

**Supplemental Figure S1.** Summary of DUB3 family members

The NCBI RefSeq Gene collection comprises 30 USP17L (USP17L1 through USP17L30) gene entries: 25 are annotated as protein coding genes (each with an individual mRNA and protein RefSeq), while four are annotated as pseudogenes (USP17L6P, -9P, -14P, -16P), and one (USP17L23) is annotated as protein coding gene, but not linked to either a RefSeq mRNA or protein sequence. (<http://www.ncbi.nlm.nih.gov/books/NBK21091>)

The table summarizes the number of mismatches between the individual siRNAs and shRNAs with the family members

	siRNAs								shRNAs		
	Pool 1: J-027332				Pool 2: J190106				#1	#2	#3
	-11	-13	-24	-25	-05	-06	-07	-05			
USP17L8	0	1	0	1	3	1	1	1	2	0	0
USP17L4	0	1	0	1	3	1	1	1	2	0	1
USP17L3	0	0	0	1	3	1	2	1	2	0	1
USP17L1	0	0	0	1	3	3	2	1	2	0	1
USP17L2	0	0	0	0	3	1	1	1	2	0	0
USP17L17	0	1	1	1	1	1	0	0	0	0	0
USP17L13	1	1	1	1	2	2	0	0	0	0	0
USP17L21	1	1	1	1	1	0	0	0	0	0	0
USP17L12	1	1	1	1	1	0	0	0	0	1	0
USP17L19	1	1	1	1	0	0	0	0	0	1	0
USP17L22	1	1	1	1	1	0	0	0	0	1	0
USP17L20	1	0	1	1	1	0	0	0	0	0	0
USP17L15	1	0	1	1	1	0	0	0	1	0	0
USP17L11	1	0	1	1	1	0	0	0	0	0	0
USP17L18	1	0	1	1	0	0	0	0	0	0	0
USP17L30	0	1	1	1	2	1	0	0	0	0	0
USP17L5	0	1	1	1	2	1	0	0	0	0	0
USP17L25	0	1	1	1	2	1	0	0	0	0	0
USP17L24	0	1	1	1	2	1	0	0	0	0	0
USP17L26	0	1	1	1	2	1	0	0	0	0	0
USP17L27	0	1	1	1	2	1	0	0	0	0	0
USP17L28	0	1	1	1	2	1	0	0	0	0	0
USP17L29	0	1	1	1	2	1	0	0	0	0	0
USP17L10	1	0	1	2	2	2	0	0	1	0	0
USP17L7	1	0	2	2	3	3	1	1	2	0	1



Target sequences for the siRNAs and shRNAs used in this study are shown below.

(B) Pool J-027332 sequence 11

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NM_001256872.1[USP17L8]      TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001256874.1[USP17L4]      TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001256871.1[USP17L3]      TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001256873.1[USP17L1]      TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_201402.2[USP17L2]         TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001256857[USP17L17]       TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001256855.1[USP17L13]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCC
NM_001256862.1[USP17L21]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256853.1[USP17L12]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256860.1[USL17L19]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256863.1[USP17L22]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256861.1[USP17L20]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256894.1[USP17L15]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256859.1[USP17L18]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTGGATCATCAC
NM_001256867.1[USP17L30]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242329.1[USP17L5]      TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242326.1[USP17L25]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242327.1[USP17L24]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242328.1[USP17L26]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242330.1[USP17L27]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242331.1[USP17L28]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001242332.1[USP17L29]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
NM_001256852.1[USP17L10]     TGCCATGAGAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCGTTCAC
NM_001256869.1[USP17L7]     TGCCATGAAAAAGGCATGCCTTCCCGGCCACAAGCAGGTAGATCATCAC
J-027332-11                  -----ACAAGCAGGTAGATCATCA
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(C) Pool J-027332 sequence 13

