

Supplementary material

Table 1 Sample list and GenBank and European Nucleotide Archive accession numbers. Sample ID as in the Figure 1.

ID	Accession Numbers			Morphology	Type of progeny	Tree origin
	<i>LEA</i>	<i>4CL</i>	<i>AGP6</i>			
1	LN877971, LN877972	KT328511, KT328512	KT447260, KT447261	<i>sibirica</i>	clone	Mt. Alchanai, Khentei-Chikoyskoe Upland (the Republic of Buryatia, Russia)
2	LN877973	KT328513	KT447262	<i>sibirica</i>	clone	Mt. Alchanai, Khentei-Chikoyskoe Upland (the Republic of Buryatia, Russia)
3	LN877974	KT328514	KT447263	<i>sibirica</i>	clone	Mt. Alchanai, Khentei-Chikoyskoe Upland (the Republic of Buryatia, Russia)
4	LN877975, LN877976	KT328515	KT447264, KT447265	<i>sibirica</i>	clone	Nevyansk (Sverdlovsk Oblast, Russia)
5	LN877977, LN877978	KT328516	KT447266	<i>sibirica</i>	clone	Nevyansk (Sverdlovsk Oblast, Russia)
6	LN877979	KT328517, KT328518	KT447267	<i>sibirica</i>	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
7	LN877980, LN877981	KT328519, KT328520	KT447268, KT447269	<i>sibirica</i>	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
8	LN877982, LN877983	KT328521, KT328522	KT447270	<i>sibirica</i>	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
9	LN877984, LN877985	KT328523	KT447271, KT447272	<i>sibirica</i>	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)

						Russia)
10	LN877986	KT328524, KT328525	KT447273	<i>sibirica</i>	clone	Altai Mts. (Xinjiang, China)
11	LN877987, LN877988	KT328526	KT447274, KT447275	<i>sibirica</i>	clone	Western Sayan Mts. (Russia)
12	LN877989	KT328527, KT328528	KT447276	<i>sibirica</i>	clone	Tomsk (Tomsk Oblast, Russia)
13	LN877990	KT328529	KT447277	<i>sibirica</i>	clone	Urengoy (Yamalo-Nenets Autonomous Okrug, Russia)
14	LN877991	KT328530	KT447278*	hybrid	clone	Mt. Alchanai, Khentei-Chikoyskoe Upland (the Republic of Buryatia, Russia)
15	LN877992, LN877993	KT328531, KT328532	KT447279	hybrid	clone	Mt. Alchanai, Khentei-Chikoyskoe Upland (the Republic of Buryatia, Russia)
16	LN877994	KT328533	KT447280*	hybrid	clone	Mt. Alchanai, Khentei-Chikoyskoe Upland (the Republic of Buryatia, Russia)
17	LN877995, LN877996	KT328534, KT328535	KT447281, KT447282	hybrid	clone	Nizhneangarsk (the Republic of Buryatia, Russia)
18	LN877997, LN877998	KT328536, KT328537	KT447283	hybrid	clone	Nizhneangarsk (the Republic of Buryatia, Russia)
19	LN877999	KT328538, KT328539	KT447284*	hybrid	clone	Nizhneangarsk (the Republic of Buryatia, Russia)
20	LN878000, LN878001	KT328540, KT328541	KT447285	hybrid	clone	Nizhneangarsk (the Republic of Buryatia, Russia)
21	LN878002, LN878003	KT328542, KT328543*	KT447286	hybrid	clone	Nizhneangarsk (the Republic of Buryatia, Russia)
22	LN878004, LN878005	KT328544, KT328545	KT447287, KT447288*	hybrid	clone	Peak Cherskogo, ridge Chamar-Daban (Irkutsk Oblast, Russia)

23	LN878006, LN878007	KT328546, KT328547	KT447289, KT447290	hybrid	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
24	LN878008, LN878009	KT328548, KT328549	KT447291, KT447292	hybrid	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
25	LN878010, LN878011	KT328550, KT328551	KT447293*, KT447294	hybrid	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
26	LN878012	KT328552, KT328553	KT447295, KT447296*	hybrid	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
27	LN878013, LN878014	KT328554, KT328555	KT447297, KT447298	<i>pumila</i>	clone	Komsomolsk-on-Amur (Khabarovsk Krai, Russia)
28	LN878015	KT328556	KT447299	<i>pumila</i>	clone	Komsomolsk-on-Amur (Khabarovsk Krai, Russia)
29	LN878016	KT328557	KT447300, KT447301	<i>pumila</i>	seed progeny	Kunashir Island (Russia)
30	LN878017	KT328558, KT328559	KT447302, KT447303	<i>pumila</i>	seed progeny	Kunashir Island (Russia)
31	LN878018	KT328560	KT447304, KT447305	<i>pumila</i>	seed progeny	Mt. Mamai, Chamar-Daban ridge (the Republic of Buryatia, Russia)
32	LN878019	KT328561	KT447306, KT447307	<i>pumila</i>	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)
33	LN878020	KT328562	KT447308, KT447309	<i>pumila</i>	clone	Peak Cherskogo, Chamar-Daban ridge (Irkutsk Oblast, Russia)

34	LN878021	KT328563	KT447310, KT447311	<i>pumila</i>	seed progeny	Severomuysk, Stanovoye upland (the Republic of Buryatia, Russia)
35	LN878022	KT328564	KT447312, KT447313	<i>pumila</i>	seed progeny	South Sakhalin Island (Russia)
36	LN878023	KT328565, KT328566	KT447314	<i>pumila</i>	seed progeny	Magadan (Russia)
37	LN878024	KT328567	KT447315	<i>pumila</i>	seed progeny	Nizhneangarsk (the Republic of Buryatia, Russia)

* – Unique sequence variant