACCGCC CTGGTCCTCAGGCTTTCCTCGTACCTGGTGCG TCTGCTGCCACT
GTCTTTTCACATTTCAAACCTCCAGTTTAATTCC TCTCTGGAAGATCCCAGCACCGACTACTACCA AGAGCTGCA	AATAATGCGTCGAGGGGGCATCCTCGGCCAC CGCCCTGGTCCTCAGGCTTTCCTCGTACCTGG TGCGTCTGCTGC
ACCATCCTATGAGCGAGTACCCCACCTACCAC ACCCATGGGCGCTATGTGCCCCCTAGCAGTAC CGATCGTAGCC	GGAGGAAATAATGCGTCGAGGGGGCATCCT CGGCCACCGCCCTGGTCCTCAGGCTTTCCTC
CTACCCAGAGAAGTTCAGTGCCCAGCTCTACT GAGAAGAATGCTTTTAATTCCTCTCTGGAAGAT CCCAGCACCG	ATAATGCGTCGAGGGGGCATCCTCGGCCACC GCCCTGGTCCTCAGGCTTTCCTCGTACCTGGT GCGTCTGCTGCC
GACATCTTTCCAGCCCGGGATACCTACCATCCT ATGAGCGAGTACCCCACCTACCACACCCATGG GCGCTATGTG	GGAAATAATGCGTCGAGGGGGCATCCTCGG CCACCGCCCTGGTCCTCAGGCTTTCCTCGTAC CTGGTGCGTCTGC
CTCCAGTTTAATTCCTCTCTGGAAGATCCCAGC ACCGACTACTACCAAGAGCTGCAGAGAGACA TTTCTGAAATG	GCCTGGACGCAGCGCCCTCTTGCGACAGGGA GGAAATAATGCGTCGAGGGGGCATCCTCGG CCACCGCCCTGGTC

Table S4. Primers used in this study.

Primers	Sequence 5'-> 3'
TRIM46-MUC1 F1	AAGATCCCAGCACCGACTACT
TRIM46-MUC1 R1	AGGGAGGAAATAATGCGTCGA
MUC1 fwd	GCCCGCTCCACCTCTCAAGCAGCCAGCGCCTGCCTGAATCTGTTCT
KRTCAP2 R9	GTCAGTTTCTCTTCTTGCTCT
E-S-N muc1 fwd new	GGCAAAGAATTCATAATTAACCGCGGGCGGCCGCCCGCTCCACCTC TCAAGCAGCCAGCGCCTGCCTGAATCTGTTCT
Bam-Stop-FLAG Muc1 rev	TTGGATCCCGTCATTACTTGTCGTCATCGTCTTT GTAGTCTTGAAGGCAGTGAGCGAGAACA

Table S5. MUC1-TRIM46-KRTCAP2 isoforms and RNA fusion junctions. MUC1 sequence is in red, TRIM46 in blue and KRTCAP2 sequence is in green. Lowercase letters represent 5′ and 3′ UTR sequences. Start and stop codons are shown in Bold. "*" Indicates fusion junction between MUC1 and TRIM46 while "^" indicates fusion junction between TRIM46 and KRTCAP2.

