



Event 5307 Maize:
Flanking Sequence Determination

Data Requirement:	Not applicable
Author:	Stephen New
Study Completion Date:	May 18, 2010
Performing Laboratory:	Syngenta Biotechnology, Inc. Regulatory Science and Trait Safety 3054 East Cornwallis Road PO Box 12257 Research Triangle Park, NC 27709-2257, USA
Syngenta Study No.:	Not applicable
Report No.:	SSB-160-10

STATEMENTS OF DATA CONFIDENTIALITY CLAIMS

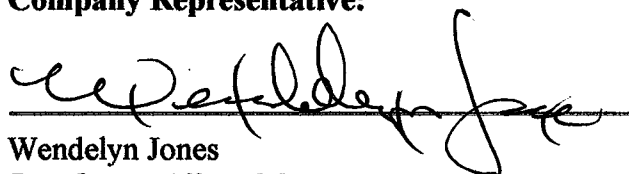
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Company: *Syngenta Seeds, Inc.*

Company Representative:



Wendelyn Jones
Regulatory Affairs Manager

5/18/10
Date

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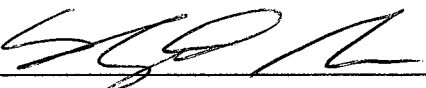
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STATEMENT CONCERNING GOOD LABORATORY PRACTICES STANDARDS

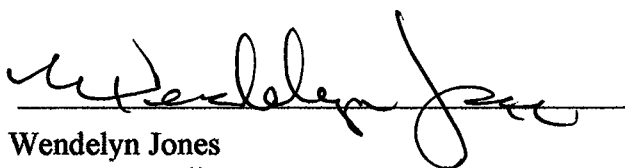
This study was not conducted in compliance with the relevant provisions of Good Laboratory Practices Standards (GLPS) (40 CFR Part 160, US EPA 1989) pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act. However, all components of the study were performed according to accepted scientific practices, and relevant study records (including raw data) have been retained.

Study Director:


 Stephen New
Regulatory Scientist, Molecular Analysis Team
 Regulatory Science and Trait Safety
 Syngenta Biotechnology, Inc.

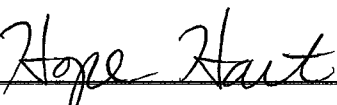
May 18, 2010
 Date

Submitted by:


 Wendelyn Jones
Regulatory Affairs Manager
 Syngenta Seeds, Inc.
 3054 East Cornwallis Road
 PO Box 12257
 Research Triangle Park, NC 27709-2257, USA

5/18/10
 Date

Sponsor:


 Hope Hart
Team Leader, Molecular Analysis Team
 Regulatory Science and Trait Safety
 Syngenta Biotechnology, Inc.

May 18, 2010
 Date

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LIST OF ACRONYMS AND ABBREVIATIONS

3'	three prime
5'	five prime
BC	backcross
bp	base pair
CMP	cestrum yellow leaf curling virus promoter
Cry1Ab	Cry1Ab protein
Cry3A	Cry3A protein
CTAB	cetyltrimethyl ammonium bromide
DNA	deoxyribonucleic acid
dsDNA	double-stranded DNA
<i>ecry3.1Ab</i>	eCry3.1Ab gene
eCry3.1Ab	eCry3.1Ab protein
EDTA	ethylenediaminetetraacetic acid
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
g	gram
GLPS	Good Laboratory Practices Standards
LB	left border
M	molar
<i>manA</i>	phosphomannose isomerase gene
mCry3A	modified Cry3A protein
ml	milliliter
mM	millimolar
NaCl	sodium chloride
NOS	nopaline synthase
NTI	New Technologies Informax
PCR	polymerase chain reaction
<i>pmi</i>	phosphomannose isomerase gene
PMI	phosphomannose isomerase protein
T ₀	original transformant
T-DNA	transferred DNA
TE	tris-EDTA
Tris	2-amino-2-(hydroxymethyl)-1,3-propanediol
US EPA	United States Environmental Protection Agency
ZmUbiInt	<i>Zea mays</i> ubiquitin promoter with intron
v/v	volume to volume
w/v	weight to volume
°C	degrees Celsius
®	registered trademark
™	trademark
µg	microgram
µl	microliter
×	cross
× g	times gravity
⊗	self-pollination

SUMMARY

Using the techniques of modern molecular biology, Syngenta has transformed maize (*Zea mays*) to produce Event 5307 maize, a new cultivar that has insecticidal activity against certain corn rootworm (*Diabrotica*) species. Maize plants derived from transformation Event 5307 ("5307 maize") contain the gene *ecry3.1Ab* encoding an eCry3.1Ab protein and the gene *pmi* (also known as *manA*) encoding the enzyme phosphomannose isomerase (PMI).

The purpose of this study is to determine the maize genomic sequence flanking both sides of the 5307 maize insert. The sequence of each flanking region was amplified using polymerase chain reaction analysis. These amplification products were cloned, and multiple clones were sequenced and compared to generate a consensus sequence for each flanking region. For each flanking region, 1,000 base pairs were reported.

INTRODUCTION

Using the techniques of modern molecular biology, Syngenta has transformed maize (*Zea mays*) to produce Event 5307 maize, a new cultivar that has insecticidal activity against certain corn rootworm (*Diabrotica*) species. Maize plants derived from transformation Event 5307 ("5307 maize") contain the gene *ecry3.1Ab* encoding an eCry3.1Ab protein and the gene *pmi* (also known as *manA*) encoding the enzyme phosphomannose isomerase (PMI). The eCry3.1Ab protein is an engineered chimera of modified Cry3A (mCry3A) and Cry1Ab proteins. The gene *pmi* was obtained from *Escherichia coli* strain K-12 and the protein it encodes was utilized as a plant selectable marker during development of 5307 maize.

The purpose of this study is to determine the maize genomic sequence flanking both sides of the 5307 maize insert.

Each flanking region was amplified using polymerase chain reaction (PCR) analysis. These fragments were cloned, and multiple clones were sequenced to generate a consensus sequence for each flanking region. For each flanking region, 1,000 base pairs (bp) were reported.

MATERIALS AND METHODS

Test Substance

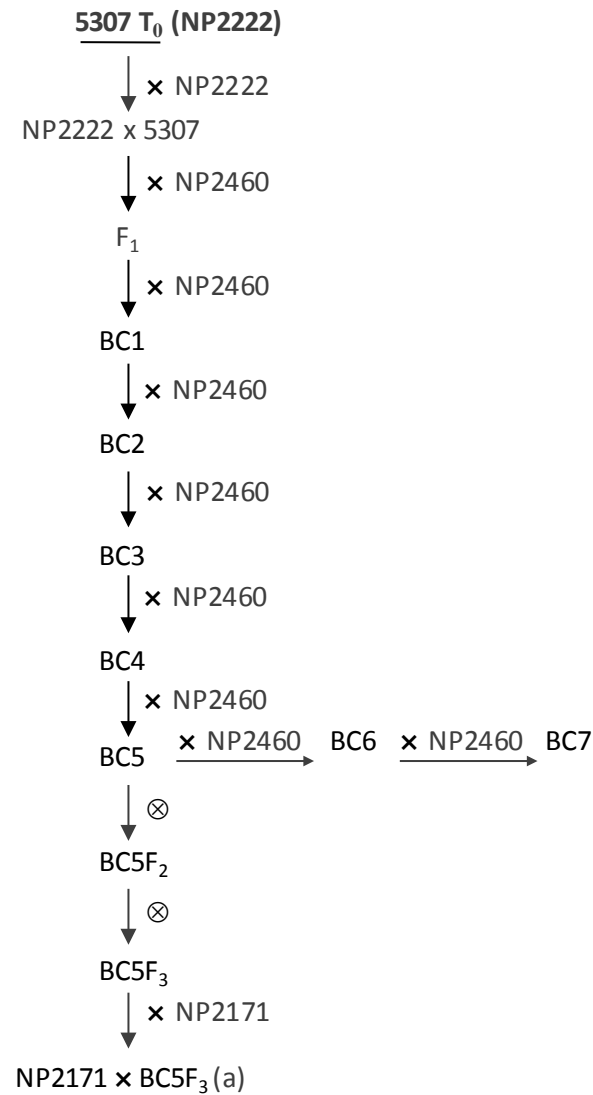
The test substance for this study was 5307 maize seed from generation NP2171 x BC5F₃. Table 1 shows the description and pedigree code for the test substance. Figure 1 illustrates a pedigree chart demonstrating the production of the test substance.

Table 1. Test substance

Seed identification	Material identification	Pedigree
NP2171 x BC5F ₃	07MG005417	NP2171 /(NP2460*/NP2222/(5307)1) B>B>B>B<2>B-B(T++)-

The test substance was characterized by real-time PCR analysis (Ingham *et al.* 2001) to confirm the identity and purity.

Figure 1. Pedigree history for 5307 maize indicating the generations used in the study presented in this report



(a) = Flanking sequence determination

T₀ = original transformant

x = cross

BC = backcross

⊗ = self-pollination

Plant Tissue for Genomic Deoxyribonucleic Acid (DNA) Extraction

Test substance seed was grown in a Syngenta Biotechnology, Inc. greenhouse in Research Triangle Park, North Carolina, USA. Following verification of the plants' identity by real-time PCR analysis, leaf tissue from plants grown from the test substance was pooled into a sampling bag and stored at $-80^{\circ}\text{C} \pm 10^{\circ}\text{C}$.

