

Table S1. The detail information and sequence characterization of 94 putative *AAT* genes in foxtail millet.

No.	Gene ^a	Locus ^b	Gene Structure		ORF(bp) ^c	Protein ^f			TM region ^g	Subcellular Localization	Gene Duplication ^h
			Length(bp) ^c	Intron ^d		Size(aa)	MW(d)	pI			
AAAP family											
AAP group											
1	<i>SiAAP1</i>	SETIT_017136mg	5757	4	1392	463	49713.66	7.97	10	plasma membrane	
2	<i>SiAAP2</i>	SETIT_029675mg	4071	4	1452	483	52720.31	8.85	9	plasma membrane	
3	<i>SiAAP3</i>	SETIT_021976mg	2528	6	1395	464	50964.29	8.14	9	plasma membrane	
4	<i>SiAAP4</i>	SETIT_021862mg	2217	3	1485	494	53509.62	8.45	9	plasma membrane	
5	<i>SiAAP5</i>	SETIT_006252mg	6699	6	1551	516	56278.88	8.66	10	plasma membrane	TD1
6	<i>SiAAP6</i>	SETIT_007931mg	1651	4	1227	408	44684.85	6.58	8	plasma membrane	TD1
7	<i>SiAAP7</i>	SETIT_007877mg	1998	3	1389	462	50145.41	8.71	10	plasma membrane	TD1
8	<i>SiAAP8</i>	SETIT_001325mg	2326	5	1407	468	49948.22	9.04	10	plasma membrane	TD2
9	<i>SiAAP9</i>	SETIT_001577mg	2012	4	1272	423	45451.23	9.02	9	plasma membrane	TD2
10	<i>SiAAP10</i>	SETIT_013726mg	1787	3	1353	450	48383.75	9.38	9	plasma membrane	
11	<i>SiAAP11</i>	SETIT_015738mg	1422	1	1338	445	47209.15	9.57	9	plasma membrane	
12	<i>SiAAP12</i>	SETIT_011960mg	2249	5	1380	459	50741.99	8.4	9	plasma membrane	
13	<i>SiAAP13</i>	SETIT_010023mg	2637	3	1413	470	51104.66	8.46	8	plasma membrane	
14	<i>SiAAP14</i>	SETIT_009986mg	2393	2	1443	480	52147.41	7.02	9	plasma membrane	TD3
15	<i>SiAAP15</i>	SETIT_009998mg	2247	2	1434	477	51501.88	8.72	9	plasma membrane	TD3
16	<i>SiAAP16</i>	SETIT_009997mg	2027	2	1434	477	51502.73	8.27	9	plasma membrane	TD3
17	<i>SiAAP17</i>	SETIT_009983mg	1729	2	1446	481	51917.18	6.98	9	plasma membrane	TD3
18	<i>SiAAP18</i>	SETIT_012272mg	1421	2	1359	452	47524.59	9.1	7	plasma membrane	
19	<i>SiAAP19</i>	SETIT_027550mg	1509	1	1422	473	50880.06	8.61	10	plasma membrane	TD4
20	<i>SiAAP20</i>	SETIT_026316mg	1732	2	1422	473	50675.98	8.64	9	plasma membrane	TD4

