

**Table S3 Repair template sequences**

Name	Sequence	Transcript	Description
ssODN1	GgtaaacacagcgttcttcgattttctcacaatatattttaagGGATACCCAACCCAGCTAGCACACAAACAGGGAGTGATTATCAATGTTATCGGA ACCCTTAACCTCCGTCACCTTCCTC	K08F4.2	<i>NheI</i> site + frame shift + premature STOP
ssODN2	cgacggaaaggggaaattcaagccatttgagttttgtctcttgaagATGTCCTGGTACT---- 15 bp deletion ---- TCGACTCTCGAA <u>CGATCGTAATAGTCAGAC</u> ATTTCGACGATCTTCGTTGATTATCTAGAGgtaaaaatcaataaaatataaaaaataaaaa ttttaaatttcagG	ZK1127.1	Small deletion + <i>PvuI</i> site + premature STOP
ssODN3	GGTTTCCAACACGCGGTGGACAATTCTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGCAGCGGTTTCCAAAATG CCGGACAAAAT---- <i>TetraCys</i> ----tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	TetraCys Tag at STOP
ssODN4	GGTTTCCAACACGCGGTGGACAATTCTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGTAGCGGTTTCCAAAATG CGGGACAAAAT---- <i>Myc</i> ----tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	Myc Tag at STOP
ssODN5	GCGGTGGACAATTTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGTAGCGGTTTCCAAAATGCGGGACAAAAT--- -3X Flag----tagaagcttccgttctcttttctcttctgtaagaattgcacatcc	K08F4.2	3X Flag Tag at STOP
ssODN6	gaaagttaaagttagttgagagtgtaacacactcgccacacacacacaagaATG----V5---- ACACTTTTTGAGCGTCAACATCTGGCAATCGAATGGGGTATAGAGgtaagagagatttcaataaaactcactttcc	F49E11.1a	V5 Tag after ATG
ssODN7	ctcttaataaattttatcgataatcaattgaattttcagacagagaATG----V5---- AAAGCGGCATCAAAATAGTGTGTCCTCCGAGGAGGATCAGTGTACCTACGACAACCCAGCCACCCTACCACCAGGGC	W02A2.7	V5 Tag after ATG
ssODN8	ctcttaataaattttatcgataatcaattgaattttcagacagagaATG----3X Flag---- AAAGCGGCATCAAAATAGTGTGTCCTCCGAGGAGGATCAGTGTACCTACGACAACCCAGCCACCCTACCACCAGGGC	W02A2.7	3X Flag Tag after ATG
ssODN9	ctcttaataaattttatcgataatcaattgaattttcagacagagaATG----OLLAS---- AAAGCGGCATCAAAATAGTGTGTCCTCCGAGGAGGATCAGTGTACCTACGACAACCCAGCCACCCTACCACCAGGGC	W02A2.7	OLLAS Tag after ATG
ssODN10	aaggggaaattcaagccatttgagttttgtctcttgaagATG----3X Flag---- TCTCTGGTACTCCA <u>TCGGAGCCAACCGAGTACC</u> TCGAATCAGACATTTTCGACGATCTTCGTTGATTATCTAGAGgta	ZK1127.1	3X Flag Tag after ATG
ssODN11	GAGACCGCGGAGGACGAGGTGGATACGCGGAGATCGTGGAAAGAGCGGCTATGGTGGGAGAGGTGGACGCGGAGGTTTC----3X Flag----taactccaacttgaattgtaattggttttaagtatacacttctg	ZK381.4	3X Flag Tag at STOP
ssODN12	GTTGTGCGACTGTTGCATAACATGAGCTTCTCCGTTCACTGCGTGACCATTTGGTAGC----V5---- CAT <u>TCaggtgataaggg</u> ttcacagtttctgcaagataaaacactcgctgaggggattattagaataattggaactagtaagcgaacgagggaaagag	F53C11.8	V5 Tag after ATG
ssODN13	GTTGTGCGACTGTTGCATAACATGAGCTTCTCCGTTCACTGCGTGACCATTTGGTAGC----Myc---- CAT <u>TCaggtgataaggg</u> ttcacagtttctgcaagataaaacactcgctgaggggattattagaataattggaactagtaagcgaacgagggaaagagcaaaaaaagt	F53C11.8	Myc Tag after ATG
ssODN14	cgctcatctttacataaaccttttaaaataataacaaaaataaacattttcaggaattattaa----ORF deletion---- tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	ORF deletion
ssODN15	cggttttaaaataataacaaaaataaacattttcaggaattattaaATCCAGATAACCTCGGCCTTAACCCAGAATAAGA <u>GCTAGC</u> ----ORF deletion- --CGGTTTCCAAAATGCGGGACAAAATtagaagcttccgttctcttttcc	K08F4.2	ORF deletion + <i>NheI</i> site