Genomic DNA Extraction

Genomic DNA used for flanking sequence determination was isolated from the pooled leaf tissue using a modification of the method described in Saghai-Marooof *et al.* (1984).

Pooled leaf tissue was ground into a fine powder using a pre-chilled mortar and pestle, with liquid nitrogen, and then placed into a bottle for storage. For each DNA extraction, approximately 7 g of this tissue and 21 ml of prewarmed CTAB buffer (100 mM Tris pH 8.0, 20 mM EDTA pH 8.0, 1.4 M NaCl, 2% CTAB [w/v], 0.2% [v/v] β -mercaptoethanol) were combined in a bottle; the sample was then mixed gently and incubated for 90 minutes at $65^{\circ}\text{C} \pm 5^{\circ}\text{C}$. An equal volume of chloroform:isoamyl alcohol (24:1) was then added, followed by gentle mixing and centrifugation for 10 minutes at $7277 \times g$ at room temperature.

The resulting aqueous phase was transferred to a clean container, and 10 μg of ribonuclease per ml of aqueous phase was added. The sample was mixed and incubated for three hours at $37^{\circ}\text{C} \pm 2^{\circ}\text{C}$. An equal volume of chloroform:isoamyl alcohol (24:1) was then added, followed by gentle mixing and centrifugation for 10 minutes at $7277 \times g$ at room temperature. The aqueous phase was collected in a clean bottle, and the DNA was precipitated with a 0.7 volume of isopropanol. The DNA was then pelleted by centrifugation at $291 \times g$, and washed once with 70% ethanol. The DNA pellet was air-dried and dissolved in 500 μl of prewarmed 0.1X TE.

DNA Quantitation

The concentration of DNA was measured using a Quant-iT™ PicoGreen® dsDNA kit. A two-point standard curve was generated using a Lambda DNA standard. The linear attribute of the standard curve was verified with samples generated from a serial dilution of Lambda DNA standard in 1X TE. Genomic DNA was quantified by interpolation from the two point standard curve, and each genomic DNA was assayed in triplicate using the TBS-380 Mini-Fluorometer.

PCR Amplification

The 5' and 3' maize genomic sequences flanking the 5307 maize insert were previously recovered. This preliminary sequence was used to design primers for amplification of the flanking regions from 5307 maize. The flanking regions were amplified from genomic DNA extracted from 5307 maize using the Expand™ High-Fidelity PCR System. Table 2 lists the primers used to amplify the flanking regions; Table 3 contains the thermal cycling parameters.

Table 2. Primers used to amplify the flanking regions of 5307 maize

Region	Forward primer name	Forward primer sequence (5' to 3')	Reverse primer name	Reverse primer sequence (5' to 3')
5' flanking region	5307_F1	GCATTGGCATTTCAT TAGCAAGCA	5307_R1	TGATTAAAGGCAGCCG ACCTAACCT
3' flanking region	5307_F2	CATCTCTTGCTAAGCT GGGAGCTCG	5307_R2	GACTTGTGTGGTTTCTC ACGGTCCA

Table 3. Cycling parameters

Cycle	Step	Temperature (°C)	Time	Number of cycles
A	1	95	5 min	1
B	1	95	15 sec	35
B	2	60	15 sec	35
B	3	72	2 min	35
C	1	72	10 min	1
D	1	4	Hold	1

The PCR fragments were cloned into pCR®4-TOPO® vector, and three colonies for each PCR product were randomly selected and grown. The plasmid DNA was then independently extracted, and the resulting plasmid preparations, which contained the PCR amplification products, were subsequently sequenced.

Sequencing

Dye-terminator sequencing, a modification of dideoxynucleotide chain-terminator sequencing method, was carried out using the ABI3730XL analyzer with ABI BigDye® 3.1 terminator chemistry. The sequence analysis was done using the Phred, Phrap, and Consed package (from the University of Washington), and was carried out to an error rate of less than 1 in 10,000 bases (Ewing and Green 1998).

Three individual clones for each PCR product were sequenced individually, and a consensus sequence was generated for each clone. These sequences were aligned using AlignX™, a component of VectorNTI Advance™, version 10.3.0, to obtain the final consensus sequence for each flanking region.

Statistical Analysis

No statistical analysis was used in this study.

RESULTS AND DISCUSSION

Flanking Sequence

The maize genomic sequences flanking the 5307 maize insert were amplified. For each flanking region, 1,000 bp were reported (Figures 2 and 3).

5307 Maize Sequence

The 5307 maize insert sequence was previously determined (New 2010). Figure 4 is a map displaying the 5307 maize insert and the genomic sequences flanking the transferred

DNA (T-DNA). Figure 5 displays sequence of the 5' and 3' flanking regions and the T-DNA of 5307 maize.

Data Quality and Integrity

No circumstances occurred during the conduct of this study that would have adversely affected the quality or integrity of the data generated.

Figure 2. Maize genomic sequence flanking the 5' region of the 5307 maize T-DNA (1,000 bp)

{ CBI Cross Reference Number 1 }

Figure 3. Maize genomic sequence flanking the 3' region of the 5307 maize T-DNA (1,000 bp)

{ CBI Cross Reference Number 2 }

Figure 4. Map of 5307 maize including the genomic sequences flanking the T-DNA

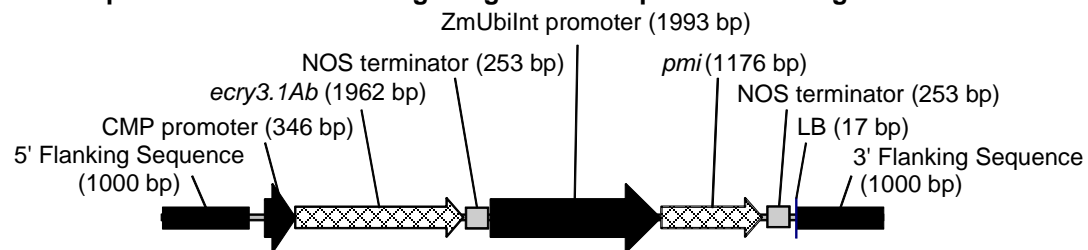


Figure 5. Sequence of 5307 maize T-DNA and flanking regions

{ CBI Cross Reference Number 3 }

CONCLUSION

The maize genomic sequences flanking the 5307 maize insert were determined. For each flanking region, 1,000 bp were reported.

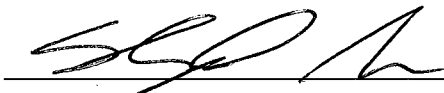
RECORDS RETENTION

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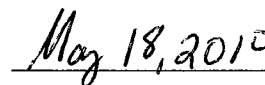
CONTRIBUTING SCIENTISTS

The analytical work reported herein was conducted by Stephen New, B.S. This work was conducted at Syngenta Biotechnology, Inc.

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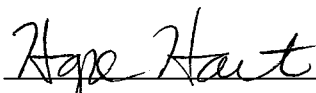


Stephen New
Regulatory Scientist, Molecular Analysis Team
Regulatory Science and Trait Safety
Syngenta Biotechnology, Inc.

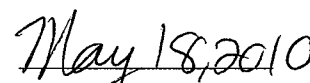


Date

Approved by:



Hope Hart
Team Leader, Molecular Analysis Team
Regulatory Science and Trait Safety
Syngenta Biotechnology, Inc.



Date

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Ingham DJ, Beer S, Money S, Hansen G. 2001. Quantitative real-time PCR assay for determining transgene copy number in transformed plants. *BioTechniques* 31:132–140.

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US EPA. 1989. Good Laboratory Practices Standards. 40 CFR Part 160.

Unpublished

New S. 2010. *Event 5307 Maize: Insert Sequence Analysis*. Report No. SSB-159-10 (unpublished). Research Triangle Park, NC: Syngenta Biotechnology, Inc.



Event 5307 Maize:
Flanking Sequence Determination

CONTAINS CONFIDENTIAL BUSINESS INFORMATION

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12	Discloses information concerning the composition of the product	§10(d)(1)(A)

Figure 2. Maize genomic sequence flanking the 5' region of the 5307 maize T-DNA (1,000 bp)

