

**Table S4 The information of developed 35 InDel markers.**

InDel name	Chromosome	Physical position (bp)	Gene location	Variant type	Ref	Alt	Gene ID (Glyma2.0)	Forward strand sequence (5'-3')	Reverse strand sequence (5'-3')	<i>T<sub>m</sub></i> (°C)	Product Size (bp)	Polymorphism
16-1	Chr16	31372059	Intergenic	Insertion	CTTCTTT	CTTCTTTTTC TGATACTGAA GGTTTTCTTT	<i>Glyma.16G153100</i> ; <i>Glyma.16G153200</i>	TGCTACT AGACAA GCCTTG AACT	GATAGGC TATGAAC AACCTGA AA	56	176	Yes
16-2	Chr16	31385072	Intergenic	Deletion	GGACTATTT TGCAACACT TATGCAAAG ATAGAGACT ATTTTG	GGACTATTTT G	<i>Glyma.16G153200</i> ; <i>Glyma.16G153300</i>	TATTTAC TCGTTTT GTTAGC ATC	TAGCTTGT AGGTTAC ATTATTTT	51	294	Yes
16-3	Chr16	31387816	UTR3	Deletion	GCACCAAAT TAAGAAGC AAGTATTTT GTCACCAAA TTAAGAAGC AAGTATT	GCACCAAATT AAGAAGCAA GTATT	<i>Glyma.16G153300</i>	CTTTTGC TATTTTA CCCAAC TGA	TTACCTTC AACATAA TTGGCTTT	56	157	Yes
16-4	Chr16	31390636	Intronic	Insertion	AATTTAGAT ATTTTGTTA T	AATTTAGATA TTTTGTTATT TAGATATTTT GTTAT	<i>Glyma.16G153300</i>	TAAGCT GTCACC TTTGCAT AACT	GAGACTTT AATGAAA TGAAATAT GAGT	56	118	Yes
16-5	Chr16	31398859	Upstream	Insertion	GC	GCAGGAAAT ATTTCATACA	<i>Glyma.16G153400</i>	TAAAGG AAATAT	TCATCTAC CTATTACA	54	155	Yes

						CTCTCC			GAGCGA	CGTTGAG				
									ACATT					
						TAGAGACAT			AATGAA	TGTCAGTG				
16-6	Chr16	31402692	Intergenic	Deletion		TTTGGTCCA	TA	<i>Glyma.16G153400</i> ;	ACGAAA	AGTTACTA	57	106	No	
						ATAGTAACT		<i>Glyma.16G153500</i>	TTTGGG	TTGGACC				
						CA			ATTTG					
									GAATTC	ATTTATGT				
16-7	Chr16	31409466	UTR3	Insertion	T	TTTTTCTTCTT		<i>Glyma.16G153500</i>	TCATCAT	CTTAGCCA	59	102	Yes	
						GTATTTCAAT			TCTGCA	GCCCAAG				
						GTCAAAAA			GGTT					
									TAACAC	TTATCAAT				
16-8	Chr16	31421188	Downstream	Insertion		TTTCTTAGCT		<i>Glyma.16G153600</i>	TTTATTT	GGTACCCC	54	145	Yes	
						TTTTTTTCTT			GGTCTTT	TAATAGC				
						TTTCTTAG			CAG					
						GCATTTTAT			TCATAC	CACCGTTT				
						TGTC AATTCT			GCGGCT	AGTTATTC				
						TAG			TAGTTA	TGGAGGC				
									GGAGG					
16-9	Chr16	31424501	Intergenic	Insertion	T	TAAATCTTTT		<i>Glyma.16G153600</i> ;	TATTTGA	TGGTGTTT	61	180	Yes	
						TATTTTAATT		<i>Glyma.16G153700</i>	CAGGCA	GACATGA				
						TC			CTTTCTT	TGTACACT				
									TCT					
						GTTAGATCTA		<i>Glyma.16G153600</i> ;						
16-10	Chr16	31428806	Intergenic	Insertion	G	GCAAAAAAA		<i>Glyma.16G153700</i>			57	197	Yes	
						TTTGAAGTTG			TTAAAG	TAATGAA				
16-11	Chr16	31558280	Intronic	Insertion	TT	GATTTTGAGT		<i>Glyma.16G155300</i>	AGTCTA	ACTGTTTA	51	111	Yes	
						TTCAGGGTTT			ATATCT	AAATTCG				