ssODN16	cggttttaaaataataacaaaaataaacattttcaggaattattaaATGAGATAACCTGCTAGCT----24bp deletion---- ATCCGATCAATGGTAATTTGACTTCCACCGCTCCGGTCGAGCCACTCTATTG	K08F4.2	Small deletion + <i>NheI</i> site + premature STOP
ssODN17	GGTTTCCAACACGCGGTGGACAATTCTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGTAGCGGTTTCCAAAATG CGGGACAAAAT----HA----tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	HA Tag at STOP
ssODN18	GGTTTCCAACACGCGGTGGACAATTCTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGTAGCGGTTTCCAAAATG CGGGACAAAAT----V5----tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	V5 Tag at STOP
ssODN19	GGTTTCCAACACGCGGTGGACAATTCTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGTAGCGGTTTCCAAAATG CGGGACAAAAT----6X His----tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	6X His Tag at STOP
PCR1	GTTGGCCCTTAAGCCGAGAACTCCATCTGGTACTCCAAAAGCTCAACATCTCCAGAGTC----GFP---- taattaaatatacgcacatccgttttccccctattgtgttcaaatgtctgctc	Y65B4BL.2a	GFP at STOP
PCR2	CGGAGCAATAAGTCTTCACTGTGCAAAATTTCTTCTCTGGTAGTACCGGCGATGAT----GFP---- taaggtggaacttctcaccataaactcaccaccactatgtctgtgttttg	F21H12.5	GFP at STOP
PCR3	GGCAATTACGGAGCTAGTGGATTGGTCCAGTGTACCAACTCAAGTCCCTCAAGACGAGGAGGATGG----GFP---- TAGaaaccgaccaattgatagtttctgcatattataatgctgtcagttccccatatttatcc	T21G5.3	GFP at STOP
PCR4	CCCTCAAAGGCAATGAGGTACGGCCAGTCCGCAACATGCCAAGTAGAAGAGGAAAC----GFP---- tgaacgatttctggaacaactcgtacaaatcAatcgtttcattttttgttttctctg	F57C9.5	GFP at STOP
PCR5	GCGGTGGACAATTTCCGCGTGGCGGTTCCGGTGGTGTCTCCACGAGGTGGTATGCGC----GFP---- AGCGGTTTCCAAAATGCGGGACAAAATtagaagcttccgttctcttttctcttctg	K08F4.2	GFP at cut, near STOP
PCR6	GGTTTCCAACACGCGGTGGACAATTCTCCGCGTGGCGGTTCCGGTGGTGTCTCCGCGTGGAGGAATGCGTAGCGGTTTCCAAAATG CGGGACAAAAT----GFP----tagaagcttccgttctcttttctcttctgtaagaattgcacatccattagattc	K08F4.2	GFP at Stop
PCR7	GGACGACCGCAAGATGCTAATAAGCTGCCAACCCCAACCCAGCAACGAA----GFP---- taagtgaatattttcatccaccttctgattgtttttatataatttttctc	ZK662.4	GFP at STOP
PCR8	CCAAGGAGAGATCCGAGAAGCCAGCAGGCCAAAGCCAGAACTCCAAACCAATGACTTCTGAA----GFP---- taacttttttctgacttttttctaaattttccgttgatatacacttcaaatc	R06A4.7	GFP at STOP
PCR9	CCAGAAGTCGTCATCTTCAGTACGAAATGGACATCAGTGGAGAATCTCGGCTGCGAGGACACTAT----GFP---- tagggcttactttaccactcagattgctcactcgtgtatcatttctgtacaaaagcc	AH6.5	GFP at STOP

Repair templates: lower case (non coding), upper case (coding), red (silent mutations in the repair template to prevent Cas9 re-cutting), blue (insertion), green (deletion), italic (restriction enzyme), bold (PAM sequence), underlined (sgRNA sequence). GFP templates were amplified using pCM1.53 plasmid (GFP with introns). PCR6 was amplified using a synthetic DNA fragment (gBlock) containing the GFP cDNA sequence. Taq sequences are provided in the Sup Protocol, except for Exp 9 (myc: GAACAGAACTCATCTCTGAAGAGGATCTG; V5: GGAAAACCAATCCAAATCCACTTCTGGTCTCGATTCTACT); for Exp12 (V5: GGAAAGCCAATTCGAAATCCGCTTCTCGGCTTGATTCAACT).