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Supplemental Material to:

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Changes in nucleosome position at transcriptional start sites of specific genes in Zea mays mediator of paramutation1 mutants

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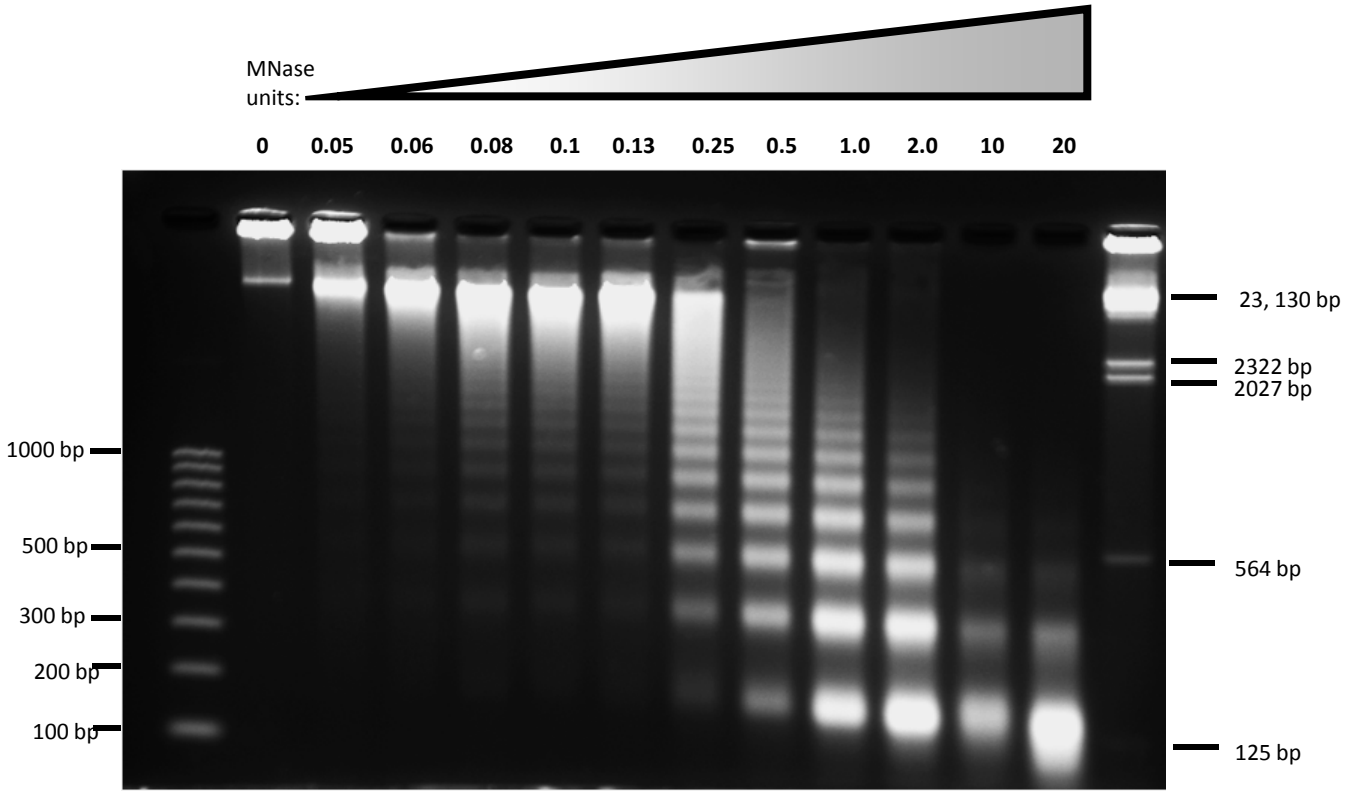

Figure S1: Agarose gel fractionation of micrococcal nuclease (MNase)-digested DNA from B73 ear shoot. The number of units of MNase per reaction increases from 0 to 20 units. The number of units used to digest the DNA in each lane is indicated at the top of the lane. The size of the molecular weight markers, loaded in the outermost lanes of the gel, is indicated in base pairs.

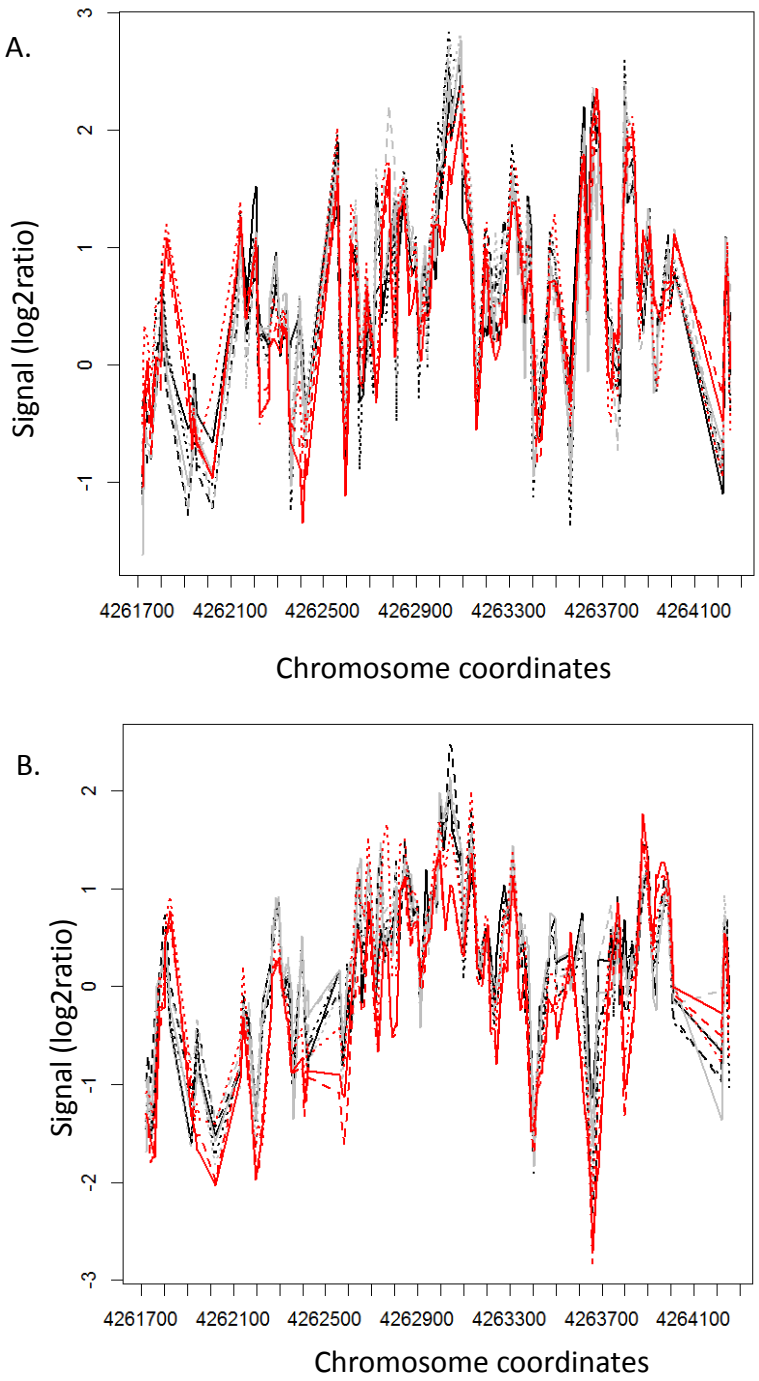

Figure S2. Nucleosome distribution across the TSS region of *liguleless1* in wild type (A) and mutant (B) individuals. Each line represents a separate biological replicate. The x-axis shows the coordinates along chromosome 2, and the y-axis represents the log 2 ratio of the signal intensity between the test (nucleosomal DNA) and reference (genomic DNA) samples. Red lines indicate ear shoot samples, grey lines represent immature tassel samples, and black lines represent leaf samples. The predicted transcriptional start site for this gene is at position 4,263,201.