1	ACGAATTTTC	CAATATGGAA	AATCGTCACC	ATAAAAAACG	GGAGAAGGTC	CATCCCCACC
	TGCTTAAAAG	GTTATACCTT	TTAGCAGTGG	TATTTTTTGC	CCTCTTCCAG	GTAGGGGTGG
61	GGACATCGTT	ACTCTAGCGG	TTAAGCTAAT	CTAAGAGCAA	CAAGGCTCTT	ATACCAATTG
	CCTGTAGCAA	TGAGATCGCC	AATTCGATTA	GATTCTCGTT	GTTCCGAGAA	TATGGTTAAC
121	AAAGGATCAC	GATGCCCAAG	AGGGGGGGTT	GAATTGGGCT	TTTCTAAAAA	TCAACACTAA
	TTTCTAGTGT	CTACGGGTTC	TCCCCCCCCA	CTTAACCCGA	AAAGATTTTT	AGTTGTGATT
181	CTAAATCTA	AGCAAGAGCC	CAACTTCACC	CCGACAACCTA	GCACTAAGAG	AATAATACTA
	GATTTTAGAT	TCGTTCTCGG	GTTGAAGTGG	GGCTGTTGAT	CGTGATTCTC	TTATTATGAT
241	GAAATACAAC	AATGCTAAGA	TAATACTTCA	AATACTTGCT	AAACAAATAC	ACAATGTAAA
	CTTTATGTTG	TTACGATTCT	ATTATGAAGT	TTATGAACGA	TTTGTTTATG	TGTTACATTT
301	ATACTTGAAT	TAAGTGCGGA	ATGTAAAGCA	AGGTTTAGAA	GACTCCTCCA	ATTTTTCTAG
	TATGAACTTA	ATTCACGCCT	TACATTTCTG	TCCAAATCTT	CTGAGGAGGT	TAAAAAGATC
361	AGGTATCAAA	GAGTCGGCAC	TCTCCCCTAG	TCCTCGTTGG	AGCACCTGCG	TAAGGGTATC
	TCCATAGTTT	CTCAGCCGTG	AGAGGGGATC	AGGAGCAACC	TCGTGGACGC	ATTCCCATAG
421	GCTCTCCCTT	GGTCATCGCA	AGAACCAAGT	GCTCACAACG	AGATGATCCT	TTGCCACTCC
	CGAGAGGGAA	CCAGTAGCGT	TCTTGTTTCA	CGAGTGTTGC	TCTACTAGGA	AACGGTGAGG
481	GGCGCGGTGG	ATCCCTCACG	ACCGCTTACA	AACTTGAGTC	GGGTCACCAA	CAAGATCTCC
	CCGCGCCACC	TAGGGAGTGC	TGGCGAATGT	TTGAACTCAG	CCCAGTGGTT	GTTCTAGAGG
541	ACGGTGATCA	CCGAGCTCCC	AACGCCACCA	AGCCGTCTAG	GTGATGCCGA	TCACCAAGAG
	TGCCACTAGT	GGCTCGAGGG	TTGCGGTGGT	TCGGCAGATC	CACTACGGCT	AGTGGTTCTC
601	TAATAAGCCA	TAGACTTTCA	CTTGACCAAG	AGAAGCCTAA	TGCATGCGGT	GTGTGCTCTA
	ATTATTCGGT	ATCTGAAAGT	GAAGTGGTTC	TCTTCGGATT	ACGTACGCCA	CACACGAGAT
661	GGTGGCTCTC	GCTAGCGTTA	ATGAGGTCCA	AATGCGGGAT	TAAGATTCTC	AAGTCACCTC
	CCACCGAGAG	CGATCGCAAT	TACTCCAGGT	TTACGCCCTA	ATTCTAAGAG	TTCAGTGGAG
721	ACTAGGCTTT	GTGGTGCTTG	CAATGCTCTA	CCAATGTGTA	GGAGTAAATG	TGGGCAGCAA
	TGATCCGAAA	CACCACGAAC	GTTACGAGAT	GGTTACACAT	CCTCATTTAC	ACCCGTCGTT
781	GACCATCAAT	ATGGTAGGTG	GATGGGGTAT	AAATAGCCCT	CACCCACCAA	CTAGCCATTA
	CTGGTAGTTA	TACCATCCAC	CTACCCCAT	TTTATCGGGA	GTGGGTGGTT	GATCGGTAAT
841	CCAGGAATCT	GCTGCGCATG	GGCGCACCGG	ACAGTCCGGT	GTGCCACCGG	TGCGCCAACG
	GGTCCTTAGA	CGACGCGTAC	CCGCGTGGCC	TGTCAGGCCA	CACGGTGGCC	ACGCGGTTGC
901	GTCGACTCAA	ACGGCTAGTT	CTGACAGCTA	GCCGTTGGAC	AGATGGCATA	CCGGACAGTC
	CAGCTGAGTT	TGCCGATCAA	GACTGTGCGAT	CGGCAACCTG	TCTACCGTAT	GGCCTGTCAG
961	CGATACGCTG	TCCGGTGTGC	CTCTAAAATT	CAACTCACGA		
	GCTATGCGAC	AGGCCACACG	GAGATTTTAA	GTTGAGTGCT		

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Figure 3. Maize genomic sequence flanking the 3' region of the 5307 maize T-DNA (1,000 bp)

1	CCCTCTTCCC	TGGGCCAGGC	TGGGCCCACT	GGCAAAGGGT	GCACCGGACA	GTCCGGTGCC
	GGGAGAAGGG	ACCCGGTCCG	ACCCGGGTGA	CCGTTTCCCA	CGTGGCCTGT	CAGGCCACGG
61	CCAAAGCCAG	AAACCCTAGC	TTCTGTTTTG	TGCTGTTTTT	TCAATTTGGT	TTTTGTTCTA
	GGTTTCGGTC	TTTGGGATCG	AAGACAAAAC	ACGACAAAAA	AGTTAAACCA	AAAACAAGAT
121	ACTTGTGAGT	ATGTTCTAGA	GTTACACCTA	GCACTATATG	TGAGTGTGAA	TATGCACCAA
	TGAACACTCA	TACAAGATCT	CAATGTGGAT	CGTGATATAC	ACTCACACTT	ATACGTGGTT
181	CACTACACTA	GAACTCTTTT	GGTCAAACCTA	CTTATCGACA	ACCCCTCTTT	ATAGTACGGC
	GTGATGTGAT	CTTGAGAAAA	CCAGTTTGAT	GAATAGCTGT	TGGGGAGAAA	TATCATGCCG
241	TAAAACAAAA	TAAAAGACCT	AACCTATATCA	CGAGTGTCCG	CAACTCCTTG	ACACTCGGAA
	ATTTTGTTTT	ATTTTCTGGA	TTGATATAGT	GCTCACAGGC	GTTGAGGAAC	TGTGAGCCTT
301	TACGAAGACC	TTCACTTTTT	GTTTCGTCGC	TTTAGCCGTT	GCTTCAAGTT	TTTATCTCCG
	ATGCTTCTGG	AAGTGAAAAA	CAAAGCAGCG	AAATCGGCAA	CGAAGTTCAA	AAATAGAGGC
361	GGATTGTTTT	CACCATTGTA	GTACATCTAC	CTGTAATGCG	ACCTAACTTA	CCATTTGCCT
	CCTAACAAAA	GTGGTAACAT	CATGTAGATG	GACATTACGC	TGGATTGAAT	GGTAAACGGA
421	CTGCAAAACA	CATGTTAGTC	ACATATAAAA	TTACGTTGTC	ATTAATCACT	AAAACCAACC
	GACGTTTTGT	GTACAATCAG	TGTATATTTT	AATGCAACAG	TAATTAGTGA	TTTTGGTTGG
481	AGGGGCCTAG	ATGCTTTCTA	GTTTAAATCC	CCAACAAGTC	AAAATTCTTT	CTATTTTTTT
	TCCCCGGATC	TACGAAAGAT	CAAATTTAGG	GGTTGTTCAG	TTTTAAGAAA	GATAAAAAAA
541	TTGCAAGTTC	CAATTGACAT	CTGAAAGGTT	GTAAGGTACA	CGTTTGGCTC	TCATTGATAA
	AACGTTCAAG	GTAACTGTA	GACTTTCCAA	CATTCCATGT	GCAAACCGAG	AGTAACTATT
601	CGGGGGAAAG	ATACAGTGCA	AACCACCATA	TAATGACCCA	CTTCTAATCG	AATGGACCTG
	GCCCCCTTTC	TATGTCACGT	TTGGTGGTAT	ATTACTGGGT	GAAGATTAGC	TTACCTGGAC
661	TAACGACGAA	ATACCCTGTG	AGAACTATGG	TTCACCTCATG	TTAATTCATT	GAAATTGTTG
	ATTGCTGCTT	TATGGGACAC	TCTTGATACC	AAGTGAGTAC	AATTAAGTAA	CTTTAACAAC
721	TAGTGAATTG	ACATGGTTGG	GAGCCTGCTT	AGAGAGTATA	GATTGTCACT	TTTTTTTTGGA
	ATCACTTAAC	TGTACCAACC	CTCGGACGAA	TCTCTCATAT	CTAACAGTGA	AAAAAACCTT
781	CCGCAACTTA	TTTTTAAAAG	ATATTGCGAT	CGCTTGTTTA	GTAGCTGTTT	CAGGCCCCAA
	GGCGTTGAAT	AAAAATTTTC	TATAACGCTA	GCGAACAAAT	CATCGACAAA	GTCCGGGGTT
841	TGCAGTTTCT	ATCGTGATCC	ATTTAAGTCA	CTCAACATTC	TCATACTTCT	CATTTTGCAT
	ACGTCAAAGA	TAGCACTAGG	TAAATTCAGT	GAGTTGTAAG	AGTATGAAGA	GTAAAACGTA
901	TAATTCATTC	CAATCTCCAC	TACTATAAAA	TACTAGCTTC	GATGGTCGTC	ATACGCCATG
	ATTAAGTAAG	GTTAGAGGTG	ATGATATTTT	ATGATCGAAG	CTACCAGCAG	TATGCGGTAC
961	CACGAAGCAT	GTAGATCAAT	CCGCATACCA	GTGGGCATCT		
	GTGCTTCGTA	CATCTAGTTA	GGCGTATGGT	CACCCGTAGA		

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Figure 5. Sequence of 5307 maize T-DNA and flanking regions