MUC1-TRIM46-KRTCAP2 isoform 1 complete cDNA:	acgctccacctctcaagcagccagcgcctgcctgaatctgttctgccccctccccacccatttcaccaccaccATGACACCGG GCACCCAGTCTCCTTTCTTCCTGCTGCTGCTCCTCACAGTGCTTACAGCTACCACAG CCCCTAAACCCGCAACAGTTGTTACGGGTTCTGGTCATGCAAGCTCTACCCCAGGT GGAGAAAAGGAGACTTCGGCTACCCAGAGAAGTTCAGTGCCCAGCTCTACTGAGA AGAATGCTTTGTCTACTGGGGTCTCTTTCTTTTTCCTGTCTTTTCACATTTCAAACCTC CAGTTTAATTCCTCTCTGGAAGATCCCAGCACCGACTACTACCAAGAGCTGCAGAG AGACATTTCTGAAATG*AGTGGC AGCAGACGCACCAGGTACGAGGAAAGCCTGAGGACCAGGGCGGTGGCCGAGGAT GCCCCCTCGACGCATTATTTCCTCCCTGTCGCAAGAGGGCGCTGCGTCCAGGCACT GAGAGGAAGAAAGAGGAGAACGCGAGGAGTAGCAAGTCCGCG^TGGTGGGTACG GGCACCTCGCTGGCGCTCTCCTCCCTCCTGTCCCTGCTGCTCTTTGCTGGGATGCAG ATGTACAGCCGTCAGCTGGCCTCCACCGAGTGGCTCACCATCCAGGGCGGCCTGCT TGGTTCGGGTCTCTTCGTGTTCTCGCTCACTGCCTTCAATAAtctggagaatcttgtctttggcaaa ggattccaagcaaagatcttccctgagattctcctgtgcctcctgttggctctctttgcatctggcctcatccaccgagtctgtgtcacca cctgcttcatcttctccatggttggtctgtactacatcaacaagatctcctccaccctgtaccaggcagcagctccagtcctcacaccagc caaggtcacaggcaagagcaagaagagaaactgaccctgaatgttcaataaagttgattctttgt
MUC1-TRIM46-KRTCAP2 isoform 2 complete cDNA:	cgctccacctctcaagcagccagcgcctgcctgaatctgttctgccccctccccacccatttcaccaccacc**ATG**ACACCGGG CACCCAGTCTCCTTTCTTCCTGCTGCTGCTCCTCACAGTGCTTACAGCTACCACAGC CCCTAAACCCGCAACAGTTGTTACGGGTTCTGGTCATGCAAGCTCTACCCCAGGTG GAGAAAAGGAGACTTCGGCTACCCAGAGAAGTTCAGTGCCCAGCTCTACTGAGAA GAATGCTTTTAATTCCTCTCTGGAAGATCCCAGCACCGACTACTACCAAGAGCTGC AGAGAGACATTTCTGAAATGGCTGTCTGTCAGTGCCGCCGAAAGAACTACGGGCA GCTGGACATCTTTCCAGCCCGGGATACCTACCATCCTATGAGCGAGTACCCCACCT ACCACACCCATGGGCGCTATGTGCCCCCTAGCAGTACCGATCGTAGCCCCTATGAG AAG*AGTGGCAGCAGACGCACCAGGTACGAGGAAAGCCTGAGGACCAGGGCGGT GGCCGAGGATGCCCCCTCGACGCATTATTTCCTCCCTGTCGCAAGAGGGCGCTGCG TCCAGGCACTGAGAGGAAGAAAGAGGAGAACGCGAGGAGTAGCAAGTCCGCG^T GGTGGGTACGGGCACCTCGCTGGCGCTCTCCTCCCTCCTGTCCCTGCTGCTCTTTGC TGGGATGCAGATGTACAGCCGTCAGCTGGCCTCCACCGAGTGGCTCACCATCCAG GGCGGCCTGCTTGGTTCGGGTCTCTTCGTGTTCTCGCTCACTGCCTTCAA**TAA**tctggag aatcttgtctttggcaaaggattccaagcaaagatcttccctgagattctcctgtgcctcctgttggctctctttgcatctggcctcatcca ccgagtctgtgtcaccacctgcttcatcttctccatggttggtctgtactacatcaacaagatctcctccaccctgtaccaggcagcagct ccagtcctcacaccagccaaggtcacaggcaagagcaagaagagaaactgaccctgaatgttcaataaagttgattctttgt

Table S5. *Cont*.