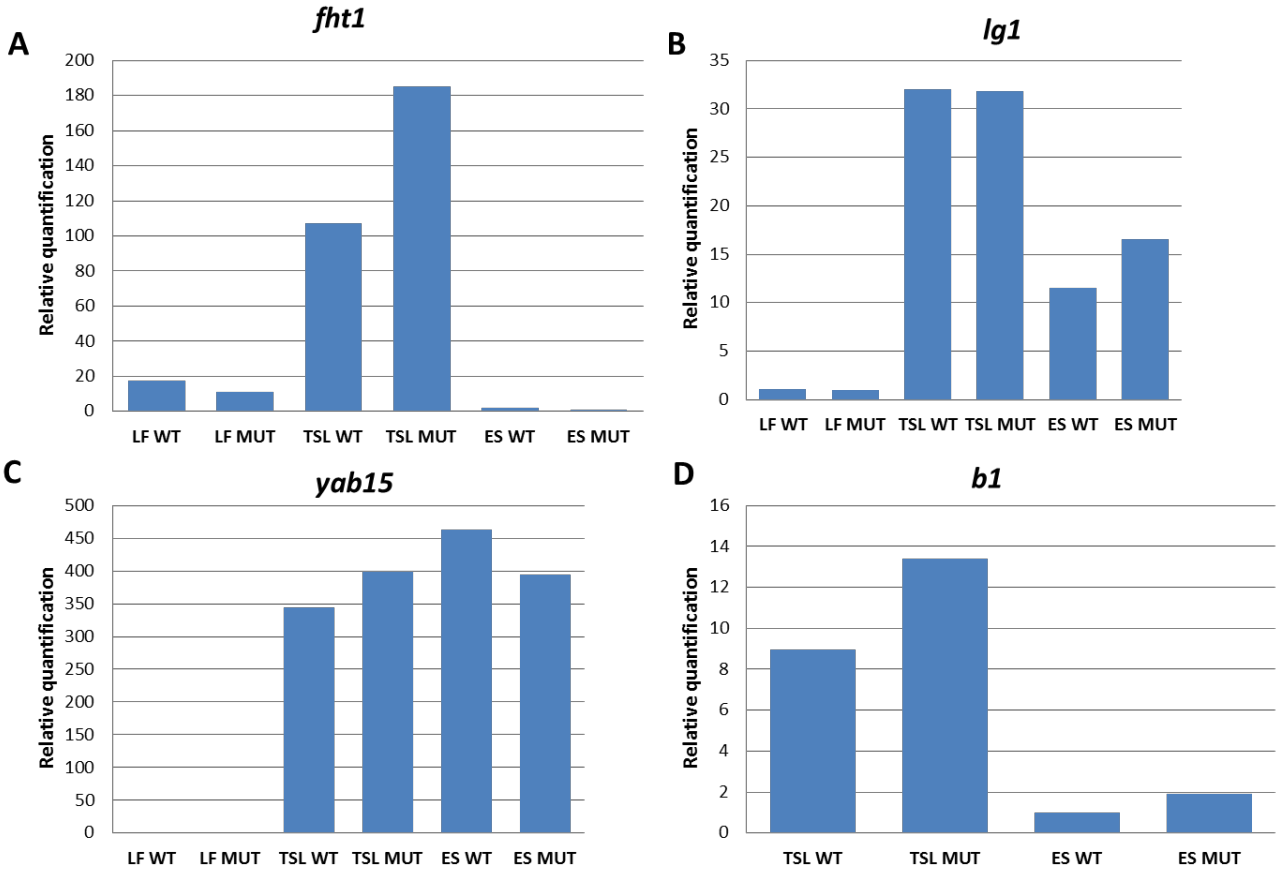

Figure S3. Real time PCR results for wild-type (WT) and mutant *mop1-1* (MUT) for *flavanone 3-hydroxylase1* (A) *liguleless1* (B) *yabby15* (C), and *colored plant1* (D). Transcript abundance was measured in leaf , tassel and earshoot of mutant (MUT) and wild type (WT) plants. Average relative quantification (Rq) is plotted on the y-axis, with each bar representing the average of three biological replicates (wild type ear shoot expression of *b1* set as a value of 1).

Gene Symbol	Gene Name	GenBank ID	B73 refgen2 Gene Model	TSS (B73 RefGen2)	Zm Chr#	START	STOP	PROBE REGION (refgenv2)	Strand
tub1	beta tubulin1	X52878	GRMZM2G164696	2038186	chr1	2036686	2039685	chr1:2036686-2039685	1
cat2	catalase2	X54819	GRMZM2G090568	7162590	chr1	7161090	7164089	chr1:7161090-7164089	-1
lls1	lethal leaf spot1	U77345	GRMZM2G339563	10092334	chr1	10090834	10093833	chr1:10090834-10093833	1
rtcs1	rootless concerning crown and seminal roots1	EF051732	GRMZM2G092542	10827541	chr1	10826041	10829040	chr1:10826041-10829040	-1
ms26	male sterile26	AF366297	GRMZM2G091822	14508661	chr1	14507161	14510160	chr1:14507161-14510160	-1
vp5	viviparous5	AF039585	GRMZM2G410515	17660941	chr1	17659441	17662440	chr1:17659441-17662440	1
lpa1	low phytic acid1	AF323175	GRMZM2G155242	25284139	chr1	25282639	25285638	chr1:25282639-25285638	1
gln6	glutamine synthetase6	X65926	GRMZM2G050514	27981439	chr1	27979939	27982938	chr1:27979939-27982938	-1
ibp2	initiator-binding protein2	X79086	GRMZM2G110309	40352197	chr1	40350697	40353696	chr1:40350697-40353696	1
pdc3	pyruvate decarboxylase3	D14457	GRMZM2G087186	45515978	chr1	45514478	45517477	chr1:45514478-45517477	-1
ts2	tassel seed2	L20621	GRMZM2G455809	46678942	chr1	46677442	46680441	chr1:46677442-46680441	1
dek1	defective kernel1	AY061806	GRMZM2G321753	47291535	chr1	47290035	47293034	chr1:47290035-47293034	1
rth3	roothair defective3	AY265855	GRMZM2G377215	47504495	chr1	47502995	47505994	chr1:47502995-47505994	1
p1	pericarp color1	AY702552	GRMZM2G057027	48097446	chr1	48095946	48098945	chr1:48095946-48098945	-1
p2	pericarp color2	AF210617	GRMZM2G084799	48117497	chr1	48115997	48118996	chr1:48115997-48118996	1
phyB1	phytochromeB1	DQ307579	GRMZM2G124532	50025637	chr1	50024137	50027136	chr1:50024137-50027136	1
cal3	calmodulin3	X77396	GRMZM2G152891	52095395	chr1	52093895	52096894	chr1:52093895-52096894	1
pki1	protein kinase inhibitor1	Z29643	GRMZM2G018728	52810251	chr1	52808751	52811750	chr1:52808751-52811750	-1
les22	lesion22	AF058763	GRMZM2G044074	56558248	chr1	56556748	56559747	chr1:56556748-	1

								56559747	
sod4	superoxide dismutase4	X17565	GRMZM2G169890	60145100	chr1	60143600	60146599	chr1:60143600-60146599	1
ocl4	outer cell layer4	AJ250986	GRMZM2G123140	100909663	chr1	100908163	100911162	chr1:100908163-100911162	-1
lpa2	low phytic acid2	AY172635	GRMZM2G456626	101832342	chr1	101830842	101833841	chr1:101830842-101833841	-1
rs2	rough sheath2	AF143447	GRMZM2G403620	154957201	chr1	154955701	154958700	chr1:154955701-154958700	-1
bsd2	bundle sheath defective2	AF126742	GRMZM2G062788	158313837	chr1	158312337	158315336	chr1:158312337-158315336	1
bif2	barren inflorescence2	EF532402	GRMZM2G171822	173846756	chr1	173845256	173848255	chr1:173845256-173848255	1
igl1	indole-3-glycerol phosphate lyase1	U82201	GRMZM2G402631	178008996	chr1	178007496	178010495	chr1:178007496-178010495	-1
zmm6	Zea mays MADS6	AJ430692	GRMZM2G159397	194013508	chr1	194012008	194015007	chr1:194012008-194015007	1
sdh1	sorbitol dehydrogenase homolog1	DQ191049	GRMZM2G175423	197267922	chr1	197266422	197269421	chr1:197266422-197269421	1
hm1	Helminthosporium carbonum susceptibility1	L02540	GRMZM5G881887	199754467	chr1	199752967	199755966	chr1:199752967-199755966	1
kan1	KANADI1	EU935003	GRMZM2G056400	215611664	chr1	215610164	215613163	chr1:215610164-215613163	-1
	Permease		GRMZM2G115635	219063550	chr1	219062050	219065049	chr1:219062050-219065049	1
crs1	chloroplast RNA splicing1	AY109620	GRMZM2G078412	220991421	chr1	220989921	220992920	chr1:220989921-220992920	-1
yab10	yabby homolog10	AY313904	GRMZM2G167824	225032510	chr1	225031010	225034009	chr1:225031010-225034009	1
mdh5	malate dehydrogenase5	T18819	GRMZM2G415359	231341950	chr1	231340450	231343449	chr1:231340450-231343449	-1
mdh4	malate dehydrogenase4	AA051891	GRMZM2G415359	231341950	chr1	231340450	231343449	chr1:231340450-231343449	-1
id1	indeterminate growth1	AF058757	GRMZM2G011357	239612267	chr1	239610767	239613766	chr1:239610767-239613766	-1
an1	anther ear1	L37750	GRMZM2G081554	241218603	chr1	241217103	241220102	chr1:241217103-241220102	1
bz2	bronze2	U14599	GRMZM2G016241	241373004	chr1	241371504	241374503	chr1:241371504-241374503	-1
cyp8	cytochrome P-450 8	L23209	GRMZM2G167986	243649093	chr1	243647593	243650592	chr1:243647593-243650592	1

