

Supplementary Information for:

Selection for constrained peptides that bind to a single target protein

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Supplementary Figures

Supplementary Figure 1

Supplementary Figure 2

Supplementary Figure 3

Supplementary Figure 4

Supplementary Figure 5

Supplementary Tables

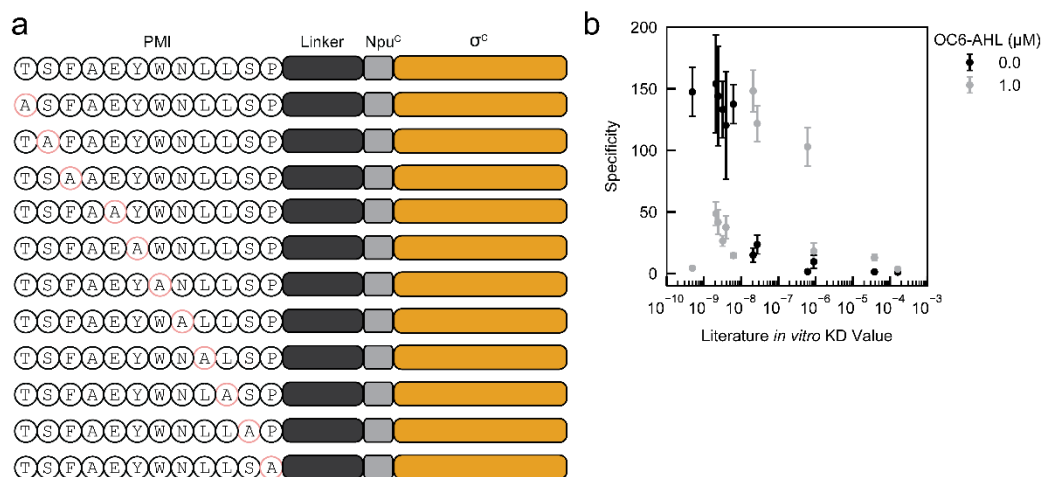
Supplementary Table 1: Genetic parts used in this study

Supplementary Table 2: Plasmids used in this study

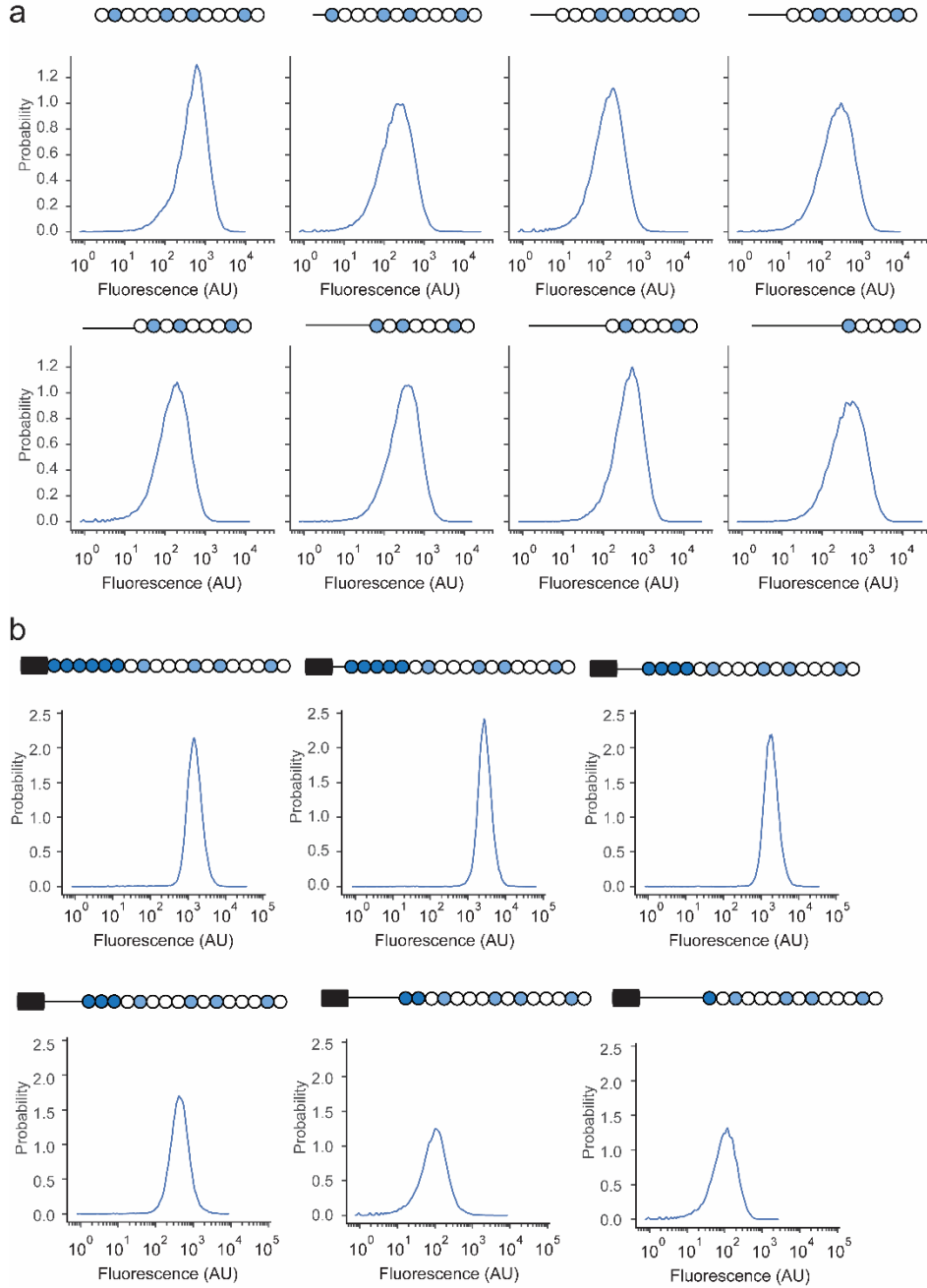
Supplementary Table 3: Primers used in this study

Supplementary Table 4: Pap2c library analysis

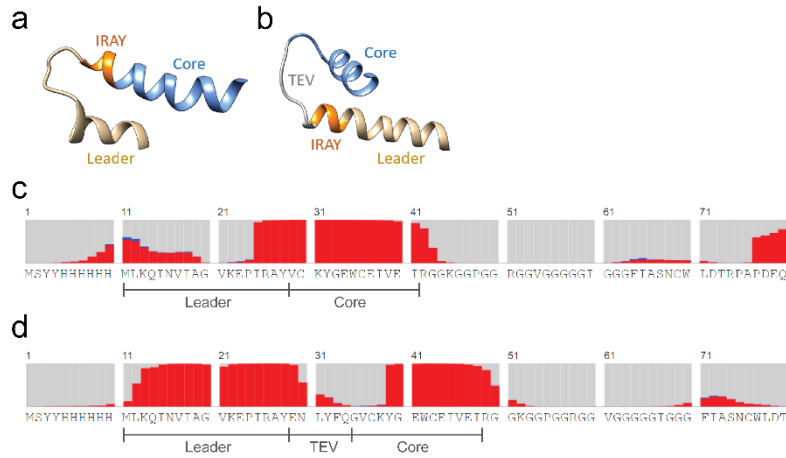
Supplementary Figures



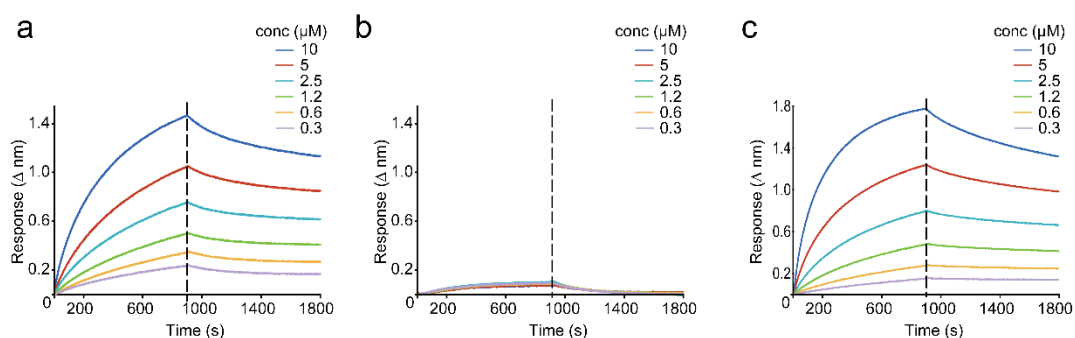
Supplementary Figure 1: Variable induction of split-intein system for protein-protein interactions reflects *in vitro* measurements. **(a)** Schematic of 12 PMI variants constructed for use in the split-intein assay. “TSFAEYWNLLSP” is the native PMI peptide sequence, alanine scans are represented by black circles. **(b)** Fluorescence output was measured for these 12 PMI variants binding to Mdm2* and plotted against their previously reported *in vitro* K_D values. The specificity is defined as the central measure and error bars in parts X were calculated as $\sigma = |A/B|[(\sigma_A/A)^2 + (\sigma_B/B)^2]^{1/2}$, where A is the mean of the on-target (Mdm2) fluorescence, B is the mean of the off-target (RBD) fluorescence, and σ_A and σ_B are the standard deviations of their measurements. For all measurements, three biological replicates were performed on three different days.



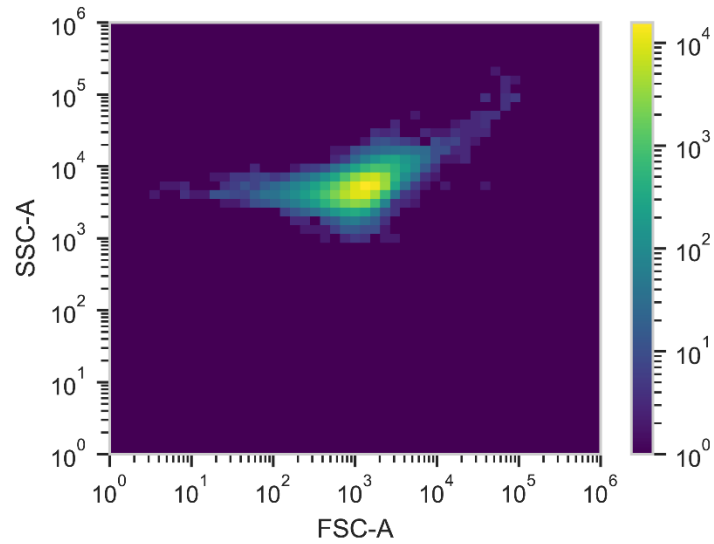
Supplementary Figure 2: Raw output of Pap2c_1 *in vivo* SAR profiling. Cytometry distributions for data found in bar plots from Figure 3. **(a)** Example raw data for core truncations (Figure 3a). **(b)** Example raw data for TEV-leader truncations (Figure 3d). Single replicate data of fluorescence of the sfGFP fused to CAT is shown.



Supplementary Figure 3: Extended structure-activity relationship of Pap2c_1 *in vivo*. (a, b) Predicted secondary structure of parent Pap2c_1 peptide (a) and the Pap2c_1 with the Leader-TEV protease site-Core architecture (b). Models in were generated using Robetta with default parameters ¹. (c) Secondary structure prediction of the first 80 amino acids of the parent Pap2c_1 peptide. (d) Secondary structure prediction of the first 80 amino acids of the parent Pap2c_1 peptide with the Leader-TEV protease site-Core architecture. For c and d, predictions were generated using the RaptorX property online tool ².



Supplementary Figure 4: Kinetics of peptide:RBD BLI measurements. (a) Binding of purified, modified AMK-1057 to human-derived Spike RBD measured via BLI. **(b)** Binding of purified, unmodified AMK-1057 to human-derived Spike RBD measured via BLI. **(c)** Binding of purified ACE2* to human-derived Spike RBD measured via BLI. For all experiments, vertical dotted lines indicate the dissociation phases of the measurements. Three replicates were run on three different days and a representative trace is shown. Replicates are used to calculate the standard deviations presented in the text



Supplementary Figure 5: Representative forward and side scatter of *E. coli* cells used in this study.

Cytometry plot shown is from replicate 3 of pap2c_1 targeting the RBD from Figure 2f. 30,000 events were collected and no gating was performed on the data. Figure generated in Python using Cytoflow version 1.0. FSC-A, Forward scatter; SSC-A, side scatter.

Supplementary Tables

Supplementary Table 1: Genetic Parts

Promoters			
Name	Sequence		Source
P _{J23105}	GGCGCGCCTTTACGGCTAGCTCAGTCCTAGTACTATGCTAGCAAGGT		iGEM
P _{LuxB}	ACCTGTAGGATCGTACAGGTTTACGCAAGAAAATGGTTTGTACAGTCGAATAAA		3
P _{LacI}	GCGGCGCGCCATCGAATGGCGCAAAACCTTTGCGGGTATGGCATGATAGCGCCC		3
P _{Tac}	TGTTGACAATTAATCATCGGCTCGTATAATGTGTGGAATTGTGAGCGCTCACAATT		3
P _{ECF20_992}	GCGCGGATAAAAAATTTTCATTTGCCGCGCAGGATCCCCGCCCATCTATCGTTGAACCCATCAGCTGCGTTCATCAGCGA		4
P _{T5LacO}	AATCATAAAAAATTTATTTGCTTTGTGAGCGGATAACAATTATAATAGATTCAATTGTGAGCGGATAACAATT		3
P _{CymRC}	AACAAACAGACAATCTGGTCTGTTTGTATTATGAAAAATTTTCTGTATAATAGATTCAACAAACAGACAATCTGGTCTGTTTGT ATTAT		3
Ribosome binding sites (RBSs)			
Gene	Name	Sequence	Source
sfGFP	B0032	TCACACAGGAAAG	iGEM
npu ^N	RL1_6	TCATGGACGAAAG	This work
PheS	B0064	AAAGAGGGGAAA	iGEM
PapB	ME_44	AGAACTAAGGAGGTTAGAGG	RBS Calc
SUMO	PP_1	ACCCAACACCACCAGCAAGCCTAAGGAGGAGAAAT	RBS Calc
CymR	cym2	AATGGAATATTCATAGTAAATACCAACGGAGATTCTT	3
peptide	PI_1	TCCATCTCTATGGCGGATTTT	This work
LuxR	lux1	GGAAGAGAGTCAATTCAGGGTGGTGAAT	3
Terminators			
Name	Details	Sequence	
B0062		CAGATAAAAAAATCCTTAGCTTTCGCTAAGGATGATTTCT	iGEM
B0010		CCAGGCATCAAATAAAACGAAAGGCTCAGTCGAAAGACTGGGCCTTTCGTTTTATCTGTTGTTTGT CGGTGAACGCTCTC	iGEM
B0012		TCACACTGGCTCACCTTCGGGTGGGCCTTTCTGCGTTTATA	iGEM
L3S3P21		CCAATTATTGAAGGCCTCCCTAACGGGGGGCCTTTTTTTGTTTCTGGTCTCCC	5
IOT		TTGGTAACGAATCAGACAATTGACGGCTCGAGGGAGTAGCATAGGGTTTGCAGAATCCCTGCTTC GTCCATTTGACAGGCACATTATGCATCGATGATAAGCTGTCAAACATGAGCAGATCCTCTACGCC GGACGCATCGTGGCCGGCATCACCGCGCCACAGGTGCGGTTGCTGGCGCCTATATCGCCGAC ATCACCGATGGGGAAGATCGGGCTCGCCACTTCGGGCTCATGAGCAAATATTTTATCTG	3
L3S2P11		CTCGGTACCAAATTCAGAAAAGAGACGCTTTCGAGCGTCTTTTTCTGTTTGGTCC	5
L3S3P41	g->c SNP to remove BsaI site. Predicted to not affect the hairpin by Vienna ⁶	AAAAAAAAAAAAACCCCTAACGGGTGTTTTTTTTTTTTTGGTGTCCC	5
AraC	w/ 2 SNPs	TTGGTAACGAATCAGACAATTGACGGCTCGAGGGAGTAGCATAGGGTTTGCAGAATCCCTGCTTC GTCCATTTGACAGGCACATTATGCATCGATGATAAGCTGTCAAACATGAGCA	3
B0053	aka His Operon Terminator	TCCGGCAAAAAAGGGCAAGGTGTACCACCCTGCCCTTTTCTTTAAACCGAAAAGATTACTTCG CGTT	3
Ribozymes			