No.	Gene ^a	Locus ^b	Gene Structure		ORF(bp) ^e	Protein ^f			TM region ^g	Subcellular Localization	Gene Duplication ^h
			Length(bp) ^c	Intron ^d		Size(aa)	MW(d)	pI			
	ANT group										
21	<i>SiANT1</i>	SETIT_017299mg	2192	0	1278	425	44847.08	6.74	11	vacuole membrane	
22	<i>SiANT2</i>	SETIT_030354mg	2692	2	1050	349	38178.87	6.3	9	vacuole membrane	
	ATLa group										
23	<i>SiATLa1</i>	SETIT_017155mg	3358	4	1377	458	49715.48	6.19	10	plasma membrane	SD1
24	<i>SiATLa2</i>	SETIT_019493mg	1736	4	1368	455	48693.09	8.11	11	plasma membrane	SD2
25	<i>SiATLa3</i>	SETIT_029801mg	3357	4	1368	455	49087.73	7.15	11	plasma membrane	SD2
26	<i>SiATLa4</i>	SETIT_008296mg	1469	1	1458	485	51414.72	6.32	10	vacuole membrane	
27	<i>SiATLa5</i>	SETIT_006392mg	3456	4	1380	459	49906.73	6.2	10	plasma membrane	SD1
28	<i>SiATLa6</i>	SETIT_001364mg	4921	3	1383	460	47991.38	9.21	11	vacuole membrane	
	ATLb group										
29	<i>SiATLb1</i>	SETIT_016787mg	4043	11	1698	565	61339.92	7.05	9	vacuole membrane	SD3
30	<i>SiATLb2</i>	SETIT_016828mg	4764	11	1647	548	59626.48	4.94	8	vacuole membrane	TD5
31	<i>SiATLb3</i>	SETIT_016920mg	4069	11	1557	518	55405.32	5.48	11	vacuole membrane	TD5
32	<i>SiATLb4</i>	SETIT_025256mg	3130	10	1755	584	62588.70	5.67	10	vacuole membrane	
33	<i>SiATLb5</i>	SETIT_008382mg	1411	2	1200	399	43335.64	9.24	11	vacuole membrane	SD4
34	<i>SiATLb6</i>	SETIT_008506mg	5901	6	1749	582	63487.07	8.08	8	vacuole membrane	SD3
35	<i>SiATLb7</i>	SETIT_001501mg	1739	1	1311	436	45394.60	7.96	11	vacuole membrane	SD5
36	<i>SiATLb8</i>	SETIT_004649mg	1577	2	1311	436	45589.27	8.04	10	vacuole membrane	TD6
37	<i>SiATLb9</i>	SETIT_0016082mg	1118	0	936	311	33069.36	8.9	9	vacuole membrane	TD6
38	<i>SiATLb10</i>	SETIT_009764mg	7068	9	1632	543	58575.60	6.31	9	vacuole membrane	SD3
39	<i>SiATLb11</i>	SETIT_012642mg	1454	2	1248	415	44083.37	9.52	11	vacuole membrane	SD4
40	<i>SiATLb12</i>	SETIT_012545mg	1518	2	1317	438	45709.13	8.54	9	vacuole membrane	TD7, SD5
41	<i>SiATLb13</i>	SETIT_010060mg	3065	2	1374	457	47538.01	8.56	10	vacuole membrane	TD7

