**Table S1***Datasets used in this study*

|  |  |  |
| --- | --- | --- |
| **Dataset** | **Insert size** | **Raw data amount** |
| HiSeq Run 1  | 300 b | 44 Gb |
| HiSeq Run 2 | 500 b | 45 Gb |
| Mate Pair Library 1 | 8 kb | 30 Gb |
| Mate Pair Library 2 | 20 kb | 16 Gb |
|  | **Total** | **135 Gb** |

**Table S2***BUSCO output for the de novo S. chilense transcriptomes*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BUSCOs** | **LA3111** |  | **LA2750** |  |
|  | # | % | # | % |
| Complete BUSCOs | 1350 | 93.7 | 1357 | 94.2 |
| Complete and single-copy BUSCOs | 1328 | 92.2 | 1337 | 92.8 |
| Complete and duplicated BUSCOs | 22 | 1.5 | 20 | 1.4 |
| Fragmented BUSCOs | 30 | 2.1 | 22 | 1.5 |
| Missing BUSCOs | 60 | 4.2 | 61 | 4.3 |
| Total BUSCO groups searched | 1440 |  | 1440 |  |

**Table S3** *BUSCO output for our S. chilense genome and two other tomato species*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **BUSCOs** | ***S. chilense*** |  | ***S. pennellii*** |  | ***S. lycopersicum*** |  |
|  | # | % | # | % | # | % |
| Complete BUSCOs | 1323 | 91.8 | 1375 | 95.5 | 1370 | 95.5 |
| Complete and single-copy BUSCOs | 1301 | 90.3 | 1342 | 93.2 | 1345 | 93.4 |
| Complete and duplicated BUSCOs | 22 | 1.5 | 33 | 2.3 | 25 | 1.7 |
| Fragmented BUSCOs | 44 | 3.1 | 12 | 0.8 | 15 | 1 |
| Missing BUSCOs | 73 | 5.1 | 53 | 3.7 | 55 | 3.9 |
| Total BUSCO groups searched | 1440 |  | 1440 |  | 1440 |  |

**Table S4.** *S. chilense-S. pennellii* syntenic block distribution across *S. pennellii* chromosomes.

|  |  |  |  |
| --- | --- | --- | --- |
| **SP****chr\*** | **SP total genes** | **i-ADHoRe** | **DAGchainer** |
| **SC syntenic****scaffolds** |  **syntenic blocks** | **syntenic gene pairs** | **SC syntenic****scaffolds** |  **syntenic blocks** | **syntenic gene pairs** |
| **01** | 3373 | 235 | 240 | 1708 | 315 | 331 | 2300 |
| **02** | 2705 | 257 | 285 | 1619 | 305 | 362 | 2224 |
| **03** | 2732 | 234 | 239 | 1441 | 326 | 344 | 2135 |
| **04** | 2209 | 173 | 175 | 964 | 238 | 245 | 1444 |
| **05** | 1898 | 151 | 155 | 788 | 215 | 226 | 1238 |
| **06** | 2380 | 248 | 253 | 1354 | 295 | 319 | 1872 |
| **07** | 2014 | 158 | 162 | 935 | 205 | 221 | 1371 |
| **08** | 1921 | 164 | 174 | 944 | 199 | 229 | 1321 |
| **09** | 1977 | 173 | 178 | 875 | 231 | 250 | 1393 |
| **10** | 1969 | 152 | 167 | 846 | 201 | 227 | 1330 |
| **11** | 1781 | 151 | 154 | 739 | 203 | 215 | 1145 |
| **12** | 1915 | 179 | 182 | 854 | 233 | 247 | 1317 |
| **total** | 26874 | 1961 | 2364 | 12984 | 2231 | 3216 | 19090 |

*\** SP scaffolds, which were not assigned to chromosomes (chr), are not included;

SP – *S. pennellii,* SC – *S. chilense*

**Table S5.** *S. chilense-S. lycopersicum* syntenic block distribution across *S. lycopersicum* chromosomes.

|  |  |  |  |
| --- | --- | --- | --- |
| **SL****chr.\*** | **SL total genes** | **i-ADHoRe** | **DAGchainer** |
| **SC syntenic****scaffolds** |  **syntenic blocks** | **syntenic gene pairs** | **SC syntenic****scaffolds** |  **syntenic blocks** | **syntenic gene pairs** |
| **01** | 3181 | 253 | 256 | 1795 | 313 | 326 | 2297 |
| **02** | 2599 | 259 | 284 | 1618 | 305 | 364 | 2215 |
| **03** | 2576 | 268 | 274 | 1598 | 328 | 341 | 2142 |
| **04** | 2141 | 198 | 200 | 1159 | 248 | 258 | 1523 |
| **05** | 1738 | 171 | 175 | 902 | 221 | 231 | 1255 |
| **06** | 2232 | 255 | 260 | 1404 | 297 | 318 | 1870 |
| **07** | 1872 | 163 | 167 | 1002 | 199 | 213 | 1356 |
| **08** | 1841 | 167 | 179 | 1000 | 193 | 224 | 1297 |
| **09** | 1823 | 194 | 198 | 978 | 230 | 250 | 1393 |
| **10** | 1816 | 165 | 181 | 963 | 208 | 236 | 1360 |
| **11** | 1676 | 164 | 167 | 832 | 202 | 214 | 1141 |
| **12** | 1767 | 193 | 194 | 984 | 238 | 250 | 1332 |
| **total** | 25257 | 2450 | 2535 | 14013 | 2237 | 3225 | 19114 |