Name	Details	Sequence	Source
RiboJ		AGCTGTCACCGGATGTGCTTCCGGTCTGATGAGTCCGTGAGGACGAAACAGCCTCTACAAATAA TTTTGTTTAA	7
RiboJ53		AGCGGTCAACGCATGTGCTTTCGGTCTGATGAGACAGTGTGCGAAACCGCCTCTACAAATAA TTTTGTTTAA	7
ElvJ		AGCCCCATAGGGTGGTGTGTACCACCCCTGATGAGTCCAAAAGGACGAAATGGGGCCTCTACAA ATAATTTTGTTTAA	7
Linkers/Tags			
Name	Details	Sequence	Source
ATag-2	N-terminal SUMO affinity tag	ATGTCATATTACCACCATCACCATCATCACGGGTCCCTGCAG	
Link-2	N-terminal SUMO linker v2	TGCATGTCATATTACGACTCCATTCCCACAAGCGAGAACTTGACTTTCAAGGGTGC	
RST _N	Concatenation of: ATag-2, SUMO, and Link-2	ATGTCATATTACCACCATCACCATCATCACGGGTCCCTGCAGGACTCAGAAGTCAATCAAGAAGC TAAGCCAGAGGTCAAGCCAGAAGTCAAGCCTGAGACTCACATCAATTTAAAGGTGTCCGATGGAT CTTCAGAGATCTTCTTCAAGATCAAAAAGACCACTCCTTTAAGAAGGCTGATGGAAGCGTTTCGCTA AAAGACAGGGTAAGGAAATGGACTCCTTAAGATTCTTGACGACGGTATTAGAATTCAGCTGATC AGGCCCTGAAGATTTGGACATGGAGGATAACGATATTATTGAGGCTCACCGCGAACAGATTGGA GGTTGCATGTCATATTACGACTCCATTCCCACAAGCGAGAACTTGACTTTCAAGGGTGC	
Npu ^C -Link	Peptide-Npu ^C - σ^C linker	GGAGGTAAGGGAGGACCTGGAGGTCGGGGAGGTGTTGGAGGTGGTGGAGGAATTGGAGGT	This work
Npu ^N -Link	σ^N -Npu ^N -Bait linker	GGAGGATCTGGTGGAAGTGGTGGTTCTGGAGGT	This work
Genes			
Name	Details	Sequence	Source
SUMO	sequence from pE-SUMO	GACTCAGAAGTCAATCAAGAAGCTAAGCCAGAGGTCAAGCCAGAAGTCAAGCCTGAGACTCACAT CAATTTAAAGGTGTCCGATGGATCTTCAGAGATCTTCTCAAGATCAAAAAGACCACTCCTTTAAG AAGGCTGATGGAAGCGTTTCGCTAAAAGACAGGGTAAGGAAATGGACTCCTTAAGATTCTTGACG ACGGTATTAGAATTCAAGCTGATCAGGCCCTGAAGATTTGGACATGGAGGATAACGATATTATTG AGGCTCACCGCGAACAGATTGGAGGT	Life- Sensors
lacI		ATGAAACCAAGTAACTTATACGATGTCGCAGAGTATGCCGGTGTCTCTTATCAGACCGTTTCCCG CGTGGTGAACCAAGGCCACGCTTTCTGCGAAAACGCGGGAAAAAGTGGAAGCGCGCATGGC GGAGCTGAATTACATTTCCCAACCGCGTGGCACAACAACCTGGCGGGCAAAACAGTCGTTGCTTATTG GCGTTGCCACCTCCAGTCTGGCCCTGCACGCGCGCTCGCAAATTGTCGCGGCGATTAAATCTCG CGCCGATCAACTGGGTGCCAGCGTGGTGGTGTGATGTTAGAACGAAGCGCGCTCGAAGCCTG TAAAGCGCGGTGCACAATCTTCTCGCGCAACGCGTCAGTGGGCTGATCAATTAACATCCGCTG GATGACCAGGATGCCATTGCTGTGGAAGCTGCCCTGCATAATGTTCCGGCGCTTATTCTTGATGT CTCTGACCAGACACCCATCAACAGTATTATTTCTCCCATGAGGACGGTACGCGACTGGGCGTGG AGCATCTGGTGCATTGGGTCAACAGCAAATCGCGCTGTTAGCGGGCCATTAAAGTTCTGTCTCG GCGCGTCTGCGTCTGGCTGGCTGGCATAAATATCTCACTCGCAATCAAATTCAGCCGATAGCGGA ACGGGAAGGCGACTGGAGTGCCATGTCCGGTTTTCAACAAACCATGCAAATGCTGAATGAGGGC ATCGTCCCCTGCGATGCTGGTTCGAACGATCAGATGGCGCTGGGCGCAATGCGCGCCATT CCGAGTCCGGGCTGCGCGTTGGTGGGATATCTCGGTAGTGGGATACGACGATACCGAAGATAG CTCATGTTATATCCCGCGTTAACCACCATCAAAACAGGATTTTCGCCTGCTGGGGCAAAACAGCG TGGACCGCTTGTGCAACTCTCTCAGGGCCAGGCGGTGAAGGGCAATCAGCTGTTGCCAGTCTC ACTGGTGAAGAAAAACCCCTGGCGCCCAATACGCAAAACCGCCTCTCCCGCGCGTTGGCC GATTCAATTAATGCAGCTGCGACGACAGGTTTCCCGACTGGAAGCGGGCAG	3
luxR		ATGAAAAACATAAATGCCGACGACACATACAGAATAAATAAAAAATTAAGCTTGTAGAAGCAATA ATGATATTAATCAATGCTTATCTGATATGACTAAAATGGTACATTGTGAATATTACTCCGAT CATTTATCCTCATTTCTATGGTTAAATCTGATATTTCAATCCTAGATAATTACCTCAAAAAATGGAGG CAATATTATGATGACGCTAATTTAATAAAATATGATCCTATAGTAGATTATTCTAACTCCAATCATTC ACCAATTAATTGGAATATATTTGAAAAAATGCTGTAAATAAAAAATCTCCAAATGTAATTAAGAA GCGAAAAATCAGGTCTTATCACTGGGTTAGTTTCCCTATTATACAGGCTAAACATGGCTTCGGA ATGCTTAGTTTTGCACATTGAGAAAAAGACAATATATAGATAGTTATTTTACATGCGTGTATGA ACATACCATTAAATGTTCTTCTAGTTGATAAATATCGAAAAATAAATATAGCAAAATAAATAATCA AACAAAGATTTAAACAAAAAGAAAAAAGATGTTTAGCGTGGGCATGCGAAGGAAAAAGCTCTTG GGATATTTCAAAAAATATTAGTTGACGTGAGCGTACTGTCACTTCCATTTAACCAATGGCAGAAAT GAACTCAATACAACAAACCGCTGCCAAAGTATTCTTAAAGCAATTTTAAACAGGAGCAATTGATTG CCCATACTTTAAAAAATTGATAA	3
cymR		ATGAGCCCGAAACGTCGTACCCAGGCAGAACGTCGAATGGAACCCAGGGTAAACTGATTGCGAG CAGCACTGGGTGTTCTGCGTGAAAAAGGTTATGCAAGTTTTCTGATTGCAGATGTTCCGGGTGCA GCCGTTGTAGCCGTGGTGACAGAGCCATCATTTCCGACCAAACTGGAATGCTGCTGGCAA CCTTTGAATGGCTGTATGAGCAGATTACCGAACGTAGCCGTGCACGTCTGGCAAACTGAAACCG GAAGATGATGTTATTCAGCAGATGCTGGATGATGACAGCAGATTTTTCTGGATGATGATTTTAGC ATCGCCCTGGATCTGATTGTTGCAGCAGATCGTATCCGGCACTGCGTGAAGGTATTCTGCGTAC CGTTGAACGTAATCGTTTTGTTGTTGAAGATATGCGCTGGGTGTGCTGGTGAGCCGTGGTCTGA GCCGTGATGATGCGGAAGATATTCTGTGGCTGATTTTTAACAGCGTTCGTGGTCTGACAGTTTCG AGCCTGTGGCAGAAAGATAAAGAACGTTTTGAACGTGTGCGTAATAGCACCTGGAATTTGCACG TGAACGTTATGCAAAATTCAAACGT	3
sfGFP		ATGAGCAAAGGAGAAGAACTTTTCACTGGAGTTGTCCCAATCTTGTTGAATTAGATGGTGATGTT AATGGGCACAAATTTCTGTCCGTGGAGAGGGTGAAGGTGATGCTACAAACGGAAAACTCACCCCT	3

		TAAATTTATTTGCACTACTGGAAACTACCTGTTCCGTGGCCAACTTGTCACTACTCTGACCTAT GGTGTTCATGCTTTTCCCGTTATCCGGATCACATGAAACGGCATGACTTTTTCAAGAGTGCCATG CCCCGAAGTTATGTACAGGAACGCACTATATCTTTCAAAGATGACGGGACCTACAAGACGCGTGC TGAAGTCAAGTTTGAAGGTGATACCTTGTAAATCGTATCGAGTTAAAGGGTATTGATTTAAAGA AGATGGAAACATTCTTTGGACAAAACCTCGAGTACAACTTTAACTCACACAATGTATACATCAGCGC AGACAACAAAAGAAATGGAATCAAAGCTAACTTCAAATTCGCCACAACTGTAAGATGGTTCGTCT TCAACTAGCAGACCATTAACAACAAAATACTCCAATTGGCGATGGCCCTGTCTTTTACCAGACAA CCATTACCTGTGCACACAATCTGTCTTTGAAAGATCCCAACGAAAAGCGTGACCACATGCTCC TTCTTGAGTTTGTAAGTCTGCTGGGATTACATGGCATGGATGAGCTCTACAAA	
ace2 α 1	ACE2 residues 19-56	GTCAACGATCGAAGAACAGGCTAAACGTTTCTGGATAAGTTCAATCATGAGGCGGAGGACCTGT TCTACCAAAGCAGCTTGGCCCTCTTGGAACTACAACACGAACATTACGGAG	IDT; adapted from ⁸
npu ^C	Npu intein C- terminal fragment	GGTTTTATCGCTTCCAACCTGCTGG	IDT; adapted from ⁹
σ^C	ecf20_992 sigma factor C-terminal fragment	CTGGATACCCGTCCGGCACCAGGTGAACAGCTGGAAGCAAGCGCACAGACCGTCTGATGGCA CAGGCACTGGATCAGCTGCCGGATCGTCAGCGTGAAGCAATTGTTCTGCAGTATTATCAAGAACT GAGCAATACCGAAGCAGCAGCACTGATGCAAAATAGCGTTGAAGCCCTGGAAAGCCTGTGAGC CGTGCACTGCTGAATCTGCGTAGCCATCTGGCCGAAGCACCAGGTCAGATCTGAGCGGTCTGTC GCAACCG	4
npu ^N	Npu intein N- terminal fragment	ATGAATGAAACCGATCCTGATCTGGAACCTGCTGAAACGTAATTGGTAATGATGCACAGCCGT TAAAGAAATGGTTACCCGTAACCTGCCTGCTGCTGGCACTGGCAAGTCGCCTGCTGGGTGATG CAGATGAAGCAGCTGATATTGCACAAGAAAGTTTTCTGCGCATTTGGAACAGGCGACGAGCTGG CGTAGCGAACAGGCAAGTTTTGATACCTGGCTGCATCGTTGCACTGAATCTGTGTTATGATCG TCTGCGTCTGCTGTAAGAACATGTGCCGGTGTATAGCGAACATGCCTGTGAAGCA	IDT; adapted from ⁹
σ^N	ecf20_992 sigma factor N-terminal fragment	TGCTGAGCTACGAAACCGAAATCCTGACCGTTGAATATGGTCTGCTGCCGATCGGCACAAATCGT AGAAAAGCGTATCGAATGTACGGTTTACTCTGTGATAACAACGGTAACATCTACACCCAGCCGG TAGCGCAGTGGCAGCACCCTGGCGAACAGAAAGTGTTCGAGTACTGCCTGGAGGATGGCTCTCT GATCCGCGCTACTAAAGACCACAAATTTATGACCGTGGACGGTCAAATGCTGCCGATCGATGAAA TCTTTGAGCGCGAACTGGACCTGATGCGCGTGGACAACCTGCCGAACATCAAAATGTCTACCCG CAAGTATCTGGGTGAAGCAGACGTCTATGACATTGGTGTGGAGCGCGACCACAATTCGCTCTGA AAAAAC	4
pmi	P53 peptide derivative	ATGACCAGCTTTGCGGAATATTGGAACCTGCTGAGCCCC	IDT; adapted from ¹⁰
mdm2*	Mdm2 residues 2-128 (translational fusion)	AGCCAGATCCCGCGTCCGAACAAGAAACCTGGTACGTCCGAAACCGCTGCTTCTGAAACTGC TGAAGAGCGTGGGGGCGCAGAAAGATACCTACACCATGAAAGAGTTCTGTCTACCTGGGCCA GTATATCATGACCAAGCGCCTGTATGACGAAAAACAGCAACACATTGTTACTGCTCTAACGACCT GCTGGGTGACCTGTTTGGTGTCTCTCTTCTCCGTAAAGAACACCGCAAAATCTATACCATGAT CTACCGTAACCTGGTGGTAGTTAACCAGCAAGAATCTAGCGATTCCGGTACTAGCGTCAGCGAGA AC	IDT; adapted from ¹¹
pheS	His6-pheS	ATGAAGATTGAAGAAGGCAAACCTGGTCAGCggcgaaacctgtatttcagttcttGttCgttcaagatgtgtggcgatg cccatTCACATCTCGCAGAACTGGTTGCCAGTGCGAAGGCGGCCATTAGCCAGGCGCTCAGATGTTG CCGCGTTAGATAATGTGCGCGTCGAATATTTGGGTAAAAAAGGGCACTTAACCCCTTCAGATGACG ACCCTGCGTGAGCTGCCGCCAGAAGAGCGTCCGGCAGCTGGTGGCGTTATCAACGAAGCGAA GAGCAGGTTTCAGCAGGCGCTGAATGCGCGTAAAGCGGAACCTGGAAGCGCTGCACCTGAATGCG CGTCTGCGCGCGAAACGATTGATGTCTCTCTGCCAGTCTGTCGATTGAAAACGGCGGTCTGC ATCCGGTTACCCGTACCATCGACCGTATCGAAAGTTTCTTCGGTGAGCTTGGCTTTACCCGTGGCA ACCGGGCCGGAAATCGAGGATGATTATCATAACTTCGATGCTCTGAACATTCTGGTCACCAACC GGCGCGCGCTGACCACGACACTTTCTGGTTTGACACCACCCGCTGCTGCGTACCCAGACCTCT GGCGTACAGATCCGCACCATGAAAAGCCAGCAGCCACCGATTCTGATCATCGCCGCGCGGTG TTTATCGTAACGACTACGACCAGACTCACACGCCGATGTTCCATCAGATGGAAGGTCTGATTGTT GATACCAACATCAGCTTTACCAACCTGAAAGGCACGCTGCACGACTTCTCGGTAACCTCTTTGA GGAAGATTGTCAGATTGCTTCCGTCTCTCTACTTCCCGTTTCCGAACCTTCTGCAGAAGTGG ACGTCATGGGTAAAAACCGTAAATGGCTGGAAGTGTGGGCTGGGGATGGTGATCCGAACGT GTTGCGTAACCTTGGCATCGACCCGGAAGTTTACTCTGGTTTCGGCTTCGGGATGGGATGGAG CGTCTGACTATGTTGCGTTACGGCGTCACCGACCTGCGTTCATTCTCTGAAAACGATCTGCGTTT CCTCAACAGTTTTAATAA	3
cat	Chloramphenicol acetyltransferase (translational fusion)	GAGAAAAAATCACTGGATATACCACCGTTGATATATCCCAATGGCATCGTAAAGAACATTTTGAG GCATTTCACTCAGTTGCTCAATGTACCTATAACCAAGACCGTTTCACTGGATATTACGGCCTTTTTA AAGACCGTAAAGAAAAATAAGCACAAAGTTTTATCCGGCCTTTATTACATTCTTGCCCGCCTGATG AATGCTCATCCGGAATTTGATGGCAATGAAAGACGGTGAGCTGGTGATATGGGATAGTGTTCA CCCTTGTACACCGTTTTCCATGAGCAAACTGAAACGTTTTATCGCTCTGGAGTGAATACCACGA CGATTTCCGGCAGTTTCTACACATATATTGCAAGATGTGGCGTGTACGGTGAAAAACCTGGCCT ATTTCCTAAAGGGTTTTATTGAGAATATGTTTTCTGCTCAGCCAATCCCTGGGTGAGTTTACCA GTTTTGATTTAAACGTGGCCAATATGGACAACCTTCTCGCCCCGTTTTACCATGGGCAAAATT ATACGCAAGGCGACAAGGTGCTGATGCCGCTGGCGATTGAGTTTCATCATGCCGTTTGTGATGG CTTCCATGTGCGCAGAATGCTTAATGAATTACAACAGTACTGCGATGAGTGGCAGGGCGGGGGCG TAA	3
papB	RiPP modifying enzyme	ATGGCAAACCTGATCCAGGACCGCGAGGACGAACTGATTCAATTCATCCGTACAAACTGTTTCGA GGTGAGTTCAAAAACCTTCTCTATAACGTAGTACCAACGCGATTTTTGAAATTGATAGCCTGAT AATCGACATTCTTCACTCAAAGGTAAAAATGAGGAGCACGTTGTGAAAGATTGGCTGAACGCTA TGAGCTGTCTCAGTTTCGCGAAGCGATCCGAACATGAAAGAGGCATACATTATAGCAACCGATG CTAACATCTCCGACGTAGAGAAGATGGGTATCTTAGATAACTCGCAGCGCTTTTTAACTGTCTA GCCTGACGCTCTTTATGGTGCAGGAATGCAACCTGCGGTGACGTATTGTTACGGCGAAGAAAG AGAATACAACCAGAAAGGTAATGACGTCCGAAATCGCCCCGAGCGCAGTGGATTTTCTGATTTC AACAGAGTGGTGAATCGAACAGTTGAACATCACATTCTTTGAGGCGAACCCTGCTCAACTTT CCATTATAACAAGAACCGTGAGTATGTGCACGAACAGAGCGAGATCCATAACAAGAAATTTAG CTTTTCCATCACCACAATGGCACGCTCATTACCCCCAAAATCAAAAACCTTCTCTATAAACACCA CTTTGCAGTCCAGACTTCTATCGATGGTGATGAAAGAGCGCAATTTCAATCGCTTCTTCAAAGG AGGCCAGGGCTCTATGATCTGCTGTTAAAGCGGACGGAAGAAATGCGCAATGACCGTAAAAATG GTGCACGTGGAACCTGACCCCTGCCGAGCTGGACCTCTCAAATCATTTGACCACTTAGTTAA	