						CAAAT			ATGCA	G			
						TAAAGTTTT			GTCTTTA	CTTTCCCT			
16-12	Chr16	31561827	Downstream	Deletion	ACAAAGTG				ATGGAA	AAGATTGT	53	142	Yes
					AGAAACTA	TAAAGTTTTA	<i>Glyma.16G155300</i>		ATAAAA	AAGCATA			
					AATGAAAG				GAATG				
					TTTTA								
									ATTTGCT	TTCGGAGT			
16-13	Chr16	31653618	Intergenic	Deletion	TTTGCTCAA				TCTTCGG	ACCTCAA	60	135	No
					CTTAAGACT	T	<i>Glyma.16G156300;</i>		ATTCTTC	AACCAGT			
					GGTTTTGAG		<i>Glyma.16G156400</i>		CT	C			
					TTACTTCCC				TTGGATT	CAAATGA			
					CATCCAAAA				TAAGTTT	AAGCATA			
16-14	Chr16	31667654	Exonic	Deletion	CAGAGAAA	TTA	<i>Glyma.16G156500</i>		TCCTCCT	GATCCAC	58	120	Yes
					AGATCCTTC				CA	T			
					TTGTTTCATG								
					TTGCATA								
									TCCACCT	GTTTTCAA			
16-15	Chr16	31672438	Downstream	Deletion	TTATCTCTC	TT	<i>Glyma.16G156600</i>		TCTTTAC	CTTCAACA	58	129	Yes
					TCCCTCCTA				CTTTACC	TCGACAC			
					GCCT				GT				
									CCTGGA	AGGTTCCCT			
16-16	Chr16	31707190	Intergenic	Deletion	TCTAATACT	TC	<i>Glyma.16G156800;</i>		CATATT	TGAGTGG	57	187	Yes
					AGTCTTCTT		<i>Glyma.16G156900</i>		GAAACT	AGGTGATT			
					TAGC				TATTG				
16-17	Chr16	31732196	UTR5	Insertion	GAGAAGAA	GAGAAGAAA	<i>Glyma.16G157100</i>		AGACTA	CTCTTGTT	58	199	Yes
					AAAGAAGA	AAGAAGAAG			AGGGTG	CCTTCTCC			

					AGAAGAAG	AAGAAGAAG		GTGGAA	TTGTGAT			
					AAGAAGA	AAGAAAAAG		GTGTT				
						AAGAAGAAG						
						AAGAAGAAG						
						A						
						CAACAATGG		AGAACA	TATGAAG			
16-18	Chr16	31748398	Intergenic	Insertion	CA	AAGTTT	<i>Glyma.16G157100</i> ;	GTTACA	CAGAAGG	55	208	Yes
						TTTTA	<i>Glyma.16G157200</i>	TTACAA	GAAATAC			
								GGGTG	AC			
					TTATATATA			TTTCTAG				
					TATATATAT			TGTACTT	ACTTTTCTT			
16-19	Chr16	31752622	Intergenic	Deletion	ATATATATA	TTATATATAT	<i>Glyma.16G157100</i> ;	TGACTA	CGTTTATT	49	192	No
					TATATATAT	ATAT	<i>Glyma.16G157200</i>	TTG	ATTGATG			
					ATATATATA							
					TATAT							
						ATTCACGTCG		AGAATG	CGTCCAGT			
16-20	Chr16	31752909	Intergenic	Insertion	ATT	ACCTTTT	<i>Glyma.16G157100</i> ;	TTTGCAT	TCAATGA	59	113	Yes
						TGAA	<i>Glyma.16G157200</i>	CGATCA	AAATTCAC			
						TTTGTGATTT		TGTG				
								TTCTGAT	TTAATAGA			
					CTATTGTAT		<i>Glyma.16G157200</i> ;	GTTAGTT	GGGCGTG			
16-21	Chr16	31779041	Intergenic	Deletion	CTTTGCTTA	CT	<i>Glyma.16G157300</i>	CTCATG	GAAAGAA	57	112	Yes
					CAT			CAA	T			
						GTTTCATGAA		TTTTGTT	GTTTTCAT			
16-22	Chr16	31779990	Intergenic	Insertion	GTTT	TTGGCACCTC	<i>Glyma.16G157200</i> ;	CTGTAA	TATGTAAT	52	102	No
						TTT	<i>Glyma.16G157300</i>	TAAGGT	AAGGTGG			