*\** SL genes in scaffolds, which were not assigned to chromosomes (chr), are not included;

SL – *S. lycopersicum,* SC – *S. chilense*

**Table S6.** *S. lycopersicum - S. pennellii* syntenicblock distribution (i-ADHoRe).

|  |  |  |  |
| --- | --- | --- | --- |
| **SL****chr.\*** | **across *S. lycopersicum* chromosomes** | **SP****chr.\*** | **across *S. pennellii* chromosomes** |
| **SL total genes** | **syntenic blocks** | **syntenic gene pairs** | **SP total genes** | **syntenic blocks** | **syntenic gene pairs** |
| **01** | 3181 | 78 | 2500 | **01** | 3373 | 74 | 2258 |
| **02** | 2599 | 74 | 2374 | **02** | 2705 | 98 | 2046 |
| **03** | 2576 | 102 | 2306 | **03** | 2732 | 92 | 1901 |
| **04** | 2141 | 77 | 1600 | **04** | 2209 | 73 | 1426 |
| **05** | 1738 | 66 | 1271 | **05** | 1898 | 68 | 1155 |
| **06** | 2232 | 107 | 2191 | **06** | 2380 | 103 | 1768 |
| **07** | 1872 | 72 | 1478 | **07** | 2014 | 68 | 1306 |
| **08** | 1841 | 65 | 1455 | **08** | 1921 | 58 | 1276 |
| **09** | 1823 | 73 | 1427 | **09** | 1977 | 74 | 1230 |
| **10** | 1816 | 105 | 1533 | **10** | 1969 | 107 | 1220 |
| **11** | 1676 | 63 | 1315 | **11** | 1781 | 62 | 1150 |
| **12** | 1767 | 95 | 1440 | **12** | 1915 | 100 | 1168 |
| **total** | 25257 | 977 | 18064 | **total** | 26874 | 977 | 17904 |

\*genes in scaffolds, which were not assigned to chromosomes (chr) are not included;

