Supplemental Table S3 (A: List of primer sets of PCR amplicons used for GA*A*NTRY strain JGT105 production and confirmation. Primers RTAC LB3 F61 and JGT105 5580 R60, outside the region of site-specific recombination, are unique to the JGT105 strain are involved in PCR analysis of new strains after a GA*A*NTRY stacking event. **(B**: Primers used for PCR reactions to validate the 5-stack GA*A*NTRY strain JGT5046 assembly and the molecular characterization of transgenic potato and Arabidopsis events.

A

Primer Name	Source	Primer Sequence (5'-3')	Expected Size (bp)	References
EHA105 TAG LA4 F60	EHA105 Left Arm HR	ccagacgaacgtgaagaataacacag	983	This study
EHA105 TAG LA4 R60		cacctcaccttgacatctacgattctgaagag		
EHA105 TAG RA4 F60	EHA105 Right Arm HR	cacagacacagcaaggtgtccac	1072	This study
EHA105 TAG RA4 R60		cttgcctcgactgcgtagctc		
EHA105 LA1210 F60	Left Arm HR genomic confirmation	gcatcgaagaacttcaaagcctacttgc	1979	This study
NPTIII 1130 R59		gcttatataccttagcaggagacattccttcc		
NPTIII 1700 F60	Right Arm HR genomic confirmation	gatggcaaagtaagtggctttattgatcttgg	1836	This study
EHA105 RA5510 R60		gcaatcatgtcacgctcaagctcg		
RTAC LB3 F61	GAANTRY confirmation LB	ggactgatgggctgcctgtatcg	540	This study
NPTIII 1130 R59		gcttatataccttagcaggagacattccttcc		
NPTIII 1700 F60	GAANTRY confirmation RB	gatggcaaagtaagtggctttattgatcttgg	529	This study
JGT105 5580 R60		gtggacaccttgctgtgtctgtg		

B

Primer Name	Source	Primer Sequence (5'-3')	Expected Size (bp)	References
TO307	LB-Ubi7p	gcctgtatcgagtggtga	508	This study
TO314		gtcagtcgacttcactct		
HY2390	Ubi7p-mStALS	tctaccctccatttggtgct	279	This study
HD198		acgggaaacgaatgtttcag		
TO206	mStALS-Ubi3T	caatgaggttgcctggtt	1331	This study
TO279		aatcaacaatcccgaggg		
TO147	Ubi3T-GUS	atcaagtctgtgggatcg	1095	This study
HY2853		aatatctgcatcggcgaact		
TO541	GUS-db35Sp	gcagggaggcaaacaatg	1399	This study
TO028		atagtgggattgtgcgtc		
TO318	NosT-Ubi7p	gtcccgcaattatacattta	530	This study
TO314		gtcagtcgacttcactct		
TO221	Ubi7p-GA20ox1	atgaagctttctgcacctc	683	This study
TO555		caatcaatagccattattgggatcc		
TO540	GA20ox1-AtUbi10p	catacaatcaatagccattattgaagc	782	This study
TO553		cactgcattgaagcgtatttc		
TO554	KanR-GentR	ccttcttgacgagttcttctg	719	This study
TO515		cgaacaggcttatgtcaac		
TO516	GentR-RB	gtgatctacgtgcaagcag	326	This study
TO514		gacaccttgctgtgtctg		

Supplemental Table S4. Primers and probes used in ddPCR analysis of potato and Arabidopsis

Name	Source	Primer Sequence 5' to 3'	Annealing Temp. (°C)	Amplicon size (base pairs)
TO588	mStALS	AGGCTAAGATCCAGGATAAG	57	196
TO639		GTTTTGGAGAAACATGGAGA		
TO414 (FAM)		ACGTAGACGGAGCACCAAA		
JT549	GFP	GAACCGCATCGAGCTGAA	57	111
JT460		TGCTTGTCGGCCATGATATAG		
JT461 (FAM)		ATCGACTTCAAGGAGGACGGCAAC		
AB099	NPTII	CCGGCTACCTGCCCATTC	58	79
AB100		CGACAAGACCGGCTTCCAT		
AB101 (FAM)		AACATCGCATCGAGCGAGCACGT		
HD725F	GUS	GACAGCCCACTCACTAAT	61	142
HD725R		TTCTACAGGACGGACCAT		
HD725p (FAM)		ACGCAGTGACGACCACAAA		
HD726F	GA20-ox	TACGTTCTTTGACTTGCC	61	265
HD726R		CCTTTTCCATCAAACCAAC		
HD726p (FAM)		CCTCTGAGCCTTTTGCTTTTCC		
TO433	StINV-2	CTCCCATTACACATTCCTCCC	64	128
TO447		GGTTGTTGAGGATCGGAAAG		
TO435 (HEX)		TCTCCGGCATTTTCCTCTCCTCT		
AtAAP1_F_Int	AtAAP1	GATGTAGTTGGTTTGGTGTTTAAAC	67	149
AtAAP1_R_Ex3		AATTTGGGATCTGGCTAAGAATAAC		
AAP1 (HEX)		TGCCAAAAACCGCCATATACGG		

Supplemental Table S5. Primers and probes used in qPCR analysis of potato

Name	Source	Primer Sequence 5' to 3'	Annealing Temp. (°C)	Amplicon size (base pairs)
AB046	BackBone-Left Border	CAGCTTAGTTGCCGTTC	55	72
AB047		GGGAGAGCCGTTGTAA		
AB045 probe		TTGCTCATGTTACCGATGCTATTC		
AB049	BackBone-Right Border	GAAAAAGCCTGAACTCACCG	60	138
HD0693		CATATCCACGCCCTCCTAC		
AB048 probe		AAGCACGAGATTCTTCGCCC		
AB024	VSP	TGTTTGTGATGGCTACCC	60	87
AB027		CGAAGTACCATCCGTTATAGC		
AB033 probe		CAATCAGTTCGGCGACTTTGTCC		