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NM_001256872.1[USP17L8]      GCTCCCTGCTAAACCTCTCTCGATGAACTCGACAGATCAGGAGTCCATG
NM_001256874.1[USP17L4]      GCTCCCTGCTAAACCTCTCTCGATGAACTCGACAGATCAGGAGTCCATG
NM_001256871.1[USP17L3]      GCTCCCTGCTAAACCTCTCTCGACGACCCCGACAGATCAGGAGTCCATG
NM_001256873.1[USP17L1]      GCTCCCTGCTAAACCTCTCTCGACGACCCCGACAGATCAGGAGTCCATG
NM_201402.2[USP17L2]         GCTCCCTGCTAAACCTCTCTCGACGACCCCGACAGATCAGGAGTCCATG
NM_001256857[USP17L17]       GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256855.1[USP17L13]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256862.1[USP17L21]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256853.1[USP17L12]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256860.1[USL17L19]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256863.1[USP17L22]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256861.1[USP17L20]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256894.1[USP17L15]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256854.1[USP17L11]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256859.1[USP17L18]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256867.1[USP17L30]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242329.1[USP17L5]      GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242326.1[USP17L25]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242327.1[USP17L24]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242328.1[USP17L26]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242330.1[USP17L27]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242331.1[USP17L28]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001242332.1[USP17L29]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACACATCAGGAGTCCATG
NM_001256852.1[USP17L10]     GCTCCCTGCTAAACCTCTCTCGACGACCCCGACAGATCAGGAGTCCATG
NM_001256869.1[USP17L7]     GCTCCCTGCTAAACCTCTCTCGACGAAACCGACAGATCAGGAGTCCATG
J-027332-13                  -----CTAAACCTCTCTCGACGA
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(D) Pool J-027332 sequence 24

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NM_001256872.1[USP17L8] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256874.1[USP17L4] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256871.1[USP17L3] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256873.1[USP17L1] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_201402.2[USP17L2] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256857[USP17L17] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256855.1[USP17L13] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256862.1[USP17L21] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256853.1[USP17L12] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256860.1[USL17L19] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256863.1[USP17L22] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256861.1[USP17L20] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256894.1[USP17L15] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256854.1[USP17L11] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256859.1[USP17L18] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242326.1[USP17L25] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242327.1[USP17L24] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242328.1[USP17L26] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256867.1[USP17L30] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242332.1[USP17L29] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242331.1[USP17L28] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242329.1[USP17L5] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001242330.1[USP17L27] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256852.1[USP17L10] AAACCGCCACTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
NM_001256869.1[USP17L7] ACACCGCCCTTGCCAAC TACATGCTGTCCCGGGAGCACTCTCAAACATG
J-027332-24 -----CGGGAGCACTCTCAAACAT-----
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(E) Pool J-027332 sequence 25

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NM_001256872.1[USP17L8] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256874.1[USP17L4] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256871.1[USP17L3] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256873.1[USP17L1] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_201402.2[USP17L2] TCAATCGAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256857[USP17L17] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256855.1[USP17L13] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256862.1[USP17L21] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256853.1[USP17L12] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256860.1[USL17L19] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256863.1[USP17L22] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256861.1[USP17L20] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256894.1[USP17L15] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256854.1[USP17L11] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256859.1[USP17L18] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242326.1[USP17L25] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242327.1[USP17L24] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242328.1[USP17L26] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256867.1[USP17L30] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242332.1[USP17L29] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242331.1[USP17L28] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242329.1[USP17L5] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001242330.1[USP17L27] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256852.1[USP17L10] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
NM_001256869.1[USP17L7] TCAATCAAATACAAGTGTGGGATGAAAAACCACCATCCTGAACAGCAAAA
J-027332-25 -----CGAAATACAAGTGTGGGAT-----
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(E) Pool 190106 sequence 05

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NM_001256872.1[USP17L8] TCAGCGTCCCAAGTGCTGCATGCTCTGTACTATGCAAGCTCACATCACAT
NM_001256874.1[USP17L4] TCAGCGTCCCAAGTGCTGCATGCTCTGTACTATGCAAGCTCACATCACAT
NM_001256871.1[USP17L3] TCAGCGTCCCAAGTGCTGCATGCTCTGTACTATGCAAGCTCACATCACAT
NM_001256873.1[USP17L1] TCAGCGTCCCAAGTGCTGCATGCTCTGTACTATGCAAGCTCACATCACAT
NM_201402.2[USP17L2] TCAGCGTCCCAAGTGCTGCATGCTCTGTACTATGCAAGCTCACATCACAT
NM_001256857[USP17L17] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256855.1[USP17L13] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001256862.1[USP17L21] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256853.1[USP17L12] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256860.1[USL17L19] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256863.1[USP17L22] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256861.1[USP17L20] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256894.1[USP17L15] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256854.1[USP17L11] TCATCGTCACAAGGGCTGCATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001256859.1[USP17L18] TCATCGTCACAAGGGCTGTATGCTCTGTACGATGCAAGCTCACATCACAC
NM_001242326.1[USP17L25] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001242327.1[USP17L24] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001242328.1[USP17L26] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001256867.1[USP17L30] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001242332.1[USP17L29] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001242331.1[USP17L28] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001242329.1[USP17L5] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001242330.1[USP17L27] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAC
NM_001256852.1[USP17L10] TCATCGTCACAAGGGCTGCATGCTCTGTACTATGCAAGCTCACATCACAA
NM_001256869.1[USP17L7] TCATCTTCACAAGTGCTGCATGTTCTGTACTATGCAAGCTCACATCACAT
190106-05 -----GGTGTATGCTCTGTACGA-----
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(F) Pool 190106 sequence 06