MUC1-TRIM46-KRTCAP2 isoform 3 complete cDNA:	cgctccacctctcaagcagccagcgcctgcctgaatctgttctgccccctccccacccatttcaccaccacc**ATG**ACACCGGG CACCCAGTCTCCTTTCTTCCTGCTGCTGCTCCTCACAGTGCTTACAGCTACCACAGC CCCTAAACCCGCAACAGTTGTTACGGGTTCTGGTCATGCAAGCTCTACCCCAGGTG GAGAAAAGGAGACTTCGGCTACCCAGAGAAGTTCAGTGCCCAGCTCTACTGAGAA GAATGCTTTTAATTCCTCTCTGGAAGATCCCAGCACCGACTACTACCAAGAGCTGC AGAGAGACATTTCTGAAATGTCTGGGGCTGGGGTGCCAGGCTGGGGCATCGCGCT GCTGGTGCTGGTCTGTGTTCTGGTTGCGCTGGCCATTGTCTATCTCATTGCCTTGGCT GTCTGTCAGTGCCGCCGAAAGAACTACGGGCAGCTGGACATCTTTCCAGCCCGGG ATACCTACCATCCTATGAGCGAGTACCCCACCTACCACACCCATGGGCGCTATGTG CCCCCTAGCAGTACCGATCGTAGCCCCTATGAGAAG*AGTGGCAGCAGACGCACC AGGTACGAGGAAAGCCTGAGGACCAGGGCGGTGGCCGAGGATGCCCCCTCGACG CATTATTTCCTCCCTGTCGCAAGAGGGCGCTGCGTCCAGGCACTGAGAGGAAGAA AGAGGAGAACGCGAGGAGTAGCAAGTCCGCG^TGGTGGGTACGGGCACCTCGCTG GCGCTCTCCTCCCTCCTGTCCCTGCTGCTCTTTGCTGGGATGCAGATGTACAGCCGT CAGCTGGCCTCCACCGAGTGGCTCACCATCCAGGGCGGCCTGCTTGGTTCGGGTCT CTTCGTGTTCTCGCTCACTGCCTTCAA**TAA**tctggagaatcttgtctttggcaaaggattccaagcaaagatc ttccctgagattctcctgtgcctcctgttggctctctttgcatctggcctcatccaccgagtctgtgtcaccacctgcttcatcttctccatgg ttggtctgtactacatcaacaagatctcctccaccctgtaccaggcagcagctccagtcctcacaccagccaaggtcacaggcaaga gcaagaagagaaactgaccctgaatgttcaataaagttgattctttgt
MUC1-TRIM46-KRTCAP2 isoform 4 complete cDNA:	Gcgcctgcctgaatctgttctgccccctccccacccatttcaccaccaccatgacaccgggcacccagtctcctttcttcctgctgctgct cctcacagtgcttacaggtgaggggcacgaggtggggagtgggctgccctgcttaggtggtcttcgtggtctttctgtgggttttgct ccctggcagatggcaccatgaagttaagctaccacagcccctaaacccgcaacagttgttacgggttctggtcatgcaagctctaccc caggtggagaaaaggagacttcggctacccagagaagttcagtgcccagctctactgagaagaatgcttttaattcctctctggaag atcccagcaccgactactaccaagagctgcagagagacatttctgaa**ATGTGA**gtgatgtgccatttccttttctctgcccagtct ggggctggggtgccaggctggggcatcgcgctgctggtgctggtctgtgttctggttgcgctggccattgtctatctcattgccttgg