

MIAMI MICE



[HOME](#) [PRODUCTS](#) [PROTOCOLS](#) [INVESTORS](#) [ABOUT US](#) [CONTACT](#)

DNA Expression Vectors

The ZAP and ZEG family of vectors are ideal for expressing a cDNA in mammalian cells using the Cre/loxP system. Initially the lacZ reporter is expressed, and the cDNA and second reporter are silent. After Cre excision, lacZ is removed and the cDNA and second reporter are expressed.

Any of the DNA vectors can be ordered from the table below. Payment is made by credit card or PayPal through a secure server. If you would prefer to pay by cheque, PO or bank transfer, fill out the [form here](#) instead.

A description of the applications of each vector is provided below, and protocols for preparing and using the DNA are available in [Protocols](#). If you have any other questions about the vectors and their application, please [contact us](#).

References

ZAP - Lobe et al Dev Biol 208:281

ZEG - Novak et al Genesis 28:147

[Shopping Cart](#)

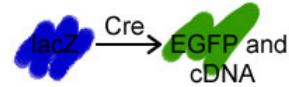
Vector	Expression before Cre	Expression after Cre	Drug selection	Map	Sequence	Price (Cdn\$)	Purchase
pCCALL2	lacZ	cDNA	neomycin			450	Add to Cart
ZEG	lacZ	EGFP	neomycin			450	Add to Cart
iZEG	lacZ	EGFP + cDNA	neomycin			450	Add to Cart
iZEG-puro	lacZ	EGFP + cDNA	puromycin			450	Add to Cart
iZEG and iZEG-puro	lacZ	EGFP + cDNA	neo/puro	-	-	750	Add to Cart
ZAP	lacZ	hAP	neomycin			450	Add to Cart
iZAP	lacZ	hAP + cDNA	neomycin			450	Add to Cart
iZAP-puro	lacZ	hAP + cDNA	puromycin			450	Add to Cart
iZAP and iZAP-puro	lacZ	hAP + cDNA	neo/puro	-	-	750	Add to Cart
FedEx shipping	If you wish to use your own FedEx account number, please provide it in your order or an email to mm@miamimice.com					75	Add to Cart

[Shopping Cart](#)

The family of ZAP and ZEG vectors allow Cre-conditional expression of a transgene of interest together with markers to follow expression.

iZEG and iZEG-puro

The iZEG vectors provide lacZ expression before Cre excision and an inserted cDNA together with EGFP after Cre excision. Therefore you can insert your cDNA of interest and follow expression of the cDNA after Cre excision through the co-expressed EGFP reporter.



The iZEG-puro vector is the same as iZEG except it utilizes puromycin resistance instead of neomycin resistance. This can allow for selection of two vectors through resistance to neomycin and puromycin.

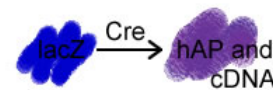
iZEG-puro also allows a knock-in type of experiment, so you can swap in different cDNAs into the same integration site and directly compare the resulting phenotype.

KNOCK-IN EXPERIMENT:

promoter-beta^{puro}-cDNA1-EGFP-pA
 X
 promoter-beta^{geo}-cDNA2-EGFP-pA

iZAP and iZAP-puro

The iZAP and iZAP-puro vectors are the same as iZEG and iZEG-puro but with human Alkaline Phosphatase as the second reporter instead of EGFP. "AlkPhos" can be a useful reporter when staining tissues is required rather than cell sorting, whereas EGFP is useful for cell sorting and visualization in live cells.



ZEG and ZAP

ZEG and ZAP vectors are useful as Cre reporter genes, because they provide lacZ expression before Cre and EGFP or Alkaline Phosphatase expression after Cre.

pCALL2

The first vector developed was pCALL2, which provides lacZ expression before Cre and cDNA expression after Cre.