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                    5' Flanking Sequence
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1  ACGAATTTTC CAATATGGAA AATCGTCACC ATAAAAAACG GGAGAAGGTC CATCCCCACC
   TGCTTAAAAG GTTATACCTT TTAGCAGTGG TATTTTTTGC CCTCTTCCAG GTAGGGGTGG

                    5' Flanking Sequence
~~~~~
61 GGACATCGTT ACTCTAGCGG TTAAGCTAAT CTAAGAGCAA CAAGGCTCTT ATACCAATTG
   CCTGTAGCAA TGAGATCGCC AATTCGATTA GATTCTCGTT GTTCCGAGAA TATGGTTAAC

                    5' Flanking Sequence
~~~~~
121 AAAGGATCAC GATGCCCAAG AGGGGGGGTT GAATTGGGCT TTTCTAAAAA TCAACACTAA
   TTTCTAGTGT CTACGGGTTC TCCCCCCCAA CTTAACCCGA AAAGATTTTT AGTTGTGATT

                    5' Flanking Sequence
~~~~~
181 CTAAATCTA AGCAAGAGCC CAACTTCACC CCGACAATA GCACTAAGAG AATAATACTA
   GATTTTAGAT TCGTTCTCGG GTTGAAGTGG GGCTGTTGAT CGTGATTCTC TTATTATGAT

                    5' Flanking Sequence
~~~~~
241 GAAATACAAC AATGCTAAGA TAATACTTCA AATACTTGCT AAACAAATAC ACAATGTAA
   CTTTATGTTG TTACGATTCT ATTATGAAGT TTATGAACGA TTTGTTTATG TGTTACATTT

                    5' Flanking Sequence
~~~~~
301 ATACTTGAAT TAAGTGC GGA ATGTAAAGCA AGGTTTAGAA GACTCCTCCA ATTTTCTAG
   TATGAACTTA ATTCACGCCT TACATTTCTG TCCAAATCTT CTGAGGAGGT TAAAAAGATC

                    5' Flanking Sequence
~~~~~
361 AGGTATCAAA GAGTCGGCAC TCTCCCCTAG TCCTCGTTGG AGCACCTGCG TAAGGGTATC
   TCCATAGTTT CTCAGCCGTG AGAGGGGATC AGGAGCAACC TCGTGGACGC ATTCCCATAG

                    5' Flanking Sequence
~~~~~
421 GCTCTCCCTT GGTCATCGCA AGAACCAAGT GCTCACAACG AGATGATCCT TTGCCACTCC
   CGAGAGGGAA CCAGTAGCGT TCTTGTTTCA CGAGTGTTGC TCTACTAGGA AACGGTGAGG

                    5' Flanking Sequence
~~~~~
481 GGCGCGGTGG ATCCCTCACG ACCGCTTACA AACTTGAGTC GGGTCACCAA CAAGATCTCC
   CCGCGCCACC TAGGGAGTGC TGGCGAATGT TTGAACTCAG CCCAGTGGTT GTTCTAGAGG

                    5' Flanking Sequence
~~~~~
541 ACGGTGATCA CCGAGCTCCC AACGCCACCA AGCCGTCTAG GTGATGCCGA TCACCAAGAG
   TGCCACTAGT GGCTCGAGGG TTGCGGTGGT TCGGCAGATC CACTACGGCT AGTGGTTCTC

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

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                    5' Flanking Sequence
~~~~~
601  TAATAAGCCA TAGACTTTCA CTTGACCAAG AGAAGCCTAA TGCATGCGGT GTGTGCTCTA
    ATTATTCGGT ATCTGAAAGT GAACTGGTTC TCTTCGGATT ACGTACGCCA CACACGAGAT

                    5' Flanking Sequence
~~~~~
661  GGTGGCTCTC GCTAGCGTTA ATGAGGTCCA AATGCGGGAT TAAGATTCTC AAGTCACCTC
    CCACCGAGAG CGATCGCAAT TACTCCAGGT TTACGCCCTA ATTCTAAGAG TTCAGTGGAG

                    5' Flanking Sequence
~~~~~
721  ACTAGGCTTT GTGGTGCTTG CAATGCTCTA CCAATGTGTA GGAGTAAATG TGGGCAGCAA
    TGATCCGAAA CACCACGAAC GTTACGAGAT GGTTACACAT CCTCATTTAC ACCCGTCGTT

                    5' Flanking Sequence
~~~~~
781  GACCATCAAT ATGGTAGGTG GATGGGGTAT AAATAGCCCT CACCCACCAA CTAGCCATTA
    CTGGTAGTTA TACCATCCAC CTACCCCATATA TTTATCGGGA GTGGGTGGTT GATCGGTAAT

                    5' Flanking Sequence
~~~~~
841  CCAGGAATCT GCTGCGCATG GGCGCACCGG ACAGTCCGGT GTGCCACCGG TGCGCCAACG
    GGTCTTTAGA CGACGCGTAC CCGCGTGGCC TGTCAGGCCA CACGGTGGCC ACGCGGTTGC

                    5' Flanking Sequence
~~~~~
901  GTCGACTCAA ACGGCTAGTT CTGACAGCTA GCCGTTGGAC AGATGGCATA CCGGACAGTC
    CAGCTGAGTT TGCCGATCAA GACTGTCGAT CGGCAACCTG TCTACCGTAT GGCCTGTCAG

                    5' Flanking Sequence
~~~~~
961  CGATACGCTG TCCGGTGTGC CTCTAAAATT CAACTCACGA ACTGATAGTT TAAACTGAAG
    GCTATGCGAC AGGCCACACG GAGATTTTAA GTTGAGTGCT TGAATATCAA ATTTGACTTC

1021 GCGGGAAACG ACAATCTGAT CATGAGCGGA GAATTAAGGG AGTCACGTTA TGACCCCCGC
    CGCCCTTTGC TGTTAGACTA GTACTCGCCT CTTAATTCCC TCAGTGCAAT ACTGGGGGCG

1081 CGATGACGCG GGACAAGCCG TTTTACGTTT GGAAGTACGA GAACCGCAAC GCTGCAGGAA
    GCTACTGCGC CCTGTTTCGGC AAAATGCAAA CCTTGACTGT CTTGGCGTTG CGACGTCCTT

1141 TTGGCCGCGC CTGCCATTTA AATCAATTGG GCGCGCCGAA TTCGAGCTCG GTACAAGCTT
    AACGGGCGTC GACGGTAAAT TTAGTTAACC CGCGCGGCTT AAGCTCGAGC CATGTTTCGAA

                    CMP promoter
~~~~~
1201 CTGGCAGACA AAGTGGCAGA CATACTGTCC CACAAATGAA GATGGAATCT GTAAAAGAAA
    GACCGTCTGT TTCACCGTCT GTATGACAGG GTGTTTACTT CTACCTTAGA CATTTTCTTT

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

CMP promoter

~~~~~

1261 ACGCGTGAAA TAATGCGTCT GACAAAGGTT AGGTCGGCTG CCTTTAATCA ATACCAAAGT  
TGCGCACTTT ATTACGCAGA CTGTTTCCAA TCCAGCCGAC GGAAATTAGT TATGGTTTCA

CMP promoter

~~~~~

1321 GGTCCCTACC ACGATGGAAA AACTGTGCAG TCGGTTTGGC TTTTCTGAC GAACAAATAA
CCAGGGATGG TGCTACCTTT TTGACACGTC AGCCAAACCG AAAAAGACTG CTTGTTTATT

CMP promoter

~~~~~

1381 GATTCGTGGC CGACAGGTGG GGGTCCACCA TGTGAAGGCA TCTTCAGACT CCAATAATGG  
CTAAGCACCG GCTGTCCACC CCCAGGTGGT ACACTTCCGT AGAAGTCTGA GGTTATTACC

CMP promoter

~~~~~

1441 AGCAATGACG TAAGGGCTTA CGAAATAAGT AAGGGTAGTT TGGGAAATGT CCACTCACCC
TCGTTACTGC ATTCCGAAT GCTTTATTCA TTCCCATCAA ACCCTTTACA GGTGAGTGGG

CMP promoter *ecry3.1Ab*

~~~~~ ~~~~~

1501 GTCAGTCTAT AAATACTTAG CCCCTCCCTC ATTGTTAAGG GAGCAAGGAT CCACCATGAC  
CAGTCAGATA TTTATGAATC GGGGAGGGAG TAACAATTCC CTCGTTCTTA GGTGGTACTG

*ecry3.1Ab*

~~~~~

1561 TAGTAACGGC CGCCAGTGTG CTGGTATTCT CCCTTATGAC GGCCGACAAC AACACCGAGG
ATCATTGCCG GCGGTCACAC GACCATAAGC GGGAATACTG CCGGCTGTTG TTGTGGCTCC

ecry3.1Ab

~~~~~

1621 CCTGGACAGC AGCACCACCA AGGACGTGAT CCAGAAGGGC ATCAGCGTGG TGGGCGACCT  
GGACCTGTCT TCGTGGTGGT TCCTGCACTA GGTCTTCCCG TAGTCGCACC ACCCGCTGGA

*ecry3.1Ab*

~~~~~

1681 GCTGGGCGTG GTGGGCTTCC CCTTCGGCGG CGCCCTGGTG AGCTTCTACA CCAACTTCCT
CGACCCGCAC CACCCGAAGG GGAAGCCGCC GCGGGACCAC TCGAAGATGT GGTTGAAGGA

ecry3.1Ab