		CTCGGCTTTCGCAAAATCTACTTATCACCCGCTTTATATAGTCTCTCTGACGATCACTACGCACACC CTGAGCAAAGAGATGGTCAAACCTGTTGAACAATCCGTGAGCTGCTGGAGCGTGAAGATTACGT CACCGCGAAGAAAATGTCTAATGTTCTGGGTATGTTATCGAAGATTCACTCCGGTGGCCCGCGCA TTCATTTTGGCGTGCCGGCACTAATGCTGCCGCTGTCGATGTCCGCGCAACCTTTTCCCGTGT CATCGTTTCGTGGGTGAAGATGAATGTTCAATCGGTAACTGTTCCGACGAGGACCCCGCTCAAA ACAGTACAACCTTTATAGAGAATTCTACAGTACGCAACCGTACTACGTTTCCGAAATGCTGGGCGAA GAATCTGTGCGCGGTGGTGTGTCACCAAGAAAATTTCCGCGAGAATGGTAATGTGAACCAAGCCA GTGGGCAAAATATGCAAGGTGACCAAAAACCTCATCAACGCGACCATCAATCTGTACTTGCACCTT ACTCAAGAACACGCGACATTCTGTCGCG	
pap2c_1	Selection hit peptide sequence	ATGCTGAAGCAGATTAACTGTTATTGCCGGAGTTAAAGAACCATACGCGCGTACGTGTGTAATA TGGTGAATGGTGTGAGATCGTCGAAATCCGA	This work
amk1057	Fusion peptide for expression and purification	ATGCTGAAGCAGATTAACTGTTATTGCCGGAGTTAAAGAACCATACGCGCGTACGAAAACCTGTA CTTCAGGGTGTGTGTAATATGGTGAATGGTGTGAGATCGTCGAAATC	This work
Plasmid origins			
Name	Details	Sequence	Source ^a
pSC101	var2 – maintains at p15A-level copy number	AGTAAGACGGGTAAGCCTGTTGATGATACCGCTGCCTTACTGGGTGCATTAGCCAGTCTGAATGA CCTGTACGGGTAATCCGAAGTGGTCAGACTGGAAATCAGAGGGCAGGAACCTGTGAACAGC AAAAAGTCAGATAGCACCATAGCAGACCCGCATAAAACGCCCTGAGAAGCCCGTGCAGGGG TTTTCTTGTTATTTAGGGTAGTTTCTTGCATGAATCCATAAAAGGCCCGCTGTAGTGCCATTACCC CCATTCACTGCCAGAGCCGTGAGCGCAGCGAACTGAATGTCACGAAAAAGACAGCGACTCAGGT GCCTGATGGTCCGAGACAAAAGGAATATTACGCGATTGCCCCAGCTTCCGAGGGTGCTACTTAA GCCTTTAGGGTTTTAAGGTCTGTTTTGAGAGGAGCAACAGCGTTTGCACATCCTTTTGAATA CTGCGAACTGACTAAAGTAGTGAGTTATACACAGGGCTGGGATCTATTCTTTTATCTTTTTTAT TCTTTCTTTATCTATAAATTATAACCACTTGAATATAACAAAAAACACAAAAAGGTCTAGCGG AATTACAGAGGGTCTAGCAGAATTACAAGTTTCCAGCAAAAGGTCTAGCAGAATTACAGATAC CCACAACCTCAAAGGAAAAGGACTAGTAATTATCATTGACTAGCCCATCTCAATTGGTATAGTGATT AAAATCACCTAGACCAATTGAGATGTATGCTGAATTAGTTGTTTTCAAAGCAAAATGAACAGCGAT TAGTCGCTATGACTTAACGGAGCATGAAACCAAGCTAATTTATGCTGTGTGGCACTACTCAACCC CAGGATTGAAAACCTACAAGGAAAGAACGGACGGTATCGTTCACTTATAACCAATACGCTCAGA TGATGAACATCAGTAGGAAAAATGCTTATGGTGATTAGCTAAAGCAACAGAGAGCTGATGACG AGAACTGTGGAAATCAGGAATCCTTTGGTTAAAGGCTTTTGGATTTCCAGTGGACAAATATGCC AAGTTCTCAAGCGAAAAATTAGAATTAGTTTTAGTGAAGAGATATTGCCTTATCTTTTCCAGTTAA AAAAATTCAAAAAATAATCTGGAAACATGTTAAGTCTTTTGAACCAAAATCACTATAGGATTAT GAGTGGTTATTAAGGAACCTAACACAAAAGAAAACCTACAAGGCAAAATATAGAGATTAGCCCTGAT GAATTTAAGTTTATGCTTAACTGCTTAAAAATACTACCATGAGTTTAAAGGCTTAAACCAATGGGTTT TGAACCAATAAGTAAAGATTAAACACTTACAGCAATATGAAATTGGTGTGATGAAGCGAGGCC GCCGACTGATACGTTGATTTTCCAAGTTGAACATAGATAGCAAAATGGATCTCGTAACCGAACTTG AGAACAACAGATAAAAAATGAATGGTGACAAAATACCAACCAACATTACATCAGATTCTACCTAC ATAACGAGCTAAGAAAAACACTACACGATGCTTTAACTGCAAAAATTCAGCTCACCAGTTTGAGG CAAAATTTTGTAGTGACATGCAAAAGTAAGTATGATCTCAATGGTTTCGTTCTCATGGCTCAGCGAAA AACAAACGAACCACTAGAGAACATACTGGCTAAATACGGAAGGATCTGAGGTTCTTATGGCTCT TGATCTATCAGTGAAGCATCAAGACTAACAAACAAAAGTGAACAACTGTTACCGGTTACATATC AAAGGAAAACTGTCCATATGCACAGATGAAAACGGTGTAAAAAAGATAGATACATCAGAGCTTTT ACGAGTTTTTGGTGCATTCAAAGCTGTTCAACATGAACAGATCGACAATGTAACAGATGAACAGCA TGTAACACCTTAATAGAACAGGTGAACACAGTAAAACAAAGCAACTAGAACATGAAATGAACACCT GAGACAACCTTTACAGCTCAACAGTCAACATAGACAGCCTGAAACAGGCGATGCTGCTTATCG AATCAAAGCTGCCGACAACACGGGAGCGAGTACGCGCTCCCGTGGGGAAGAAATCATGGCAATT CTGGAAGAAATAGCGCTTTCAGCCGGCAAAACCGGCTGAAGCCGGATCTCGAATTCTGATAACAAA CTAGCAACACCAGAACAGCCGTTTGGGGGAGCAAAACCGGTAC	12
ColE1	var2 – maintains at p15A-level copy number	TCATGACCAAAATCCCTTAACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAAAGTCA AAGGATCTCTCTGAGATCCTTTTTCTGCGCGTAATCTGCTGCTTGCAAAACAAAAAACCCGCG TACCAACGGTGGTTTTGTTGCCGGATCAAGAGCTACCAACTCTTTTCCGAAGGTAACTGGCTTCA GCAGAGCGCAGATACCAAACTAGTCCCTCTAGTGAGCCGTAGTTAGGCCACCACCTCAAGAAC TCTGTAGCACCGCCTACATACCTCGCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTTGGCGA TAAAGTCGTGCTTACCGGGTTGGAAGTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGGCG TGAACGGGGGGTTCGTGCACACAGCCAGCTTGGAGCGAAGCAGCTACACGAACTGAGATACC TACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCGGAAGGAGAAAGCGGACAGGTATCCGGT AAGCGGCGAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCTGGTATCT TTATAGTCTGTGCGGTTTTCGCCACCTCTGACTTGAGCGTCGATTTTGTGATGCTCTGTCAGGG GGCGGAGCCTATGAAAAACGCCAGCAACGCGGCTTTTACGGTTCTGCGCCTTTTGTGCGGCT TTTTGCTCACATGTTCTTCTGCGTTATCCCTGATTCTGTGGATAACCGT	
p15A		TTAATAAGATGATCTTCTGAGATCGTTTTGGTCTGCGCGTAATCTCTTGTCTGAAAACGAAAAA CCGCTTTCAGGGCGGTTTTTGAAGGTTCTCTGAGCTACCAACTCTTTGAACCGAGGTAACCTGG CTTGAGGAGCGCAGTCACCAAACTGTCTTTCAGTTTACGCTTAAACCGCGCATGACTTCAA GACTAATCCTCTAAATCAATTACCAAGTGGCTGCTGCCAGTGGTGCTTTTGCATGTCTTTCCGGGT TGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCCGACTGAACGGGGGGTTCGTGAT ACAGTCCAGCTTGGAGCGAACTGCCTACCCGAACTGAGTGTACGGCGTGGAAATGAGACAAACG CGGCCATAACAGCGGAATGACACCGGTAAACCGAAAGGCAGGAACAGGAGAGCGCACGAGGGA GCCGCCAGGGGAAACGCGTGGTATCTTTATAGTCTGTGCGGTTTTGCCACGCTGTTTGAAGC GTCAGATTTCTGTATGCTTGTACGGGGGGCGGAGCCTATGGAACCGGCTTTGCCGCGGCCCT CTCACTTCCCTGTTAAGTATCTTCTGGCATCTTCCAGGAAATCTCCGCCCGGTTTCGTAAGCACT TCCGCTCGCCGAGTGAACGACCGAGCGTAGCGAGTCAGTGAGCGAGGAAGCGGAATATATC CTGTATCACATATTCTGTGACGCAACCGGTGCAGCCTTTTTCTCCTGCCACATGAAGCACTTCA TGACACCCTCATCAGTGCCAAACATAGTAAGCCAGTATACACTCCGCTA	Unknown

Name	Description	Sequence
pTHSse _44	Peptide cloning plasmid	AGTAAGACGGGTAAGCCTGTTGATGATACCGCTGCCTTACTGGTGCAATTAGCCAGTCTGAATGACCTGTCACGGGATAATCCG AAGTGGTCAGACTGGA AAAATCAGAGGGCAGGAACCTGCTGAACAGCAAAAAGTCAGATAGCACCATAGCAGACCGGCCATAAA ACCGCGCTAGAGAAGCCGCTGACGGGGCTTTTCTTGATTTATGGGTAGTTTCCTTGTCATGAATCCATAAAAGGCGCCTGTAGTGCCAT TTACCCCTTACTGCTGAGAGCGTGAGCGCAGCGCACTGAATGTACCAAAAGACAGCCTCAGGTGGCTGTATGGTCCG AGACAAAAGGAAATATTAGCGATTGTCGCCGAGCTTGCGAGGGTGCTACTTAAGCCTTTAGGGTTTAAAGGTCGTGTTGTAGAGG AGCAAAAGCAGCGTTGCGACATCTTTTGTAACTGCGGAAGTGAACCTAAGTAGTGAGTTATACACAGGGCTGGGATCTATTCTT TTTATCTTTTTTTATTTCTTTCTTTATCTATAAAATATAACCCTTGAAATATAAACCAAGAAACACAAAAGGCTTCAGCGGAAATTAAC AGAGGGCTCTAGCAGAAATTTTACAAGTTTTCAGCAAAAGGTTCTAGCAGAATTTACAGATAGCCACAGCTCAAAAGGAAAGAGGCACTAGT AATTTTCATTGCTAGTACCCATCTCAATTTGGTATAGTATTAATTAATCACTTACCTAGCAATTTGAGATGTATGTCGAATTTAGTTGTTTC AAAGCAAAATGAACCTAGCGATTGCTGCTATGACTTAACGGAGCATGAACCAAGCTAATTTATGCTGTGTGGCAGCTACTCAACC CCAGATTGAAAACCTTACAAGGAAAGAACGGAGCGTATCGTTCACTTATAACCAATACGTCAGATGATGAACATCAGTAGGGA AAATGCTTATGGTGATTAGCTAAAGCAACAGAGAGCTGATGACGAGAAGCTGTGGAATCAGGAATCCTTGGTTAAAGGCTTT TGGATTTCCTAGTGGCAAACTATGCCAAGTCTCAAGCGAAAAATTAGAATTTAGTTTATGTAAGAGATATGCTCTATCTTTTC CAGTAAAAAAATTCATAAAATATAATCTGGAACATGTTAAGTCTTTTGAAGCAAAAATACTCTATGAGCAATTTATGAGTGGTTATTA AAGAAGTATACACAAAAAGAAATCTACAAGGCAAAATATAGAGATTAGCCCTGATGAATTTAAGTTTCATGTTAATGCTTGAATAATCT ACCATGAGTTTAAAAGGCTTAACCAATGGGTTTGAACCAATAAGTAAGATTTTAAACACTTACAGCAATGAAATGGTGTT GATAAGCGGAGCGGCCGCTGACTGATACGTTTACATTTTCCAAGTTGAACATAGACAGCAATGGATCTCGTAACCGCAATCTGAGAACA ACAGATAAAAATGAATGGTGACAAAATGCAACCAACATTACATCAGATTCTACCTACATACGCGATGAAGAAAACACTACAC GATGGCTTAACTGCAAAAATCAGCTCACCAGTTTGAAGGCAAAATTTTGGATGACATGCAAAAGTAAGTATGATCTCAATGGTCT GTTCTCATGGCTACCGAAAAACACGAACCACTAGACAACTAGTGGCTAAATACGGAAGGATCTGAGGTCTTATGGCTCT TGTATCTATCAGTGAAGCATCAAGACTAACAAACAAAAGTAGAACAACTGTTCAACCGTTACATATCAAAAGGAAAACTGTCCATAT GCACAGATGAAAACGGTGTAAAAAAGATAGATACATCAGAGCTTTTACGAGTTTGTGGTGCAATTCAAAGCTGTTCCACCATGAACA GATCGAATGTAAACAGATGAACGAGCATGTAACACCTAATAGAACAGTGAACACAGTAAAAACAGCAACCTAGAACATGAAATTT GCACACCTGAGACAACTTTACAGCTCAACAGTACACATAGACAGCCTGAACACGGCGATGCTGCTTATCGAATCAAAAGCTGCG GCAACACCGGGAGCAGGTGAGCGCTCCGTTGGGGA AAAAATCTAGTGGCAATTTGGAAGAATAGCGCTTTTGACGCCGGAAC CGGCTGAAGCGCGGATCTGCGATTCTGATAACAACTAGCAACACCGAACAGCCGCTTTGCGGCGAGCAAAAACCCGTACCGGAT ATCAAAAAGGATCTCCACATGATCCTTTTAAATTA AAAATGAAGTTTAAATCAATCTAAAGTATATAGTGAAATCTGGTCTGAC AGTTACCAATGCTTAAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTGCTTCATCCATAGTTGCTCTGACTCCCGCTGCTGTA ATCAAGTATCGATACGGGAGGGCTTACCATTCTGCGCCGAGTGTGCAATGATACCGCGAGAAACACCGCTCACCGGCTCCAGATT GTACGCAATTAACACGCGGACCGGAGGGCCGAGCGCGAGAGTGGTCTGCAAGTTTATCCGCTTCATCCGTTATTAATTTG TTCCGCGGAAGCTAGAGTAAGTATGCTGCCAGTTAATAGTTTGGCGCAACGTTGTGGCAGTGTCTACAGGCATCGTGTTGTCACG CTCGTGCTTTGGTATGGCTTTCATCAGCTCGGTTTCCACAGCATCAAGCGAGTTACATGATCCCCATGTTGTGCAAAAAGCGG GTTAGCTCTCTCGGCTCCGATCGTTGTCAGAAGTAAGTGGCGAGCTGTTTATCATCTATGTTATGCGAGCATGCATCAATT CTCTACTGTCATGCCATCCGTAAGATGCTTTTCTGTAGACTGTGAGTCACTTAACCAAGTCATTGTAGAAATAGTGTATGCGCG ACCGAGTTGCTCTTGCCCGCGCTCAATACGGGATAATACCGCGGCACATAGCAGAATCTTAAAGTGCTCATCATTTGGAAGACG TCTTCGGGGCGAAAATCTCAAGGATCTTACCGGCTGTTGAGATCCAGTTTCGATATAACCCCATCGTGCAACCACTGATCTTCAG CATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGCAAAATCGCGCAAAAAGGAATAGGGCGACACGGA AATGTTGAATACTCATACTCTTCCTTTTCAATATTTATGAAGCATTTATCAGGTTTATGTCTCATGAGCGGATACATATTTGAATG TATTTAGAAAAATAACAAATAGGGGTTCCGCGCACATTTCCCGCAAAAGTGCCACTGACGCTTAAGAAACCAATATTATCATGA CATTAACTATAAAAATAGGCGTATCACGAGGCGAGAATTCAGATAAAAAAGTCTTACGTTTTCGTAAGGATGATTTCTGGAAT TCGCGCGCGCTTCTAGAGGGAGGTGCTTTCGCGCGCGCTTTACGGCTAGCTCAGTCTAGTATGCTAGCAGCAAGTATGCTG TCACCGGATGTGCTTTCCGCTGTGATGAGTCCGTGAGGACGAAACAGCCCTACAATAATTTTGTTTAATCAACAGGAAAGTA CTAGTAGCAAAAAGGAAGAAGCTTTTCTAGTGGATTGTCCAAATCTGTTGAATAGATGGTGATGTTAATGGGCACAAATTTT CTGTCCGTGGAGAGGGTGGAAGGTGATGCTACAAAACGGAACCTCACCTTAATTTATTTGCATCTGGAAAACTACCTGTTCC GTGGCCAACTGTGCTACTACTCTGACCTATGGTGTTCAATGCTTTTCCGGTATCCGGGATACATGAACGCGCATGCTTTTCA AGAGTGCCATGCCGAAGGTTATGATACGGAACGCACTATATCTTTCAAAGTAGCGGACATCAAGACGAGTGTCTGAAGTCA AGTTTGAAGGTGATACCTTTGTTAATCGTATCGAGTTAAAGGGTATTGATTTTAAAGAGGTGGAACAACTTCTTGGACAAACCT GAGTCAACATTTAACTACACAAATGTATACATCACGGCAGACAAAAAGAAATGGAATGAAAGTCAATCTCAAATCTGCCACAA CGTTGAAGATGGTTCCGTTCAACTAGCAGACCAATTATCAACAAAATACCTCAATTTGGCGATGGCCCTGTCTTTTACGACAACT CTTACTCTGTGCACAACTCTGCTCTTTCGTAAGTCCCAACGAAAGCGTAGCCACATGCTCTTGTAAGTTTGAAGTCTGCTG CTGGGATTACACATGGCATGGATGAGCTCTACAAATAATACTAGAGCCAGGCATCAATAAAACGAAAGGCTCAGTCGAAAGACT GGGCTTTCTGTTTATCTGTGTTTGTCTGGTGAAAGCTCTCTACTAGATGCTACACTGGCTCACCTCTGGGTGGGCTTTCTGCGT TTATAGAAGACATCGCTTACTAGTAGCGGCGCTGAGTCGGCGAAAAAGGCAAGGTTGCCACCACCTCGGCTTTTCTTTAA AACCAGAAAGATTACTTCGCTTATGACGAGCTTCTCGCTCACTGACTCGCTGCGCTCGGTGCTGCGCTGCGGCGAGCGGAT CAGCTCACTCAAAGCGCGTAATGAC