cdj2	chaperone DNA J2	AF053468	GRMZM2G364069	250095992	chr1	250094492	250097491	chr1:250094492-250097491	-1
vp14	viviparous14	U95953	GRMZM2G014392	250895242	chr1	250893742	250896741	chr1:250893742-250896741	-1
rth1	roothair defective1	AY265854	GRMZM2G099056	253893686	chr1	253892186	253895185	chr1:253892186-253895185	1
kip1	knotted interacting protein1	AY082396	GRMZM2G163761	256513586	chr1	256512086	256515085	chr1:256512086-256515085	1
glb1	globulin1	U28017	GRMZM2G067919	258363419	chr1	258361919	258364918	chr1:258361919-258364918	1
tub3	beta tubulin3	X74654	GRMZM2G108766	258555202	chr1	258553702	258556701	chr1:258553702-258556701	-1
lox3	lipoxygenase3	AF465643	GRMZM2G109130	264200949	chr1	264199449	264202448	chr1:264199449-264202448	1
tb1	teosinte branched1	U94494	AC233950.1_FG002	265745979	chr1	265744479	265747478	chr1:265744479-265747478	1
d8	dwarf plant8	AY103865	GRMZM2G144744	266094769	chr1	266093269	266096268	chr1:266093269-266096268	1
gln2	glutamine synthetase2	X65927	GRMZM2G024104	267897525	chr1	267896025	267899024	chr1:267896025-267899024	-1
phyA1	phytochromeA1	AY234826	GRMZM2G157727	269329351	chr1	269327851	269330850	chr1:269327851-269330850	-1
kn1	knotted1	X61308	GRMZM2G017087	271348525	chr1	271347025	271350024	chr1:271347025-271350024	-1
knox3	knotted related homeobox3	DQ056238	GRMZM2G000743	271628373	chr1	271626873	271629872	chr1:271626873-271629872	-1
emp4	empty pericarp4	DQ291135	GRMZM2G092198	272034519	chr1	272033019	272036018	chr1:272033019-272036018	1
adh1	alcohol dehydrogenase1	M32984	GRMZM2G442658	273986641	chr1	273985141	273988140	chr1:273985141-273988140	-1
tlk1	tousled-like protein kinase1	AY644701	GRMZM2G016671	276362808	chr1	276361308	276364307	chr1:276361308-276364307	-1
phyC1	phytochromeC1	AY234829	GRMZM2G057935	276997822	chr1	276996322	276999321	chr1:276996322-276999321	-1
zmm24	Zea mays MADS24	AJ430638	GRMZM2G087095	277348765	chr1	277347265	277350264	chr1:277347265-277350264	-1
lem1	lethal embryo mutant1	AF332374	AC234157.1_FG002	281109091	chr1	281107591	281110590	chr1:281107591-281110590	-1
vp8	viviparous8	EU401893	GRMZM2G010353	286319225	chr1	286317725	286320724	chr1:286317725-286320724	1
glb2	globulin2	X53715	GRMZM2G026703	287065014	chr1	287063514	287066513	chr1:287063514-287066513	-1
gdh1	glutamic	AY106054	GRMZM2G178415	287296815	chr1	287295315	287298314	chr1:287295315-	-1

	dehydrogenase1							287298314	
ohp1	opaque2 heterodimerizing protein1	L00623	GRMZM2G016150	288212296	chr1	288210796	288213795	chr1:288210796-288213795	-1
ts6	tasselseed6	AF048900	GRMZM5G862109	292889740	chr1	292888240	292891239	chr1:292888240-292891239	1
chi1	chalcone flavanone isomerase1	Z22760	GRMZM2G155329	293042705	chr1	293041205	293044204	chr1:293041205-293044204	-1
fdx3	ferredoxin3	AB001387	GRMZM2G053458	296017136	chr1	296015636	296018635	chr1:296015636-296018635	1
rp1	resistance to Puccinia sorghi1	AF107293	AC152495.1_FG002	3284464	chr10	3282964	3285963	chr10:3282964-3285963	-1
plt1	phospholipid transfer protein homolog1	J04176	GRMZM2G101958	4166593	chr10	4165093	4168092	chr10:4165093-4168092	-1
cr4	crinkly4	U67422	GRMZM2G051637	5587952	chr10	5586452	5589451	chr10:5586452-5589451	1
oy1	oil yellow1	DQ084025	GRMZM2G419806	9225379	chr10	9223879	9226878	chr10:9223879-9226878	-1
abp4	auxin binding protein homolog4	L08426	GRMZM2G064371	26665955	chr10	26664455	26667454	chr10:26664455-26667454	-1
glu1	beta glucosidase1	U33816	GRMZM2G016890	34232717	chr10	34231217	34234216	chr10:34231217-34234216	1
cip1	cytokinin inducible protease1	T14785	GRMZM2G009443	35583589	chr10	35582089	35585088	chr10:35582089-35585088	1
glu2	beta-glucosidase2	U44087	GRMZM2G008247	37754967	chr10	37753467	37756466	chr10:37753467-37756466	1
du1	dull endosperm1	AF023159	GRMZM2G141399	59506710	chr10	59505210	59508209	chr10:59505210-59508209	1
rel2	ramosa1 enhancer locus2		GRMZM2G042992	76645749	chr10	76644249	76647248	chr10:76644249-76647248	-1
ane3	androgenic embryo3	AJ307880	GRMZM2G372553	80739035	chr10	80737535	80740534	chr10:80737535-80740534	1
fie2	fertilization independent endosperm2	AY061965	GRMZM2G148924	84097287	chr10	84095787	84098786	chr10:84095787-84098786	-1
orp2	orange pericarp2	M76685	GRMZM2G005024	84236564	chr10	84235064	84238063	chr10:84235064-84238063	-1
nac1	NaCl stress protein1	T14760	GRMZM2G015605	87270963	chr10	87269463	87272462	chr10:87269463-87272462	-1
dcd1	discordia1	FJ469780	GRMZM2G083459	90762153	chr10	90760653	90763652	chr10:90760653-90763652	1

mgs1	male-gametophyte specific1	S44171	GRMZM2G317406	111843643	chr10	111842143	111845142	chr10:111842143-111845142	-1
incw3	invertase cell wall3	AF043346	GRMZM2G123633	114288173	chr10	114286673	114289672	chr10:114286673-114289672	1
	Polyadenylate-binding protein 2		GRMZM2G013619	128868237	chr10	128866737	128869736	chr10:128866737-128869736	-1
yab14	yabby14	AY313901	GRMZM2G005353	133111834	chr10	133110334	133113333	chr10:133110334-133113333	-1
	Histone H4		GRMZM2G149178	134806076	chr10	134804576	134807575	chr10:134804576-134807575	-1
ocl2	outer cell layer2	AJ250984	AC235534.1_FG007	136932960	chr10	136931460	136934459	chr10:136931460-136934459	1
hopi1	hopi r1/b1 family member1	AJ251719	GRMZM5G822829	138462252	chr10	138460752	138463751	chr10:138460752-138463751	1
r1	colored1, seed color component at R1	X15806	GRMZM5G822829	138462252	chr10	138460752	138463751	chr10:138460752-138463751	1
sn1	scutellar node color1	X60706	GRMZM5G822829	138462252	chr10	138460752	138463751	chr10:138460752-138463751	1
lc1	red leaf color1	M26227	GRMZM5G822829	138462252	chr10	138460752	138463751	chr10:138460752-138463751	1
zfl1	zea floricaula/leafy1	AY179882	GRMZM2G098813	140851443	chr10	140849943	140852942	chr10:140849943-140852942	1
rps11	ribosomal protein S11	X55967	GRMZM2G019325	142067983	chr10	142066483	142069482	chr10:142066483-142069482	1
	LIGULELESS1		GRMZM2G058588	146295099	chr10	146293599	146296598	chr10:146293599-146296598	-1
gln1	glutamine synthetase1	X65931	GRMZM2G098290	146471079	chr10	146469579	146472578	chr10:146469579-146472578	-1
vp10	viviparous10	DQ231522	GRMZM2G067176	146668953	chr10	146667453	146670452	chr10:146667453-146670452	1
crr2	cytokinin response regulator2	AB031012	GRMZM2G392101	147844785	chr10	147843285	147846284	chr10:147843285-147846284	1
fht1	flavanone 3-hydroxylase1	U04434	GRMZM2G062396	3556786	chr2	3555286	3558285	chr2:3555286-3558285	1
lg1	liguleless1	AF451895	GRMZM2G036297	4263201	chr2	4261701	4264700	chr2:4261701-4264700	-1
gl2	glossy2	X88779	GRMZM2G098239	10627540	chr2	10626040	10629039	chr2:10626040-10629039	-1
	WRKY68-superfamily TF		GRMZM2G071907	11755126	chr2	11753626	11756625	chr2:11753626-11756625	-1
zfl2	Zea floricaula	AY179881	GRMZM2G180190	12644804	chr2	12643304	12646303	chr2:12643304-	-1