~~~~~

1741 GAACACCATC TGGCCCAGCG AGGACCCCTG GAAGGCCTTC ATGGAGCAGG TGGAGGCCCT  
CTTGTGGTAG ACCGGGTCGC TCCTGGGGAC CTTCCGGAAG TACCTCGTCC ACCTCCGGGA

*ecry3.1Ab*

~~~~~

1801 GATGGACCAG AAGATCGCCG ACTACGCCAA GAACAAGGCA CTGGCCGAGC TACAGGGCCT
CTACCTGGTC TTCTAGCGGC TGATGCGGTT CTTGTTCCGT GACCGGCTCG ATGTCCCGGA

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

ecry3.1Ab

~~~~~

1861 CCAGAACAAC GTGGAGGACT ATGTGAGCGC CCTGAGCAGC TGGCAGAAGA ACCCCGCTGC  
GGTCTTGTTG CACCTCCTGA TACACTCGCG GGACTCGTCG ACCGTCTTCT TGGGGCGACG

*ecry3.1Ab*

~~~~~

1921 ACCGTTCCGC AACCCCCACA GCCAGGGCCG CATCCGCGAG CTGTTTCAGCC AGGCCGAGAG
TGGCAAGGCG TTGGGGGTGT CGGTCCCGGC GTAGGCGCTC GACAAGTCGG TCCGGCTCTC

ecry3.1Ab

~~~~~

1981 CCACTTCCGC AACAGCATGC CCAGCTTCGC CATCAGCGGC TACGAGGTGC TGTTCTGAC  
GGTGAAGGCG TTGTCGTACG GGTCGAAGCG GTAGTCGCCG ATGCTCCACG ACAAGGACTG

*ecry3.1Ab*

~~~~~

2041 CACCTACGCC CAGGCCGCCA ACACCCACCT GTTCTGCTG AAGGACGCCC AAATCTACGG
GTGGATGCGG GTCCGGCGGT TGTGGGTGGA CAAGGACGAC TTCCTGCGGG TTTAGATGCC

ecry3.1Ab

~~~~~

2101 AGAGGAGTGG GGCTACGAGA AGGAGGACAT CGCCGAGTTC TACAAGCGCC AGCTGAAGCT  
TCTCCTCACC CCGATGCTCT TCCTCCTGTA GCGGCTCAAG ATGTTTCGCG TCGACTTCGA

*ecry3.1Ab*

~~~~~

2161 GACCCAGGAG TACACCGACC ACTGCGTGAA GTGGTACAAC GTGGGTCTAG ACAAGCTCCG
CTGGGTCTCT ATGTGGCTGG TGACGCACTT CACCATGTTG CACCCAGATC TGTTTCGAGG

ecry3.1Ab

~~~~~

2221 CGGCAGCAGC TACGAGAGCT GGGTGAACCT CAACCGCTAC CGCCGCGAGA TGACCCTGAC  
GCCGTCGTCG ATGCTCTCGA CCCACTTGAA GTTGGCGATG GCGGCGCTCT ACTGGGACTG

*ecry3.1Ab*

~~~~~

2281 CGTGCTGGAC CTGATCGCCC TGTTCCCCCT GTACGACGTG CGCCTGTACC CCAAGGAGGT
GCACGACCTG GACTAGCGGG ACAAGGGGGA CATGCTGCAC GCGGACATGG GGTTCCTCCA

ecry3.1Ab

~~~~~

2341 GAAGACCGAG CTGACCCGCG ACGTGCTGAC CGACCCCATC GTGGGCGTGA ACAACCTGCG  
CTTCTGGCTC GACTGGGCGC TGCACGACTG GCTGGGGTAG CACCCGCACT TGTTGGACGC

*ecry3.1Ab*

~~~~~

2401 CGGCTACGGC ACCACCTTCA GCAACATCGA GAACTACATC CGCAAGCCCC ACCTGTTCTGA
GCCGATGCCG TGGTGGAAGT CGTTGTAGCT CTTGATGTAG GCGTTCGGGG TGGACAAGCT

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

```

                                ecry3.1Ab
                                ~~~~~
2461  CTACCTGCAC CGCATCCAGT TCCACACGCG TTTCCAGCCC GGCTACTACG GCAACGACAG
      GATGGACGTG GCGTAGGTCA AGGTGTGCGC AAAGGTCGGG CCGATGATGC CGTTGCTGTC

                                ecry3.1Ab
                                ~~~~~
2521  CTTCAACTAC TGGAGCGGCA ACTACGTGAG CACCCGCCCC AGCATCGGCA GCAACGACAT
      GAAGTTGATG ACCTCGCCGT TGATGCACTC GTGGGCGGGG TCGTAGCCGT CGTTGCTGTA

                                ecry3.1Ab
                                ~~~~~
2581  CATCACCAGC CCCTTCTACG GCAACAAGAG CAGCGAGCCC GTGCAGAACC TTGAGTTCAA
      GTAGTGGTCG GGGAAGATGC CGTTGTTCTC GTCGCTCGGG CACGTCTTGG AACTCAAGTT

                                ecry3.1Ab
                                ~~~~~
2641  CGGCGAGAAG GTGTACCGCG CCGTGGCTAA CACCAACCTG GCCGTGTGGC CCTCTGCAGT
      GCCGCTCTTC CACATGGCGC GGCACCGATT GTGGTTGGAC CGGCACACCG GGAGACGTCA

                                ecry3.1Ab
                                ~~~~~
2701  GTACAGCGGC GTGACCAAGG TGGAGTTCAG CCAGTACAAC GACCAGACCG ACGAGGCCAG
      CATGTCGCCG CACTGGTTCC ACCTCAAGTC GGTCATGTTG CTGGTCTGGC TGCTCCGGTC

                                ecry3.1Ab
                                ~~~~~
2761  CACCCAGACC TACGACAGCA AGCGCAACGT GGGCGCCGTG AGCTGGGACA GCATCGACCA
      GTGGGTCTGG ATGCTGTCGT TCGCGTTGCA CCCGCGGCAC TCGACCCTGT CGTAGCTGGT

                                ecry3.1Ab
                                ~~~~~
2821  GCTGCCCCC GAGACCACCG ACGAGCCCCT GGAGAAGGGC TACAGCCACC AGCTGAACCT
      CGACGGGGGG CTCTGGTGGC TGCTCGGGGA CCTCTTCCCG ATGTCGGTGG TCGACTTGAT

                                ecry3.1Ab
                                ~~~~~
2881  CGTGATGTGC TTCCTGATGC AGGGCAGCCG CGGCACCATC CCCGTGCTGA CCTGGACCCA
      GCACTACACG AAGGACTACG TCCCGTCGGC GCCGTGGTAG GGGCACGACT GGACCTGGGT

                                ecry3.1Ab
                                ~~~~~
2941  CAAGAGCGTC GACTTCTTCA ACATGATCGA CAGCAAGAAG ATCACCAGC TGCCCCTGAC
      GTTCTCGCAG CTGAAGAAGT TGTACTAGCT GTCGTTCTTC TAGTGGGTGCG ACGGGGACTG

                                ecry3.1Ab
                                ~~~~~
3001  CAAGAGCACC AACCTGGGCA GCGGCACCAG CGTGGTGAAG GGCCCCGGCT TCACCGGCGG
      GTTCTCGTGG TTGGACCCGT CGCCGTGGTC GCACCACTTC CCGGGGCCGA AGTGGCCGCC

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

```

                                ecry3.1Ab
                                ~~~~~
3061  CGACATCCTG CGCCGCACCA GCCCCGGCCA GATCAGCACC CTGCGCGTGA ACATCACCGC
      GCTGTAGGAC GCGGCGTGGT CGGGGCCGGT CTAGTCGTGG GACGCGCACT TGTAGTGGCG

                                ecry3.1Ab
                                ~~~~~
3121  CCCCCTGAGC CAGCGCTACC GCGTCCGCAT CCGCTACGCC AGCACCACCA ACCTGCAGTT
      GGGGGACTCG GTCGCGATGG CGCAGGCGTA GGCGATGCGG TCGTGGTGGT TGGACGTCAA

                                ecry3.1Ab
                                ~~~~~
3181  CCACACCAGC ATCGACGGCC GCCCCATCAA CCAGGGCAAC TTCAGCGCCA CCATGAGCAG
      GGTGTGGTCG TAGCTGCCGG CGGGGTAGTT GGTCCCGTTG AAGTCGCGGT GGTACTCGTC

                                ecry3.1Ab
                                ~~~~~
3241  CGGCAGCAAC CTGCAGAGCG GCAGCTTCCG CACCGTGGGC TTCACCACCC CCTTCAACTT
      GCCGTCGTTG GACGTCTCGC CGTCGAAGGC GTGGCACCCG AAGTGGTGGG GGAAGTTGAA

                                ecry3.1Ab
                                ~~~~~
3301  CAGCAACGGC AGCAGCGTGT TCACCCTGAG CGCCCACGTG TTCAACAGCG GCAACGAGGT
      GTCGTTGCCG TCGTCGCACA AGTGGGACTC GCGGGTGCAC AAGTTGTCGC CGTTGCTCCA

                                ecry3.1Ab
                                ~~~~~
3361  GTACATCGAC CGCATCGAGT TCGTGCCCGC CGAGGTGACC TTCGAGGCCG AGTACGACCT
      CATGTAGCTG GCGTAGCTCA AGCACGGGCG GCTCCACTGG AAGCTCCGGC TCATGCTGGA

                                ecry3.1Ab
                                ~~~~~
3421  GGAGAGGGCT CAGAAGGCCG TGAACGAGCT GTTCACCAGC AGCAACCAGA TCGGCCTGAA
      CCTCTCCCGA GTCTTCCGGC ACTTGCTCGA CAAGTGGTCG TCGTTGGTCT AGCCGGACTT

                                ecry3.1Ab
                                ~~~~~
3481  GACCGACGTG ACCGACTACC ACATCGATCA GGTGTAGGAG CTGAGCTCTA GATCCCCGAA
      CTGGCTGCAC TGGCTGATGG TGTAGCTAGT CCACATCCTC GACTCGAGAT CTAGGGGCTT

                                NOS terminator
                                ~~~~~
3541  TTTCCCCGAT CGTTCAAACA TTTGGCAATA AAGTTTCTTA AGATTGAATC CTGTTGCCGG
      AAAGGGGCTA GCAAGTTTGT AAACCGTTAT TTCAAAGAAT TCTAACTTAG GACAACGGCC

                                NOS terminator
                                ~~~~~
3601  TCTTGCGATG ATTATCATAT AATTTCTGTT GAATTACGTT AAGCATGTAA TAATTAACAT
      AGAACGCTAC TAATAGTATA TTAAAGACAA CTTAATGCAA TTCGTACATT ATTAATTGTA

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