ctgtctgtcagtgccgccgaaagaactacgggcagctggacatctttccagcccgggatacctaccatcctatgagcgagtacccca cctaccacacccatgggcgctatgtgccccctagcagtaccgatcgtagcccctatgagaag*agtggcagcagacgcaccaggta cgaggaaagcctgaggaccagggcggtggccgaggatgccccctcgacgcattatttcctccctgtcgcaagagggcgctgcgtc caggcactgagaggaagaaagaggagaacgcgaggagtagcaagtccgcg^tggtgggtacgggcacctcgctggcgctctc ctccctcctgtccctgctgctctttgctgggatgcagatgtacagccgtcagctggcctccaccgagtggctcaccatccagggcggc ctgcttggttcgggtctcttcgtgttctcgctcactgccttcaataatctggagaatcttgtctttggcaaaggattccaagcaaagatctt ccctgagattctcctgtgcctcctgttggctctctttgcatctggcctcatccaccgagtctgtgtcaccacctgcttcatcttctccatggtt ggtctgtactacatcaacaagatctcctccaccctgtaccaggcagcagctccagtcctcacaccagccaaggtcacaggcaagagc aagaagagaaactgaccctgaatgttcaataaagttgattctttgt
MUC1-TRIM46-KRTCAP2 isoform 5 complete cDNA:	ataattaaccgcgggcggccgcgctccacctctcaagcagccagcgcctgcctgaatctgttctgccccctccccacccatttcacca ccacc**ATG**ACACCGGGCACCCAGTCTCCTTTCTTCCTGCTGCTGCTCCTCACAGTGCTT ACAGTTGTTACGGGTTCTGGTCATGCAAGCTCTACCCCAGGTGGAGAAAAGGAGA CTTCGGCTACCCAGAGAAGTTCAGTGCCCAGCTCTACTGAGAAGAATGCTGCTGTC TGTCAGTGCCGCCGAAAGAACTACGGGCAGCTGGACATCTTTCCAGCCCGGGATA CCTACCATCCTATGAGCGAGTACCCCACCTACCACACCCATGGGCGCTATGTGCCC CCTAGCAGTACCGATCGTAGCCCCTATGAGAAG*AGTGGCAGCAGACGCACCAGG TACGAGGAAAGCCTGAGGACCAGGGCGGTGGCCGAGGATGCCCCCTCGACGCATT ATTTCCTCCCTGTCGCAAGAGGGCGCTGCGTCCAGGCACTGAGAGGAAGAAAGAG GAGAACGCGAGGAGTAGCAAGTCCGCG^TGGTGGGTACGGGCACCTCGCTGGCGC TCTCCTCCCTCCTGTCCCTGCTGCTCTTTGCTGGGATGCAGATGTACAGCCGTCAGC TGGCCTCCACCGAGTGGCTCACCATCCAGGGCGGCCTGCTTGGTTCGGGTCTCTTCG TGTTCTCGCTCACTGCCTTCAA**TAA**tctggagaatcttgtctttggcaaaggattccaagcaaagatcttccctga gattctcctgtgcctcctgttggctctctttgcatctggcctcatccaccgagtctgtgtcaccacctgcttcatcttctccatggttggtctg tactacatcaacaagatctcctccaccctgtaccaggcagcagctccagtcctcacaccagccaaggtcacaggcaagagcaagaa gagaaactgaccctgaatgttcaataaagttgattctttgt