	leafy2							12646303	
b1	colored plant1	X70791	GRMZM2G172795	18417370	chr2	18415870	18418869	chr2:18415870-18418869	1
ole1	oleosin1	U13701	GRMZM2G337229	20765568	chr2	20764068	20767067	chr2:20764068-20767067	1
ivr1	invertase1	U16123	GRMZM2G394450	22885337	chr2	22883837	22886836	chr2:22883837-22886836	-1
abph1	aberrant phyllotaxy1	AB042260	GRMZM2G035688	27483514	chr2	27482014	27485013	chr2:27482014-27485013	-1
sam2	S-adenosyl methionine decarboxylase2	W99255	GRMZM2G154397	32495438	chr2	32493938	32496937	chr2:32493938-32496937	-1
mop1	mediator of paramutation1	DQ417755	GRMZM2G042443	40508183	chr2	40506683	40509682	chr2:40506683-40509682	-1
prp2	pathogenesis-related protein2	T18697	GRMZM2G102356	40589174	chr2	40587674	40590673	chr2:40587674-40590673	-1
grf1	general regulatory factor1	AY110485	GRMZM2G102499	41306124	chr2	41304624	41307623	chr2:41304624-41307623	-1
gpa1	glyceraldehyde-3-phosphate dehydrogenase1	X07157	GRMZM2G337113	42259297	chr2	42257797	42260796	chr2:42257797-42260796	-1
ts1	tassel seed1	FJ360855	GRMZM2G104843	45196460	chr2	45194960	45197959	chr2:45194960-45197959	-1
hrg1	hydroxyproline rich glycoprotein1	X63134	GRMZM2G168651	54764823	chr2	54763323	54766322	chr2:54763323-54766322	-1
mn1	miniature seed1	AF050631	GRMZM2G119689	56806976	chr2	56805476	56808475	chr2:56805476-56808475	1
sbe3	starch branching enzyme3	U65948	GRMZM2G073054	58586007	chr2	58584507	58587506	chr2:58584507-58587506	1
hcf106	high chlorophyll fluorescence106	AF027808	GRMZM5G898735	65182701	chr2	65181201	65184200	chr2:65181201-65184200	1
acc1	acetyl-coenzyme A carboxylase1	Z24449	GRMZM5G858094	82394515	chr2	82393015	82396014	chr2:82393015-82396014	1
ns1	narrow sheath1	AJ536578	GRMZM2G069028	142532298	chr2	142530798	142533797	chr2:142530798-142533797	1
ssu2	ribulose bisphosphate carboxylase small subunit2	Y09214	GRMZM2G113033	142794871	chr2	142793371	142796370	chr2:142793371-142796370	1
	40s ribosomal protein S16		GRMZM2G377797	149785316	chr2	149783816	149786815	chr2:149783816-149786815	1
emp2	empty pericarp 2	AF494285	GRMZM2G039155	177651736	chr2	177650236	177653235	chr2:177650236-	-1

								177653235	
	DNA repair protein RAD23 (Putative uncharacterized protein)		GRMZM2G105772	179742429	chr2	179740929	179743928	chr2:179740929-179743928	1
	Histone H4		GRMZM2G332838	183295915	chr2	183294415	183297414	chr2:183294415-183297414	1
amya3	alpha amylase3	L25805	GRMZM2G138468	186265525	chr2	186264025	186267024	chr2:186264025-186267024	1
dof2	DNA binding with one finger2	X79934	GRMZM2G009406	188527888	chr2	188526388	188529387	chr2:188526388-188529387	-1
zmm7	Zea mays MADS7	Y09302	GRMZM2G129034	192226954	chr2	192225454	192228453	chr2:192225454-192228453	1
tua5	alpha tubulin5	X63177	GRMZM2G099167	206628370	chr2	206626870	206629869	chr2:206626870-206629869	1
eif5a	elongation initiation factor5A	H35879	GRMZM2G113696	209292956	chr2	209291456	209294455	chr2:209291456-209294455	-1
	F-box protein		GRMZM2G125004	211511920	chr2	211510420	211513419	chr2:211510420-211513419	1
	Gibberellin receptor GID1L2		GRMZM2G062019	219157215	chr2	219155715	219158714	chr2:219155715-219158714	-1
whp1	white pollen1	X60204	GRMZM2G151227	223892691	chr2	223891191	223894190	chr2:223891191-223894190	-1
rrb1	related to retinoblastoma1	AF007793	GRMZM2G003043	223982849	chr2	223981349	223984348	chr2:223981349-223984348	-1
pex1	pollen extensin-like1	Z34465	GRMZM5G841015	230388858	chr2	230387358	230390357	chr2:230387358-230390357	-1
gn1	gnarley1	AY312168	GRMZM2G452178	236473321	chr2	236471821	236474820	chr2:236471821-236474820	1
g2	golden plant2	AF298118	GRMZM2G087804	1464399	chr3	1462899	1465898	chr3:1462899-1465898	1
me3	NADP malic enzyme3	J05130	GRMZM2G085019	7275169	chr3	7273669	7276668	chr3:7273669-7276668	1
hsp18f	heat shock protein18f	X54076	GRMZM2G083810	8885815	chr3	8884315	8887314	chr3:8884315-8887314	-1
ra2	ramosa2	BT035538	AC233943.1_FG002	12882491	chr3	12880991	12883990	chr3:12880991-12883990	1
Smh5	Single Myb Histone5	AY280630	GRMZM2G163291	14473799	chr3	14472299	14475298	chr3:14472299-14475298	-1
	60S ribosomal protein L26-1		GRMZM2G327564	19670484	chr3	19668984	19671983	chr3:19668984-19671983	-1
ocl1	outer cell layer1	Y17898	GRMZM2G026643	27551288	chr3	27549788	27552787	chr3:27549788-27552787	1

cal2	calmodulin2	X77397	GRMZM2G067511	38428236	chr3	38426736	38429735	chr3:38426736-38429735	1
sun2	sad1-unc84-like 2 CCSD type	BT055722	GRMZM2G440614	38600151	chr3	38598651	38601650	chr3:38598651-38601650	1
lg3	liguleless3	AF100455	GRMZM2G087741	53881358	chr3	53879858	53882857	chr3:53879858-53882857	1
sar1	SAR homolog1	T14655	GRMZM2G038356	63528278	chr3	63526778	63529777	chr3:63526778-63529777	1
spi1	sparse inflorescence1	EU910940	GRMZM2G025222	69966731	chr3	69965231	69968230	chr3:69965231-69968230	-1
uce1	ubiquitin conjugating enzyme1	T18767	GRMZM2G018447	93205169	chr3	93203669	93206668	chr3:93203669-93206668	-1
hsp70-4	heat shock protein70-4	X78414	GRMZM2G340251	126465045	chr3	126463545	126466544	chr3:126463545-126466544	-1
betl3	basal endosperm transfer layer3	AJ133530	GRMZM2G175976	132255638	chr3	132254138	132257137	chr3:132254138-132257137	1
	Histone H3		GRMZM2G475899	132269513	chr3	132268013	132271012	chr3:132268013-132271012	-1
abp1	auxin binding protein1	L08425	GRMZM2G116204	133888888	chr3	133887388	133890387	chr3:133887388-133890387	1
zag2	Zea AGAMOUS homolog2	L18925	GRMZM2G160687	137233198	chr3	137231698	137234697	chr3:137231698-137234697	-1
ts4	tassel seed4	GQ905588	GRMZM5G803935	144884032	chr3	144882532	144885531	chr3:144882532-144885531	1
pgd2	6-phosphogluconate dehydrogenase2	AF061837	GRMZM2G145715	153929056	chr3	153927556	153930555	chr3:153927556-153930555	-1
gst4	glutathione S-transferase4	W49853	GRMZM2G146246	154975444	chr3	154973944	154976943	chr3:154973944-154976943	-1
myb2	myb2	AF458962	AC203535.4_FG001	157508995	chr3	157507495	157510494	chr3:157507495-157510494	1
vp1	viviparous1	M60214	GRMZM2G133398	162799871	chr3	162798371	162801370	chr3:162798371-162801370	1
te1	terminal ear1	AF047852	GRMZM2G085113	165178071	chr3	165176571	165179570	chr3:165176571-165179570	-1
ald1	aldolase1	X12872	GRMZM2G057823	165722970	chr3	165721470	165724469	chr3:165721470-165724469	1
im30p1	IM30 protein homolog1	T12745	GRMZM2G017077	168373431	chr3	168371931	168374930	chr3:168371931-168374930	-1
lox1	lipoxygenase1	DQ335760	GRMZM2G156861	168835321	chr3	168833821	168836820	chr3:168833821-168836820	1
ig1	indeterminate	EF081454	GRMZM2G118250	169220962	chr3	169219462	169222461	chr3:169219462-	-1