```

                                NOS terminator
                                ~~~~~
3661  GTAATGCATG ACGTTATTTA TGAGATGGGT TTTTATGATT AGAGTCCCGC AATTATACAT
      CATTACGTAC TGCAATAAAT ACTCTACCCA AAAATACTAA TCTCAGGGCG TTAATATGTA

                                NOS terminator
                                ~~~~~
3721  TTAATACGCG ATAGAAAACA AAATATAGCG CGCAAAC TAGC GATAAATTAT CGCGCGCGGT
      AATTATGCGC TATCTTTTGT TTTATATCGC GCGTTTGATC CTATTTAATA GCGCGCGCCA

      NOS terminator                                ZmUbiInt promoter
      ~~~~~                                ~~~~~
3781  GTCATCTATG TTAGTAGATC GGGAATTGGG TACCAGCTTG CATGCCTGCA GTGCAGCGTG
      CAGTAGATAC AATGATCTAG CCCTTAACCC ATGGTCGAAC GTACGGACGT CACGTCGCAC

                                ZmUbiInt promoter
                                ~~~~~
3841  ACCCGGTCGT GCCCCTCTCT AGAGATAATG AGCATTGCAT GTCTAAGTTA TAAAAAATTA
      TGGGCCAGCA CGGGGAGAGA TCTCTATTAC TCGTAACGTA CAGATTCAAT ATTTTTTAAT

                                ZmUbiInt promoter
                                ~~~~~
3901  CCACATATTT TTTTGTGTCAC ACTTGTTTGA AGTGCAGTTT ATCTATCTTT ATACATATAT
      GGTGTATAAA AAAAACAGTG TGAACAACT TCACGTCAA TAGATAGAAA TATGTATATA

                                ZmUbiInt promoter
                                ~~~~~
3961  TTAAACTTTA CTCTACGAAT AATATAATCT ATAGTACTAC AATAATATCA GTGTTTTAGA
      AATTTGAAAT GAGATGCTTA TTATATTAGA TATCATGATG TTATTATAGT CACAAAATCT

                                ZmUbiInt promoter
                                ~~~~~
4021  GAATCATATA AATGAACAGT TAGACATGGT CTAAAGGACA ATTGAGTATT TTGACAACAG
      CTTAGTATAT TTAATTGTCA ATCTGTACCA GATTCCTGT TAACTCATAA AACTGTTGTC

                                ZmUbiInt promoter
                                ~~~~~
4081  GACTCTACAG TTTTATCTTT TTAGTGTGCA TGTGTTCTCC TTTTTTTTTG CAAATAGCTT
      CTGAGATGTC AAAATAGAAA AATCACACGT ACACAAGAGG AAAAAAAAAC GTTTATCGAA

                                ZmUbiInt promoter
                                ~~~~~
4141  CACCTATATA ATACTTCATC CATTTTATTA GTACATCCAT TTAGGGTTTA GGGTTAATGG
      GTGGATATAT TATGAAGTAG GTAAATAAAT CATGTAGGTA AATCCCAAAT CCCAATTACC

                                ZmUbiInt promoter
                                ~~~~~
4201  TTTTATAGA CTAATTTTTT TAGTACATCT ATTTTATTCT ATTTTAGCCT CTAAATTAAG
      AAAAATATCT GATTAAAAAA ATCATGTAGA TAAAATAAGA TAAATCGGA GATTTAATTC

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

```

                                ZmUbiInt promoter
                                ~~~~~
4261  AAAACTAAAA CTCTATTTTA GTTTTTTTTAT TTAATAATTT AGATATAAAA TAGAATAAAA
      TTTTGATTTT GAGATAAAAT CAAAAAATA AATTATTAAA TCTATATTTT ATCTTATTTT

                                ZmUbiInt promoter
                                ~~~~~
4321  TAAAGTGACT AAAAATTAAA CAAATACCCT TTAAGAAATT AAAAAAATA AGGAAACATT
      ATTTCACTGA TTTTAAATTT GTTTATGGGA AATTCTTTAA TTTTGTGAT TCCTTTGTAA

                                ZmUbiInt promoter
                                ~~~~~
4381  TTTCTTGTTT CGAGTAGATA ATGCCAGCCT GTTAAACGCC GTCGACGAGT CTAACGGACA
      AAAGAACAAA GCTCATCTAT TACGGTCGGA CAATTTGCGG CAGCTGCTCA GATTGCCTGT

                                ZmUbiInt promoter
                                ~~~~~
4441  CCAACCAGCG AACCAGCAGC GTCGCGTCGG GCCAAGCGAA GCAGACGGCA CGGCATCTCT
      GGTGTCGTCG TTGGTCGTCG CAGCGCAGCC CGGTTCGCTT CGTCTGCCGT GCCGTAGAGA

                                ZmUbiInt promoter
                                ~~~~~
4501  GTCGCTGCCT CTGGACCCCT CTCGAGAGTT CCGCTCCACC GTTGGAAGTT CTCCGCTGTC
      CAGCGACGGA GACCTGGGGA GAGCTCTCAA GGCGAGGTGG CAACCTGAAC GAGGCGACAG

                                ZmUbiInt promoter
                                ~~~~~
4561  GGCATCCAGA AATTGCGTGG CGGAGCGGCA GACGTGAGCC GGCACGGCAG GCGGCCTCCT
      CCGTAGGTCT TTAACGCACC GCCTCGCCGT CTGCACTCGG CCGTGCCGTC CGCCGGAGGA

                                ZmUbiInt promoter
                                ~~~~~
4621  CCTCCTCTCA CGGCACCGGC AGCTACGGGG GATTCTTTTC CCACCGCTCC TTCGCTTTCC
      GGAGGAGAGT GCCGTGGCCG TCGATGCCCC CTAAGGAAAG GGTGGCGAGG AAGCGAAAGG

                                ZmUbiInt promoter
                                ~~~~~
4681  CTTCTCTGCC CGCCGTAATA AATAGACACC CCCTCCACAC CCTCTTTCCC CAACCTCGTG
      GAAGGAGCGG GCGGCATTAT TTATCTGTGG GGGAGGTGTG GGAGAAAGGG GTTGGAGCAC

                                ZmUbiInt promoter
                                ~~~~~
4741  TTGTTTCGGAG CGCACACACA CACAACCAGA TCTCCCCCAA ATCCACCCGT CGGCACCTCC
      AACAAGCCTC GCGTGTGTGT GTGTTGGTCT AGAGGGGGTT TAGGTGGGCA GCCGTGGAGG

                                ZmUbiInt promoter
                                ~~~~~
4801  GCTTCAAGGT ACGCCGCTCG TCCTCCCCC CCCCCCTCT CTACCTTCTC TAGATCGGCG
      CGAAGTTCCA TCGGCGGAGC AGGAGGGGGG GGGGGGGAGA GATGGAAGAG ATCTAGCCGC