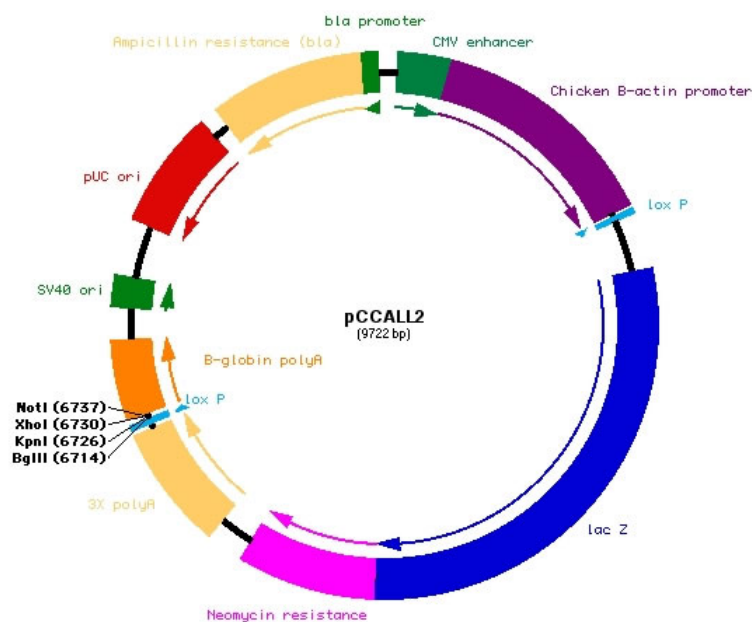
MIAMI MICE



HOME PRODUCTS PROTOCOLS INVESTORS ABOUT US CONTACT

Home > Products > DNA vectors > pCCALL2 map

pCCALL2 map



	IZAP	IZEG	IZAPpuro	IZEGpuro	ZAP	ZEG	pCCALL2
CMV enhancer	80-384	80-384	80-384	80-384	80-384	80-384	80-384
Chicken B-actin promoter	385-1719	385-1719	385-1719	385-1719	385-1719	385-1719	385-1719
loxP	1742-1775	1742-1775	1742-1775	1742-1775	1789-1822	1742-1775	1742-1775
lacZ	2103-4913	2103-4913	2103-4913	2103-4913	1876-4686	2103-4913	2103-4913
neo	4920-5714	4920-5714			4693-5487	4920-5714	4920-5714
puro			4914-5513	4914-5513			
3X polyA	5933-6643	5933-6643	5551-6261	5551-6261	5706-6414	5933-6648	5933-6648
loxP	6680-6713	6680-6713	6298-6331	6298-6331	6465-6498	6680-6713	6680-6713
IRES	6742-7255	6764-7277	6360-6873	6382-6895			
EGFP		7278-7998		6896-7616		6796-7515	
hPLAP	7256-8845		6874-8463		6592-8181		
B-globin polyA	9245-9708	8007-8470	8863-9326	7625-8088	8651-9114	7525-7988	6744-7207
SV40 ori	9899-10085	8661-8848	9517-9703	8279-8466	9305-9492	8179-8366	7398-7584
pUC ori	11087-10414	9849-9716	10705-10032	9467-8794	10493-9820	8694-9367	7913-8586
Amp resistance	12092-11192	10854-9954	11710-10810	10472-9572	11498-10598	10372-9472	9591-8691
Amp promoter	12191-12093	10953-10855	11809-11711	10571-10473	115997-11499	10471-10373	9690-9592

Copyright 2011

Miami Mice Research Corp MaRS Centre, Heritage Building, 101 College Street, Suite 120-E, Toronto, ON, M5G 1L7
t: 416-712-3215 e: mm@miamimice.com

[Privacy Policy](#)

