

Additional file 20. Amino acid variability at the kinase domain positions subject to non-synonymous variation.

Analysis focuses on phylogenetic clades of LRR-XII-L of *Platanus × acerifolia* (*Pac*) and LRR-XII of *Arabidopsis* (refer to Figure 2). The three distinct tables present the data regarding the sharing of the variable positions among four, three and two distinct group of sequences.

Positions ^a	Amino acid variation ^b
1	I clade N II clade M IV/V clade T <i>Arabidopsis</i> F
4	I clade R II clade Y IV/V clade N H <i>Arabidopsis</i> P L T S
10	I clade F II clade S T IV/V clade N <i>Arabidopsis</i> L A
19	I clade L II clade L IV/V clade L <i>Arabidopsis</i> L Q P C
21	I clade H W C Y Q R II clade H Y Q R IV/V clade H Y Q R <i>Arabidopsis</i> H Y Q R
46	I clade L F II clade L IV/V clade L <i>Arabidopsis</i> L I Q V
52	I clade T I V A II clade T I V A IV/V clade T I V A <i>Arabidopsis</i> T I V L S
55	I clade E Q K M II clade E K M IV/V clade E K A <i>Arabidopsis</i> E Q K
79	I clade S N T K II clade S N T K IV/V clade S N T K <i>Arabidopsis</i> S N T R G E D

83	I clade II clade IV/V clade <i>Arabidopsis</i>	Y	N N D	D D D	E E	V	H	R	S
84	I clade II clade IV/V clade <i>Arabidopsis</i>	G G	E E	A A	T T	V	I		
86	I clade II clade IV/V clade <i>Arabidopsis</i>	H H	N N	L	V	D D	R		
93	I clade II clade IV/V clade <i>Arabidopsis</i>	F F F F	L L L	I I	P				
113	I clade II clade IV/V clade <i>Arabidopsis</i>	Q Q	H H H	N N	Y				
148	I clade II clade IV/V clade <i>Arabidopsis</i>	S S	F F	Y Y	P	L L			
149	I clade II clade IV/V clade <i>Arabidopsis</i>	K K	N N	M M M	R	E			
153	I clade II clade IV/V clade <i>Arabidopsis</i>	Y	N N N	F	D D	A	R	E	
157	I clade II clade IV/V clade <i>Arabidopsis</i>	N N N	F	D	S S	G	I		
159	I clade II clade IV/V clade <i>Arabidopsis</i>	T T	S S	Y	H	F	L		

^a Numbering of the positions refers to Fig. 8.

^b Aligning and black shading highlight amino acid identity among the different sequence groups.

Positions ^a	Amino acid variation ^b
3	I clade H P R C IV/V clade N G D <i>Arabidopsis</i> P G Q L
13	I clade V I II clade V L <i>Arabidopsis</i> V I
24	II clade S F IV/V clade S Y <i>Arabidopsis</i> T M A
33	I clade A I IV/V clade A S <i>Arabidopsis</i> A S T
36	I clade E A II clade N K <i>Arabidopsis</i> G D
43	I clade L V II clade L V <i>Arabidopsis</i> L V A
48	I clade S A C IV/V clade S A T I I V <i>Arabidopsis</i> A I V
58	I clade D F II clade D E <i>Arabidopsis</i> D E
64	I clade F S Y II clade F L IV/V clade F Y
66	I clade L F II clade F Y <i>Arabidopsis</i> F Y
68	I clade P H II clade P S T IV/V clade P S
71	II clade S N IV/V clade S N <i>Arabidopsis</i> S N
74	I clade N R IV/V clade R K <i>Arabidopsis</i> R K M
82	I clade T L I P II clade T I V IV/V clade E D Y

85	I clade II clade <i>Arabidopsis</i>	R G Q R G H K R G H N
88	II clade IV/V clade <i>Arabidopsis</i>	L S L S Q P
90	I clade II clade <i>Arabidopsis</i>	Y N K D Y C S T
92	I clade II clade <i>Arabidopsis</i>	N S R C N S T G
99	I clade II clade IV/V clade	I M I M V I T
105	I clade II clade IV/V clade	S F L S F L S C
108	II clade IV/V clade <i>Arabidopsis</i>	D N D E D E V
116	II clade IV/V clade <i>Arabidopsis</i>	T I T I D E N
123	I clade II clade <i>Arabidopsis</i>	L I L I L I
128	I clade IV/V clade <i>Arabidopsis</i>	V I V I V I
135	I clade II clade IV/V clade	V I T A V I T S
146	I clade II clade IV/V clade	F I F I T F I L
150	I clade IV/V clade <i>Arabidopsis</i>	P L I D I A Y F
151	I clade II clade IV/V clade	T S D T S P T S I

152	I clade	K	N	S				
	II clade		N	S	D			
	<i>Arabidopsis</i>	K				R	E	Q
154	I clade	S	F	I				
	II clade	S			C			
	<i>Arabidopsis</i>	S		I				
156	I clade		N	K	E			
	IV/V clade					R	Q	
	<i>Arabidopsis</i>						L	F H

^a Numbering of the positions refers to Fig. 8.

^b Aligning and black shading highlight amino acid identity among the different sequence groups.

Positions ^a	Amino acid variation ^b
5	I clade N D <i>Arabidopsis</i> E K
6	I clade E D K <i>Arabidopsis</i> E K S N
11	I clade I V II clade I V F
16	I clade F L V IV/V clade F L
18	II clade L V <i>Arabidopsis</i> L M
23	II clade A G IV/V clade A S
29	I clade T A II clade T A V
37	II clade I V <i>Arabidopsis</i> I T
38	I clade R Q IV/V clade R Q
54	I clade F I <i>Arabidopsis</i> F S
63	II clade V I <i>Arabidopsis</i> V I
67	I clade M L V <i>Arabidopsis</i> M L

69	II clade <i>Arabidopsis</i>	N S N K
77	IV/V clade <i>Arabidopsis</i>	Y H H Q
78	I clade <i>Arabidopsis</i>	Q P P L
89	I clade IV/V clade	N K R M G
94	I clade <i>Arabidopsis</i>	D G R S A L F
95	I clade <i>Arabidopsis</i>	Q K E A
98	I clade II clade	N D N D
100	I clade <i>Arabidopsis</i>	A S A V
101	I clade II clade	I L M I M
103	I clade II clade	V I V A
106	I clade <i>Arabidopsis</i>	A T A V
111	I clade II clade	H Q H Q K
112	I clade <i>Arabidopsis</i>	H Y V T
114	I clade IV/V clade	C N C S
115	II clade IV/V clade	P S Q P Q K
119	II clade IV/V clade	V A V I
131	II clade <i>Arabidopsis</i>	D N D E
132	IV/V clade <i>Arabidopsis</i>	D N D K
133	I clade II clade	D G N S D E

147	I clade IV/V clade	L L	I H		
155	I clade II clade	G G	R S	D A	
158	I clade IV/V clade		K E	D Q	H
162	II clade IV/V clade		I A	V I	M
163	I clade II clade	V A	A A	T	
164	I clade II clade	I I	L L		

^a Numbering of the positions refers to Fig. 8.

^b Aligning and black shading highlight amino acid identity among the different sequence groups.