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NM_001256872.1[USP17L8] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256874.1[USP17L4] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256871.1[USP17L3] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256873.1[USP17L1] GCAGGTAGATCATCACTGCAAGGACACCACCTCATCCACCAAAA
NM_201402.2[USP17L2] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256857[USP17L17] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256855.1[USP17L13] GCAGGTAGATCATCCTCTAAGGACACCACCTCATCCACCAAAA
NM_001256862.1[USP17L21] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256853.1[USP17L12] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256860.1[USL17L19] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256863.1[USP17L22] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256861.1[USP17L20] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256894.1[USP17L15] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256854.1[USP17L11] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256859.1[USP17L18] GCAGGTGGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242326.1[USP17L25] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242327.1[USP17L24] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242328.1[USP17L26] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256867.1[USP17L30] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242332.1[USP17L29] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242331.1[USP17L28] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242329.1[USP17L5] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001242330.1[USP17L27] GCAGGTAGATCATCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256852.1[USP17L10] GCAGGTAGATCGTCACTCTAAGGACACCACCTCATCCACCAAAA
NM_001256869.1[USP17L7] GCAGGTAGATCATCACTCAAGGACACCACCTCATCCACCAAAA
190106-06 --AGGTGGATCATCACTCTAA-----
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(G) Pool 190106 sequence 07

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NM_001256872.1[USP17L8] AACGTCAGAAAAGTTGAAGGTACCCGCTCCACGCTACTTGTGATTCATCAA
NM_001256874.1[USP17L4] AACGTCAGAAAAGTTGAAGGTACCCGCTCCACGCTACTTGTGATTCATCAA
NM_001256871.1[USP17L3] AACGTCGAAAAGTTCGAAGGTACCCGCTCCACGCTACTTGTGATTCATCAA
NM_001256873.1[USP17L1] AACGTCGAAAAGTTCGAAGGTACCCGCTCCACGCTACTTGTGATTCATCAA
NM_201402.2[USP17L2] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCACGCTACTTGTGATTCATCAA
NM_001256857[USP17L17] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256855.1[USP17L13] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256862.1[USP17L21] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256853.1[USP17L12] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256860.1[USP17L19] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256863.1[USP17L22] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256861.1[USP17L20] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256894.1[USP17L15] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256854.1[USP17L11] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256859.1[USP17L18] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242326.1[USP17L25] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242327.1[USP17L24] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242328.1[USP17L26] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256867.1[USP17L30] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242332.1[USP17L29] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242331.1[USP17L28] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242329.1[USP17L5] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001242330.1[USP17L27] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256852.1[USP17L10] AACGTCAGAAAAGTTCGAAGGTACCCGCTCCCGACGCTACTTGTGATTCATCAA
NM_001256869.1[USP17L7] AACGTCAGAAAAGTTGAAGGTACCCGCTCCACGCTACTTGTGATTCATCAA
190106-07 -----CGACGCTACTTGTGATTCAT-----
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(H) Pool 190106 sequence 08

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NM_001256872.1[USP17L8] GTGTCAAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256874.1[USP17L4] GTGTCAAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256871.1[USP17L3] GTGTCAAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256873.1[USP17L1] GTGTCAAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_201402.2[USP17L2] GTGTCAAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256857[USP17L17] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256855.1[USP17L13] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256862.1[USP17L21] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256853.1[USP17L12] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256860.1[USP17L19] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256863.1[USP17L22] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256861.1[USP17L20] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256894.1[USP17L15] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256854.1[USP17L11] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256859.1[USP17L18] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242326.1[USP17L25] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242327.1[USP17L24] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242328.1[USP17L26] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256867.1[USP17L30] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242332.1[USP17L29] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242331.1[USP17L28] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242329.1[USP17L5] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001242330.1[USP17L27] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256852.1[USP17L10] GTGTCCAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
NM_001256869.1[USP17L7] GTGTCAAGCAAGCTTTGGAACAGTTGGTGAAGCCCGAAAGAACTCAATGGAGAGAAT
190106-08 -----CCAGCAAGCTTTGGAACAG-----
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(I) shRNAs 1-3