	gametophyte1							169222461	
	Histone H3		GRMZM2G078314	175869457	chr3	175867957	175870956	chr3:175867957-175870956	-1
lg2	liguleless2	AY180106	GRMZM2G060216	176800215	chr3	176798715	176801714	chr3:176798715-176801714	1
taf1	transcription associated factor1	T12672	GRMZM2G002276	179784326	chr3	179782826	179785825	chr3:179782826-179785825	1
	40S ribosomal protein S23 (Putative uncharacterized protein)		GRMZM2G084465	182279648	chr3	182278148	182281147	chr3:182278148-182281147	1
ba1	barren stalk1	AY753892	GRMZM2G397518	183084299	chr3	183082799	183085798	chr3:183082799-183085798	1
expa1	alpha expansin1	AY104146	GRMZM2G339122	184365593	chr3	184364093	184367092	chr3:184364093-184367092	-1
rnc1	ribonuclease III domain protein1	EU971053	GRMZM2G035820	187172511	chr3	187171011	187174010	chr3:187171011-187174010	1
tub6	beta tubulin6	L10633	GRMZM2G071790	187444892	chr3	187443392	187446391	chr3:187443392-187446391	-1
psei1	cystatin1	AM055630	GRMZM2G438551	187720118	chr3	187718618	187721617	chr3:187718618-187721617	-1
pk4	protein kinase4	AF141378	GRMZM2G014833	195508248	chr3	195506748	195509747	chr3:195506748-195509747	1
Smh4	Single Myb Histone4	AY280631	GRMZM2G108424	204366143	chr3	204364643	204367642	chr3:204364643-204367642	-1
a1	anthocyaninless1	X05068	GRMZM2G026930	216306568	chr3	216305068	216308067	chr3:216305068-216308067	-1
sh2	shrunken2	M81603	GRMZM2G429899	216424048	chr3	216422548	216425547	chr3:216422548-216425547	-1
	Ribosomal protein L19		GRMZM2G116135	220506759	chr3	220505259	220508258	chr3:220505259-220508258	1
Smh2	Single Myb Histone2		GRMZM2G087817	221578994	chr3	221577494	221580493	chr3:221577494-221580493	1
et1	etched1	AJ507104	GRMZM2G157574	223740961	chr3	223739461	223742460	chr3:223739461-223742460	-1
phot1	blue-light receptor phototropin 1	AF033263	GRMZM2G001457	229132796	chr3	229131296	229134295	chr3:229131296-229134295	1
	40s ribosomal protein S16		GRMZM2G353103	230441023	chr3	230439523	230442522	chr3:230439523-230442522	1
	Nucleic acid binding protein		GRMZM2G044004	230523607	chr3	230522107	230525106	chr3:230522107-230525106	1

plt2	phospholipid transfer protein homolog2	U66105	GRMZM2G010868	230608235	chr3	230606735	230609734	chr3:230606735-230609734	-1
cyp1	cytochrome P450 homolog1	T12664	GRMZM5G899349	232072064	chr3	232070564	232073563	chr3:232070564-232073563	1
bx5	benzoxazinone synthesis5	X81830	GRMZM2G063756	3108397	chr4	3106897	3109896	chr4:3106897-3109896	1
bx1	benzoxazinless1	X76713	GRMZM2G085381	3256291	chr4	3254791	3257790	chr4:3254791-3257790	1
zpl2b	zein polypeptidesL2b	AF371270	GRMZM2G404459	5516523	chr4	5515023	5518022	chr4:5515023-5518022	1
rtp1	Zea root preferential4	L14063	GRMZM2G017557	11917798	chr4	11916298	11919297	chr4:11916298-11919297	-1
adh2	alcohol dehydrogenase2	X02915	GRMZM2G098346	13398777	chr4	13397277	13400276	chr4:13397277-13400276	-1
pdi1	protein disulfide isomerase1	AY739284	GRMZM2G091481	14859167	chr4	14857667	14860666	chr4:14857667-14860666	-1
fl2	floury2	L34340	GRMZM2G397687	21313379	chr4	21311879	21314878	chr4:21311879-21314878	-1
ocl5a	outer cell layer5a	AJ250987	GRMZM2G130442	28986080	chr4	28984580	28987579	chr4:28984580-28987579	-1
zp1	zein alpha protein1	X58700	GRMZM2G008913	29933783	chr4	29932283	29935282	chr4:29932283-29935282	1
bm3	brown midrib3	M73235	AC196475.3_FG004	32251536	chr4	32250036	32253035	chr4:32250036-32253035	-1
bap2	basal layer antifungal protein2	AJ133529	GRMZM2G152655	34264143	chr4	34262643	34265642	chr4:34262643-34265642	1
fie1	fertilization independent endosperm1	AY061964	GRMZM2G118205	35763186	chr4	35761686	35764685	chr4:35761686-35764685	-1
orp1	orange pericarp1	M76684	GRMZM2G169593	35920931	chr4	35919431	35922430	chr4:35919431-35922430	-1
gpc1	glyceraldehyde-3-phosphate dehydrogenase1	X15596	GRMZM2G046804	36884475	chr4	36882975	36885974	chr4:36882975-36885974	-1
su1	sugary1	U18908	GRMZM2G138060	41369510	chr4	41368010	41371009	chr4:41368010-41371009	1
rpl17	ribosomal protein L17	AF034948	GRMZM2G702426	44064386	chr4	44062886	44065885	chr4:44062886-44065885	-1
tga1	teosinte glume architecture1	AY883559	GRMZM2G101511	44509046	chr4	44507546	44510545	chr4:44507546-44510545	1
nnr1	nitrate reductase(NADH	M77792	GRMZM2G568636	56308168	chr4	56306668	56309667	chr4:56306668-56309667	1

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bt2	brittle endosperm2	AF544167	GRMZM2G068506	58960100	chr4	58958600	58961599	chr4:58958600-58961599	-1
his2b2	histone2b2	X57313	GRMZM2G119071	63093826	chr4	63092326	63095325	chr4:63092326-63095325	-1
hda108	histone deacetylase	AF440226	GRMZM2G136067	65962687	chr4	65961187	65964186	chr4:65961187-65964186	-1
hir1	hypersensitive induced reaction1	AF236373	GRMZM2G117755	74457132	chr4	74455632	74458631	chr4:74455632-74458631	1
kan3	kanadi3	EU925399	GRMZM2G175827	80073206	chr4	80071706	80074705	chr4:80071706-80074705	1
yy1	yin-yang1	AF142322	GRMZM2G140016	115429773	chr4	115428273	115431272	chr4:115428273-115431272	1
gpc3	glyceraldehyde-3-phosphate dehydrogenase3	L13431	GRMZM2G071630	133103720	chr4	133102220	133105219	chr4:133102220-133105219	1
fea2	fasciated ear2	AY055124	GRMZM2G104925	133664998	chr4	133663498	133666497	chr4:133663498-133666497	-1
zag5	zea agamous5	L46398	GRMZM2G003514	156083969	chr4	156082469	156085468	chr4:156082469-156085468	1
gln5	glutamine synthetase5	X65929	GRMZM2G036464	167084703	chr4	167083203	167086202	chr4:167083203-167086202	-1
prh1	ser/thr protein phosphatase1	M60215	GRMZM2G112240	170914968	chr4	170913468	170916467	chr4:170913468-170916467	1
ppr5	pentatricopeptide repeat 5	EU037901	GRMZM2G025409	181428451	chr4	181426951	181429950	chr4:181426951-181429950	-1
gol1	goliath1		GRMZM2G080079	181963923	chr4	181962423	181965422	chr4:181962423-181965422	-1
fer1	ferritin1	X61391	GRMZM2G325575	183591209	chr4	183589709	183592708	chr4:183589709-183592708	-1
	RCN1-Corn Centroradialis/TFL1-like protein (ZCN6)		GRMZM2G132880	188386280	chr4	188384780	188387779	chr4:188384780-188387779	-1
ssu1	ribulose bisphosphate carboxylase small subunit1	X06535	GRMZM2G098520	190053766	chr4	190052266	190055265	chr4:190052266-190055265	-1
c2	colorless2	X60205	GRMZM2G422750	192580450	chr4	192578950	192581949	chr4:192578950-192581949	1
	male sterility protein 2		GRMZM2G120938	207533960	chr4	207532460	207535459	chr4:207532460-207535459	-1
ane1	androgenic	AJ011559	GRMZM2G039942	222075476	chr4	222073976	222076975	chr4:222073976-	-1