11

pTHSS-1282	Pσ_sfGFP reporter	TCCGCCACACCCAGCCGGCCACAGTCGATGAATCCAGAAAGCGGCCATTTCACCATTGATATTCCGCAAGCAGGCATCGCAATGGGTACACGACGAGATCTCGCCCGTCGGGCTACGGCGGCTTGAAGCTGGGCAACAGTTCGGCTGGCCGCGAGCCCGCTGATGCTCTTCGTCAGATCATCTCTGATCGACAAGACCGGCTCCATCCGAGTACGTGCTCGCTCGATCGGATGTTTCGCTTGTTGGTGCAGATGGGACAGGTATCCGCGATCAAGCGATCAAGCGATATGACGCCCGCGCATTCGATCAGCCGATGTGGAATACCTTTTCGGCAGGAGCAAGGTTGATGACAGAGATGCTTGCCTGGCCGACTTCGCCCAATAGCAGCCAGTCCCTTCGGCTTCAGTGACACGCTCGACAGCAAGTGC GCAAGGAACGCCGCTCGTGCCAGCCACGATAGCCCGCTGCGCTGCTCCTGCAGTTCATTACGGGCAACCGGACAGGTCGGTCTTGACAAAAGAACCGCGGCCCTGCGCTGACAGCCGGAACACGCGCGCATCAGACAGCCGATTGCTGTTGCGCCAGTC ATAGCCGAATAGCCTCTCCACCCAAAGCGGCCGAGAACCTCGTGCAATCCATCTTGTTCAAATCATGCCAAAGCATCTCAATAT TATTGAAGCATTTTATCAGGTTATTGTGCTCATGAGCGGATACATATTTGAATGTTTATTAGAAAAAATAACCAATAGGGGTTCCGCG ACACATTTCCCCGAAAAGTGCCACCTGACGCTCTAAGAAACCATATTATTCATGACATTAACCTATAAAAAATAGGCGTATTCACGAGGC AGAATTTTCAGATAAAAAAATCTGCTTAGCTTTTCGTAAGGATGATTTTCGTAATTCGGCGCGCTTTCAGAGGAGGTGATCTTCGG CGCGCTTTTCCGGTACGTCACTGCTAGTACTATGCTAGCAAGTGACTGTCACGGGATGTGCTTTTCGGTCTGATGAGTCCG TGAGGACGAACACGCTCTACAATAATTTTGTTTAATCACACAGGAAGATCTAGATAGCAGAAAGGAAGAAGTTCCTGCTG AGTTGTCCTCAATTTCTGTTGAATTAGATGGTGATGTTAATGGGCACAAATTTCTGTGCGTGAGAGGAGTGAAGGTGATGCTACA AACGGAATACTCACCTTAAATTTATTTGCACTACTGGAAAACACTGCTTCGGCGGCCAACCTGTCACTACTGCACTGATCTAGTTG TGTTCATGCTTTTTCCCGTTATCCGGATCACATGAACCGGCATGACTTTTCAAGAGTGCCATGCCCGAAGGTTATGTACAGGAA CGCATATGTTCTTTCAAAGATGACGGGACCTACAAGACGCGTCTGAAGTCAGATTGAAGGTGTATACCTTTGTAATCTGTCG AGTTAAAGGGTATTGATTTTAAAGAAAGTGGAAACACTTCCTGGACACAAACCTCGAGTACAACCTTTAACTCACACAATGTATACATC ACGGGACCAACAAAGAAGTGAATCAAAGCTAACTTCAAATTCGCCACAACGTTGAAGATGGTCCGTTCAACTGACAGACC ATTATCAACAAAATCTCAATTTGGCGATGGCCCTGCTCTTTACACAGACAACCATTCCTGTGCACACAATCTGCTCTTTCGAAA ATTCACCAAGGCGAAAAGCGTGACCACATGGTCTTCTGAGTTTGTAGTCTGCGGATACACATGGCATGGCATGGTCTGAGCTTACA AATAATACTAGAGCCAGGCATCAATAAAACGAAAGGCTCAGTCGAAAGACTGGGCTTTCGTTTTATCTGTTGTTTGTGCGGTGA ACGCTCTCTACTAGAGTCACACTGGCTCACCTTCGGGTGGGCTTTCGCGTTTATAGAAAGACTCGCTTACTAGTAGCGGCCG CTGACGTCGGGCAAAAAGGGAAGGTGTACCAACCTTCGCCCTTTTCTGTTTAAACCGCAAAGATTTACTCGGTTATGCAAGCT TCCTCGCTCACTGACTCGCTCGCTCGGTCTGCGCTGCGGCGAGCGGTATCAGCTCACTCAAAAGCGGTAAT
pTHSS-1282	Pσ_sfGFP reporter	GATCTTCGGTATTAGCCAGTATGTTCTCTAGTGTGGTTCGTTGTTTTGCGTGAGCCATGAGAAGCAACCTTATGAGATCATGCT TACTTTGATGCTCACTCAAAATTTTGGCTCAAAAGTGGTGAAGTGAATTTTTCGATTGAAGACTCGTGTAGTGTTTTTCTTAGTCT CGTTACGTAGGTAGGAATCTGATGTAATGGTTGTTGGTATTTTGTACCACTTCAATTTTATCTGTTGTTCTCAAGTTCGGTTACGA GATCCATTTGCTCTATCTAGTTCACCTGGAAAAACAAGTATCAGTCGGGCGGCGCTCGCTATCAACCCCAATTTTCAATTTGCTGT TAAGTGTTTAAATCTTACTTATTTGGTTTCAAACCCATTGGTTAAGCCTTTAAACTCATGGTAGTTTATTCAAAGTATTAACGATGA ACTTAATTCATCAAGGCTAATCTCTATATTTGCTTGTGAGTGTTCCTTTGTTGTAGTCTTTTAAATCAACCATATAAATCCCTCAT AGAGTATTGTTTTCCTTTCAAAGACTTAAATGTTTCAGATTTATTTTGAATTTTTTAAAGTGAAAAAGATAAGGCAATATCTCTTCA CTAAAAACTAATTTCAATTTTCGCTTGAGAACTTGGCATAGTTTGTCCACTGGAAAAATCTCAAAAGCCTTTAAACCAAGGATTCCCTG ATTTCCACAGTTCCTGTCATCAGCTCTCGTGTGCTTTAGCTAATACACCATTAAGCATTTTCCCTACTGATGTTTCACTGTGAGC GTATTGTTTATAAGTGAAACGATACCGTCCGTTCTTTCCTGTGAGGGTTTCAATCTGTGGGGTGAGTAGTGCCACAGACATAAA ATTAGCTTGGTTTCATGCTCCGTTAAGTCAATGCGACTAATCGCTAGTTGATTTGCTTTGAAAAACCAATTAATCAGACATACATCTC AATTGGTCTAGGTGATTTTAACTCACTATACCAATTTGAGTAGGGGTGTCATGTAATAATTACTAGTCTTTTTCCTTTGAGTTGTGGGT ATGCTGTAATTTCTGCTAGACCTTTGCTGGAAAACCTTGTAATTCGCTGAGACCCCTGTAAATTCGGCTAGACCTTTGTGTGTTTTT TTTGTTTATATTCAGTGGTTATAATTTATAGAAATAAGAAAGAAATAAAAAAGATAAGGATTCAGCCAGCCCTGTGATAAAC CTCACTACTTTAGTCAGTTTCGCGAGTATTACAAAAGGATGTCGCAAAACGCTGTTGCTCTCTCAACAAAGCAGCTTAAACCCCTAA AGGCTTTAAGTAGACCCCTCGCAAGCTCGGCAAACTCGCTGAATATCTTTCCTTGTGCTCGGACCATCAGGCACAGCTGAGCTGTGCT TTTTTCGTGACATTCAGTTCGCTGCGCTCACGGCTTCGGCAGTGAATGGGGTAAATGGCACTACAGGCCCTTTTATGGATTCA TGCAAGGAATACCTCAATAATACGAAGAAAGCCGCTCACGGGCTTCTCACGGGCTTTTTCGCGGCTGCTGATGTGGTGTCTAT CTGACTTTTTGCTGTCTCAGCAGTTCCTGCCCTCTGATTTTCCAGTCTGACCACTTCGGATTATCCCGTGACAGGTCAATCAGACTG GCTAATGCACCCAGTGAAGGACGCGGTATCATCAACAGGCTTACCCGCTTCTACTGTCCCTAGTGTGGATTCTCAGCTCAACATAAAAA ACGCCCGCGCGCAACCGAGCGTTCTGAAACAAATCCAGATGGAGTTCTCAGAGTCTTACGATGCTATCAACAGAGTCCGACGCG AGCTCTCGAACCCGAGAGTCCCGCTTACCAATGCTTAATCAGTGAGGCCACCTATCTCAGCGATCTGTCTATTTTCGTTATCCCAAT GTTGCTCGTCACTCCCGCTGCTGTAGATACTACGATACGGGAGGGCTTACCATCTGCGGCCAGTGCATGATACCCGCGAGAC CCACGCTCACCGGCTCCAGATTATCAGCAATAAACACAGCCAGCGGGAAGGCGGAGCGAGAAGTGTGCTGCTCAACTTTATC CGCTCCATTCAGTCTTAAATTTGTCGGGGAAGTTAGAGTAAGTAGTTCGCCAGTAAATGTTTGCCAAGCTTGTGTCATTTGTCAT GTCTACAGGCATCGTGGTGTACGCTCGTCTGTTGGTATGGCTTCATTCAGCTCCGGTTCCTCAACGATCAAGGCGAGTTACATGA TCCCCCATGTTGTGCAAAAAGCGGTTAGCTCCTTCGGTCTCCGATCGTTGTCAGAAAGTAAGTTGGCCGCGAGTGTATCACTCA TGGTTATGGCAGCACTGCATAATTTCTTACTGTGATGCCATGCCATGAAGTGTCTTTCTGTCAGTGTGAGTACTCAACCAAGTCA TTCTGAGAAATAGTGTATGCGGCGACCGAGTGTCTCTTGCCCGCGCTGCAATACGGGATTAATCCGCGGCCATGATCAGAGAATCTTTA AAGTGTCTCATCTTGTGAAAACGTTCTTCGGGCGCAAAACTCTCAAGGATTTTACCGCTTGTGAGATCAGTTCGATGATAACCCA CTGCTGACCCCAAGTGATCTTCAGCATCTTTTAACTTTCACCAACGCTTTTCGGGTGAGCAAAAACGAAAGGATCAAAATGCGCGAAA AAAGGGAATAAGGCGGACACGAAATGTTGAATACTCATCTCTCTTTTCAATATTTGAAGCATTTTTCGCAAGGATCTTC TCATCTGTCTCTTGATCAGATCTTGATCCCCTGCGCCATCAGATCCTTGGCGGCAAGAAAGCCATCCAGTTTACTTTGCAGGGC TTCCCAACCTTACAGAGCGGCGCCCGAGCTGGCAATTCGCGAGCTCAAGAAACCATTTATTCATGACATTAACCTATAAAAAATA GGGCATACAGAGGCTTTTCTGCTTTCACTCGAGTGCCACTGACGTTCTAAGAAACCATTTATTCATGACATTAACCTATAAAAA ATAGGCGTATCAGAGGCGAGAATTCAGATAAAAAAACTCCTTAGCTTTTCGCTAAGGATGTTTTCGAAATTCGCGGCGCGCTTC AGAGGCGCGGATAAAAAATTTCAITTCGCCGCGACGGATTTCGCCCCCATCTATCTGTGTAACCCATCAGCTGCGTTCATCAGCGA AGCTGTACCCGGAATGTGCTTTCCGGTCTGATGAGTGCCGTGAGGACGAACACGCTCTACAATAATTTTGTTTAATCACACAGGA AAGTACTAGTAGAGCAAAAGGAAGAAGTTCCTGAGTTGTCCCAATCTCTGTGATAGTGGTGAATTTAATGGGACA AATTTTCTGCTCGGTGGAGAGGGTGAAGGTGATGCTACAACGGAACCACTACCCCTTAAATTTTATTCGCACTACTGGAACACTACCT GTTCCGTTGCCAACACTGTCTCACTACTCGACCTATGGTGTTCATGCTTTTCCGCTTATCCGCTACATGATCAATGAACCGGCATGACT TTTTCAAGAGTGCCATCGCCGAAGGTTATGTACAGGAACGCATATATCTTTCAAAGATGACGGGACCTACAAGCGCGTCTGTA AGTCAAGTTTGAAGGTGATACCTTTGTAATCGTATCGAGTTAAAGGTTATGATTTTAAAGAGATGAAACATTTCTTGACACA AACTCGAGTACAGCACTTTAATCACAAGTATATACATACGGCGACAGCAAAAGAAATGAAGATCAAAGTCAACTTTCGTCAGCA GTCAGTGTGGAAGTGGTTTCGTTCACTAGCAGACCAATTAACAACAAATCTCCAATTTGGCGATGGCCCTGCTCTTTTACCA GACAACCTTACCTGTGCAACAATCTGCTCTTTGAAAGATCCCAACGAAAGGCTGACCACTGGTCTCTTGTAGTTTGTGTAACT GCTGCTGGGATTACATATGGCATGGATGAGCTCTACAATAAATACTAGAGCCAGGCATCAATAAAACGAAAGGCTCAGTCGAA AGACTGGGGCTTCGTTTATCTGTTGTTTGTGCGGTGAACGCTCTCTACTAGAGTCACTGGCTCACCTTCGGTGGGCTCTTC TCGTTTTATATACTAGTAGGCGCGCTGAGTCGGGCAAAAAGGCGCAAGGTGTACACACCCTGCCCTTTTCTTTAAACCGGAA AAGATTACTTCGCGTTATCAGGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTGCTGCGTTCGTTGCGGTCGGCGGAGCGGTATCAGCTCA CTCAAGGCGCGGTAAATCTGTTGTTTGTGCGGTGAACGCTCTCTGAGTAGGACAATCCGCGCCCTAGACCTAGGATTCGCGGTT GCTTCGCCGCAACCGGCTGTTCTGGTGTGCTAGTTTGTATCAGAATTCGAGATCCGCGCTTCAGGTTTGC CGGCTGCTGTTTATCTGAGTATGATGTTTCCCACGGGAGGCGTCACTGGTCCGCTTCTGATGCTGATGTTGATGCTGATGTTGATGAT TCAACCGTGAACAGTTGTTCTACTTTTGTGTTGTTAGTCTTGATGCTTCACTGATAGATACAAGGCCATAGAAGACCTCA
pDAA-558	Alternative library cloning plasmid	AGTAAGGCGGTAAGCCTGTTGATGATACCCGCTGCCCTTACTGGGTGCAATTAGCCAGTCTGAATGACCTGTACCGGGAATAACCG AAGTGCTCAGAGTGAGAAATCAGGAGGACGAAGTCTGTAACAGCAAAAGTCAGATGACACATCAAGACCGCCGCAATAA ACGCCCTGAGAAGCCGTCAGCGGCTTTCTTGATATATGGGATGTTTCTGTCATGAATCCGATAAAGCGCGCTGTAGTGCCAT TTACCCCATTTCACTGTCAGAGCCGTCAGCGGACGGAAGTGAATGCAGAAAAGACCAACTCAGGTGCCATGTGTCGCG AGACAAAAGGAATATTCAGCGATTTGCCGAGCTTGCAGGGGTGCTACTTAAGCCTTTAGGGTTTAAAGT