pCCALL2 sequence

GTCGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTTCAT
AGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACC
GCCAACGACCCCCGCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAA
TAGGGACTTTCCATTGACGTCAATGGGTGGACTATTTACGGTAAACTGCCACTTGGCA
GTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATG
GCCCGCCTGGCATTATGCCCAGTACATGACCTTATGGGACTTTCCTACTTGGCAGTACA
TCTACGTATTAGTCATCGCTATTACCATGGGTTCGAGGTGAGCCCCACGTTCTGCTTCAC
TCTCCCCATCTCCCCCCCCCTCCCCACCCCCAATTTTGTATTTATTTATTTTTTAATTAT
TTTGTGCAGCGATGGGGGCGGGGGGGGGGGGGGGCGCGCGCCAGGCGGGGCGGGGCGGGG
CGAGGGGCGGGGCGGGGCGAGGCGGAGAGGTGCGGCGGCAGCCAATCAGAGCGGCGCGC
TCCGAAAGTTTTCCTTTTATGGCGAGGCGGCGGCGGCGGCGGCCCTATAAAAAGCGAAGC
GCGCGGCGGGCGGGAGTCGCTGCGTTGCCTTCGCCCCGTGCCCGCTCCGCGCCGCCTC
GCGCCGCCCGCCCCGGCTCTGACTGACCGCGTTACTCCACAGGTGAGCGGGCGGGACG
GCCCTTCTCCTCCGGGCTGTAATTAGCGCTTGGTTTAATGACGGCTCGTTTCTTTTCTG
TGGCTGCGTGAAAAGCCTTAAAGGGCTCCGGGAGGGCCCTTTGTGCGGGGGGGAGCGGCT
CGGGGGGTGCGTGCGTGTTGTGTGCGTGCGGGAGCGCCGCGTGCGGCCCGCGCTGCCCCG
GCGGCTGTGAGCGCTGCGGGCGCGGCGCGGGGCTTTGTGCGCTCCGCGTGTGCGCGAGG
GGAGCGCGGCCGGGGCGGTGCCCCGCGGTGCGGGGGGGCTGCGAGGGGAACAAAGGCT
GCGTGCGGGGTGTGTGCGTGCGGGGGGTGAGCAGGGGGTGTGGGCGCGGCGGTGCGGGCTG
TAACCCCCCCTGCACCCCCCTCCCCGAGTTGCTGAGCACGGCCCGGCTTCGGGTGCGG
GGCTCCGTGCGGGGCGTGCGCGGGGGCTCGCCGTGCCGGGCGGGGGGTGGCGGCAGGTG
GGGGTGCCGGGCGGGGCGGGGCCCGCTCGGGCCGGGGAGGGCTCGGGGGAGGGGCGCGG
CGGCCCCGGAGCGCCGGCGGCTGTGAGGCGCGGCGAGCCGCAGCCATTGCCTTTTATG
GTAATCGTGCGAGAGGGCGCAGGGACTTCCTTTGTCCCAAATCTGGCGGAGCCGAAATC
TGGGAGGCGCCCGCGCACCCCCCTCTAGCGGGCGCGGGCGAAGCGGTGCGGCGCCGGCAG
GAAGGAAATGGGCGGGGAGGGCCTTCGTGCGTCGCCGCGCCCGCTCCCTTCTCCATC
TCCAGCCTCGGGGCTGCCGCAGGGGGACGGCTGCCTTCGGGGGGGACGGGGCAGGGCGG
GGTTCGGCTTCTGGCGTGTGACCGGCGGCTCTAGAGCCTCTGCTAACCATGTTTCATGCC
TTCTTCTTTTTTCTACAGCTCCTGGGCAACGTGCTGGTTATTGTGCTGTCTCATCATTT
TGGCAAAGAATTTCCTCGATCGAGGGACCTAATAACTTCGTATAGCATACATTATACGAA
GTTATATTAAGGGTTCCGCAAGCTTCCTAGACTAGTCGACGGTATCGATAAGCAGCTTG
ATGATCTGTGACATGGCGGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAACCCTGG
CGTTACCCAACTTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCG
AAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGC
TTTGCCCTGGTTTCCGGGCACCAGAAGCGGTGCCGGAAGCTGGCTGGAGTGCGATCTTCC
TGAGGCCGATACTGTGTCGTCCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCA
TCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCCGTTTGTTCACGAGGAAT
CCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCA
GACGCGAATTATTTTTTGATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGCT
GGGTGCGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTTA
CGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGTTGGAGTGACGGCAGTTATCT
GGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATA
AACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTTAATGATGATTTTACG
CGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGT
AACAGTTTCTTTATGGCAGGGTGAAACGCAGGTGCCAGCGGCACCGCGCCTTTCGGCG
GTGAAATTATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTACGTCTGAACGTC

GAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGCGGTGGTTGAACT
GCACACCGCCGACGGCACGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTTCCGCGAGG
TGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTTCGAGGCGTT
AACCGTCACGAGCATCATCCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCA
GGATATCCTGCTGATGAAGCAGAACAACTTTAACGCCGTGCGCTGTTTCGCATTATCCGA
ACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCC
AATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCT
ACCGGCGATGAGCGAACGCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTG
TGATCATCTGGTCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTAT
CGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGCAGTATGAAGGCGGCGAGCCGA
CACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCCT
TCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGC
CCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAACAGTCTTGGCGGTTTTCGCTAA
ATACTGGCAGGCGTTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGGACTGGG
TGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTTCGGCTTACGGCGGT
GATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGA
CCGCACGCCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCC
GTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAAC
GAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCC
TCTGGATGTCGCTCCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGG
AGAGCGCCGGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACGCGACCGCATGG
TCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGT
GACGCTCCCCGCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTT
GCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTCACAG
ATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTGC
ACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTAACGCCTGGG
TCGAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACG
GCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGG
GAAAACCTTATTTATCAGCCGGAACCTACCGGATTGATGGTAGTGGTCAAATGGCGA
TTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCCTGAAC
TGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAA
CTATCCCGACCGCCTTACTGCCGCCTGTTTTTGACCGCTGGGATCTGCCATTGTCAGACA
TGTATAACCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCGAATTG
AATTATGGCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAGTCA
ACAGCAACTGATGGAACACGACATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGC
TGAATATCGACGGTTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTA
TCGGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAGGG
GATCCCCCGGGCTGCAGCCAATATGATTGAACAAGATGGATTGCACGCAGGTTCTCCGG
CCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCT
GATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGA
CCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCA
CGACGGGCGTTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGG
CTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGA
GAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCT
GCCCATTCGACCACCAAGCGAAACATCGCATCGAGCGAGCACGTACTIONCGGATGGAAGCC
GGTCTTGTCGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACT
GTTCCGCCAGGCTCAAGGCGCGCATGCCCCACGGCGAGGATCTCGTTCGTGACCCATGGCG
ATGCCTGCTTGCCGAATATCATGGTGGAAAATGGCCGCTTTTCTGGATTTCATCGACTGT

GGCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGC
TGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCCTCGTGCTTTACGGTATCGCCGCTC
CCGATTTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCAA
TTCTCTAGGCTTGGGATCTTTGTGAAGGAACCTTACTTCTGTGGTGTGACATAATTGGA
CAAACCTACCTACAGAGATTTAAAGCTCTAAGGTAAATATAAAATTTTAAAGTGATAAT
GTGTTAAACTACTGATTCTAATTGTTTGTGTATTTTAGATTACACAGTCCCAAGGCTCAT
TTCAGGCCCCCTCAGTCCTCACAGTCTGTTCATGATCATAATCAGCCATACCACATTTGT
AGAGGTTTTACTTGCTTTAAAAAACCTCCACACCTCCCCCTGAACCTGAAACATAAAA
TGAATGCAATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGC
AATAGCATCACAAATTTACAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGTTTG
TCCAAACTCATCAATGTATCTTATCATGTCTGGATCATAATCAGCCATACCACATTTGT
AGAGGTTTTACTTGCTTTAAAAAACCTTCCCCACACCTCCCCCTGAACCTGAAACATAAA
ATGAATGCAATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAG
CAATAGCATCACAAATTTACAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGGTT
TGTCCAAACTCATCAATGTATCTTATCATGTCTGGATCATAATCAGCCATACCACATTT
GTAGAGGTTTTACTTGCTTTAAAAAACCTCCACACCTCCCCCTGAACCTGAAACATAA
AATGAATGCAATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAA
GCAATAGCATCACAAATTTACAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGGT
TTGTCCAAACTCATCAATGTATCTTATCATGTCTGGATCCACTAGTTCTAGCTAGTCTA
GGTCGATGCAGGATAACTTCGTATAGCATAACATTATACGAAGTTATAGATCTTGGGTAC
CCGCTCGAGGCGGCGCGATCTTTTTCCCTCTGCCAAAAATTATGGGGACATCATGAAG
CCCCCTTGAGCATCTGACTTCTGGCTAATAAAGGAAATTTATTTTCATTGCAATAGTGTG
TTGGAATTTTTTGTGTCTCTCACTCGGAAGGACATATGGGAGGGCAAATCATTAAAAAC
ATCAGAATGAGTATTTGGTTTAGAGTTTGGCAACATATGCCATATGCTGGCTGCCATGA
ACAAAGGTGGCTATAAAGAGGTCATCAGTATATGAAACAGCCCCCTGCTGTCCATTCCCT
TATTCATAGAAAAGCCTTGACTTGAGGTTAGATTTTTTTTTATATTTTGTGTTTGTGTTA
TTTTTTTTCTTTAACATCCCTAAAATTTTCCTTACATGTTTTTACTAGCCAGATTTTTCCCT
CCTCTCCTGACTACTCCCAGTCATAGCTGTCCCTCTTCTCTTATGAAGATCCCTCGACC
TGCAGCCCCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGAAATTGTTATCC
GCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTAAGCCTGGGGTGCCT
AATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCAGTCGGGA
AACCTGTCGTGCCAGCGGATCCGCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCCTA
ACTCCGCCCATCCCGCCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTG
ACTAATTTTTTTTTATTTATGCAGAGGCCGAGGCCGCTCGGCCCTGAGCTATTCAGA
AGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGCTAACTTGTTTATTG
CAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTACAAATAAAGCATT
TTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGTATCTTATCATGTCTG
GATCCGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGCATATTGGGCG
CTCTTCCGCTTCTCGCTCACTGACTCGCTGCGCTCGGTCGTTCCGCTGCGGCGAGCGG
TATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCAGGA
AAGAACATGTGAGCAAAAAGGCCAGCAAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGCT
GGCGTTTTTCCATAGGCTCCGCCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTC
AGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCC
CTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTCTCCC
TTCGGGAAGCGTGGCGCTTCTCAATGCTCACGCTGTAGGTATCTCAGTTCCGTGTAGG
TCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTACAGCCGACCGCTGCGCC
TTATCCGGTAACCTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGC
AGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCT

TGAAGTGGTGGCCTAACTACGGCTACACTAGAAAGGACAGTATTTGGTATCTGCGCTCTG
CTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCAC
CGCTGGTAGCGGTGGTTTTTTTTGTTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGAT
CTCAAGAAGATCCTTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCA
CGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAA
TTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTT
ACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTTCGTTTCATCCATA
GTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCC
CAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAA
ACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATC
CAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTTCGCCAGTTAATAGTTTGCG
CAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGCTCGTCGTTTGGTATGGCTT
CATTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCCATGTTGTGCAAA
AAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGCAGTGTT
ATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGAT
GCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGA
CCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTT
AAAAGTGCTCATCATTGGAAAACGTTCTTTCGGGGCGAAAACCTCTCAAGGATCTTACCGC
TGTTGAGATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTT
ACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAGGG
AATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTTCAATATTATTGAA
GCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAAT
AAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTG

MIAMI MICE



HOME

PRODUCTS

PROTOCOLS

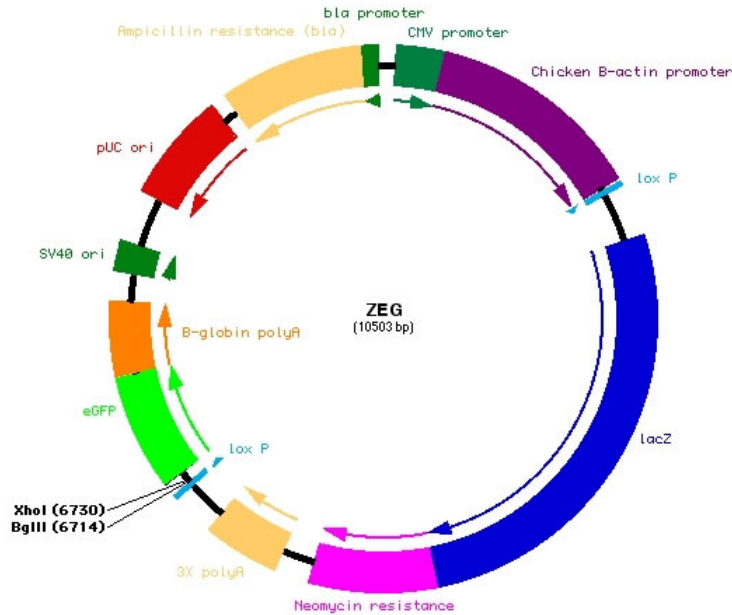
INVESTORS

ABOUT US

CONTACT

Home > Products > DNA vectors > ZEG map

ZEG map



	iZAP	iZEG	iZAPpuro	iZEGpuro	ZAP	ZEG	pCCALL2
CMV enhancer	80-384	80-384	80-384	80-384	80-384	80-384	80-384
Chicken 8-actin promoter	385-1719	385-1719	385-1719	385-1719	385-1719	385-1719	385-1719
loxP	1742-1775	1742-1775	1742-1775	1742-1775	1789-1822	1742-1775	1742-1775
lacZ	2103-4913	2103-4913	2103-4913	2103-4913	1876-4686	2103-4913	2103-4913
neo	4920-5714	4920-5714			4693-5487	4920-5714	4920-5714
puro			4914-5513	4914-5513			
3X polyA	5933-6643	5933-6643	5551-6261	5551-6261	5706-6414	5933-6648	5933-6648
loxP	6680-6713	6680-6713	6298-6331	6298-6331	6465-6498	6680-6713	6680-6713
IRES	6742-7255	6764-7277	6360-6873	6382-6895			
EGFP		7278-7998		6896-7616		6796-7515	
hPLAP	7256-8845		6874-8463		6592-8181		
8-globin polyA	9245-9708	8007-8470	8863-9326	7625-8088	8651-9114	7525-7988	6744-7207
SV40 ori	9899-10085	8661-8848	9517-9703	8279-8466	9305-9492	8179-8366	7398-7584
pUC ori	11087-10414	9849-9716	10705-10032	9467-8794	10493-9820	8694-9367	7913-8586
Amp resistance	12092-11192	10854-9954	11710-10810	10472-9572	11498-10598	10372-9472	9591-8691
Amp promoter	12191-12093	10953-10855	11809-11711	10571-10473	115997-11499	10471-10373	9690-9592

ZEG sequence:

GTCGACATTGATTATTGACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTTCAT
AGCCCATATATGGAGTTCCGCGTTACATAACTTACGGTAAATGGCCCGCCTGGCTGACC
GCCAACGACCCCCGCCATTGACGTCAATAATGACGTATGTTCCCATAGTAACGCCAA
TAGGGACTTTCCATTGACGTCAATGGGTGGACTATTTACGGTAAACTGCCCACTTGGCA
GTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATG
GCCCGCCTGGCATTATGCCCAGTACATGACCTTATGGGACTTTCCTACTTGGCAGTACA
TCTACGTATTAGTCATCGCTATTACCATGGGTGAGGTGAGCCCCACGTTCTGCTTCAC
TCTCCCCATCTCCCCCCCCCTCCCCACCCCCAATTTTGTATTTATTTATTTTTTAATTAT
TTTGTGCAGCGATGGGGGCGGGGGGGGGGGGGGGCGCGCGCCAGGCGGGGCGGGGCGGGG
CGAGGGGCGGGGCGGGGCGAGGCGGAGAGGTGCGGCGGCAGCCAATCAGAGCGGCGCGC
TCCGAAAGTTTTCCTTTTATGGCGAGGCGGCGGCGGCGGCGGCCCTATAAAAAGCGAAGC
GCGCGGCGGGCGGGAGTCGCTGCGTTGCCTTCGCCCCGTGCCCCGCTCCGCGCCGCCTC
GCGCCGCCCGCCCCGGCTCTGACTGACCGCGTTACTCCACAGGTGAGCGGGCGGGACG
GCCCTTCTCCTCCGGGCTGTAATTAGCGCTTGGTTTAATGACGGCTCGTTTCTTTTCTG
TGGCTGCGTGAAAAGCCTTAAAGGGCTCCGGGAGGGCCCTTTGTGCGGGGGGGAGCGGCT
CGGGGGGTGCGTGCGTGTTGTGTGCGTGCGGGAGCGCCGCGTGCGGCCCGCGCTGCCCCG
GCGGCTGTGAGCGCTGCGGGCGCGGCGCGGGGCTTTGTGCGCTCCGCGTGTCGCGGAGG
GGAGCGCGGCCGGGGCGGTGCCCCGCGGTGCGGGGGGGCTGCGAGGGGAACAAAGGCT
GCGTGCGGGGTGTGTGCGTGCGGGGGGTGAGCAGGGGGTGTGGGCGCGGCGGTGCGGGCTG
TAACCCCCCCTGCACCCCCCTCCCCGAGTTGCTGAGCACGGCCCGGCTTCGGGTGCGG
GGCTCCGTGCGGGGCGTGCGCGGGGGCTCGCCGTGCGGGGCGGGGGGTGGCGGCAGGTG
GGGGTGCCGGGCGGGGCGGGGCCCGCTCGGGCCGGGGAGGGCTCGGGGGAGGGGCGCGG
CGGCCCCGGAGCGCCGGCGGCTGTGAGGCGCGGCGAGCCGCAGCCATTGCCTTTTATG
GTAATCGTGCGAGAGGGCGCAGGGACTTCCTTTGTCCCAAATCTGGCGGAGCCGAAATC
TGGGAGGCGCCCGCGCACCCCCCTCTAGCGGGCGCGGGCGAAGCGGTGCGGCGCCGGCAG
GAAGGAAATGGGCGGGGAGGGCCTTCGTGCGTGCGCGCGCCGCGCTCCCTTCTCCATC
TCCAGCCTCGGGGCTGCCGCAGGGGGACGGCTGCCTTCGGGGGGGACGGGGCAGGGCGG
GGTTCGGCTTCTGGCGTGTGACCGGCGGCTCTAGAGCCTCTGCTAACCATGTTTCATGCC
TTCTTCTTTTTTCTACAGCTCCTGGGCAACGTGCTGGTTATTGTGCTGTCTCATCATTT
TGGCAAAGAATTTCCTCGATCGAGGGACCTAATAACTTCGTATAGCATACATTATACGAA
GTTATATTAAGGGTTCCGCAAGCTTCCTAGACTAGTCGACGGTATCGATAAGCAGCTTG
ATGATCTGTGACATGGCGGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAACCCTGG
CGTTACCCAACTTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCG
AAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGC
TTTGCCCTGGTTTCCGGGCACCAGAAGCGGTGCCGGAAGCTGGCTGGAGTGCGATCTTCC
TGAGGCCGATACTGTGTCGTCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCA
TCTACACCAACGTAACCTATCCCATTAACGGTCAATCCGCCGTTTGTTCACGGAGAAT
CCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCA
GACGCGAATTATTTTTTGATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGCT
GGGTGCGTTACGGCCAGGACAGTCGTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTTA
CGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGTTGGAGTGACGGCAGTTATCT
GGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCTCGTTGCTGCATA
AACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTTAATGATGATTTTACG
CGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGT
AACAGTTTCTTTATGGCAGGGTGAAACGCAGGTGCCAGCGGCACCGCGCCTTTCGGCG
GTGAAATTATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTACGTCTGAACGTC

GAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGCGGTGGTTGAACT
GCACACCGCCGACGGCACGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTTCCGCGAGG
TGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTTCGAGGCGTT
AACCGTCACGAGCATCATCCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCA
GGATATCCTGCTGATGAAGCAGAACAACTTTAACGCCGTGCGCTGTTTCGCATTATCCGA
ACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCC
AATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCT
ACCGGCGATGAGCGAACGCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGAGTG
TGATCATCTGGTCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTAT
CGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGCAGTATGAAGGCGGCGAGCCGA
CACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCCT
TCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGC
CCGCTGATCCTTTGCGAATACGCCCACGCGATGGGTAACAGTCTTGGCGGTTTTCGCTAA
ATACTGGCAGGCGTTTTCGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGGACTGGG
TGGATCAGTCGCTGATTAAATATGATGAAAACGGCAACCCGTGGTCGGCTTACGGCGGT
GATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGA
CCGCACGCCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCC
GTTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAAC
GAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCC
TCTGGATGTCGCTCCACAAGGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGG
AGAGCGCCGGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACGCGACCGCATGG
TCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGT
GACGCTCCCCCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTT
GCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTCTTTCACAG
ATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTGC
ACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTAACGCCTGGG
TCGAACGCTGGAAGGCGGCGGGCCATTACCAGGCCGAAGCAGCGTTGTTGCAGTGCACG
GCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGG
GAAAACCTTATTTATCAGCCGGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGA
TTACCGTTGATGTTGAAGTGGCGAGCGATACACCGCATCCGGCGCGGATTGGCCTGAAC
TGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAA
CTATCCCGACCGCCTTACTGCCGCCTGTTTTTGACCGCTGGGATCTGCCATTGTCAGACA
TGTATAACCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCGAATTG
AATTATGGCCCACACCAGTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAGTCA
ACAGCAACTGATGGAACACAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGC
TGAATATCGACGGTTTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTA
TCGGCGGAATTCCAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAGGG
GATCCCCCGGGCTGCAGCCAATATGATTGAACAAGATGGATTGCACGCAGGTTCTCCGG
CCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCT
GATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGA
CCTGTCCGGTGCCCTGAATGAACTGCAGGACGAGGCAGCGCGGCTATCGTGGCTGGCCA
CGACGGGCGTTTCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGG
CTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGA
GAAAGTATCCATCATGGCTGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCT
GCCCATTCGACCACCAAGCGAAACATCGCATCGAGCGAGCACGTACTIONCGGATGGAAGCC
GGTCTTGTCGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACT
GTTCCGCCAGGCTCAAGGCGCGCATGCCCCACGGCGAGGATCTCGTTCGTGACCCATGGCG
ATGCCTGCTTGCCGAATATCATGGTGGAAAATGGCCGCTTTTCTGGATTTCATCGACTGT

GGCCGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGC
TGAAGAGCTTGGCGGCGAATGGGCTGACCGCTTCCTCGTGCTTTACGGTATCGCCGCTC
CCGATTTCGCAGCGCATCGCCTTCTATCGCCTTCTTGACGAGTTCTTCTGAGGGGATCAA
TTCTCTAGGCTTGGGATCTTTGTGAAGGAACCTTACTTCTGTGGTGTGACATAATTGGA
CAAACCTACCTACAGAGATTTAAAGCTCTAAGGTAAATATAAAATTTTAAAGTGATAAT
GTGTTAAACTACTGATTCTAATTGTTTGTGTATTTTAGATTACACAGTCCCAACGGCTCA
TTTCAGGCCCCCTCAGCCTCACAGTCTGTTCATGATCATAATCAGCCATACCACATTTGT
AGAGGTTTTACTTGCTTTAAAAAACCTCCCACACCTCCCCCTGAACCTGAAACATAAAA
TGAATGCAATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGC
AATAGCATCACAAATTTACAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGTTTG
TCCAAACTCATCAATGTATCTTATCATGTCTGGATCATAATCAGCCATACCACATTTGT
AGAGGTTTTACTTGCTTTAAAAAACCTTCCCCACACCTCCCCCTGAACCTGAAACATAAA
ATGAATGCAATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAG
CAATAGCATCACAAATTTACAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGGTT
TGTCCAAACTCATCAATGTATCTTATCATGTCTGGATCATAATCAGCCATACCACATTT
GTAGAGGTTTTACTTGCTTTAAAAAACCTCCCACACCTCCCCCTGAACCTGAAACATAA
AATGAATGCAATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAA
GCAATAGCATCACAAATTTACAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGGT
TTGTCCAAACTCATCAATGTATCTTATCATGTCTGGATCCACTAGTTCTAGCTAGTCTA
GGTCGATGCAGGATAACTTCGTATAGCATACATTATACGAAGTTATAGATCTTGGGTAC
CCGctcgagctcaagcttcgaattctgcagtcgacggtaccgcggggcccgggatccacc
ggtcgccaccatggtgagcaaggcgaggagctgttcaccggggtggtgcccacctgg
tcgagctggacggcgacgtaaacggccacaagttcagcgtgtccggcgagggcgagggc
gatgccacctacggcaagctgaccctgaagttcatctgcaccaccggcaagctgcccgt
gccctggcccaccctcgtgaccaccctgacctacggcgtgcagtgttcagccgtacc
ccgaccacatgaagcagcacgacttcttcaagtccgccatgcccgaaggctacgtccag
gagcgcaccatcttcttcaaggacgacggcaactacaagaccgcgcccagggatgaagtt
cgagggcgacaccctggtgaaccgcatcgagctgaagggcatcgacttcaaggaggacg
gcaacatcctggggcacaagctggagtacaactacaacagccacaacgtctatatcatg
gccgacaagcagaagaacggcatcaaggtgaacttcaagatccgccacaacatcgagga
cggcagcgtgcagctcgccgaccactaccagcagaacacccccatcgggcgacggccccg
tgctgctgcccgacaaccactacctgagcaccacagtcggccctgagcaaagaccccaac
gagaagcgcgatcacatggtcctgctggagttcgtgaccgcccggcgatcactctcgg
catggacgagctgtacaagtaaagcGGCCGCGATCTTTTTCCCTCTGCCAAAAATTATG
GGGACATCATGAAGCCCCCTTGAGCATCTGACTTCTGGCTAATAAAGGAAATTTATTTTC
ATTGCAATAGTGTGTTGGAATTTTTTTGTGTCTCTCACTCGGAAGGACATATGGGAGGGC
AAATCATTTAAACATCAGAATGAGTATTTGGTTTLAGAGTTTGGCAACATATGCCATAT
GCTGGCTGCCATGAACAAAGGTGGCTATAAAGAGGTCATCAGTATATGAAACAGCCCCC
TGCTGTCCATTCCTTATTCCATAGAAAAGCCTTGACTTGAGGTTAGATTTTTTTTTATAT
TTTGTTTTGTGTTATTTTTTTTCTTTAACATCCCTAAAAATTTTCCTTACATGTTTTACTA
GCCAGATTTTTCTCTCTCTCTGACTACTCCAGTCATAGCTGTCCCTCTTCTCTTATG
AAGATCCCTCGACCTGCAGCCCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTG
TGAAATTGTTATCCGCTCACAAATCCACACAACATACGAGCCGGAAGCATAAAGTGTA
AGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCCG
CTTTCAGTCGGGAAACCTGTCTGCCAGCGGATCCGCATCTCAATTAGTCAGCAACCA
TAGTCCCGCCCCCTAACTCCGCCCATCCCGCCCCCTAACTCCGCCCAGTTCCGCCCATTCT
CCGCCCCATGGCTGACTAATTTTTTTTTTATTTATGCAGAGGCCGAGGCCGCTCGGCCTC
TGAGCTATTCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAAGC

TAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTCA
CAAATAAAGCATTTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGTA
TCTTATCATGTCTGGATCCGCTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGT
TTGCGTATTGGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTGCTTCG
GCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAG
GGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAA
AAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAA
TCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTC
CCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTG
TCCGCCTTTCTCCCTTCGGGAAGCGTGCGCTTTCTCAATGCTCACGCTGTAGGTATCT
CAGTTCGGTGTAGGTGCTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCCGTTCAGC
CCGACCGCTGCGCCTTATCCGGTAACATCGTCTTGAGTCCAACCCGGTAAGACACGAC
TTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGG
TGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGGACAGTATTTG
GTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCC
GGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCG
CAGAAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGT
GGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACC
TAGATCCTTTTAAATTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAAC
TTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTAT
TTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGC
TTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACC GGCTCCAGA
TTTATCAGCAATAAACCAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGCTCCTGCAACTT
TATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCA
GTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTCACGCTCGTC
GTTTGGTATGGCTTCATTCAGCTCCGGTTCCTAACGATCAAGGCGAGTTACATGATCCC
CCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCCTCCGATCGTTGTGAGAAGTAAG
TTGGCCGCAGTGTTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCAT
GCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAAT
AGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAATACGGGATAATACCGCGCCA
CATAGCAGAACTTTAAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACCTCTC
AAGGATCTTACCGCTGTTGAGATCCAGTTCGATGTAACCCACTCGTGACCCCACTGAT
CTTCAGCATCTTTTACTTTCACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAAT
GCCGCAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTT
TCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAAT
GTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCT
G