	embryo1							222076975	
ubi2	ubiquitin2	S94466	GRMZM2G419891	236881289	chr4	236879789	236882788	chr4:236879789-236882788	1
eif5	eucaryotic translation initiation factor5	X99517	GRMZM2G165917	237524915	chr4	237523415	237526414	chr4:237523415-237526414	-1
cat3	catalase3	L05934	GRMZM2G079348	240105137	chr4	240103637	240106636	chr4:240103637-240106636	1
ohp2	opaque2 heterodimerizing protein2	L06478	GRMZM2G007063	4253373	chr5	4251873	4254872	chr5:4251873-4254872	1
tua1	alpha tubulin1	X63176	AC195340.3_FG001	5435612	chr5	5434112	5437111	chr5:5434112-5437111	-1
zmm31	Zea mays MADS31	AJ430640	GRMZM2G071620	6917457	chr5	6915957	6918956	chr5:6915957-6918956	1
zap1	zea apetala homolog1	T12733	GRMZM2G553379	6985304	chr5	6983804	6986803	chr5:6983804-6986803	1
phyC2	phytochromeC2	AY234830	GRMZM2G129889	7126963	chr5	7125463	7128462	chr5:7125463-7128462	-1
tlk2	tousled-like protein kinase2	AF012889	GRMZM2G172132	7223754	chr5	7222254	7225253	chr5:7222254-7225253	1
tua4	alpha tubulin4	X73980	GRMZM2G152466	9475018	chr5	9473518	9476517	chr5:9473518-9476517	-1
	Tubulin alpha-3 chain		GRMZM2G152466	9475018	chr5	9473518	9476517	chr5:9473518-9476517	-1
d9	dwarf plant9	DQ903073	GRMZM2G024973	11784448	chr5	11782948	11785947	chr5:11782948-11785947	-1
ole3	oleosin3	J05212	AC206941.2_FG002	12291790	chr5	12290290	12293289	chr5:12290290-12293289	-1
rab15	responsive to abscisic acid15	X12564	GRMZM2G165901	14073760	chr5	14072260	14075259	chr5:14072260-14075259	-1
tub4	beta tubulin4	X74655	GRMZM2G066191	14857185	chr5	14855685	14858684	chr5:14855685-14858684	-1
tbp2	TATA-binding protein2	L13302	GRMZM2G161418	15328604	chr5	15327104	15330103	chr5:15327104-15330103	-1
am1	ameiotic1	DQ663482	GRMZM5G883855	16092084	chr5	16090584	16093583	chr5:16090584-16093583	1
Smh6	Single Myb Histone6	AY280632	GRMZM2G095239	17104261	chr5	17102761	17105760	chr5:17102761-17105760	1
yab9	yabby9	AY313903	GRMZM2G074543	23572912	chr5	23571412	23574411	chr5:23571412-23574411	1
chn3	chitinase3	L16798	GRMZM2G389582	63277951	chr5	63276451	63279450	chr5:63276451-63279450	1
sbe1	starch branching	D11081	GRMZM2G088753	63324803	chr5	63323303	63326302	chr5:63323303-	-1

	enzyme1							63326302	
cat1	catalase1	X60135	GRMZM2G088212	63564993	chr5	63563493	63566492	chr5:63563493-63566492	1
hmg1	high mobility group protein1	X66077	GRMZM5G834758	63802605	chr5	63801105	63804104	chr5:63801105-63804104	-1
a2	anthocyaninless2	X55314	GRMZM2G345717	66107721	chr5	66106221	66109220	chr5:66106221-66109220	1
ivr2	invertase2	AJ563384	GRMZM2G089836	67508592	chr5	67507092	67510091	chr5:67507092-67510091	1
bip1	Binding protein homolog1	U58208	GRMZM2G114793	69329214	chr5	69327714	69330713	chr5:69327714-69330713	-1
cf1	camouflage1	BT042702	GRMZM2G026117	84248220	chr5	84246720	84249719	chr5:84246720-84249719	1
sun1	sad1-unc84-like 1 CCSD type	EU964563	GRMZM2G109818	88664543	chr5	88663043	88666042	chr5:88663043-88666042	-1
bm1	brown midrib1	AJ005702	GRMZM5G844562	98997371	chr5	98995871	98998870	chr5:98995871-98998870	-1
ps1	pink scutellum1	AY206862	GRMZM5G849107	100702026	chr5	100700526	100703525	chr5:100700526-100703525	-1
bt1	brittle endosperm1	M79333	GRMZM2G144081	112930204	chr5	112928704	112931703	chr5:112928704-112931703	-1
sxd1	sucrose export defective1	AF302187	GRMZM2G009785	133501928	chr5	133500428	133503427	chr5:133500428-133503427	1
	Peptidyl-prolyl cis-trans isomerase (EC 5.2.1.8)		GRMZM2G326111	167751373	chr5	167749873	167752872	chr5:167749873-167752872	1
incw1	cell wall invertase1	U17695	GRMZM2G139300	169454598	chr5	169453098	169456097	chr5:169453098-169456097	1
vp15	viviparous15	DQ273133	GRMZM2G121468	174221421	chr5	174219921	174222920	chr5:174219921-174222920	-1
gl8	glossy8	U89509	AC205703.4_FG006	181200367	chr5	181198867	181201866	chr5:181198867-181201866	-1
pal1	phenylalanine ammonia lyase homolog1	M95077	GRMZM2G074604	186680745	chr5	186679245	186682244	chr5:186679245-186682244	-1
yab15	yabby15	AY313902	GRMZM2G529859	189198008	chr5	189196508	189199507	chr5:189196508-189199507	1
ys1	yellow stripe1	AF186234	GRMZM2G156599	190677896	chr5	190676396	190679395	chr5:190676396-190679395	-1
bde1	bearded-ear1	L46397	GRMZM2G160565	196549478	chr5	196547978	196550977	chr5:196547978-196550977	1
pac1	pale aleurone color1	AY115485	GRMZM2G058292	196614456	chr5	196612956	196615955	chr5:196612956-196615955	-1

lec1	leafy cotyledon	AF410176	GRMZM2G011789	204333737	chr5	204332237	204335236	chr5:204332237-204335236	-1
	Endoglucanase 1		GRMZM2G076049	205040886	chr5	205039386	205042385	chr5:205039386-205042385	1
gln4	glutamine synthetase4	X65928	GRMZM5G872068	205240533	chr5	205239033	205242032	chr5:205239033-205242032	-1
got2	glutamate-oxaloacetate transaminase2	AY105250	GRMZM5G836910	213904655	chr5	213903155	213906154	chr5:213903155-213906154	1
pcna1	proliferating cell nuclear antigen1	X79065	GRMZM2G030523	214424827	chr5	214423327	214426326	chr5:214423327-214426326	1
brk1	brick1	AY093614	GRMZM5G842058	216695321	chr5	216693821	216696820	chr5:216693821-216696820	-1
gpc2	glyceraldehyde-3-phosphate dehydrogenase2	U45858	GRMZM2G180625	6903153	chr6	6901653	6904652	chr6:6901653-6904652	-1
rgd1	ragged seedling1	DQ832257	GRMZM2G020187	17165362	chr6	17163862	17166861	chr6:17163862-17166861	1
zp15	zein protein	M12147	GRMZM2G086294	44382348	chr6	44380848	44383847	chr6:44380848-44383847	-1
why1	whirly1	EU595664	GRMZM2G155662	71621497	chr6	71619997	71622996	chr6:71619997-71622996	-1
mez1	enhancer of zeste1	AF443596	GRMZM2G157820	79469316	chr6	79467816	79470815	chr6:79467816-79470815	-1
prc1	proteasome C9 1	T14766	GRMZM2G120047	80975832	chr6	80974332	80977331	chr6:80974332-80977331	-1
tacs1	Terminal Acidic SANT 1	AY738116	GRMZM2G111906	82497057	chr6	82495557	82498556	chr6:82495557-82498556	1
cyc3	cyclin3	U10076	GRMZM2G073671	82623958	chr6	82622458	82625457	chr6:82622458-82625457	-1
si1	silky1	AF181479	GRMZM2G139073	84785892	chr6	84784392	84787391	chr6:84784392-84787391	1
	Ubiquitin carrier protein (EC 6.3.2.-)		GRMZM2G102421	87284723	chr6	87283223	87286222	chr6:87283223-87286222	-1
pgl2	polygalacturonase2	X57628	GRMZM2G320175	99420663	chr6	99419163	99422162	chr6:99419163-99422162	-1
	Elongation factor 1-alpha		GRMZM2G343543	102762866	chr6	102761366	102764365	chr6:102761366-102764365	-1
dgat1	diacyglycerol acyltransferase1	EU039830	GRMZM2G169089	104866019	chr6	104864519	104867518	chr6:104864519-104867518	-1
pl1	purple plant1	AF015268	GRMZM2G701063	108318734	chr6	108317234	108320233	chr6:108317234-108320233	1
su2	sugary2	AY499410	GRMZM2G348551	113233723	chr6	113232223	113235222	chr6:113232223-	1