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pAMK-925	P _{Tac} -σ ^N -Npu ^N bait sensor	TCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAAGATCTTCTTGAGATCC TTTTTTCTGCGGTAATCTGCTGTGCAACAAAAAACCCAGCTACCAACGGTGGTTGTTTGGCGGATCAAGAGTACCA ACTCTTTTTCCGAAGGTAACGTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCTCTAGTGTAGCGTAGTTAGGCCACCACT TCAAGAAAGCTGTAGCACCAGCTACATACCTCGCTTGCTAATCCTGTTACCAAGTGGCTGCTGCGGATGAAGTCGCTGTCT TACCGGGTTGCACTCAAGACGATAGTTACCGGATAAGCGCAGCGCTGGGCTGAACGGGGGGTTCGTGCACACAGCCAGC TTGGAGCGAACACCTACACCGAACTGAGATACCTACAGCGTAGCTATGAGAAGCGCCACCGTCTCCCGAAGGGAGAAAGCGG GGAACGGTATCCGGTAAGCGGCGAGGGTCTGGAAACAGGAGCGCAGGAGGAGTTCAGAGGGGAAAGCGCTGGATCTTTAT AGTCTCTGTGCGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTGTGATGCTCTGTCAGGGGGCGGAGCCTATGAAAAACCGCC AGCAACCGCGGCTTTTACGGTTCCGTGCCCTTTTGTGCGCTTTTGTCTACATGTTCTTCTCGCTTATCCCTGAATCTGTGG ATAACCGTCGATTATCAAAAAGGATCTTCACCTAGATCCTTTAAATTAATAAGTAAGTTTAAATCAATCTAAAGTATATATGAGTA AACTTGGTCTGACAGTTATCAGAAGAAGCTCGTCAAGAAGCGCATAGAAGCGCATGCGCTGCGCAATCGGGAGCGGATACCGT AAAGCAGAGGAAGCGGTGAGCCCATTCGCCGCAAGCTCTTCAGCAATATTCAGGGTATGACCGCAAGCTATGTCTGATAGCGG TCCGCCACACCCAGCGCGGCACAGTCGATGAATCCAGAAAAGCGGCGCAATTTCCACCATGATTTCGCGCAAGCAGGATCGCCA TGGGTCACGACAGATCTTCGCGCTGCGGCCTGAGCGCCTTGAGCCTGGGCAACAGTTGCGGTGCGGACGCCCTGATGCT CTTCGTCAGATCATCCTGATCGACAAGACGGCTCCATCCGAGTACGCTGCTGCTCGATGCGATGTTTCCGTTGGTGGTGCA ATGGGCAAGTAGCCGATCAAGCGTATGCAAGCGCCGATTCGATCAGCCATGATGGAATCTTCTGCGGAGGACCAAGGTGA GATGACAGGAGATCCTGCCCGGCACCTTCGCCCAATAGCAGCCAGTCCCTTCCGCTTCACTGACAACGTCGAGCAGAGCTGC GCAAGGAAGCCGCTGTGGCCAGCCAGTACGCCGCTGCTCTGCTGCAATTCATTCAGGCGACCGGACAGCTGCGTCTG TGACAAAAAGAAACCGGGCGCCCTGCGCTGACAGCGGAAACCGGGCATCAGAGCAGCCGATGTCTGTTGTGCCAGTC ATAGCGGAATAGCCTCTCCACCCAAAGCGGCGGAGAACCTGCGTGCAATCCATCTTGTTCAAATCATGCGAAACAGTCTCTCAATAT TATTGAAGCATTTATCAGGTTTATGTCTCTATGAGCGGATACATATTTGAATGTTATTGAAAAATAACAAATAGGGGTTCCGCG CACATTTCCCGGAAAAGTGCCACCTGACGCTCAAGAAAGATATTTATCATGACATTAACCTATAAAAAATAGGCGTATCACGAGGCG AGAATTTCCAGATAAAAAAATCCTTAGCTTTCGCTAAGGATGATTTCTGGAATTTCCGCGCGCTTCTAGAGGAGCAATTTATGA AGGCTCCCTTAACGGGGGGCTTTTGTGTTTCTGGTCTCCGCTTAAACGATCGTTGGCTGTGATGATGACAATTAATCATCGGCTCG TATAATGTGGGAATTTGAGCGCTCACAATTAGCTGTACACCGATGTGCTTCCGCTGTAGTAGCCCTGAGGACGAAACAG CCTCTACAATAAATTTGTTTAATACTTCATGGACGAAAGTACTAGATGAATGAAACCGATCCTGATCTGGAACCTGCTGAAACGTA TTGGTAATAATGATGACAGGCGGTTAAAGAAATGGTTACCCGTAAACTGCCTCGTCTGCTGGCAGCTGGCAAGTCGCGCTGCTGG GTAGTCGATGAGGCAAGCAGTGATATTGCACAAGAAAGTTTTCGCCGATTTGGAACAGGCAAGCAGTGGCGGTAGCAGCAAG CACGTTTTGATACCTGGCTGATCGTGTGCACTGAACTGTGTTATGATCGTCTGCGCTGTGCTGTAAGAACATGTGCCGGTTGA TAGCGAATCGCTGTGAGCATGCTGAGCTACGAAACCGAAATCTGACCGTTGAATAGTGTCTGCTGCCGATCGGCAAAAT CGTAGAAAAGCGTATCGAATGACGGTTTACTCTGTGCGATAACAACGCGTATGCACTACCCACCGCGGTAGCGCAGTGCAAGCA CCGTGGCGACAAGAAGTGTTCGAGTACTGCTGGAGATGGCTCTTGATCCGCTACTAAAGGACCAAAATTTTATGACGTT GGACGGTCAAATGCTGCCATCGATGAAATCTTTGAGCGCAAGTGGACCTGATGCGCGTGGACAACCTGCCGAACATCAAAAT TGCTACCCGCAAGTATCTGGGTAAAGCAGAGCTGTATGACATTTGGTGTGAGGCGGACCAAAATTTCCGCTTGAAAAAATCAAGC TTAGAGCCAGGATCAAAATAAAACGAAAGGCTCAGTCGAAAGACTGGGCTTTTCGTTTATCTGTTGTTGTGCGTAAGCGCTCT CTACTAGAGTACACCTGGCTCACTCTCGGGTGGGCTTTTCTGCGTTTATACGCTTACTAGTACGCGCGCTGCGATGCTGGGCAAA AAGAGCAAGGTGTCAACACCTGCCCTTTTCTTTAAACCGAAAGATTACTTCGGTATGACGGGATCTCTCGGCTCATGACATGAC TCGCTGCGCTCGGTGCTTTCGGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAAAT
pTHSS-2132	P _{Tac} -σ ^N -Npu ^N -Mdm2 bait sensor	TCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAAGATCTTCTTGAGATCC TTTTTTCTGCGGTAATCTGCTGTGCAACAAAAAACCCAGCTACCAACGGTGGTTGTTTGGCGGATCAAGAGTACCA ACTCTTTTTCCGAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCTCTAGTGTAGCGTAGTTAGGCCACCACT TCAAGAAAGCTGTAGCACCAGCTACATACCTCGCTTGCTAATCCTGTTACCAAGTGGCTGCTGCGGATGGCGATGAAGTCGCTGT TACCGGGTTGCACTCAAGACGATAGTTACCGGATAAGCGCAGCGCTGGGCTGAACGGGGGGTTCGTGCACACAGCCAGC TTGGAGCGAACACCTACACCGAACTGAGATACCTACAGCGTAGCTATGAGAAGCGCCACCGTCTCCCGAAGGGAGAAAGCGG GGAACGGTATCCGGTAAGCGGCGAGGGTCTGGAAACAGGAGCGCAGGAGGAGTTCAGAGGGGAAAGCGCTGGATCTTTAT AGTCTCTGTGCGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTGTGATGCTCTGTCAGGGGGCGGAGCCTATGAAAAACCGCC AGCAACCGCGGCTTTTACGGTTCCGTGCCCTTTTGTGCGCTTTTGTCTACATGTTCTTCTCGCTTATCCCTGAATCTGTGG ATAACCGTCGATTATCAAAAAGGATCTTCACCTAGATCCTTTAAATTAATAAGTAAGTTTAAATCAATCTAAAGTATATATGAGTA AACTTGGTCTGACAGTTATCAGAAGAAGCTCGTCAAGAAGCGCATAGAAGCGCATGCGCTGCGCAATCGGGAGCGGATACCGT AAAGCAGAGGAAGCGGTGAGCCCATTCGCCGCAAGCTCTTCAGCAATATTCAGCGGTAGCCGCTAGCCAGCTATGTCTGATAGCGG TCCGCCACACCCAGCGCGGCACAGTCGATGAATCCAGAAAAGCGGCGCAATTTCCACCATGATTTCGCGCAAGCAGGATCGCCA TGGGTCACGACAGATCTTCGCGCTGCGGCCTGAGCGCCTTGAGCCTGGGCAACAGTTGCGGTGCGGACGCCCTGATGCT CTTCGTCAGATCATCCTGATCGACAAGACGGCTCCATCCGAGTACGCTGCTGCTCGATGCGATGTTTCCGTTGGTGGTGCA ATGGGCAAGTAGCCGATCAAGCGTATGCAAGCGCCGATTCGATCAGCCATGATGGAATCTTCTGCGGAGGACCAAGGTGA GATGACAGGAGATCCTGCCCGGCACCTTCGCCCAATAGCAGCCAGTCCCTTCCGCTTCACTGACAACGTCGAGCAGAGCTGC GCAAGGAAGCGCGCTGCGGCCAGCCAGTACGAGCGGCTGCTGCTGCAATTCATTCAGGCGACCGGACAGCTGCGTCTG TGACAAAAAGAAACCGGGCGCCCTGCGCTGACAGCGGAAACCGGGCATCAGAGCAGCCGATGTCTGTTGTGCCAGTC ATAGCGGAATAGCCTCTCCACCCAAAGCGGCGGAGAACCTGCGTGCAATCCATCTTGTTCAAAT

pAMK-866	P _{J23105} σ^N -Npu ^N -RBD bait sensor; P σ -cat-sfgfp reporter	CACATTTCCCGAAAAAGTGCCACCTGACGTCTAAGAAACCAATTATTATCATGACATTAAACCTATAAAAAATAGGCGTATCACGAGGC AGAATTTTCAGATAAAAAAATCCTTAGCTTTTCGCTAAGGATGATTTCTGGAATTCGCGGCGCCTCTAGAGGGAGCCAAATTATTGA AGGCCTCCCTAACGGGGGGCCTTTTTTTGTTTCTGGTCTCCCGCTTAACGATCGTTGGCTGTGTGACAATTATCATCGGCTCG TATAATGTGTGGAATTGTGAGCGCTCACAATTAGCTGTACCCGGATGTGCTTTCCCGTCTGATGAGTCCGTGAGGACGAAACAG CCTCTACAAATAATTTTGTTAATCTTCATGGACGAAAGTACTAGATGAATGAAACCGATCCTGATCTGGAACTGCTGAAACGTA TTGGTAATAATGATGCACAGGCCGTAAAGAAATGGTTACCCGTAACCTGCCTCGTCTGCTGGCACTGGCAAGTCCGCTCTGCTG GTGATGCAGATGAAGCAGCTGATATTGCACAGAAAGTTTCTGCGCATTTGAAACAGGCGACGCAAGCTGGCGTAGCGGAACAGG CACGTTTTGATACCTGGCTGCATCGTGTGCACTGAATCTGTGTTATGATCGTCTGCGTCTGCTGAAGAACATGTGCGGTTGA TAGCGAACATGCCTGTGAAGCATGCCTGAGCTACGAAACGAAATCCTGACCGTTGAATATGGTCTGCTGCCATCGGCAAAAT CGTAGAAAAGCGTATCGAATGTACGGTTTACTCTGTGCTGATAACACCGTAACATCTACACCCAGCCGCTAGCGCAGTGGCACGA CCGTGGCGAACAAAGTGTTCGAGTACTGCCTGGAGGATGGCTCTCTGATCCGCGCTACTAAAGACCAAAATTTATGACCGT GGACGGTCAAATGCTGCCGATCGATGAAATCTTTGAGCGGAACTGGACCTGATGCGCGTGACAACTCGCGAACATCAAAAT TGCTACCCGCAAGTATCTGGGTGAAGCAGAACGTCTATGACATTGGTGTGAGCGCGGACCAACATTTGCTCTGAAAAACGGAGG ATCTGGTGGAAAGTGGTGGTTCTGGAGGTAGCCAGATCCCGCGCTCCGAAACAGAAACCGTGGTACGTCGCGAACCGCTGCTTC TGAAACTGCTGAAGAGCGTGGGGGCGCAGAAAGATACCTACACCATGAAGAAAGTTCTGTTCTACCTGGGCGCATATCATGA CCAAGCGCTGTATGACGAAAAACAGCAACATTTTACTGCTCTAACGACCTGCTGGTGACCTGTTTGGTGTTCCTTCTTT CTCCGTTAAAGAACACCGCAAAATCTATACCATGATCTACCGTAACCTGGTGGTAGTTAACCGAGCAAGAATCTAGCGATTCCGGT ACTAGCGTCAGCGAACTAAGCTTAGAGCCAGGATCAAAATAAACCGAAAGGCTCAGTGCAGAAAGCTGGGCTTTCTGTTTATC TGTTGTTTCTCGGTGAACGCTCTCTACTAGAGTACACTGCCTACCTCTCGGGTGGGCTTCTGCGTTTATACGCTTACTAGT GCGGCGCGCTGCAGTCCGCAAAAAAGGGCAAGGTGTACACACCTGCCCTTTTTCTTTAAACCGAAAAAGTACTTCTCGGTA TGCAGGCTTCTCGCTACTGACTCGCTGCGCTGGTCTCGGCTGCGCGAGCGGTATCAGCTACTCAAGCGATAT
		TCATGACCAAAATCCCTTAACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAAGGATCTCTTGAGATCC TTTTTTCTGCGCGTAATCTGCTGCTTGCAACAAAAAACACCGCTACCAACCGGTGGTTGTTTGCCGGATCAAGAGCTACCA ACTCTTTTCCGAAGGTAACCTGGCTTCAGCAGAGCGCATGATACCAAACTACTGCTCTTAGTGTAGCCGTAGTTAGGCGCACCACT TCAAGAACTCTGAGACCGCTACATACCTCGCTCTGCTAATCTGTTACCAAGTGGCTGCTGCCAGTGGCGTAAGTCTGCTGTCT TACCGGGTTGGAAGTCAAGCAGATAGTTACCGGATAAGGCGCAGCGGTCCGGCTGAACGGGGGGTTCGTGCACAGCCGAGC TTGAGCGCAACGACCTACACCGAACTGAGTACCTACAGCGTGAGCTATGAGAAAGCGCAGCTTCCGGAAGGGAGAAAGGC GGACAGGTATCCGGTAAGCGGCAGGGTCCGAACAGGAGAGCGCAGAGGGAGCTTCCAGGGGGAAACGCTGTATCTTTAT AGTCTGTCCGGTTTCGCCACCTCTGACTGAGCGTCGATTTTTGTGATGCTCGTCAGGCGCGGAGCTATGAAAACCGCC AGCAACGCGGCTTTTACGGTTCTCGGCTTTTGGCTTGTGCTCAGATGTTCTTCTCGGTATCCCTGATTTCTGTGG ATAACCGTCGATTATCAAAAGGATCTTCACTAGATCCTTTAAATTAATAAGTAAATTAATCAATCAAAAGTATATAGTA AACTTTGGTCTGACAGTTATCAGAAAGAACTCTCAAGAAAGCGCATGAGAAAGCGATGCGCTGCGAATCCGGAGCGGCAAGCT AAAGCAGCAGGAAAGCGGTGAGCCCTTCCCGCCAAAGCTCTTCAAGCAATACACGGGTAGCCAAACGCTATGCTGTTGATAGCG TCCGCCACACCGCGCCACAGTCGATGAATCCAGAAAGCGGCAATTTTCCACCATGATTTCCGGAAGCGGATCGCCCA TGGGTACAGCAGATCCTGCGCGTGGGCGATGCGCGCTTGAAGCCTGGCGAACAGTTGCGCTGGCGCGAGCCCTGATGCT CTTCGTCAGATCATCTGATCGACAAGACCGGCTTCCATCCGAGTACGTGCTCGCTCGATGCGATGTTTCGCTGGTGGTCGA ATGGCAGGTAGCCGGATCAAGCGTATGCAAGCGCGCCGATTCATCAGCCATGATGGATACCTTCCGCGAGGAGCAAGGTGA GATGACAGGAGATCCTGCCCGGCACTTCCGCCAATAGCAGCCAGTCCCTTCCCGCTTCAAGTACAGCTGCGAGCAGCTGCG GCAAGGAACCGCCGTCGTGGCCAGCCAGCATAGCCGCGCTGCTCGTCTGCACTTCAATCAGGGCACCGGACAGCTCGGT TTGACAAAAAGAACCGGCGCCCTGCGCTGACAGCGGGAACACGCGGCGATCAGAGCAAGCCGATGTTGCTGTTGCGCCAGTC ATAGCCGAATAGCTCTCCACCCAAAGCGCGGAGAACCTGCGTGAATCCATCTTTGTCATGCGAAACCTACCTGTTCCGTTGGCC TATTGAAGCATTTATCAGGGTTATTGCTCTCATGAGCGGATACATATTTGAATGATTTAGAAAAATAAACAATAGGGGTTCCGCG CACATTTCCCGAAAAAGTGCCACCTGACGTCTAAGAAACCAATTATTATCATGACATTAAACCTATAAAAAATAGGCGTATCACGAGGC AGAATTTTCAGATAAAAAAATCCTTAGCTTTTCGCTAAGGATGATTTCTGGAATTCGCGGCGCCTCTAGAGGGAGCGCGGATAA AAATTTTCAATTTGCCCGGAGCGGATTTCCCGCCCATCTATCGTTGAACCCATCAGCTGCGTTCATCAGCGAAGCTGTCACCCGAT GTGCTTTCCGGTCTGATGAGTCCGTGAGCAGCAAGCAAGCCCTCAACAAATAATTTTGTTAATCTCACAGGAAAGTACTAGAT GAGCAAGGAGAAGAACTTTTCACTGGAAGTTGTCCTCAATCTTGTGAATAGATGGTGTGTTAATGGGCAAAATTTCTGTGCC GTGGAGGGGTGAAGGTGATGCTACAAACGGAATACTCACCCTTAAATTTATTTGCACTAGCGGAAACCTACCTGTTCCGTTGGCC AACACTGTCACTACTCTGACCTATGGTGTTCATGCTTTTCCCGTTATCCGGATCAGTGAACCGGATGACTTTTTCAAGAGTG CCATGCCCGAAGGTTATGACAGGAACGCACTATCTTTCAAGATGACGGGACCTACAAAGACCGGTGCTGAAGTCAAGTTTG AAGGTGATACCCCTTGTAAATCGTATCGAGTTAAAGGGTATTGATTTTAAAGAAAGTGAAGAAATCTTGGACAGCAAGTCAAGTAC AACTTTAACTACACAATGTATACATCAGCGGAGCAAAACAAAGAAATGGAATCAAGGCTAACTTCAAAATTCGCCACAACCTGTA AGATGGTTCGGTTCAACTAGCAGCACTTATCAACAAATACTCCAATTTGGCGATGGCCCTGCTTTTACCAGCAACCACTTACC TGTCAGACCAATCTGTCTTTTCAAGAGATCCCAACGAAAAAGCGTGACCAATGGTCTTCTGAGTTTGAATCTGCTGCTGGAT TACATGGCATGGATGAGCTCTACAAAGGAGGTGAGAAAAAATCACTGGATATACCCAGTCTGATATCCCAATGGCATGCTG AAAGAACATTTTGAAGCATTTCACTGAGTTGCTCAATGTACCTATAACCGACCGTTCACTGAGTATACGGCTTTTTTAAAGAC CGTAAGAAAAAATAGCACAGTTTATCCGGCTTTTATTCACATCTTCCCGCGCTGATGAATGCTCATCCGGAATTTGATGATGG CAATGAAAGACGGTGAGCTGGTATGGGATAGTTTCAACCTTGTACACCTTTTTCACCGTTTTCAGAGCAAGCAAGCTTTTCATC GCTCTGGAGTGAATACACGAGCATTTCCGGCAGTTTCTACACATATTTCCGAAGATGTGGCGGTGTTACGGTGAACACCTGCG CTATTTCCCTAAAGGGTTTATTGAGAAATTTTTCGCTCAGCCCAATCCCTGGGTGAGTTTACCAAGTTTGAATTTAAACGTTG CCAATATGGACAACCTTCTTCCGCCCCGTTTACCATTGGGCAAAATATTATCGCAAGGCGACAAAGGTGCTGATGCGCGTGGCA TTCAGGTTATCATGCGGTTTGTGATGGCTTCCATGTGCGCAGAATGCTTAATGAATTAACCAAGTACTGCGATGAGTGGCAGGG CGGGGCGTAAATGAAAGAGGGGAAATACTAGATGAAGATTGAAGAGGCAAACTGGTCAGCGCGGAAAAACCTGTATTTCCAGT TCTTGTGCTTCAAGAGTTGGTGGCGAGTGCCCATTCACATCTCGCAGAACTGGTTCAGTGGCAAGGCGGCCATTAGCCAGC CGTCAGATGTTGCCCGCTTAGATAATGTGCGCTCGAATATTTGGGTAAAGAAAGGCACTTAACCTTCAAGTACGACGACCTGCG GTGAGCTGCCCGCAGAAAGCGTCCGGCAGCTGGTGGGTTATCAACGAAGCGAAAGAGCAGGTTACGACGCGCTGAATGCG CGCTAAAGCGGAACGTGAAAGCGCTGCACCTGAATGCGCGTCTGGCGCGGAAACGATTGATGCTCTCTGCGCAGGTCTGCGCA TTGAAACCGCGGCTGCTATCCGGTTACCCGTACCATCGACCGTATCGAAAGTTTCTTCCGTGAGCTTGGCTTTACCGTGGCAA CCGGGCGGAAATCGAGGATGATTATCAAACTTCGATGCTCTGAACATTCCTGGTCACCAACCGCGCGCTGACCAACAGCA CTTTCTGGTTTGAACACCACCGCTGCTGCTGCTACCCAGACCTTGGCGTACAGATCCGACCACTGAAGGCCAGCAGCCACCG ATTGATCATCGCGCTGGCGCTGTTTATCGTAACGACTACGACCAAGCTACACCGCCGATGTTCCATCAGATGGAAGGTCTG ATTGTTGATACCAACATCAGCTTTACCAACCTGAAAGGCACGCTGCACGACTTCTGCGTAACCTCTTTGAGGAAGATTGACAGA TTGCTTCCGCTTCTTCTACTTCCGCTTTGCCGAACCTTCTGCAAGTGGACGTCATGGGTAAAAACGGTAAATGGCTGGAAGT GCTGGGCTGCGGGATGGTGCATCCGAACGTGTTGCGTAACGTTGGCATCGACCGGGAAGTTTACTCTGGTTTCCGGCTTCCGGA TGGGGATGAGCGCTGACTATGTTGCGTTACGGCGTACCCGACCTGCGTTCATTTCTGAAACGATCTGCGTTTCTCTCAAC AGTTAAATAACATTACTCGCATCCATTCTCAGGCTCTCGGTACCAAAATCCAGAAAGAGGCTCCCGAAAGGGGGGCTTTTT TCGTTTTGGTCTACTGGCGCGCTTTACCGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCTAGCT TCCGACCTGACGATGGCCCAAAAGGGCCGAAACAGTCTCTACAAATAATTTTGTTAATACCTTATGAGACGAAAGTACTAGAT AATGAAACCGATCCTGATCTGGAACCTGCTGAAACGATTGGTAATATGATGCACAGCGGCTTAAAGAAATGGTTACCGGTAAC TGCCTGCTGCTGCTGCACTGGCAAGTCCGCTGCTGGGTGATGCGATGAAGCAGCTGATATTGCACAGAAAGATTTCTGCGCA TTTGGAAACAGCGAGCAAGCTGGCGTAGCGAACAGGCACGTTTTGATACCTGGCTGCATCGTTGCTGCAATCTGCTGTTATG ATCGTCTGCGTCTGTAAGAACATGTGCCGTTGATAGCGAACATGCTGTGAAGCATGCTGAGCTACGAAACCGAAATCC TGACCGTTGAATATGGTCTGCTGCCGATCGGCAAAATCGTAGAAAAGCGTATCGAATGTACGGTTTACTCTGCTGATAACACCG TAACATCTACACCCAGCGGTGAGCGAGTTGGCAGACCGTGGCGAACAAAGAGTGTTCGAGTATGCGCTGGAGGATGGCTCT TGATCCGCGCTACTAAAGACCAACAAATTTATGACCGTGGACGGTCAAAATGCTGCCGATCGATGAATCTTTGAGCGCGAACTG ACCTGATGCGCGTGGACAACCTGCCGACACATAAAATGCTACCCGCAAGTATCTGGGTAAGAGCAAGCTATGACATTTGGT TGGAGCGGACCAAAATTTCTGCTGTAAGAACGAGGATCTGGTGAAGTGGTGGTTCTGGAAGTCTGTTTCCGAATATACCA ACTTATGCCGTTTGGTGGAGTGTTCACAGCGACCCGCTTTGCCAGCGTATACCGGTGGAATCTGTAACGATCTGCAACTGCG TAGCGGATTACTCCGTGCTTACAACCTCAGCTTCTTCTCCACCTTTAAATGTTATGGTGTTCACCGACCAAGTTAAACGATCTG TGCTTTACGAACGCTATGCGGATTCATTTGATGATGAGGTTGATGAGGTTGCTCAAAATGGCGCTGGACAGACGGCAAAATG CAGACTATAACTACAACTTCCGACGATTTTACGGCTGTGTTATTGCGTGAATTCGAAACACCTGGATAGTAAGGTTGAGG GAATTTAACTATCTGTACCGCTGTTTCTGTAATCTAACCTGAAACCTTTCGACGCGACATATCAACTGAAATCTATCAGGCAG