NM\_001256872.1[USP17L8] CCGATGTCACAGGCAACAA**ACTT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256874.1[USP17L4] CCGATGTCGACAGGCAACAA**ACTT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256871.1[USP17L3] CCGATGTCGACAGGCAACAA**ACTT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256873.1[USP17L1] CCGATGTCGACAGGCAACAA**ACTT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_201402.2[USP17L2] CCGATGTCACAGGCAACAA**ACTT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256857[USP17L17] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256855.1[USP17L13] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256862.1[USP17L21] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256853.1[USP17L12] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256860.1[USL17L19] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256863.1[USP17L22] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256861.1[USP17L20] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256894.1[USP17L15] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256854.1[USP17L11] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256859.1[USP17L18] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242326.1[USP17L25] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242327.1[USP17L24] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242328.1[USP17L26] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256867.1[USP17L30] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242332.1[USP17L29] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242331.1[USP17L28] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242329.1[USP17L5] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001242330.1[USP17L27] CCGATGTCACAGGCAACAA**GATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256852.1[USP17L10] CCGATGTCACAGGCAACAA**ATT**GCCAAGAATGTGCAATATCCTGAGTGC  
NM\_001256869.1[USP17L7] CCGATGTCACAGGCAACAA**ACTT**GCCAAGAATGTGCAATATCCTAAGTGC  
**shRNA\_1**-----**GATTGCCAAGAATGTGCAA**-----  
\*\*\* \*\*\*\*\*

NM\_001256872.1[USP17L8] **GCTCCCTGCTAAACCTCTC**TTCGATGAACTCGACAGATCAGGAGTCCATG  
NM\_001256874.1[USP17L4] **GCTCCCTGCTAAACCTCTC**TTCGATGAACTCGACAGATCAGGAGTCCATG  
NM\_001256871.1[USP17L3] **GCTCCCTGCTAAACCTCTC**TTCGACGACCCGGACAGATCAGGAGTCCATG  
NM\_001256873.1[USP17L1] **GCTCCCTGCTAAACCTCTC**TTCGACGACCCGGACAGATCAGGAGTCCATG  
NM\_201402.2[USP17L2] **GCTCCCTGCTAAACCTCTC**TTCGACGACCCGGACAGATCAGGAGTCCATG  
NM\_001256857[USP17L17] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256855.1[USP17L13] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256862.1[USP17L21] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256853.1[USP17L12] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256860.1[USL17L19] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256863.1[USP17L22] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256861.1[USP17L20] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256894.1[USP17L15] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256854.1[USP17L11] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256859.1[USP17L18] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242326.1[USP17L25] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242327.1[USP17L24] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242328.1[USP17L26] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256867.1[USP17L30] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242332.1[USP17L29] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242331.1[USP17L28] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242329.1[USP17L5] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001242330.1[USP17L27] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACACATCAGGAGTCCATG  
NM\_001256852.1[USP17L10] **GCTCCCTGCTAAACCTCTC**TTCGTCGACCCCGACAGATCAGGAGTCCATG  
NM\_001256869.1[USP17L7] **GCTCCCTGCTAAACCTCTC**TTCGACGAAACCGACAGATCAGGAGTCCATG  
**shRNA\_2**-----**GCTCCCTGCTAAACCTCTC**-----  
\*\*\*\*\* \*\*\*\*\*

NM\_001256872.1[USP17L8] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256874.1[USP17L4] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256871.1[USP17L3] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256873.1[USP17L1] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_201402.2[USP17L2] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256857[USP17L17] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256855.1[USP17L13] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256862.1[USP17L21] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256860.1[USL17L19] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256863.1[USP17L22] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256861.1[USP17L20] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256894.1[USP17L15] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256854.1[USP17L11] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256859.1[USP17L18] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242326.1[USP17L25] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242327.1[USP17L24] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242328.1[USP17L26] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256867.1[USP17L30] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242332.1[USP17L29] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242331.1[USP17L28] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242329.1[USP17L5] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001242330.1[USP17L27] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256852.1[USP17L10] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
NM\_001256869.1[USP17L7] GCTGGCTTCCATAGAGGCAAG**GCAGGAAGATGCCCATGAA**TTTCTCATGTT  
**shRNA3**-----**GCAGGAAGATGCCCATGAA**-----  
\*\*\*\*\* \*\*\*\*\*