```


Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

```

                                ZmUbiInt promoter
                                ~~~~~
4861  TTCCGGTCCA TGGTTAGGGC CCGGTAGTTC TACTTCTGTT CATGTTTGTG TTAGATCCGT
      AAGGCCAGGT ACCAATCCCG GGCCATCAAG ATGAAGACAA GTACAAACAC AATCTAGGCA

                                ZmUbiInt promoter
                                ~~~~~
4921  GTTTGTGTTA GATCCGTGCT GCTAGCGTTC GTACACGGAT GCGACCTGTA CGTCAGACAC
      CAAACACAAT CTAGGCACGA CGATCGCAAG CATGTGCCTA CGCTGGACAT GCAGTCTGTG

                                ZmUbiInt promoter
                                ~~~~~
4981  GTTCTGATTG CTAAC TTGCC AGTGT TTTCTC TTTGGGGAAT CCTGGGATGG CTCTAGCCGT
      CAAGACTAAC GATTGAACGG TCACAAAGAG AAACCCCTTA GGACCCTACC GAGATCGGCA

                                ZmUbiInt promoter
                                ~~~~~
5041  TCCGCAGACG GGATCGATTT CATGATTTTT TTTGTTTCGT TGCATAGGGT TTGGTTTGCC
      AGGCGTCTGC CCTAGCTAAA GTACTAAAAA AAACAAAGCA ACGTATCCCA AACCAAACGG

                                ZmUbiInt promoter
                                ~~~~~
5101  CTTTTCTTTT ATTTCAATAT ATGCCGTGCA CTTGTTTGTC GGGTCATCTT TTCATGCTTT
      GAAAAGGAAA TAAAGTTATA TACGGCACGT GAACAAACAG CCCAGTAGAA AAGTACGAAA

                                ZmUbiInt promoter
                                ~~~~~
5161  TTTTTGTCTT GGTTGTGATG ATGTGGTCTG GTTGGGCGGT CGTTCTAGAT CGGAGTAGAA
      AAAACAGAA CCAACACTAC TACACCAGAC CAACCCGCCA GCAAGATCTA GCCTCATCTT

                                ZmUbiInt promoter
                                ~~~~~
5221  TTCTGTTTCA AACTACCTGG TGGATTTATT AATTTTGGAT CTGTATGTGT GTGCCATACA
      AAGACAAAGT TTGATGGACC ACCTAAATAA TTAAAACCTA GACATACACA CACGGTATGT

                                ZmUbiInt promoter
                                ~~~~~
5281  TATTCATAGT TACGAATTGA AGATGATGGA TGGAAATATC GATCTAGGAT AGGTATACAT
      ATAAGTATCA ATGCTTAACT TCTACTACCT ACCTTTATAG CTAGATCCTA TCCATATGTA

                                ZmUbiInt promoter
                                ~~~~~
5341  GTTGATGCGG GTTTTACTGA TGCATATACA GAGATGCTTT TTGTTTCGCTT GGTTGTGATG
      CAACTACGCC CAAAATGACT ACGTATATGT CTCTACGAAA AACAAGCGAA CCAACACTAC

                                ZmUbiInt promoter
                                ~~~~~
5401  ATGTGGTGTG GTTGGGCGGT CGTTCATTCG TTCTAGATCG GAGTAGAATA CTGTTTCAAA
      TACACCACAC CAACCCGCCA GCAAGTAAGC AAGATCTAGC CTCATCTTAT GACAAAGTTT

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

ZmUbiInt promoter

~~~~~

5461 CTACCTGGTG TATTTATTAA TTTTGGAAC TATGTGTGT GTCATACATC TTCATAGTTA  
GATGGACCAC ATAAATAATT AAAACCTTGA CACACACACA CAGTATGTAG AAGTATCAAT

ZmUbiInt promoter

~~~~~

5521 CGAGTTTAAG ATGGATGGAA ATATCGATCT AGGATAGGTA TACATGTTGA TGTGGGTTTT
GCTCAAATTC TACCTACCTT TATAGCTAGA TCCTATCCAT ATGTACAAC ACACCCAAAA

ZmUbiInt promoter

~~~~~

5581 ACTGATGCAT ATACATGATG GCATATGCAG CATCTATTCA TATGCTCTAA CCTTGAGTAC  
TGACTACGTA TATGTACTAC CGTATACGTC GTAGATAAGT ATACGAGATT GGAACATCATG

ZmUbiInt promoter

~~~~~

5641 CTATCTATTA TAATAAACAA GTATGTTTTA TAATTATTTT GATCTTGATA TACTTGGATG
GATAGATAAT ATTATTTGTT CATACAAAAT ATTAATAAAA CTAGAACTAT ATGAACCTAC

ZmUbiInt promoter

~~~~~

5701 ATGGCATATG CAGCAGCTAT ATGTGGATTT TTTTAGCCCT GCCTTCATAC GCTATTTATT  
TACCGTATAC GTCGTCGATA TACACCTAAA AAAATCGGGA CGGAAGTATG CGATAAATAA

ZmUbiInt promoter

~~~~~

5761 TGCTTGGTAC TGTTTCTTTT GTCGATGCTC ACCCTGTTGT TTGGTGTTAC TTCTGCAGGG
ACGAACCATG ACAAAGAAAA CAGCTACGAG TGGGACAACA AACCACAATG AAGACGTCCC

pmi

~~~~~

5821 ATCCCCGATC ATGCAAAAAC TCATTAACCTC AGTGCAAAAAC TATGCCTGGG GCAGCAAAAAC  
TAGGGGCTAG TACGTTTTTTG AGTAATTGAG TCACGTTTTG ATACGGACCC CGTCGTTTTG

*pmi*

~~~~~

5881 GGCGTTGACT GAACTTTATG GTATGGAAAA TCCGTCCAGC CAGCCGATGG CCGAGCTGTG
CCGCAACTGA CTTGAAATAC CATACTTTT AGGCAGGTCG GTCGGCTACC GGCTCGACAC

pmi

~~~~~

5941 GATGGGCGCA CATCCGAAAA GCAGTTCACG AGTGCAGAAT GCCGCCGAG ATATCGTTTC  
CTACCCGCGT GTAGGCTTTT CGTCAAGTGC TCACGTCTTA CGGCGGCCTC TATAGCAAAG

*pmi*

~~~~~

6001 ACTGCGTGAT GTGATTGAGA GTGATAAATC GACTCTGCTC GGAGAGGCCG TTGCCAAACG
TGACGCACTA CACTAACTCT CACTATTTAG CTGAGACGAG CCTCTCCGGC AACGGTTTGC

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

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                                pmi
                                ~~~~~
6061  CTTTGGCGAA CTGCCTTTCC TGTTCAAAGT ATTATGCGCA GCACAGCCAC TCTCCATTCA
      GAAACCGCTT GACGGAAAGG ACAAGTTTCA TAATACGCGT CGTGTCTGGT AGAGGTAAGT

                                pmi
                                ~~~~~
6121  GGTTTCATCCA AACAAACACA ATTCTGAAAT CGGTTTTTGCC AAAGAAAATG CCGCAGGTAT
      CCAAGTAGGT TTGTTTGTGT TAAGACTTTA GCCAAAACGG TTTCTTTTAC GGCGTCCATA

                                pmi
                                ~~~~~
6181  CCCGATGGAT GCCGCCGAGC GTAACTATAA AGATCCTAAC CACAAGCCGG AGCTGGTTTT
      GGGCTACCTA CGGCGGCTCG CATTGATATT TCTAGGATTG GTGTTCGGCC TCGACCAAAA

                                pmi
                                ~~~~~
6241  TGCGCTGACG CCTTTCCTTG CGATGAACGC GTTTCGTGAA TTTTCCGAGA TTGTCTCCCT
      ACGCGACTGC GGAAAGGAAC GCTACTTGCG CAAAGCACTT AAAAGGCTCT AACAGAGGGA

                                pmi
                                ~~~~~
6301  ACTCCAGCCG GTCGCAGGTG CACATCCGGC GATTGCTCAC TTTTACAAC AGCCTGATGC
      TGAGGTCGGC CAGCGTCCAC GTGTAGGCCG CTAACGAGTG AAAAATGTTG TCGGACTACG

                                pmi
                                ~~~~~
6361  CGAACGTTTA AGCGAACTGT TCGCCAGCCT GTTGAATATG CAGGGTGAAG AAAAATCCCG
      GCTTGCAAAT TCGCTTGACA AGCGGTCGGA CAATTATAC GTCCCACTTC TTTTATAGGC

                                pmi
                                ~~~~~
6421  CGCGCTGGCG ATTTTAAAAAT CGGCCCTCGA TAGCCAGCAG GGTGAACCGT GGCAAACGAT
      GCGCGACCGC TAAAATTTTA GCCGGGAGCT ATCGGTCGTC CCACTTGGCA CCGTTTGCTA

                                pmi
                                ~~~~~
6481  TCGTTTAATT TCTGAATTTT ACCCGGAAGA CAGCGGTCTG TTCTCCCCGC TATTGCTGAA
      AGCAAATTAA AGACTTAAAA TGGGCCTTCT GTCGCCAGAC AAGAGGGGCG ATAACGACTT

                                pmi
                                ~~~~~
6541  TGTGGTGAAA TTGAACCCTG GCGAAGCGAT GTTCCTGTTC GCTGAAACAC CGCACGCTTA
      ACACCACTTT AACTTGGGAC CGCTTCGCTA CAAGGACAAG CGACTTTGTG GCGTGCGAAT

                                pmi
                                ~~~~~
6601  CCTGCAAGGC GTGGCGCTGG AAGTGATGGC AAATCCGAT AACGTGCTGC GTGCGGGTCT
      GGACGTTCCG CACCGCGACC TTCCTACCG TTTGAGGCTA TTGCACGACG CACGCCGAGA

```

Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

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                                pmi
~~~~~
6661  GACGCCTAAA TACATTGATA TTCCGGAAC TGGTTGCCAAT GTGAAATTCG AAGCCAAACC
      CTGCGGATTT ATGTAAC TAT AAGGCCTTGA CCAACGGTTA CACTTTAAGC TTCGGTTTGG

                                pmi
~~~~~
6721  GGCTAACCAG TTGTTGACCC AGCCGGTGAA ACAAGGTGCA GAACTGGACT TCCCGATTCC
      CCGATTGGTC AACAACTGGG TCGGCCACTT TGTTCCACGT CTTGACCTGA AGGGCTAAGG