[illegible]

	TGCGGCGGATTTTGCGGGTACTGCGCTGTACCAAATGCGGGACAACGTAAGCACTACATTTTCGCTCATCGCCAGCCCACTCGGCGGCGGAGTTCCATACGCTTAAGGTTTCATTTAGCGCGCTCAAAATAGATCCTGTTCAGGAACCCGGATCAAAAGAGTTCTCTCGCGCGTGTGGACCTACAGCGCAACGCTATGTTCTCTTGCTTTTGTCAGCAAGATAGCCGATCAATGTGCATCGTGCGTGTGCGAGATACCTGCAAGAATGTGATTCGCGTGCCATTCTCCAATTCAGATTGCGCGTCTAGCTGGATACGCCACCGAATGATGTGCGTGTGACACAAATGGTGACTTCTACAGCGCGGAGAATCTCGCTCTCTCCAGGGGAAGCCGAAGTTTCCAAGGTCTGTGATCAACAGTCGCGCGGTGTTTCATCAAGCCTTACGGTCACCGTAACCAGCAAAATCAATATCACTGTGTGGCTTCAGGCCGCCATCCACTGC GGAGCCGTACAAATGTACGGCCAGCAACGTCGCTGTCGAGATGGCGCTCGATGACGCCCACTACCTCTGATAGTTGAGTGCATAG TCTCGCGGTACACCGCTTCCCTCATTTTGAAGTCTCTTGAAGCTCTGAAATCTCGATAACCAAAAAATAGCCCGGTGATGATCTTA TTTTCATTTAGTGTGAAGGTTGGAACCTCTTACGTTGCCATTTCCCGGAAAAAGTGCCCACTGACGTTCTAGAAACCAATATTTATCATGA CATTAAACCTATAAAATAGGCGTATACAGAGGCAAGATTCAGATAAGAAAAATTCCTGAGCTTTCCGTCAAGGATGATTTCTGGAAT TCGCGCGCGCTCTAGAGCGCGAAGACTTACGAAAAATCTCAGGATCGGGCAAGCAAGCGCTTAACGATCGTTTGGCTGAACA AACACAGAACTTGGTCTGTTGTATTTGAAAAATTTTCTGATATAAGATTCAACAAACAGCAATCTGGTCTGTTGATTATC AGCGGTCAACGCATGTGCTTTGCGTTCGTATGAGACAGTGTATGTCGAAACCGCTCTACAATAATTTTGTTTAAGCTCTTCAAG AACTAAGGAGGTTAGAGGATGGCAAACTGATCCAGGACCGCGAGGACGAACCTGATTCATTTCCATCCGTACAACCTGTTTCGAG GTGGATTCAAAAACCTTCTCTATAACGTAGTACCCAACCGCATTTTGAATTTGATAGCGTATGATATCGCAATCTTCACTCAAAA GGTAAAAATGAGGAGCACGCTTGTGAAAGATTGGTGCAGCCGTATGAGCTGTCTCAGGTTCCGCGAAGCGCATCAGAAACATGAAA GAGGCAATACATTTATAGCAACCGATGCTAACATCTCCGACGTAGAGAAGATGGGTATCTTAGAATCTCGACGCGCGCTTTTAAAC GTGTGAGCTGACGCTCTTTATGGTGCAGGAATGCAACCTCGCGTGTACGTTATGTTACGGCGGAAGGAGAGATACAACCCAGA AAGGTAATAAGTACGCTCCGAAATCGCCGCGGAGCGCAGTGGAATTTCTGATTCAACAGAGTGGTGAATCTGCAACGATGAAATCA CATTCTTTGGAGGCAACCGCTGCTCAACTTTCCATTTAATACAAGAAACCGGTGCAGTATGTGCACGAACACGAGCGAGATCCATAA CAAGAATAATTTAGCTTTTCCATCACCACCAATGGCAGCGCTCATTACCCCAAAATCAAAAACCTTCTCTATAAACACCACTTTGCAG TCCAGACTTCTATCGATGGTGATGAAAGAGCGACAATTTCAATCGCTTTCTCAAAGGAGCGCAGGGCTCTTATGATCGCTGTT AAGCGCGCGGAGAAATGCGCAATGACCGAATGACCGTAAAAATGGTGACAGTGAACCGCTGACCCCTGCCGAGCTGGACCTCTCAAAAT CATTTTGACCATTGTGTTAACTCGGCTTTTCGCAAAATCTACTTATCACCCTTTTATATAGTCTCTGACGATCACTAGCAACC CTGAGCAAAAGAGATGGTCAAACTTGTGAAACATTTCCGTGAGCTGTGAGCGTTGGAAGCTTACGTCACCGCGAAGAAAAATGTCT AATGTTCTGGGTATGTTATCGAAGATTCTACCGTGGCGCCGCGCATTCATTTTTCGGGTGCCGCGCATTAATGCTCGCGCTGTC GATGTCGCGCGGCAACCTTTCCCGTGTCTCGTTTCGTGGGTGAAGATGAATGTTCAATCGGTAACTGTTTCGACGAGGACCCG CTGTCAACAGCTACAACCTTTAGAGAATTTACAGTACGCAACCGTACTACGTTTTCGAAATCGCTGGCGGAAGAATCTGTGCG CGCGTGGTGTGACCAAGAAAAATTTCCGCGGAGAAATGGTAAATGTGAACACGAGTGGGCAAAATATGCAAAAGTACCAAAAACT CATCAACCGACCACTCAATCTGACTGTCAACTTACTCAAGAAACAAACGACGATCTTGTTCGCGTAAATAGTGAAGAGCGGATGA GCTCTACAAATGAGCAGAGGTGTTGTGTCGAAAAAAGAAAAAAGCAACCTAACGGGTGTTTTTTTTTTTTGGTGTCCCAAC GTGTGGCGCTTTACAAAGTCTTCTGTACTAGTAGCGGCCGCTGCAGTTCGCGCAAAAAGGGCAAGGTGTCAACCACTCGCCCT TTTTCTTTAAACCGAAAAAGATTACTTCGCGTTATGCAAGCTTCTCGCTCACTGATCTCGTCTGCTGCTGCTGCTGCTGCGTGC
pTHSS-2012 Cloning backbone	TTAATAAGATGATCTTCTTGAGATCGTTTGGTCTGCGCGTAATCTCTTGCTCTGAAAAACGAAAAACCGCCTTGCAGGGCGGTTT TTCGAAGGTTCTCTGAGCTACCAACTCTTTGAACCGAGGTAAGTGGCTTGGAGGAGCGCGATCACCAAAATCTGCTTTCAGTT TAGCCTTTAACGGCGCATGACTCTCAAGACTAACTCTCTAAATCAATTACGAGTGGCTGTGCCAGTGGTCTTTGTCATGCTCT TCCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCCGACTGAACCGGGGGTTCGTGCATACAGTCCAGCTT GGAGGCAACTGCTCAACCGGAACTGAGTGTACGGCTGGGAATGAGACAACCGGCCATCAACAGCGGAATGACACCGGTAAC CCAAAGCGAGGAACGAGGAGCGCACGAGGAGCGCCAGGGGGGAAACCGCTGGTATCTTTATAGTCTGTCGGGTTTCGCC ACCACTGATTTGAGCGTCAGATTTCTGATGCTTTGTCAGGGGGCGGAGCCTTGTGAAAAACCGGCTTTCGCCGCGCCCTCA CTTCCCTGTTAAGTATCTTCTGGCATCTTCCAGGAAATCTCCGCCCGTTCGTAAGCCATTTCCGCTCGCCGCACTGCAACGAC CGAGCTGAGCGAGTCAGTGAGCGAGGAAGCGGAATATATCCTGTATACATATCTGCTGACGCAACCGGTGACGCTTTTTCT CTTGCCATCTGAAGCACTTCACTGACACCCCTACGTGCGCAACATAGTAAGCCAGTACGATCCGCTACGATTATCAAAAAGG ATTTCTCACTAGATGCTTTTAAATAAAAATGAAGTTTAAATCAATCTAAGATATATAGTAAGAACTTGTCTGACAGATTTATG CGACTACCTTGTTGATCTCGCCTTTACAGTATGGGCAAAATCTTCCAATCTGTCGCGGAGGCCAAGCGATCTTCTCTTG TCCAAGATAAGCCGTGTAGCTCAAGTATGACGGGCTGATCTGGGCGCGCAGCGCTCATTGCCCATGTCGCGAGCGCAT CTTTCGGCGGATTTTGGCGGTTACTGCGCTGTACCAAAATGCGGGACAACGTAAGCACTATTTCCCTCTCGCAGCGCCAGT CGGGCGCGGAGTCCATAGCGTTAAGGTTTCATTTAGCGCCTCAAATAGATCTGTTTCAGGAACCGGATCAAAAGAGTCTCTCCG CGCTGAGCTCAACAGCAACGCTATGTTCTTCTGCTTTGTCAGCAAGTACGCGATCAATGTGATCGTGGCTGGCTCGA AGATAGGTTGCAAGAATGTCAATGCGCTGCCATCTCCAATTCAGGTTTCGCGCTTGAAGTGAATACGCCAGGAAATGATGTGCT GTGCACACAATGGTGACTTCTACAGCGCGGAGAATCTCGCTCTCTACAGGGGAAGCCGAAGTTTCCAAGAGTTCGTTGATCAA AGCTCGCGCGCTGTTTCTCAAGCCCTTACGGTACCGTAAACAGCAAAATCAATATGTTGTGGCTTCAGGCGCCATCCACT CGGGAGCCGTACAAATGTACGGCGCAGCAACGTCGGTTTCGAGATGGCGCTCGATGACGCGCAACTACCTCTGATAGTTGAGTGA TACTTTCGCGGATCACCGCTTCCCTCAACACCCCTTGTACAAATATTTGAAGCAATTTACAGGTTATGTTCTCTATGACGCGGAT ACATATTTGAATGTATTTAGAAAAATAACAAATAGGGGTTCCGCGCACTTTCCCGGAAAAAGTGCCCACTGACGCTGACGCTTGAAGAACC ATATTATCATGACATTAACCTATAAAAAATGCGGTATCACAGGCAAGATTTTCAGATAAAAAAATCCCTAGCTTTCTGCTAAGAT GATTTCTGGAATTCGCGGCGGCTTCTAGAGGGAGGTGTCTTCGCGCGGCCCTTACGGCTAGCTCAGTCTAGGTACTATGCTAG CAAGGTAGCTGTACCGGATGTGCTTTCCGGTTCGTAGTGAGTCCGTGAGGACGCAAGACCGCTCAAAATATTTTGTATATCAC ACAGAAAGATCATAGATGAGCAAGGAGGAAGAACTTTCACTGGAGTTTCCCAATTTCTGTTGAATAGATGGTGATGTTAAGT GGACAAAAATTTTGTGTCGCGTGGAAGGTTGAAGGTGATGCTACAAACGCAAAATCACTCCCTTAAATTTATTTGCACTACTGGAAA ACTACCTGTTCCGTCGGGCAACACTTGTCACTACTGTGACCTATGGTGTTCATAGCTTTTCCCGTTATCCGATTCACATGAAACGG CATGACTTTTCAAAGTGCCATGCCGAAGGTTATGTACAGGAACGCACTATATCTTCAAAGATGACGGGACCTCAACAGCGG GTGCTGAAGTCAAGTTGAAGTGATACCTTGTAAATCGTATCGAATTAAGGGTATTGATTTTAAAGAAATGGAACATTTCTT GGACAAAACTCGAGTACAACCTTAACTCACACAATGTATACATCACGGCAGACAAAAAAGAAATGGAATCAAAAGCTAACTTCA AAATTCGCCACAACTGGAAGATGGTTCGGTTCAACTAGCAGACCAATTAACAAAAATCACTCCAATTTGGCGATGGCCCGCTGTCT TTACAGCAACCACTTACCTGTGCACACAATCTGTCTTTGCAAGAGTCCCAACGAAAGCGTGACCACTAGTGTCTCTTGAG TTTGATGCTGCTGCTGGGATTACCACTGGCATGGATGAGCTCTACAAATATACTAGAGCAGGACATAAAATAAACGAAAGGCT CAGTGCAAAGAGTACGCGCTTTCGTTTATCTGTTGTTTGTGCGGTGAACGCTCTACTAGAGTACACTGGCTCACTTCCGTTG GGCCTTTCTGCGCTTTATAGAAGACTCGTTACTAGTAGCGGCGCTGTGAGTCCGCAAAAAGGGCAAGGTGTCAACACCCGTG CCGCTTTTCTTAAACCGAAAAAGATTACTTCGCGTTATGCAAGCTTCTCGCTCACTGACTGCTGCGTCTGCTGCGTGTGCGGTG
pAMK-926 P_{Lux} Npu^{c-sc} peptide sensor	TTAATAAGATGATCTTCTTGAGATCGTTTGGTCTGCGCGTAATCTCTTGCTCTGAAAAACGAAAAACCGCCTTGCAGGGCGGTTT TTCGAAGGTTCTCTGAGCTACCAACTCTTTGAACCGAGGTAAGTGGCTTGGAGGAGCGCGATCACCAAAATCTGCTTTCAGTT TAGCCTTTAACGGCGCATGACTCTCAAGACTAACTCTCTAAATCAATTACGAGTGGCTGTGCCAGTGGTCTTTGTCATGCTCT TCCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCCGACTGAACCGGGGGTTCGTGCATACAGTCCAGCTT GGAGGCAACTGCTCAACCGGAACTGAGTGTACGGCTGGGAATGAGACAACCGGCCATCAACAGCGGAATGACACCGGTAAC CCAAAGCGAGGAACGAGGAGCGCACGAGGAGCGCCAGGGGGGAAACCGCTGGTATCTTTATAGTCTGTCGGGTTTCGCC ACCACTGATTTGAGCGTCAGATTTCTGATGCTTTGTCAGGGGGCGGAGCCTTGTGAAAAACCGCTTTCGCCGCGCCCTCA CTTCCCTGTTAAGTATCTTCTGGCATCTTCCAGGAAATCTCCGCCCGTTCGTAAGCCATTTCCGCTCGCCGCACTGCAACGAC CGAGCGTAGCGAGTCAGTGAGCGAGGAAGCGGAATATATCCTGTATACATATTTCTGCTGACGCAACCGGTGACGCTTTTTCT CTTGCCATCTGAAGCACTTCACTGACACCCCTACGTGCGCAACATAGTAAGCAAGTATACACTCCGCTACGATTATCAAAAAGG ATTTCTCACTAGATGCTTTTAAATAAAAATGAAGTTTAAATCAATCTAAGATATATAGTAAGAACTTGTCTGACAGATTTATG CGACTACCTTGTTGATCTCGCCTTTACAGTATGGGCAAAATCTTCCAATCTGTCGCGGAGGCCAAGCGATCTTCTCTTG TCCAAGATAAGCCGTGTAGCTCAAGTATGACGGGCTGATCTGGGCGCGCAGCGCTCATTGCCCATGTCGCGAGCGCAT CTTTCGGCGGATTTTGGCGGTTACTGCGCTGTACCAAAATGCGGGACAACGTAAGCACTATTTCCCTCTCGCAGCGCCAGT CGGGCGCGGAGTCCATAGCGTTAAGGTTTCATTTAGCGCCTCAAATAGATCTGTTTCAGGAACCGGATCAAAAGAGTCTCTCCG CGCTGGACTCAACAGCAACGCTATGTTCTTCTGCTTTGTCAGCAAGTACGCGATCAATGTGATCGTGGCTGGCTCGA AGATAGGTTGCAAGAATGTCAATGCGCTGCCATCTCCAATTCAGGTTTCGCGCTTGAAGTGAATACGCCAGGAAATGAT