Table S5. *Cont*.

MUC1-TRIM46-KRTCAP2 isoform 6 complete cDNA:	Cgctccacctctcaagcagccagcgcctgcctgaatctgttctgccccctccccacccatttcaccaccaccatgacaccgggcaccc agtctcctttcttcctgctgctgctcctcacagtgcttacagctaccacagcccctaaacccgcaacagttgttacgggttctggtcatgc aagctctaccccaggtggagaaaaggagacttcggctacccagagaagttcagtgcccagctctactgagaagaatgctatcccag caccgactactaccaagagctgcagagagacatttctgaa**ATG**TTTTGCAGATTTATAAACAAGGGGGT TTTCTGGGCCTCTCCAATATTAAGTTCAGGCCAGGATCTGTGGTGGTACAATTGACT CTGGCCTTCCGAGAAGGTACCATCAATGTCCACGACGTGGAGACACAGTTCAATC AGTATAAAACGGAAGCAGCCTCTCGATATAACCTGACGATCTCAGACGTCAGCGT GAGTGATGTGCCATTTCCTTTCTCTGCCCAGTCTGGGGCTGGGGTGCCAGGCTGGG GCATCGCGCTGCTGGTGCTGGTCTGTGTTCTGGTTGCGCTGGCCATTGTCTATCTCAT TGCCTTGGCTGTCTGTCAGTGCCGCCGAAAGAACTACGGGCAGCTGGACATCTTTC CAGCCCGGGATACCTACCATCCTATGAGCGAGTACCCCACCTACCACACCCATGG GCGCTATGTGCCCCCTAGCAGTACCGATCGTAGCCCCTATGAGAAG*AGTGGCAGC AGACGCACCAGGTACGAGGAAAGCCTGAGGACCAGGGCGGTGGCCGAGGATGCC CCCTCGACGCATTATTTCCTCCCTGTCGCAAGAGGGCGCTGCGTCCAGGCACTGAG AGGAAGAAAGAGGAGAACGCGAGGAGTAGCAAGTCCGCG^TGGTGGGTACGGGC ACCTCGCTGGCGCTCTCCTCCCTCCTGTCCCTGCTGCTCTTTGCTGGGATGCAGATG TACAGCCGTCAGCTGGCCTCCACCGAGTGGCTCACCATCCAGGGCGGCCTGCTTGG TTCGGGTCTCTTCGTGTTCTCGCTCACTGCCTTCAA**TAA**tctggagaatcttgtctttggcaaaggatt ccaagcaaagatcttccctgagattctcctgtgcctcctgttggctctctttgcatctggcctcatccaccgagtctgtgtcaccacctgct tcatcttctccatggttggtctgtactacatcaacaagatctcctccaccctgtaccaggcagcagctccagtcctcacaccagccaagg tcacaggcaagagcaagaagagaaactgaccctgaatgttcaataaagttgattctttgt

Table S6. Frequency of occurrence of different MUC1-TRIM46-KRTCAP2 isoforms determined using in-house HGSC samples. RT-PCR data from Figure 3A was utilized for densitometric analysis and then the samples positive for each isoform were determined.

MUC1-KRTCAP2 Isoform	Frequency of Occurrence among 59 HGSC Samples
Isoform 1	64%
Isoform 2	47%
Isoform 3	17%
Isoform 4	34%
Isoform 5	34%
Isoform 6	20%

For Isoform 1, the following HGSC samples are considered positive: S4,5,7,11,12,14,15,16,20,21,22,23, 46,49,50,51,52,53,54,57,58,60,61,62,63,64,65,66,67,70,71,72,73,74; For Isoform 2, the following samples are considered positive: S1,2,3,4,5,7,9,11,12,15,23,49,53,54,55,61,62,63,64,65,66,67,71,73,74,75,78,82; For Isoform 3, the following samples are considered positive: S46,49,53,55,61,62,63,71,73,75; For Isoform 4, the following samples are considered positive: S1,3,4,5,7,12,15,20,23,46,49,52,55,57,61,62,72,73,75,82; For Isoform 5, the following samples are considered positive: S1,3,4,5,7,12,15,20,23,46,49,52,55,57,61, 62,72,73,75,82; For Isoform 6, the following samples are considered positive: S1,5,12,46,49,55,61,62,72, 73,75,82.

Table S7. MUC1-TRIM46-KRTCAP2 isoforms protein sequence. MUC1 sequence is in red, TRIM46 in blue and KRTCAP2 sequence is in green. "*" Indicates fusion junction between MUC1 and TRIM46 while "^" indicates fusion junction between TRIM46 and KRTCAP2.