								113235222	
	Anthocyanidin 3-O-glucosyltransferase		GRMZM2G383404	120018887	chr6	120017387	120020386	chr6:120017387-120020386	1
dzs18	delta zein structural18	U31541	GRMZM2G100018	121390345	chr6	121388845	121391844	chr6:121388845-121391844	1
	Ribulose-1,5-bisphosphate carboxylase/oxygenase large subunit (Fragment)		GRMZM2G122563	123912807	chr6	123911307	123914306	chr6:123911307-123914306	1
zag1	Zea AGAMOUS homolog1	L18924	GRMZM2G052890	131832722	chr6	131831222	131834221	chr6:131831222-131834221	-1
sod3	superoxide dismutase3	M33119	GRMZM2G059991	135883373	chr6	135881873	135884872	chr6:135881873-135884872	1
	Elongation factor 1-alpha		GRMZM2G154218	136519080	chr6	136517580	136520579	chr6:136517580-136520579	-1
	Elongation factor 1-alpha		GRMZM2G149768	136572271	chr6	136570771	136573770	chr6:136570771-136573770	-1
	Elongation factor 1-alpha		GRMZM2G001327	136695861	chr6	136694361	136697360	chr6:136694361-136697360	-1
dhn1	dehydrin1	X15290	GRMZM2G079440	137144384	chr6	137142884	137145883	chr6:137142884-137145883	-1
elfa1	elongation factor alpha1	M95072	AC233866.1_FG006	137414138	chr6	137412638	137415637	chr6:137412638-137415637	-1
tan1	tangled1	AF305892	GRMZM2G039113	142569476	chr6	142567976	142570975	chr6:142567976-142570975	-1
rmr1	required to maintain repression1	EU155001	GRMZM2G154946	144279933	chr6	144278433	144281432	chr6:144278433-144281432	1
cal1	calmodulin1	X74490	GRMZM2G117582	155518148	chr6	155516648	155519647	chr6:155516648-155519647	-1
prf1	profilin homolog1	X73279	GRMZM2G074361	160161670	chr6	160160170	160163169	chr6:160160170-160163169	1
hsp101	heat-shock protein 101	AF077337	GRMZM2G360681	160621048	chr6	160619548	160622547	chr6:160619548-160622547	1
	Histone deacetylase 2b		GRMZM2G159032	161234113	chr6	161232613	161235612	chr6:161232613-161235612	-1
mlg3	lea protein group3	U05226	GRMZM2G096475	161966268	chr6	161964768	161967767	chr6:161964768-161967767	1
mdh2	malate dehydrogenase2	AY103861	GRMZM2G154595	165635858	chr6	165634358	165637357	chr6:165634358-165637357	-1

tsh1	tasselsheath1		GRMZM2G325850	166078403	chr6	166076903	166079902	chr6:166076903-166079902	-1
afd1	absence of first division1	AY788900	GRMZM2G059037	166595022	chr6	166593522	166596521	chr6:166593522-166596521	1
tdy1	tie-dyed1	FJ376984	GRMZM2G321778	166635924	chr6	166634424	166637423	chr6:166634424-166637423	1
rs1	rough sheath1	L44133	GRMZM2G028041	3664698	chr7	3663198	3666197	chr7:3663198-3666197	1
o2	opaque endosperm2	M29411	GRMZM2G015534	10793452	chr7	10791952	10794951	chr7:10791952-10794951	1
dmt101	DNA methyl transferase1	AF229183	GRMZM2G333916	11134326	chr7	11132826	11135825	chr7:11132826-11135825	-1
meg1	maternally expressed gene1	AY536120	GRMZM2G354335	13065608	chr7	13064108	13067107	chr7:13064108-13067107	1
sgo1	shugoshin centromeric cohesion1	AY964185	GRMZM2G074082	18524500	chr7	18523000	18525999	chr7:18523000-18525999	-1
in1	intensifier1	U57899	GRMZM2G042733	19349156	chr7	19347656	19350655	chr7:19347656-19350655	1
crt2	calreticulin2	X89813	GRMZM2G358059	24413947	chr7	24412447	24415446	chr7:24412447-24415446	-1
nbp1	nucleic acid binding protein1	M74566	GRMZM2G011129	46478537	chr7	46477037	46480036	chr7:46477037-46480036	1
	Cyclin delta-3		GRMZM2G107377	49732339	chr7	49730839	49733838	chr7:49730839-49733838	1
pep4	phosphoenolpyruvate carboxylase4	X61489	GRMZM2G473001	86439128	chr7	86437628	86440627	chr7:86437628-86440627	-1
mwp1	milkweed pod1	EU925398	GRMZM2G082264	107239626	chr7	107238126	107241125	chr7:107238126-107241125	-1
ra1	ramosa1	AY957396	GRMZM2G003927	110331505	chr7	110330005	110333004	chr7:110330005-110333004	1
	Anthranilate N-benzoyltransferase protein 1		GRMZM2G156296	117374335	chr7	117372835	117375834	chr7:117372835-117375834	-1
gl1	glossy1	U37428	GRMZM2G114642	118517870	chr7	118516370	118519369	chr7:118516370-118519369	1
his2b1	histone2b1	X57312	GRMZM2G071959	119910222	chr7	119908722	119911721	chr7:119908722-119911721	1
	Histone H4		GRMZM2G072855	119949822	chr7	119948322	119951321	chr7:119948322-119951321	1
gzr1	gamma zein modifier1	S78780	GRMZM2G138727	120200894	chr7	120199394	120202393	chr7:120199394-120202393	1
zp27	27-kDa zein	M16218	GRMZM2G138727	120200894	chr7	120199394	120202393	chr7:120199394-	1

	protein							120202393	
ij1	iojap striping1	Z15063	GRMZM2G004583	134096942	chr7	134095442	134098441	chr7:134095442-134098441	-1
ocl3	outer cell layer3	AJ250985	GRMZM2G116658	141676033	chr7	141674533	141677532	chr7:141674533-141677532	1
ugp1	UDP-glucose pyrophosphorylase1	T14797	GRMZM2G032003	146498155	chr7	146496655	146499654	chr7:146496655-146499654	-1
adf1	actin depolymerizing factor1	X80820	GRMZM2G117603	148879558	chr7	148878058	148881057	chr7:148878058-148881057	1
tif1	translation initiation factor1	AF034944	GRMZM5G835323	154269437	chr7	154267937	154270936	chr7:154267937-154270936	-1
crp1	chloroplast RNA processing1	AF073522	GRMZM2G083950	155837398	chr7	155835898	155838897	chr7:155835898-155838897	-1
tua6	alpha tubulin6	X63178	GRMZM2G083243	160032302	chr7	160030802	160033801	chr7:160030802-160033801	1
tif5A	eukaryotic translation initiation factor 5A	AF034943	GRMZM2G144030	163005888	chr7	163004388	163007387	chr7:163004388-163007387	-1
ea1	egg apparatus1	AY733074	GRMZM2G456746	164464190	chr7	164462690	164465689	chr7:164462690-164465689	-1
rpot1	RNA polymerase T phage-like 1	AF127021	GRMZM2G381395	166121213	chr7	166119713	166122712	chr7:166119713-166122712	1
ra3	ramosa3	DQ436920	GRMZM2G014729	166860909	chr7	166859409	166862408	chr7:166859409-166862408	-1
fgs1	ferredoxin-dependent glutamate synthase1	M59190	GRMZM2G036609	170979959	chr7	170978459	170981458	chr7:170978459-170981458	-1
sod2	superoxide dismutase2	M54936	GRMZM2G025992	171737098	chr7	171735598	171738597	chr7:171735598-171738597	-1
bd1	branched silkless1	AY196003	GRMZM2G307119	172209213	chr7	172207713	172210712	chr7:172207713-172210712	-1
	60S ribosomal protein L22-2		GRMZM2G063617	172711231	chr7	172709731	172712730	chr7:172709731-172712730	1
wip1	wound induced protein1	X71396	GRMZM2G156632	12274222	chr8	12272722	12275721	chr8:12272722-12275721	-1
crs2	chloroplast RNA splicing2	AF225708	GRMZM2G132021	12555258	chr8	12553758	12556757	chr8:12553758-12556757	1
tpi4	triose phosphate isomerase4	L00371	GRMZM2G018177	14393506	chr8	14392006	14395005	chr8:14392006-14395005	-1
pdc2	pyruvate	D14456	GRMZM2G038821	15551947	chr8	15550447	15553446	chr8:15550447-	-1