		CGGGAGCCGTACAAATGTACGGCCAGCAACGTCGGTTTCGAGATGGCGCTCGATGACGCCAACTACCTCTGATAGTTGAGTCGA TACTTCGGCGATCACCGCTTCCCTCATAAACCCCTTGTACAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGAT ACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACC ATTATTATCATGACATTAACTATAAAAAATAGGCGTATCAGGAGGCAGAAATTCAGATAAAAAAACTCTTAGCTTTTCGCTAAGGAT GATTTCTGGAATTCGGGCGCGCTTCTAGAGGGAGCCAATTTGAAGGCCCTCCCTAACGGGGGCGCTTTTGTGTTGCTGCTC CCGCTTAACGATCGTTGGCTGACCTGTAGGATCGTACAGGTTTACGCAAGAAAAATGGTTTGTACAGTCGAATAAAGAGCTGTAC CGGATGTGCTTTCCGGTCTGATGAGTCGCTGAGGACGAAACAGCCCTCTACAAATAATTTGTAAAGGTTTACACAGGAAAGTA CTAGATGGGAGGTGTTGGAGGTGGTGGAGGAATTTGAGGTGGTTTATCGCTTCCAACCTGCTGGCTGGATACCCGTCCGGCAG CGGATGAACAGCTGGAAGCAAGCGCACAGAGCCGTGATGGCACAGGCACTGGATCAGCTGCCGGATCGTCAGCGTGAAGC AATTGTTCTGCAGTATTATCAAGAACTGAGCAATACCGAAGCAGCAGCACTGATGCAAAATAGCGTTGAAGCCCTGGAAGCCCTG CTGAGCCGTGCACGCTGTAATCTCGGTAGCCATCTGGCCGGAAGCAGCGGGTGAGATCTGAGCGGTGCTCGAAACCCGTAATA GGTCCAGGCATCAAAATAAACGAAAGGCTCAGTCGAAAGACTGGGCTTTTCGTTTATCTGTTGTTTGTCCGTGAACGCTCTCTA CTAGAGTCACACTGGCTCACCTTCGGGTGGGCTTTCTCGCTTTATACGCTTACTAGTAGCGGCGCTGCAGTCCGGCAAAAAA GGGCAAGGTGTCAACCCCTGCCCTTTTCTTTAAACCGAAAGATTACTTCGCGTTATGCAAGCTTCTCGCTCACTGACTCG CTGCGCTCGGTGTTCCGCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAAT
pTHSS- 2137	P _{Lux} PMI- Npu ^{C-σ^C} peptide sensor	TTAATAAGATGATCTTCTGAGATCGTTTTGGTCTGCGCGTAATCTCTTGCTCTGAAAACGAAAAACCCTTGCAGGGCGGTTT TTCGAAGGTTCTCTGAGCTACCAACTCTTTGAACCGAGGTAACCTGGCTTGGAGGAGCGCAGTCAACCAAACTGTCTCTTCAGTT TAGCCTTAACCGGCGCATGACTCAAGACTAACTCTCTAAATCAATTACCACTGGCTGCTCCAGTGGTGTCTTTGCAATGCTCTT TCCGGGTTGGACTCAAGACGATAGTTACCGGATAAGCGCGCAGCGGTGGGACTGAACGGGGGGGTTGCTGCATACAGTCCAGCTT GGAGCGAACTGCCATCCCGGAAGTGTGTCAGGCGTGGAAATGAGACAAACGCGGCCATACACCGGAATGACACCGGTAAGC CGAAAGGCAGGAACAGGAGAGCGCACAGGAGCGCGCAGGGGGAACCGCTGGTATCTTTATAGTCTTCGCTGGGTTTCGCC ACCCTGATTTGAGCTCAGATTTCTGATGCTTGTACGGGGGCGGAGCCTATGGAACAAACCGCTTTCGCCGCGCCCTTCC CTTCCCTGTTAAGTATCTTCTGGCATCTTCCAGGAAATCTCCGCCCGCTTCGTAAGCCATTTCCGCTCGCCGAGTCAAGCAG CGAGCGTAGCGAGTCACTGAGCGAGGAAGCGGAATATCTCTGTATCACAATCTGCTGACGCACCGGTGAGCCCTTTTCTCT CCTGCCACATGAAGCACTTCACTGACACCCTCATCAGTGCCAACTAGTAAGCCAGTATACACTCCGATACGATTATCAAAAAGG ATCTTACCTAGATCCTTTTAAATAAAAATGAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTATTTTGC CGACTACCTTGGTATCTCGCTTTTACGTAGTGACAAATTTCTTCAACTGATCTGTGCGCGAGGCGCAAGCAATGTTCTCTTG TCCAAAGATAAGCCTGTCTAGCTTCAAGTATGACGGGCTGATACTGGCGCGCAGGCGCTCCATTGCCAGTCGGCAGCGACAT CCTTCGGCGGATTTGCCGTTACTGCGCTGTACCAATGCGGGACAACGTAAGCACTACATTTGCTCATCGCCAGCCAGT CGGGCGCGGATTTCCATAGCGTTAAGGTTTCAATTTAGCGCTCAAATAGATCCTGTTACGGAACCGGATCAAGAGATTTCTCG CCGCTGGACTACCAAGGCAACGCTATGTTCTCTTCTGTTTGTGACGAAAGTACGCAAGTCAATGTCATCGTGGCTGGCTCGA AGATACCTGCAAGAAATGTCATTGCGCTGCGATTCTCCAATTTGCAGTTTCCGCTTAGCTGAGCGCAAGCGCAATGATGTCGTC GTGCAACAATGTTGACTTCTACAGCGCGGAGAATCTCGCTCTCTACAGGGGAAGCGGAAATTTCCAAAGGTCGTTGATCAA AGCTCGCCGCGTTTGTCTCAAGCCTTACGGTCAACCAGCAAAATCAATATCACTGTGTGGCTTCAGGCGGCCATCCACT GCGGAGCCGTACAAATGTACGGCCAGCAACGTCGGTTGAGATGGCGCTCGATGACGCCAACTACCTCTGATAGTTAGTCTGA TACTTCGGCGATCACCGCTTCCCTATAACACCCTTGTACAATATTATTGAAGCATTTATCAGGTTATTGTCTCATGAGCGGAT ACATATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGGCGCACATTTCCCGGAAAAGTGCCACTGACGTCTAAGAAACC ATTATTATCATGACATTAACTATAAAAAATAGGCGTATCAGGAGGCAGAAATTCAGATAAAAAAACTCTTAGCTTTTCGCTAAGGAT GATTTCTGGAATTCGGGCGCGCTTCTAGAGGGAGCAATTTATTGAAGGCCCTCCCTAACGGGGGCGCTTTTGTGTTGCTGCTC CCGCTTAACGATCGTTGGCTGACCTGTAGGATCGTACAGGTTTACGCAAGAAAAATGGTTTGTACAGTCGAATAAAGAGCTGTAC CGGATGTGCTTTCCGGTCTGATGAGTCGCTGAGGACGAAACAGCCCTCTACAAATAATTTTGTAAATCTTACACAGGAAAGTA CTAGATGACCACTTTGCGGAATATTGGAACCTGCTGAGCCCGGAGGTTGTTGAGGTGGTGGAGGAATTTGAGGTGGTTTTTA TCGCTTCCAACCTGCTGGCTGGATACCCGTCCGGCACCGGATGAACAGCTGGAAGCAAGCGCACAGGCCCTGATGGCACAG GCACCTGATCAGCTGCCGATCGTCAGCGTGAAGCAATTTGTTCTGCAGTATTATCAAGAACTAGCAATACCGAAGCAGCAGCA CTGATGCAAAATAGCGTTGAAGCCCTGGAAAGCCTGCTGAGCCGTGCACGTCGTAATCTGCGTAGCCATCTGGCCGAAGCACC GGGTGAGATCTGAGCGGCTCGTGCACACCGTAATAGGTCAGGCATCAATAAAACGAAAGCAAGTCACTGCGCAAGAGCGGCC TTTCGTTTATCTGTTGTTGTGCGTGAACGCTCTCTACTAGATGACACTGGCTCACCTTCGGGTGGGCGCTTCTCGCTTTATAC GCTTACTAGTAGCGCGCTGAGTCCGGCAAAAGGGCAAGGTGTACCAACCCTGCCCTTTTCTTTAAACCGGAAAGGAT ACTTCGCTTATGCAAGCTTCTCGCTCACTGACTCGCTGCGCTCGGTGCTCGGCTGCGGCGAGCGGTATCAGCTCACTCAA GGCGGTAAT
pAMK- 670	P _{Lux} PMI- Npu ^{C-σ^C} peptide sensor	AGTAAGACGGGTAAGCCTGTTGATGATACCGCTGCCTTACTGGGTGCATTAGCCAGTCTGAATGACCTGTACGCGGATAATCCG AAGTGGTCAGACTGGAAAAATCAGAGGGCAGGAACCTGCTGAACAGCAAAAAAGTCAGATAGCACCATAGCAGACCCGCCATAAA ACGCCCTGAGAAGCCCGTACGCGGCTTTTCTTGTATTATGGGTAGTTTCTTGCATGAATCCATAAAAGCGCGCTGTAGTGCCAT TTACCCCAATCACTGCCAGCGGTGAGCGGCAAGCTGAATGTACGAAAAAAGACAGCGCATAGGTGCGTGTAGTCGG AGACAAAAGGAATATTACGCGATTTGCCGAGCTTCCGAGGGTGCTACTTAAGCCTTTAGGGTTTAAAGTCTGTTTGTAGAGG AGCAACAGCGTTTGCACATCCTTTGTAACTACTGCGGAAGTGAATAAGTAGTGAGTTATACACAGGGCTGGGATCTATTCTT TTTATCTTTTATTCTTCTTTATTCTATAAATATAACCACTTGAATATAAACAAAAAAGCAACAAAGGCTTACGGCAATTTAC AGAGGGTCTAGCAGAATTTACAAGTTTTCAGCAAAAGGCTAGCAGAATTTACAGATACCCCACTCAAGGAAAGGACTAGT AATTATCAATTGACTAGCCCATCTCAATGGTATAGTGATTAAAAATCACCTAGACCAATTGAGATGTATGTTCAATTTAGTTTTC AAAGCAATGAAGTACGCTTAGTTCGCTATGACTTAACGGAGCATGAACCAAGCTAATTTATGCTGTGTGGCACTACTCAACC CCACGATTGAAAACCTTACAAGGAAAGAACGCGGATCGTTCACTTATAACCAATACGATCAGATGATGAACATGATGAGGA AAATGCTTATGGTGTATTAGCTAAAGCAACAGAGAGCTGATGACGAGAACTGTGGAATCAGGAATCCTTTGGTTAAAGGCTTT TGGATTTCCAGTGGACAAACTATGCCAAGTTCTCAAGCGAAAAATTAGAATTAGTTTATGAGGAGAGATATTGCCCTATCTTTTC CAGTTAAAAAAATTCATAAAATATAATCTGGAACATTTAAGTCTTTTGAACAAATACTCTAGAGGATTTAGAGGTGTTATTAA AAGAACTAACCAAAAGAAAACTCACAGGCAAAATATAGAGATTAGCCTTGATGAATTTAAGTTTCATGTTAATGCTTGAATAACT ACCATGAGTTTAAAGGCTTAACCAATGGGTTTGAACCAATAAGTAAAGATTTAAACACTTACAGCAATATGAAATTTGGTGGTT GATAAGCGAGGCGCGCGACTGATACGTTGATTTCCAAGTTGAAGTATAGACAAATGGATCTCGTAACCGAACTTGAGAACA ACCAGATAAAAAATGAATGGTGACAAAAATACCAACCACTTACATCAGATTCTACCTACATAACGGAACCAAAACACTACAC GATGCTTTAACTGCAAAATTCAGCTCACCAAGTTTGAAGGCAAAATTTTGTAGTGACATGCAAAAGTAAAGTATGATCTCAATGGTTC GTTCTCATGGCTCAGCAAAAAACACGAACCACTAGAGAACATACTGGCTAAATACGGAAGGATCTGAGGTTCTTATGGCTCT TGATCTATCAGTGAAGCATCAAGACTAACAAACAAAAGTGAACAACTGTTACCGCTTACATATCAAAAGGGAAGAACTGTCCATAT GCACAGATGAAAACGGTGTAAAAAAGATAGATACATCAGAGCTTTTACGAGTTTTTGGTGCAATCAAAGCTGTTACCATGAACA GATCGACAATGTAACAGATGAACAGCATGTAACACCTAATAGAACAGGTGAAACCAAGTAAACAAAGCAACTAGAACATGAAAT GAACACCTGAGACAACCTGTACAGCTCAACAGTCACACATAGACAGCCTGAAACAGGCGATGCTGCTTATCGAATCAAAGCTGC CGACAACACGGGAGCCAGTGACGCTCCCGTGGGGAATAATCATGGCAATTTGGAAGAAATAGCGCTTTCAGCCGCGCAAC CGGCTGAAGCCGGATCTGCGATTCTGATAACAACTAGCAACACCAAGACAGCCCGTTTGGGGGAGCAAAACCCGATCCGAT ATCAAAAGGATCTTCACTTAGATCCTTTAAATTTAAAAATGAAGTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGAC AGTTACCAATGCTTACAGTGAAGGACCTATCTCAGCGATCTGCTATTTTCGTTTCATCCATAGTTCGCTGACCCCGCTCGTGA GATAACTACGATACGGGAGGGCTTACCATTCTGGCCCCAGTGTGCAATGATACCGCGAGAAGCAACGCTCACCGGCTCGAGATTT ATCAGCAATAAACACGAGCGCGGAGGGCCGAGCGCAGAAGTGGTCTGCAACTTTATCCGCTCCATCCAGTCTATTAATG TTGCCGGGAAGCTAGAGTAAGTAGTTCCGCCAGTTAATAGTTTGGCGAACGTTGTTGCCATTGCTACAGGATCGTGGTGTACG CTGCTGTTTGGTATGGCTTCACTGCTCCGTTCCCAACGATCAAGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCG GTTAGCTCCTTCGGTCTCCGATCGTTGTCAGAAATAGTTGGCGCAGTGTATCACTCATGGTATGGCAGCATGCTAAT CTCTTACTGTATGCCATCCGTAAAGTGTCTTCTGTGACTGGTGAAGTACTCAACCAAGTCACTTGAAGAATAGTGTATGCGGCG ACCGAGTTGCTTTCGCCGCGCTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAAGTGCTCATCTTGGAAACGCT TCTTCGGGGCGAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTCGATATAACCCCACTGTCACCCCACTGATCTTCGAC CATCTTTTACTTTACCCAGGGTTTTCGGGTGAGCAAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGTAAGGGCGAACACGGA AATGTTGAATACTCATACTTCTCTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATG TATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGCTCTAAGAAGAAATCCGCGCGCT TCTAGAGGGAGCCAATTTAGAAAGCCCTCCCTAACGGGGGCGCTTTTGTGTTTCTGGTCTCCGCTTAAACGATCGTGGCTGAC CTGTAGGATCGTACAGGTTTACGCAAGAAATGGTTTGTACAGTCAATAAAGCTGTACCCGGATGTGCTTTCGGTCTGATG