No.	Gene ^a	Locus ^b	Gene Structure		ORF(bp) ^c	Protein ^f			TM region ^g	Subcellular Localization	Gene Duplication ^h
			Length(bp) ^c	Intron ^d		Size(aa)	MW(d)	pI			
42	<i>SiATLb14</i>	SETIT_028186mg	2389	1	1449	482	50810.81	9.23	10	vacuole membrane	
	AUX group										
43	<i>SiAUX1</i>	SETIT_004876mg	5472	6	1473	490	54623.93	8.49	10	plasma membrane	
44	<i>SiAUX2</i>	SETIT_026295mg	2227	4	1449	482	53350.06	8.83	10	plasma membrane	
45	<i>SiAUX3</i>	SETIT_035069mg	5030	3	1626	541	59701.37	9.1	10	plasma membrane	
46	<i>SiAUX4</i>	SETIT_035200mg	4391	6	1560	519	57729.28	8.9	10	plasma membrane	
	GAT group										
47	<i>SiGAT1</i>	SETIT_024570mg	2634	6	1446	481	51075.00	9.38	11	plasma membrane	
48	<i>SiGAT2</i>	SETIT_001355mg	5431	5	1386	461	49301.15	8.88	10	plasma membrane	
49	<i>SiGAT3</i>	SETIT_001363mg	5959	5	1383	460	49149.77	8.91	10	plasma membrane	
50	<i>SiGAT4</i>	SETIT_012737mg	1936	5	1410	469	49596.39	9.42	10	plasma membrane	TD8
51	<i>SiGAT5</i>	SETIT_010076mg	1740	3	1359	452	47915.42	9.66	10	plasma membrane	TD8
52	<i>SiGAT6</i>	SETIT_035729mg	3393	4	1329	442	47880.41	9.22	9	plasma membrane	
	LHT group										
53	<i>SiLHT1</i>	SETIT_019748mg	1370	0	1371	456	50249.23	9.23	10	plasma membrane	SD6
54	<i>SiLHT2</i>	SETIT_024807mg	1758	4	1347	448	49770.72	9.38	9	plasma membrane	TD9, SD6
55	<i>SiLHT3</i>	SETIT_025104mg	1668	3	1347	448	49262.31	9.28	10	plasma membrane	TD9
56	<i>SiLHT4</i>	SETIT_021791mg	3865	4	1539	512	55315.58	9.25	11	plasma membrane	
57	<i>SiLHT5</i>	SETIT_015309mg	2630	6	1290	430	48409.92	8.88	9	plasma membrane	TD10
58	<i>SiLHT6</i>	SETIT_014990mg	2198	6	1401	466	52689.09	9.22	10	plasma membrane	TD10
59	<i>SiLHT7</i>	SETIT_013742mg	2487	6	1338	445	49762.68	9.15	11	plasma membrane	TD10
60	<i>SiLHT8</i>	SETIT_015171mg	2926	7	1341	446	49761.85	9.06	10	plasma membrane	TD10
61	<i>SiLHT9</i>	SETIT_013740mg	4750	7	1341	446	49825.94	9.03	11	plasma membrane	TD10, SD7
62	<i>SiLHT10</i>	SETIT_013741mg	3022	7	1341	446	49606.56	9.19	10	plasma membrane	SD7

No.	Gene ^a	Locus ^b	Gene Structure		ORF(bp) ^e	Protein ^f			TM region ^g	Subcellular Localization	Gene Duplication ^h
			Length(bp) ^c	Intron ^d		Size(aa)	MW(d)	pI			
63	<i>SiLHT11</i>	SETIT_010148mg	2238	6	1305	434	47117.43	8.97	7	plasma membrane	
64	<i>SiLHT12</i>	SETIT_009824mg	2050	4	1578	525	56703.08	9.61	11	plasma membrane	
	ProT group										
65	<i>SiProT1</i>	SETIT_020692mg	3347	7	1401	466	51178.73	8.55	11	plasma membrane	
	APC family										
	ACT group										
66	<i>SiBAT1</i>	SETIT_000996mg	3462	5	1581	526	56405.59	9.05	12	vacuole membrane	SD8
67	<i>SiBAT2</i>	SETIT_001031mg	3634	7	1566	521	55786.10	8.41	12	vacuole membrane	TD11
68	<i>SiBAT3</i>	SETIT_003988mg	2852	7	1524	507	54651.71	8.7	12	vacuole membrane	TD11
69	<i>SiBAT4</i>	SETIT_001029mg	4206	6	1566	521	55693.89	9.06	12	vacuole membrane	TD11
70	<i>SiBAT5</i>	SETIT_001036mg	2797	6	1563	520	55770.79	8.71	12	vacuole membrane	TD11
71	<i>SiBAT6</i>	SETIT_000982mg	2900	6	1596	531	56912.14	8.87	12	vacuole membrane	TD11
72	<i>SiBAT7</i>	SETIT_009827mg	3898	5	1572	523	57201.82	7.97	13	vacuole membrane	
73	<i>SiBAT8</i>	SETIT_026229mg	2725	7	1560	519	56007.10	8.99	12	vacuole membrane	SD8
	CAT group										
74	<i>SiCAT1</i>	SETIT_016730mg	2819	6	1677	558	59378.15	8.63	12	chloroplast membrane	TD12
75	<i>SiCAT2</i>	SETIT_016768mg	2169	5	1290	429	45515.50	6.11	9	chloroplast membrane	TD12
76	<i>SiCAT3</i>	SETIT_021473mg	5083	13	1878	625	66573.78	5.75	14	vacuole membrane	SD9
77	<i>SiCAT4</i>	SETIT_025200mg	1956	1	1791	596	62832.04	6.71	14	plasma membrane	SD10
78	<i>SiCAT5</i>	SETIT_006108mg	1930	0	1800	599	62494.41	8.71	14	plasma membrane	
79	<i>SiCAT6</i>	SETIT_000719mg	2151	1	1842	613	65645.24	8.56	13	plasma membrane	SD11
80	<i>SiCAT7</i>	SETIT_009732mg	3162	3	1683	560	60936.40	8.74	13	plasma membrane	
81	<i>SiCAT8</i>	SETIT_009648mg	4826	4	1800	599	62968.54	8.86	14	plasma membrane	SD12
82	<i>SiCAT9</i>	SETIT_026149mg	4413	4	1779	592	61691.77	8.88	14	plasma membrane	SD12