Isoform 1: 210 aa	MTPGTQSPFFLLLLLTVLTATTAPKPATVVTGSGHASSTPGGEKETSATQRSSVPSSTEKNAL STGVSFFFLSFHISNLQFNSSLEDPSTDYYQELQRDISEM*SGSRRTRYEESLRTRAVAEDAPST HYFLPVARGRCVQALRGRKRRTRGVASPR^GGYGHLAGALLPPVPAALCWDADVQPSAG LHRVAHHPGRPAWFGSLRVLAHCLQ
Isoform 2: 242 aa	MTPGTQSPFFLLLLLTVLTATTAPKPATVVTGSGHASSTPGGEKETSATQRSSVPSSTEKNAF NSSLEDPSTDYYQELQRDISEMAVCQCRRKNYGQLDIFPARDTYHPMSEYPTYHTHGRYVP PSSTDRSPYEK*SGSRRTRYEESLRTRAVAEDAPSTHYFLPVARGRCVQALRGRKRRTRGVAS PR^GGYGHLAGALLPPVPAALCWDADVQPSAGLHRVAHHPGRPAWFGSLRVLAHCLQ
Isoform 3: 272 aa	MTPGTQSPFFLLLLLTVLTATTAPKPATVVTGSGHASSTPGGEKETSATQRSSVPSSTEKNAF NSSLEDPSTDYYQELQRDISEMSGAGVPGWGIALLVLVCVLVALAIVYLIALAVCQCRRKNY GQLDIFPARDTYHPMSEYPTYHTHGRYVPPSSTDRSPYEK*SGSRRTRYEESLRTRAVAEDAP STHYFLPVARGRCVQALRGRKRRTRGVASPR^GGYGHLAGALLPPVPAALCWDADVQPSA GLHRVAHHPGRPAWFGSLRVLAHCLQ
Isoform 4: It is predicted to yield no protein since the annotated start codon is immediately followed by a stop codon.	
Isoform 5: 210 aa	MTPGTQSPFFLLLLLTVLTVVTGSGHASSTPGGEKETSATQRSSVPSSTEKNAAVCQCRRKN YGQLDIFPARDTYHPMSEYPTYHTHGRYVPPSSTDRSPYEK*SGSRRTRYEESLRTRAVAEDA PSTHYFLPVARGRCVQALRGRKRRTRGVASPR^GGYGHLAGALLPPVPAALCWDADVQPS AGLHRVAHHPGRPAWFGSLRVLAHCLQ
Isoform 6: 263 aa	MFLQIYKQGGFLGLSNIKFRPGSVVVQLTLAFREGTINVHDVETQFNQYKTEAASRYNLTIS DVSVSDVPFPFSAQSGAGVPGWGIALLVLVCVLVALAIVYLIALAVCQCRRKNYGQLDIFPA RDTYHPMSEYPTYHTHGRYVPPSSTDRSPYEK*SGSRRTRYEESLRTRAVAEDAPSTHYFLPV ARGRCVQALRGRKRRTRGVASPR^GGYGHLAGALLPPVPAALCWDADVQPSAGLHRVA HHPGRPAWFGSLRVLAHCLQ

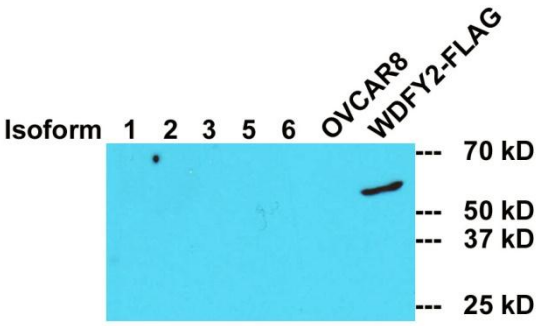

Figure S1. MUC1-TRIM46-KRTCAP2 isoforms are not secreted into the cellular media. MUC1-TRIM46-KRTCAP2 cDNA constructs with FLAG tag were transfected into OVCAR8. 48 hours after transfection, the cellular media was collected and was analyzed by western blotting with a FLAG antibody. None of the isoforms are detectable in the cellular media. WDFY2-FLAG is used as a positive control for the western blot.