16-23	Chr16	31781258	Intergenic	Insertion	TGGTG	GGAT TGGTGGGAA CAAGGCTTCC TAACAATAG GAAGGTG	<i>Glyma.16G157200</i> ; <i>Glyma.16G157300</i>	ATCGAC TATAAATG TTTGAG AGATTACC CATC A	58	124	Yes
16-24	Chr16	31788519	Intergenic	Insertion	G	GACTAAAATT GAAATTT	<i>Glyma.16G157200</i> ; <i>Glyma.16G157300</i>	CTATTA ATTTTACC AGGAAT TTGGACA CTAACA ATAGTATA AACAA	49	200	No
16-25	Chr16	31790285	Intergenic	Deletion		CATCTCCAA CCCAGCAAC TTATCTCCA ACCCAGCA ACTTA	CATCTCCAAC <i>Glyma.16G157200</i> ; <i>Glyma.16G157300</i>	GGGTCC GTTGGAG TTAGTTG ATAAGTTG AATTGT CTGGGTTG CATA	58	168	No
16-26	Chr16	31792219	Intergenic	Deletion		CGATGAAAT GAGATTTTT TTTTTTTGG TCAAAAGAT GAAATGAG ATTTTTTTT	CGATGAAAT GAGATTTTT <i>Glyma.16G157200</i> ; <i>Glyma.16G157300</i>	AACGAC GACCTGAT AGTAAT GATACAA TAGAAG TATCACAT TTTTC	51	148	Yes
16-27	Chr16	31806513	Intergenic	Insertion	GA	GATACAATTT TTGGATGTA	<i>Glyma.16G157300</i> ; <i>Glyma.16G157400</i>	GACCAT ATGAAAC GCTAAC GTACTAGC TAGATT ATTTAGGT AGACG	53	194	Yes
16-28	Chr16	31810227	Intergenic	Deletion		AATATATAT ATATATATA	AATATATATA TAT <i>Glyma.16G157300</i> ; <i>Glyma.16G157400</i>	TTAATTG AGTAGTTA ACTGTA TGTGATTA	49	171	Yes

					TATATATAT ATATATATA TAT			TATAGT AATCATTA GAAAGG T				
16-29	Chr16	31845147	Intronic	Insertion	G	GGATTTTGAT GAAGTCTTT TA	<i>Glyma.16G158000</i>	AAATGA GTGGAAT ATGATA CTATTGAT GATACA CTAATTCT TCCTTAC AA	52	114	Yes	
16-30	Chr16	31852329	UTR5	Deletion		CGTTCCACG CGCCACCAC CATCTCACG ACAAGTTCC ATTGGGCAA	CGTTCC <i>Glyma.16G158200</i>	TTACCTA TAAAGAA GCCATT GAGGCGA AGACTA TTGGGAA TTGACC CT	59	200	Yes	
16-31	Chr16	31859389	Exonic	Deletion		ACGAATTAT GCCCTTGCC ATCCCCTT	ATT <i>Glyma.16G158300</i>	AGAGGT TGTAGC ACTAAC CAGAT	TTAGCAGC GACATTTT GGTTTGA	59	113	Yes
16-32	Chr16	32155616	Downstream	Insertion	GAA	GAAGGCAAA CCCTTCTCAT AA	<i>Glyma.16G162600</i>	CATGTA CTTCGAT GAAACT TTGG	TGTTTGGG TCTGAATT TCTTTTG	57	165	No
16-33	Chr16	32265138	Intergenic	Insertion	GAT	GATATCTTTA GTTGAAGAA CTTGCTTGAG AAT	<i>Glyma.16G163500;</i> <i>Glyma.16G163600</i>	ATTAAG GGAATG AGATTTT ACAAAC	CATTCTCA AGCAAGT TCTTCAAC	56	183	No
16-34	Chr16	32280588	Upstream;Downstream	Insertion		AAATTTATT AAACTTTCA ATTTTCTTA	AAATTTATTA AACTTTCAAT TTTCTTAATT <i>Glyma.16G163800;</i> <i>Glyma.16G163700</i>	AACGAA TACTTAT CTTTTAG	TTAACAG GTTACACT TTAGATGT	49	112	Yes

					A	TATTAAACTT		AAG				
						TCAATTTTCT						
						TAA						
					TATTCTGAT							
					ACCTTTACT			CCCAAG	GAGTATC			
16-35	Chr16	32297966	Intronic	Deletion	ATTTTCTTG	TATT	<i>Glyma.16G164000</i>	TGGCAG	AAGAAAA	54	84	No
					ATACTCATC			TAAGCT	TAGTAAA			
					TTCTGTACT			AGAAG	GG			
					GAATT							

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