No.	Gene ^a	Locus ^b	Gene Structure		ORF(bp) ^c	Protein ^f			TM region ^g	Subcellular Localization	Gene Duplication ^h
			Length(bp) ^c	Intron ^d		Size(aa)	MW(d)	pI			
83	<i>SiCAT10</i>	SETIT_034651mg	4874	13	1908	635	67481.97	5.45	14	vacuole membrane	SD9
84	<i>SiCAT11</i>	SETIT_034783mg	3499	1	1809	602	64439.87	7.57	14	plasma membrane	SD10
85	<i>SiCAT12</i>	SETIT_034804mg	2124	0	1785	594	63078.63	9.36	11	plasma membrane	SD11
PHS group											
86	<i>SiLAT1</i>	SETIT_016864mg	1778	0	1443	480	51577.77	5.25	10	plasma membrane	
87	<i>SiLAT2</i>	SETIT_021459mg	3721	4	1899	632	71036.95	6.25	7	plasma membrane	
88	<i>SiLAT3</i>	SETIT_021637mg	2148	2	1683	560	59655.20	7.71	9	chloroplast membrane	
89	<i>SiLAT4</i>	SETIT_004154mg	9418	12	2955	984	107547.32	6.66	11	plasma membrane	
90	<i>SiLAT5</i>	SETIT_013633mg	3494	1	1482	493	54350.13	6.02	12	plasma membrane	
91	<i>SiLAT6</i>	SETIT_035377mg	3646	1	1476	491	51498.78	8.76	9	vacuole membrane	TD13
92	<i>SiLAT7</i>	SETIT_035309mg	1960	1	1512	503	51439.63	8.53	10	plasma membrane	TD13
93	<i>SiLAT8</i>	SETIT_035306mg	1707	1	1512	503	53748.41	9.08	9	vacuole membrane	TD13
TTP group											
94	<i>SiTTP1</i>	SETIT_029599mg	2389	1	1497	498	52366.62	9.99	11	vacuole membrane	

^a Systematic designation given to foxtail millet AATs in this study. ^b Locus identity number of *SiAATs* in foxtail millet genome. ^c Gene full length of *SiAATs*.

^d Number of introns in *SiAAT* genes. ^e Length of the open reading frame for *SiAATs*. ^f Protein characterization of *SiAATs*. ^g Number of transmembrane regions of *SiAATs*, predicted by the TMHMM Server v2.0. ^h The duplicated genes, TD and SD represent tandem duplication and segmental duplication, respectively. The following numbers represent different pairs of duplicated genes.