	decarboxylase2							15553446	
hsp18c	heat shock protein18c	X54075	GRMZM2G034157	21615163	chr8	21613663	21616662	chr8:21613663-21616662	1
zmm2	Zea mays MADS2	X81200	GRMZM2G359952	22987122	chr8	22985622	22988621	chr8:22985622-22988621	-1
	Peroxidase 68		GRMZM2G382379	23636544	chr8	23635044	23638043	chr8:23635044-23638043	1
prp1	pathogenesis-related protein1	X54325	AC205274.3_FG001	52299758	chr8	52298258	52301257	chr8:52298258-52301257	-1
lhcb3	light harvesting chlorophyll a/b binding protein3	X55892	GRMZM2G155216	70798667	chr8	70797167	70800166	chr8:70797167-70800166	-1
wtf1	what's this factor?1	FJ264201	GRMZM2G403797	72298289	chr8	72296789	72299788	chr8:72296789-72299788	1
stp1	sugar transport1	T12737	GRMZM2G097768	73906483	chr8	73904983	73907982	chr8:73904983-73907982	-1
act1	actin1	J01238	GRMZM2G126010	100398658	chr8	100397158	100400157	chr8:100397158-100400157	-1
tub2	beta tubulin2	X52879	GRMZM2G334899	104774039	chr8	104772539	104775538	chr8:104772539-104775538	-1
rip2	ribosome-inactivating protein2		GRMZM2G063536	109164387	chr8	109162887	109165886	chr8:109162887-109165886	-1
rip1	ribosome-inactivating protein1		GRMZM2G141277	109219673	chr8	109218173	109221172	chr8:109218173-109221172	-1
spp1	sucrose-phosphatase1	AF283564	GRMZM2G055489	116311147	chr8	116309647	116312646	chr8:116309647-116312646	-1
	Histone H4		GRMZM2G063896	117822622	chr8	117821122	117824121	chr8:117821122-117824121	1
cyc1	cyclin1	U10078	GRMZM2G034647	120063628	chr8	120062128	120065127	chr8:120062128-120065127	-1
mrp1	Myb related protein1	AJ318518	GRMZM2G111306	128429193	chr8	128427693	128430692	chr8:128427693-128430692	-1
lg4	liguleless4	AF457118	GRMZM2G094241	130850435	chr8	130848935	130851934	chr8:130848935-130851934	1
lyce1	lycopene epsilon cyclase1	EU924262	GRMZM2G012966	138886838	chr8	138885338	138888337	chr8:138885338-138888337	1
Smh1	Single Myb Histone1	AY271659	GRMZM2G136887	140378673	chr8	140377173	140380172	chr8:140377173-140380172	1
sun5	sad1-unc84-like 5 PM3 type	EU953247	AC194341.4_FG003	141389953	chr8	141388453	141391452	chr8:141388453-141391452	1
lhcb1	light harvesting chlorophyll a/b	M87020	GRMZM2G351977	141641842	chr8	141640342	141643341	chr8:141640342-141643341	1

	binding protein1								
a4	anthocyaninless4	Y16040	GRMZM2G013726	146110828	chr8	146109328	146112327	chr8:146109328-146112327	1
Smh3	Single Myb Histone3	AY280629	GRMZM2G023667	154154493	chr8	154152993	154155992	chr8:154152993-154155992	1
rbap1	WD-repeat protein RBAP1	AF250047	GRMZM2G316113	154456893	chr8	154455393	154458392	chr8:154455393-154458392	1
sps1	sucrose phosphate synthase1	M97550	GRMZM5G875238	161916385	chr8	161914885	161917884	chr8:161914885-161917884	1
	Fructose-bisphosphate aldolase		GRMZM2G066024	163309969	chr8	163308469	163311468	chr8:163308469-163311468	-1
sun4	sad1-unc84-like 4 PM3 type	GU453173	GRMZM2G005483	165581674	chr8	165580174	165583173	chr8:165580174-165583173	1
	VAMP-like protein YKT62		GRMZM2G387076	166504172	chr8	166502672	166505671	chr8:166502672-166505671	-1
hsp1	heat shock protein1	X03697	GRMZM2G310431	168958754	chr8	168957254	168960253	chr8:168957254-168960253	-1
cyc4b	cyclin4	U10079	GRMZM2G310115	171389971	chr8	171388471	171391470	chr8:171388471-171391470	1
psei2	cystatin2	D63342	GRMZM2G012160	171415029	chr8	171413529	171416528	chr8:171413529-171416528	-1
gst1	glutathione-S-transferase1	X06754	GRMZM2G116273	173117675	chr8	173116175	173119174	chr8:173116175-173119174	1
c1	colored aleurone1	M37153	GRMZM2G005066	9741876	chr9	9740376	9743375	chr9:9740376-9743375	-1
sh1	shrunken1	X02400	GRMZM2G089713	11496030	chr9	11494530	11497529	chr9:11494530-11497529	1
stc1	sesquiterpene cyclase1	AF296122	GRMZM2G177098	11741515	chr9	11740015	11743014	chr9:11740015-11743014	1
bz1	bronze1	X13502	GRMZM2G165390	11776491	chr9	11774991	11777990	chr9:11774991-11777990	-1
stk1	serine threonine kinase1	EF523347	GRMZM2G165433	11777535	chr9	11776035	11779034	chr9:11776035-11779034	1
zag4	zea agamous4	L46399	GRMZM2G531231	16807234	chr9	16805734	16808733	chr9:16805734-16808733	-1
ss1	starch synthase I	AF036891	GRMZM2G129451	17633649	chr9	17632149	17635148	chr9:17632149-17635148	1
	Histone H3		GRMZM2G130079	17724180	chr9	17722680	17725679	chr9:17722680-17725679	1
mrpa3	multidrug resistance-associated	AY609318	GRMZM2G111903	17739642	chr9	17738142	17741141	chr9:17738142-17741141	1

	protein3								
eno1	enolase1	X55981	GRMZM2G064302	22100864	chr9	22099364	22102363	chr9:22099364-22102363	1
wx1	waxy1	AF267643	GRMZM2G024993	23260236	chr9	23258736	23261735	chr9:23258736-23261735	-1
d3	dwarf plant3	U32579	GRMZM2G093195	26712548	chr9	26711048	26714047	chr9:26711048-26714047	1
rf2	restorer of fertility2	U43082	GRMZM2G058675	33125819	chr9	33124319	33127318	chr9:33124319-33127318	1
conz1	constans1	EU098139	GRMZM2G405368	34628528	chr9	34627028	34630027	chr9:34627028-34630027	1
pep1	phosphoenolpyruvate carboxylase1	X15238	GRMZM2G083841	61296279	chr9	61294779	61297778	chr9:61294779-61297778	1
sal1	supernumerary aleurone1	AY243475	GRMZM2G117935	94578265	chr9	94576765	94579764	chr9:94576765-94579764	-1
gl15	glossy15	U41466	GRMZM2G160730	95739338	chr9	95737838	95740837	chr9:95737838-95740837	1
hm2	Helminthosporium carbonum susceptibility2	AF041047	GRMZM2G086773	103234471	chr9	103232971	103235970	chr9:103232971-103235970	1
piip1	physical impedance induced protein1	AF001634	AC234161.1_FG001	117172962	chr9	117171462	117174461	chr9:117171462-117174461	1
sus1	sucrose synthase1	L33244	GRMZM2G152908	122226863	chr9	122225363	122228362	chr9:122225363-122228362	-1
apt1	aberrant pollen transmission1	DQ020097	GRMZM2G448687	128787236	chr9	128785736	128788735	chr9:128785736-128788735	-1
sod9	superoxide dismutase9	X17564	GRMZM2G058522	129278107	chr9	129276607	129279606	chr9:129276607-129279606	-1
phyB2	phytochromeB2	AY234828	GRMZM2G092174	134998639	chr9	134997139	135000138	chr9:134997139-135000138	-1
his2a1	histone2A1	U08225	GRMZM2G305046	139187819	chr9	139186319	139189318	chr9:139186319-139189318	1
gln3	glutamine synthetase3	X65930	GRMZM2G046601	146062602	chr9	146061102	146064101	chr9:146061102-146064101	1
zmm8	Zea mays MADS8	Y09303	GRMZM2G102161	146679028	chr9	146677528	146680527	chr9:146677528-146680527	1
wc1	white cap1	DQ100346	GRMZM2G057243	152092882	chr9	152091382	152094381	chr9:152091382-152094381	-1
mads1	MADS1	AF112148	GRMZM2G171365	153812731	chr9	153811231	153814230	chr9:153811231-153814230	1
rld1	rolled leaf1	AY501430	GRMZM2G109987	154650601	chr9	154649101	154652100	chr9:154649101-154652100	-1