		AGTCCGTGAGGACGAAACAGCCTCTACAATAATTTTGTTTAATCCATCTCTATGGCGGATTTTATGTCATATTACCACCATCAC ATCATCACATGAGCCAACTGGCGGAGCTTCTGAGGAGGCTCTGGGAGGGTTCGATGCCTCGTACGGCGTGTCTGGCCGATC TGTGGCACCAGCTTTGCGGAATATTGGAACCTGCTGAGCCCGCAGGAGGTAAGGGAGGACCTGGAGGTGCGGGAGGTGTTG GAGGTGGTGGAGGAATTGGAGGTGGTTTATCGCTTCCAACCTGCTGGCTGGATACCCGTCGGGACCCGGATGAACAGCTGGAA GCAAGCGCACAGAGCCGTGATGGCACAGGCACTGGATCAGCTGCCGATCGTCAGCGTGAAGCAATTTGTTCTGCAGTATTAT CAAGAACTGAGCAATACCGAAGCAGCAGCACTGATGCAAAATAGCGTTGAAGCCCTGGAAGCCCTGCTGAGCCGTGCAGCTCG TAATCTCGGTAGCCATCTGGCCGAAGCACCGGGTGCAGATCTGAGCGGTCTGTCGCAACCCTGAAGGTGATACCTTTAGCCAAA AAACTTAAGACCGCCGCTTGTCCACTACCTTGCGATTAATGCGGTGGACAGGATCGCGGTTTCTTTCTCTTCTCAAGAC GTCCAAATGGCGCGGCCCATCGAATGGCGCAAAACCTTTCGCGGTATGGCATGATAGCGCCGGAAGAGAGTCAATTCAGGGT GGTGAATATGAAAAACATAAATGCCGACGACACATACAGAATAATTAATAAAATTAAGCTTGTAGAAGCAATATGATATTAATCA ATGCTTATCTGATATGACTAAAAATGGTACATTGTGAATATTATTTACTCGCGATCATTTATCTCTCATTTATGGTTAAATCTGATATT TCAATCCTAGATAATTACCCTAAAAAATGGAGGCAATATTATGATGACGCTAATTTAATAAAATATGATCCTATAGATAGATTATTCTA ACTCCAATCATTACCAATTAATTGGAATATATTTGAAAACAATGCTGTAATAAAAAATCTCCAATGTAATTAAGAAGCGAAAA CATCAGGTCTTATCACTGGGTTAGTTTCCCTATTATACGGCTAACCAATGGCTTCGGAATGCTTAGTTTTCGACATTCAGAAAA GACAACTATATAGATAGTTTATTTTACATGCGGTGATGAACATACCATTAAATGTTCTTCTAGTTGATAATTACGAAAAATAA ATATAGCAAAATAATAATCAACAACGATTTAACCAAAAGAGAAAAAGATGTTTAGCTGGGCATGAAGCAAAAGCAATTCAGGT GGATATTTCAAAAATATTAGGTTGCAGTGAGCGTACTGTCACTTTCATTTAACCAATGCGCAAAATGAACTCAATACAACAAACC GCTGCCAAAGTATTTCTAAAGCAATTTAACAGGAGCAATTGATTGCCCATACCTTAAAAATGATAAGGATCCTAATTTGGTAACG AATCAGACAATTGACGGCTCGAGGGAGTAGCATAGGGTTTGCAGAAATCCCTGCTTCGTCATTTAGGTTTGTAGAGG ATGATAAGCTGTCAAAACATGAGCAGATCCTCTACGCCGGACGCATCGTGGCCGGCATACCGGCGCCACAGGTGCGGTTGCTG GCGCCTATATCGCCACATCACCGATGGGGAAGATCGGGCTCGCCACTTCGGGCTCATGAGCAAAATTTTATCTGGCTCACTC AAAGCGGTAATGAC
pAMK- 857	P _{Lux} -ACE2 ₁₉ - 56-Npu ^c - peptide sensor	AGTAAGACGGGTAAGCCTGTTGATGATACCGCTGCCTTACTGGGTGCATTAGCCAGTCTGAATGACCTGTACGCGGATAATCCG AAGTGGTCAGACTGGAATAATCAGAGGGCAGGAACCTGCTGAACAGCAAAAAAGTCAGATAGCACCATAGCAGACCCGCCATAAA ACGCCCTGAGAAGCCCGTGACGGGCTTTTCTTGATTTATGGGTAGTTTCTTGCATGAATCCATAAAGCGCGCTGTAGTGCCAT TTACCCCCATTCAGTCCAGAGCCGTGAGCGCAGCGAATGAATGTACGAAAAAGACAGCGACTCAGGTGCTGATGTGCGG AGACAAAAGGAATATTACGCGATTGCCCCAGCTTGGCAGGGTGTCTACTTAAGCCTTTAGGGTTTAAAGGTTCTGTTTGTAGAGG AGCAACACGCGTTTGCACATCCTTTTGAATACTGCGGAACCTGACTAAAGTAGTGAGTTATACACAGGGCTGGGATCTATTTCT TTTATCTTTTTTATTCTTTTATTCTATAAATATAACCACTTGAATATAACAAAAAACACAAAGGCTAGCGGAATTTTAC AGAGGCTAGCAGAAATTTACAAGTTTTCAGCAAAAGGTCTAGCAGAAATTTACAGATAACCCACAATCAAGGAAAAAGGACTAGT AATTATCATTGACTAGCCCATCTCAATTTGGTATAGTGATTAAAAATCACCTAGACCAATTGAGATGTATGTGTAATTTAGTTGTTTC AAAGCAAAATGAATCGGATTAGTGCCTTAGCTTAACGGAGCATGAAACCAAGCTAATTTTATGCTGTGTCGCACTACTCAACC CCACGATTGAAAAACCTTACAAGGAAAGAACGGACGGATCGTTCACTTTAACAACATACGCTCAGATGATGAACATCAGTAGGGA AAATGCTTATGGTGTATTAGCTAAAGCAACACAGAGAGCTGATGACGAGAAGCTGTGGAATCAGGAATCTTTTGGTTAAAGGCTTT TGGATTTTCCAGTGGAACAACTATGCCAAGTTCTCAAGCGAAAAATTAAGATAGTTTATAGTGAAGAGATATTGCCCTATCTTTTC CAGTTAAAAAATTCATAAAATATAATCTGGAACATGTTAAGTCTTTGAAAACAATACTCTATGAGGATTATGAGTGGTTATTA AAGAACTAACACAAAAAGAAACTCACAGGCAAAATATAGAGATTAGCCTTGATGAATTTAAGTTCATGTTAATGCTTGAATAAAT ACCATGAGTTTAAAGGCTTAACCAATGGGTTTGAACCAATAAGTAAAGATTAAACACTTACAGCAATATGAAATTTGGTGGTT GATAAGCGAGGCCGCCGACTGATACGTTGATTTTCCAAAGTTGAACATAGATAGACAAATGGATCTCGTAACCGCACTTGAAACA ACCAGATAAAAAATGAATGGTGACAAAATACCAACAACCATACATCAGATTCTACCTACATAACCGACTAAGAAAAACACTACAC GATGCTTTAAGTCAAAAAATTCAGCTCACCGATTTTGAGGCAAAATTTTGAAGTACATCAAAAGTAAGTATGATCTCAATGTGCTC GTTCTCATGGCTCAGCAAAAAACAGCAACCACTAGAGAACATACTGGCTAAATACGGAAGGATCTGAGGTTCTTATGGCTCT TGTATCTATCAGTGAAGCATCAAGACTAACAAAAAGAGTAGAACAACTGTTACCCGTTACATCAAAAGGAAAACTGTCATAT GCACAGATGAAAAACGGTGTAAAAAGATAGATACATCAGAGCTTTTACGAGTTTGTGGTCATTCAAAGCTTCCACCATGTAAGAA GATCGACAATGTACAGATGAACAGCATGTAAACACCTAATAGAACAGGTGAAACCAAGTAAAAACAAAGCACTAGAACATGAAAT GAACACCTGAGACAACCTTGTACAGCTCAACAGTCAACATAGACAGCCTGAAACAGGCGATGCTGCTTATCGAATCAAAAGCTGC CGACAACACGGGAGCCAGTGACGCCTCCCGTGGGGAAAAAATCATGGCAATTCGGAAGAAATAGCGCTTTAGCCGCGCAAC CGGCTGAAGCCGGATCTGCGATTCTGATAACAACTAGCAACACCAAGACAGCCGTTTGGGGCAGCAAAACCGGTACCGGATT ATCAAAAAGGATCTTCACTAGATCCTTTTAAATTAATAAGTGTAAATCAATCTAAAGTATATGAGTAAACTTGGTCTGAC AGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCTGTTATCCATAGTTGCCGTGACTCCCCGTCGTGTA GATAACTACGATACGGGAGGCTTACCATCTGGGCCCAAGTGTGCAATGATACCGCGAAGCAACCGCTCACCGGCTCCAGATT ATCAGCAATAAACAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCTGCAACTTTATCCGCTCCATCCAGTCTATTAATTG TTGCCGGGAAGCTAGATGAGTGTCCAGTTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGATCTGAGTGTGACG CTCGTCTGTTGGTATGGCTTCAATCAGCTCCGTTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCG GTTAGCTCCTTCGGTCTCCGATCGTTGTGCAAGTAAAGTTGGCCGCACTGTTATCACTCATGGTATGCGCAGCATGCATAATT CTCTACTGTATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGATGCGGCG ACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAGAGTCTCATATTGGAAGAACG TCTTCGGGCGCAAACTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTTCGATATAACCCCATCTGTCACCCCACTGATCTTCAC CATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAAACAGGAAGGCAAAATGCCGCAAAAGGGAATAAAGGCGACACGGA AATGTTGAATACTCATACTCTCTCTTTTCAATATTATGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATG TATTTAGAAAAATAAACAATAGGGGTTCCGCGCACATTTCCCGAAAAAGTGCCACCTGACGCTCTAAGAAAGATTCGCGCGCGCT TCTAGAGGAGCAATATTGAAGGCCTCCCTAACGGGGGCGCTTTTGTGTTCTGGTCTCCGCTTAAACGATCTGGTGTGAC CTGTAGGATCGTACAGGTTTACGCAAGAAATGGTTTGTACAGTCAATAAAAGCTGTACCCGGATGTGCTTTCCGGTCTGATG AGTCCGTGAGGACGAAACAGCCTCTACAATAATTTTGTTTAATCCATCTCTATGGCGGATTTTATGTATATACCACTACAC ATCATCACATGTCAACGATCGAAGACAGGCTTAAACAGTCTTGGATAAGTTCAATCATGAGCGGAGGACCTGTTCTACCAAG CAGCTTGGCCTCTTGGAACACACGCAACATTACGGAGCGAGGAGGTAAGGGAGGACCTGGAGGTGCGGGAGGTGTTGGA GGTGGTGGAGGAATTGGAGGTGGTTTTATCGCTTCCAACCTGCTGGTATACCCGTCGCGCACCGGATGAACAGCTGGAAGC AAGCGCACAGAGCCGTGATGGCACAGGCACTGGATCAGCTGCCGATCGTCAGCGTGAAGCAATTTGTTCTGCAGTATTATCA AGAAGTGAAGCAATACCGAAGCAGCAGCACTGATGCAAAATAGCGTTGAAGCCCTGGAAGCGCTGAGCCGTCGACGTGCACTGTA TCTGCGTAGCCATCTGGCCGAAGCACCGGGTGCAGCTGAGCGGTGCTGCGCAACCGCTAAGGTTGATCTTTAGCCCAAAAA CTTAAGACCGCCGCTTGTCCACTACCTTGCAGTAAATGCGGTGGACAGGATCGGCGGTTTCTTTCTCTCTCAAGACCGCTC CAATGGCGCGGCCCATCGAATGGCGCAAAACCTTTCGCGGTATGGCATGATAGCGCCGGAAGAGAGTCAATTCAGGGTGGT GAATATGAAAAACATAAATGCCGACGACACATACAGAATAATTAATAAAATTAAGGCTTGTAGAAGCAATATGATATTAAATCAATG CTTATCTGATATGACTAAAAATGGTACATTGTGAATATTATTTACTCGCGATCATTTATCTCTTAAATCTGATATTTCAT ATCCTAGATAATTACCCATAAAAAATGGAGCAATATTATGATGACGCTAATTTAATAAAATATGATCCTATAGTAGATTATTCTAAT CCAATCATTACCAATTAATTGGAATATTGAAAAACATGCTGTAATAAAAAATCTCCAATGTAATTAAGAAGCGAAAAACAT CAGGTCTTATCACTGGGTTAGTTTCCCTATTACACGCTAACCAATGGCTTCGGAATGCTTATTTGCACTTCAGAAAAAGAC AACTATATAGATAGTTTATTTTACATGCGGTGATGAACATACCATTAAATGTTCTTCTAGTTGATAATTTATCGAAAAATAATA TAGCAATAATAAATCAAAACAGGATTTAACCAAAAGAGAAAAAGATGTTAGCGTGGGCGGAAGGAAAAAGCTCTTGGGA TATTTCAAAAAATATTAGGTTGCAGTGAGCGTACTGTCACTTTCCATTAAACCAATGCGCAATGAACTCAATACAACAAACCGCT GCCAAAGTATTTTAAAGCAATTTAACAGGAGCAATTGATTGCCATACCTTAAAAATGATAAGGATCCTAATTTGTTAACGAAATC AGACAATTGACGGCTCGAGGGAGTAGCATAGGGTTTGCAGAAATCCCTGCTCGTCCATTGACAGGACATTTATGATCGATGA TAAGCTGTCAAAATGAGCAGATCCTCTACGCCGAGCAGCATCGTGGCCGGCATCACCGGCGCCACAGGTGCGGTTGCTGGCGC CTATATCGCCGACATCACCGATGGGGAAGATCGGGCTCGCCACTTCGGGCTCATGAGCAAAATTTTATCTGGCTCACTCAAG CGCGTAATGAC
pAMK- 917	P _{Lux} -Hit _{sequ} ence-Npu ^c - peptide sensor	AGTAAGACGGGTAAGCCTGTTGATGATACCGCTGCCTTACTGGGTGCATTAGCCAGTCTGAATGACCTGTACGCGGATAATCCG AAGTGGTCAGACTGGAATAATCAGAGGGCAGGAACCTGCTGAACAGCAAAAAAGTCAGATAGCACCATAGCAGACCCGCCATAAA ACGCCCTGAGAAGCCCGTGACGGGCTTTTCTTGATTTATGGGTAGTTTCTTGCATGAATCCATAAAGCGCGCTGTAGTGCCAT TTACCCCCATTCAGTCCAGAGCCGTGAGCGCAGCGAATGAATGTACGAAAAAGACAGCGACTCAGGTGCTGATGTGCGG AGACAAAAGGAATATTACGCGATTGCCCCAGCTTGGCAGGGTGTCTACTTAAGCCTTTAGGGTTTAAAGGTTCTGTTTGTAGAGG AGCAACACGCGTTTGCACATCCTTTTGAATACTGCGGAACCTGACTAAAGTAGTGAGTTATACACAGGGCTGGGATCTATTTCT TTTATCTTTTTTATTCTTTTATTCTATAAATATAACCACTTGAATATAACAAAAAACACAAAGGCTAGCGGAATTTTAC AGAGGCTAGCAGAAATTTACAAGTTTTCAGCAAAAGGTCTAGCAGAAATTTACAGATAACCCACAATCAAGGAAAAAGGACTAGT AATTATCATTGACTAGCCCATCTCAATTTGGTATAGTGATTAAAAATCACCTAGACCAATTGAGATGTATGTGTAATTTAGTTGTTTC AAAGCAAAATGAATCGGATTAGTGCCTTAGCTTAACGGAGCATGAAACCAAGCTAATTTTATGCTGTGTCGCACTACTCAACC CCACGATTGAAAAACCTTACAAGGAAAGAACGGACGGATCGTTCACTTTAACAACATACGCTCAGATGATGAACATCAGTAGGGA AAATGCTTATGGTGTATTAGCTAAAGCAACACAGAGAGCTGATGACGAGAAGCTGTGGAATCAGGAATCTTTTGGTTAAAGGCTTT TGGATTTTCCAGTGGAACAACTATGCCAAGTTCTCAAGCGAAAAATTAAGATAGTTTATAGTGAAGAGATATTGCCCTATCTTTTC CAGTTAAAAAATTCATAAAATATAATCTGGAACATGTTAAGTCTTTGAAAACAATACTCTATGAGGATTATGAGTGGTTATTA AAGAACTAACACAAAAAGAAACTCACAGGCAAAATATAGAGATTAGCCTTGATGAATTTAAGTTCATGTTAATGCTTGAATAAAT ACCATGAGTTTAAAGGCTTAACCAATGGGTTTGAACCAATAAGTAAAGATTAAACACTTACAGCAATATGAAATTTGGTGGTT GATAAGCGAGGCCGCCGACTGATACGTTGATTTTCCAAAGTTGAACATAGATAGACAAATGGATCTCGTAACCGCACTTGAAACA ACCAGATAAAAAATGAATGGTGACAAAATACCAACAACCATACATCAGATTCTACCTACATAACCGACTAAGAAAAACACTACAC GATGCTTTAAGTCAAAAAATTCAGCTCACCGATTTTGAGGCAAAATTTTGAAGTACATCAAAAGTAAGTATGATCTCAATGTGCTC GTTCTCATGGCTCAGCAAAAAACAGCAACCACTAGAGAACATACTGGCTAAATACGGAAGGATCTGAGGTTCTTATGGCTCT TGTATCTATCAGTGAAGCATCAAGACTAACAAAAAGAGTAGAACAACTGTTACCCGTTACATCAAAAGGAAAACTGTCATAT GCACAGATGAAAAACGGTGTAAAAAGATAGATACATCAGAGCTTTTACGAGTTTGTGGTCATTCAAAGCTTCCACCATGTAAGAA GATCGACAATGTACAGATGAACAGCATGTAAACACCTAATAGAACAGGTGAAACCAAGTAAAAACAAAGCACTAGAACATGAAAT GAACACCTGAGACAACCTTGTACAGCTCAACAGTCAACATAGACAGCCTGAAACAGGCGATGCTGCTTATCGAATCAAAAGCTGC CGACAACACGGGAGCCAGTGACGCCTCCCGTGGGGAAAAAATCATGGCAATTCGGAAGAAATAGCGCTTTAGCCGCGCAAC CGGCTGAAGCCGGATCTGCGATTCTGATAACAACTAGCAACACCAAGACAGCCGTTTGGGGCAGCAAAACCGGTACCGGATT ATCAAAAAGGATCTTCACTAGATCCTTTTAAATTAATAAGTGTAAATCAATCTAAAGTATATGAGTAAACTTGGTCTGAC AGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTCTGTTATCCATAGTTGCCGTGACTCCCCGTCGTGTA GATAACTACGATACGGGAGGCTTACCATCTGGGCCCAAGTGTGCAATGATACCGCGAAGCAACCGCTCACCGGCTCCAGATT ATCAGCAATAAACAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCTGCAACTTTATCCGCTCCATCCAGTCTATTAATTG TTGCCGGGAAGCTAGATGAGTGTCCAGTTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGATCTGAGTGTGACG CTCGTCTGTTGGTATGGCTTCAATCAGCTCCGTTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCG GTTAGCTCCTTCGGTCTCCGATCGTTGTGCAAGTAAAGTTGGCCGCACTGTTATCACTCATGGTATGCGCAGCATGCATAATT 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Supplementary Table 3: Primers used in this study

Name	Sequence	Description
osDAA154	gtgccggacgggtatccag	SAR forward primer
osDAA155	atgctgaagcagattaacgttattgcc	SAR reverse primer

Supplementary Table 4: Pap2c library analysis

Sequence	Charge	Observed m/z	Calculated m/z	# predicted macrocycles
ECMSQEACPHDDP	4	878.4136	878.4138	2
YCNNSEQCEKLDY	4	915.7013	915.6976	1
RCEMNEPCQPPDV	4	892.9417	892.9445	1
YCDTDEACTCFER	4	902.1696	902.1742	2
SCAHCENCEPHEN	4	881.1655	881.1615	2
RCKKSDNCAVTDS	4	869.9487	869.9472	2
PCLHHDRCTTSEM	4	895.4369	895.4442	2
PCTPYEMCDNFDL	4	900.4345	900.4363	1
ACPQAEQCIRFES	4	883.4451	883.4496	2
FCYERDRCLVKDT	4	924.9744	924.9773	2
PCLGLESCCILEP	4	857.9457	857.9464	1
LCNTRDPCAYYEN	4	903.6964	903.6971	2
PCSPNESCICQEL	4	868.6736	868.6793	2
TCPDWEECNTRDE	4	912.4363	912.4342	2

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