                                pmi
~~~~~
6781  AGTGGATGAT TTTGCCTTCT CGCTGCATGA CTTAGTGAT AAAGAAACCA CCATTAGCCA
      TCACCTACTA AAACGGAAGA GCGACGTACT GGAATCACTA TTTCTTTGGT GGTAATCGGT

                                pmi
~~~~~
6841  GCAGAGTGCC GCCATTTTGT TCTGCGTCGA AGGCGATGCA ACGTTGTGGA AAGTTTCTCA
      CGTCTCACGG CGGTAAAACA AGACGCAGCT TCCGCTACGT TGCAACACCT TTCCAAGAGT

                                pmi
~~~~~
6901  GCAGTTACAG CTTAAACCGG GTGAATCAGC GTTTATTGCC GCCAACGAAT CACCGGTGAC
      CGTCAATGTC GAATTTGGCC CACTTAGTCG CAAATAACGG CGGTTGCTTA GTGGCCACTG

                                pmi
~~~~~
6961  TGTCAAAGGC CACGGCCGTT TAGCGCGTGT TTACAACAAG CTGTAAGAGC TTAAGTAAAA
      ACAGTTTCCG GTGCCGGCAA ATCGCGCACA AATGTTGTTC GACATTCTCG AATGACTTTT

                                NOS terminator
                                ~~~~~
7021  AATTAACATC TCTTGCTAAG CTGGGAGCTC GATCCGTCGA CCTGCAGATC GTTCAAACAT
      TTAATTGTAG AGAACGATTC GACCCTCGAG CTAGGCAGCT GGACGTCTAG CAAGTTTGTG

                                NOS terminator
                                ~~~~~
7081  TTGGCAATAA AGTTTCTTAA GATTGAATCC TGTTGCCGGT CTTGCGATGA TTATCATATA
      AACCGTTATT TCAAAGAATT CTAACCTAGG ACAACGGCCA GAACGCTACT AATAGTATAT

                                NOS terminator
                                ~~~~~
7141  ATTTCTGTTG AATTACGTTA AGCATGTAAT AATTAACATG TAATGCATGA CGTTATTTAT
      TAAAGACAAC TTAATGCAAT TCGTACATTA TTAATTGTAC ATTACGTACT GCAATAAATA

                                NOS terminator
                                ~~~~~
7201  GAGATGGGTT TTTATGATTA GAGTCCCGCA ATTATACATT TAATACGCGA TAGAAAACAA
      CTCTACCCAA AAATACTAAT CTCAGGGCGT TAATATGTAA ATTATGCGCT ATCTTTTGTG

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Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

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                                NOS terminator
                                ~~~~~
7261  AATATAGCGC GCAAAGTAGG ATAAATTATC GCGCGCGGTG TCATCTATGT TACTAGATCT
      TTATATCGCG CGTTTGATCC TATTTAATAG CGCGCGCCAC AGTAGATACA ATGATCTAGA

7321  GCTAGCCCTG CAGGAAATTT ACCGGTGCCC GGGCGGCCAG CATGGCCGTA TCCGCAATGT
      CGATCGGGAC GTCCTTTAAA TGGCCACGGG CCCGCCGGTC GTACCGGCAT AGGCGTTACA

                                3' Flanking Sequence
                                ~~~~~
                                LB
                                ~~~~~
7381  GTTATTAAGT TGTCTAAGCG TCAATTTGTT TACACCACAA TATACCCTCT TCCCTGGGCC
      CAATAATTCA ACAGATTCGC AGTTAAACAA ATGTGGTGTT ATATGGGAGA AGGGACCCGG

                                3' Flanking Sequence
                                ~~~~~
7441  AGGCTGGGCC CACTGGCAAA GGGTGCACCG GACAGTCCGG TGCCCCAAAG CCAGAAACCC
      TCCGACCCGG GTGACCGTTT CCCACGTGGC CTGTCAGGCC ACGGGGTTTC GGTCTTTGGG

                                3' Flanking Sequence
                                ~~~~~
7501  TAGCTTCTGT TTTGTGCTGT TTTTCAATT TGGTTTTTGT TCTAACTTGT GAGTATGTTC
      ATCGAAGACA AAACACGACA AAAAAGTTAA ACCAAAAACA AGATTGAACA CTCATACAAG

                                3' Flanking Sequence
                                ~~~~~
7561  TAGAGTTACA CCTAGCACTA TATGTGAGTG TGAATATGCA CCAACACTAC ACTAGAACTC
      ATCTCAATGT GGATCGTGAT ATACACTCAC ACTTATACGT GGTGTGTATG TGATCTTGAG

                                3' Flanking Sequence
                                ~~~~~
7621  TTTTGGTCAA ACTACTTATC GACAACCCCT CTTTATAGTA CGGCTAAAAC AAAATAAAAG
      AAAACAGTT TGATGAATAG CTGTTGGGGA GAAATATCAT GCCGATTTTG TTTTATTTTC

                                3' Flanking Sequence
                                ~~~~~
7681  ACCTAACTAT ATCACGAGTG TCCGCAACTC CTTGACACTC GGAATACGAA GACCTTCACT
      TGGATTGATA TAGTGCTCAC AGGCGTTGAG GAACTGTGAG CCTTATGCTT CTGGAAGTGA

                                3' Flanking Sequence
                                ~~~~~
7741  TTTTGTTCG TCGCTTTAGC CGTTGCTTCA AGTTTTTATC TCCGGGATTG TTTTCACCAT
      AAAACAAAGC AGCGAAATCG GCAACGAAGT TCAAAAATAG AGGCCCTAAC AAAAGTGGTA

                                3' Flanking Sequence
                                ~~~~~
7801  TGTAAGTACAT CTACCTGTAA TGCGACCTAA CTTACCATTT GCCTCTGCAA AACACATGTT
      ACATCATGTA GATGGACATT ACGCTGGATT GAATGGTAAA CGGAGACGTT TTGTGTACAA

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Figure 5. Sequence of 5307 maize T-DNA and flanking regions (Continued)

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                                3' Flanking Sequence
                                ~~~~~
7861  AGTCACATAT AAAATTACGT TGTCATTAAT CACTAAAACC AACCAGGGGC CTAGATGCTT
      TCAGTGTATA TTTTAATGCA ACAGTAATTA GTGATTTTGG TTGGTCCCCG GATCTACGAA

                                3' Flanking Sequence
                                ~~~~~
7921  TCTAGTTTAA ATCCCAACA AGTCAAAATT CTTTCTATTT TTTTGTGCAA GTTCCAATTG
      AGATCAAATT TAGGGTTGT TCAGTTTAA GAAAGATAAA AAAAAACGTT CAAGGTTAAC

                                3' Flanking Sequence
                                ~~~~~
7981  ACATCTGAAA GGTTGTAAGG TACACGTTTG GCTCTCATTG ATAACGGGGG AAAGATACAG
      TGTAGACTTT CCAACATTCC ATGTGCAAAC CGAGAGTAAC TATTGCCCCC TTTCTATGTC

                                3' Flanking Sequence
                                ~~~~~
8041  TGCAAACCAC CATATAATGA CCCACTTCTA ATCGAATGGA CCTGTAACGA CGAAATACCC
      ACGTTTGGTG GTATATTACT GGGTGAAGAT TAGCTTACCT GGACATTGCT GCTTTATGGG

                                3' Flanking Sequence
                                ~~~~~
8101  TGTGAGAACT ATGGTTCACT CATGTTAATT CATTGAAATT GTTGTAGTGA ATTGACATGG
      AACTCTTGA TACCAAGTGA GTACAATTAA GTAACTTTAA CAACATCACT TAACTGTACC

                                3' Flanking Sequence
                                ~~~~~
8161  TTGGGAGCCT GCTTAGAGAG TATAGATTGT CACTTTTTTT TGGACCGCAA CTTATTTTTA
      AACCTCGGA CGAATCTCTC ATATCTAACA GTGAAAAAAA ACCTGGCGTT GAATAAAAAT

                                3' Flanking Sequence
                                ~~~~~
8221  AAAGATATTG CGATCGCTTG TTTAGTAGCT GTTTCAGGCC CCAATGCAGT TTCTATCGTG
      TTTCTATAAC GCTAGCGAAC AAATCATCGA CAAAGTCCGG GGTTACGTCA AAGATAGCAC

                                3' Flanking Sequence
                                ~~~~~
8281  ATCCATTTAA GTCACCAAC ATTCTCATAC TTCTCATTTT GCATTAATTC ATTCCAATCT
      TAGGTAAATT CAGTGAGTTG TAAGAGTATG AAGAGTAAAA CGTAATTAAG TAAGGTTAGA

                                3' Flanking Sequence
                                ~~~~~
8341  CCACTACTAT AAAATACTAG CTTGATGGT CGTCATACGC CATGCACGAA GCATGTAGAT
      GGTGATGATA TTTTATGATC GAAGCTACCA GCAGTATGCG GTACGTGCTT CGTACATCTA

                                3' Flanking Sequence
                                ~~~~~
8401  CAATCCGCAT ACCAGTGGGC ATCT
      GTTAGGCGTA TGGTCACCCG TAGA

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