SL – *S. lycopersicum,* SP – *S. pennellii*

**Table S7** *Solanum chilense* scaffolds encoding exclusively organellar (chloroplast and mitochondrial) genes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **scaffold\_ID** | **scaffold\_length** | **nonorganellar\_genes** | **organellar\_genes** | **total\_genes** |
| scaffold10048 | 31103 | 0 | 1 | 1 |
| scaffold10841 | 39452 | 0 | 2 | 2 |
| scaffold10859 | 48932 | 0 | 5 | 5 |
| scaffold11149 | 11371 | 0 | 1 | 1 |
| scaffold13820 | 9933 | 0 | 2 | 2 |
| scaffold13938 | 9892 | 0 | 1 | 1 |
| scaffold14561 | 9697 | 0 | 1 | 1 |
| scaffold17393 | 8949 | 0 | 1 | 1 |
| scaffold17500 | 8905 | 0 | 2 | 2 |
| scaffold17672 | 9383 | 0 | 1 | 1 |
| scaffold17978 | 8568 | 0 | 1 | 1 |
| scaffold18081 | 8421 | 0 | 1 | 1 |
| scaffold18327 | 8738 | 0 | 1 | 1 |
| scaffold18893 | 6248 | 0 | 1 | 1 |
| scaffold19524 | 5409 | 0 | 1 | 1 |
| scaffold19786 | 5148 | 0 | 1 | 1 |
| scaffold20242 | 4787 | 0 | 1 | 1 |
| scaffold20541 | 23669 | 0 | 1 | 1 |
| scaffold20841 | 4419 | 0 | 1 | 1 |
| scaffold21257 | 4200 | 0 | 1 | 1 |
| scaffold21524 | 4084 | 0 | 2 | 2 |
| scaffold21609 | 4044 | 0 | 1 | 1 |
| scaffold21657 | 4020 | 0 | 1 | 1 |
| scaffold22249 | 3890 | 0 | 1 | 1 |
| scaffold22621 | 3647 | 0 | 1 | 1 |
| scaffold23031 | 3706 | 0 | 2 | 2 |
| scaffold23352 | 3437 | 0 | 1 | 1 |
| scaffold24401 | 3164 | 0 | 1 | 1 |
| scaffold24436 | 5584 | 0 | 5 | 5 |
| scaffold24618 | 21300 | 0 | 1 | 1 |
| scaffold24954 | 3036 | 0 | 1 | 1 |
| scaffold25127 | 3002 | 0 | 1 | 1 |
| scaffold25593 | 2911 | 0 | 2 | 2 |
| scaffold25721 | 20435 | 0 | 1 | 1 |
| scaffold25737 | 2896 | 0 | 3 | 3 |
| scaffold26635 | 2741 | 0 | 2 | 2 |
| scaffold27942 | 2554 | 0 | 3 | 3 |
| scaffold27957 | 2553 | 0 | 1 | 1 |
| scaffold28640 | 2571 | 0 | 4 | 4 |
| scaffold28930 | 2432 | 0 | 1 | 1 |
| scaffold28952 | 2431 | 0 | 1 | 1 |
| scaffold2905 | 68999 | 0 | 1 | 1 |
| scaffold29074 | 2423 | 0 | 4 | 4 |
| scaffold29769 | 2734 | 0 | 1 | 1 |
| scaffold31875 | 2756 | 0 | 2 | 2 |
| scaffold32964 | 2072 | 0 | 1 | 1 |
| scaffold33085 | 2073 | 0 | 1 | 1 |
| scaffold33134 | 21764 | 0 | 4 | 4 |
| scaffold34433 | 1959 | 0 | 2 | 2 |
| scaffold34988 | 1921 | 0 | 1 | 1 |
| scaffold35751 | 1862 | 0 | 1 | 1 |
| scaffold37145 | 1798 | 0 | 2 | 2 |
| scaffold37217 | 1794 | 0 | 1 | 1 |
| scaffold38264 | 1744 | 0 | 1 | 1 |
| scaffold38534 | 1731 | 0 | 1 | 1 |
| scaffold39992 | 1668 | 0 | 1 | 1 |
| scaffold40031 | 1667 | 0 | 1 | 1 |
| scaffold40499 | 1647 | 0 | 1 | 1 |
| scaffold40848 | 1634 | 0 | 1 | 1 |
| scaffold42912 | 1561 | 0 | 1 | 1 |
| scaffold43204 | 1552 | 0 | 1 | 1 |
| scaffold43624 | 1538 | 0 | 1 | 1 |
| scaffold44107 | 1522 | 0 | 1 | 1 |
| scaffold45322 | 1487 | 0 | 1 | 1 |
| scaffold45953 | 1470 | 0 | 1 | 1 |
| scaffold46324 | 1458 | 0 | 1 | 1 |
| scaffold46659 | 1449 | 0 | 1 | 1 |
| scaffold5003 | 33516 | 0 | 15 | 15 |
| scaffold5058 | 32576 | 0 | 3 | 3 |
| scaffold51537 | 1338 | 0 | 1 | 1 |
| scaffold52851 | 1311 | 0 | 1 | 1 |
| scaffold53173 | 1305 | 0 | 1 | 1 |
| scaffold54440 | 1281 | 0 | 3 | 3 |
| scaffold55197 | 1269 | 0 | 1 | 1 |
| scaffold58146 | 1221 | 0 | 1 | 1 |
| scaffold59064 | 1207 | 0 | 1 | 1 |
| scaffold59207 | 1205 | 0 | 1 | 1 |
| scaffold60527 | 1187 | 0 | 1 | 1 |
| scaffold6076 | 26703 | 0 | 1 | 1 |
| scaffold61320 | 1176 | 0 | 1 | 1 |
| scaffold62079 | 1166 | 0 | 2 | 2 |
| scaffold64286 | 1146 | 0 | 1 | 1 |
| scaffold65060 | 1132 | 0 | 1 | 1 |
| scaffold6536 | 24863 | 0 | 1 | 1 |
| scaffold66818 | 1114 | 0 | 1 | 1 |
| scaffold67043 | 1111 | 0 | 1 | 1 |
| scaffold67362 | 1109 | 0 | 1 | 1 |
| scaffold67476 | 1108 | 0 | 1 | 1 |
| scaffold68006 | 1103 | 0 | 1 | 1 |
| scaffold69182 | 1091 | 0 | 1 | 1 |
| scaffold69646 | 1087 | 0 | 1 | 1 |
| scaffold69893 | 1085 | 0 | 1 | 1 |
| scaffold70265 | 1082 | 0 | 1 | 1 |
| scaffold70481 | 1080 | 0 | 1 | 1 |
| scaffold71693 | 1069 | 0 | 1 | 1 |
| scaffold72574 | 1062 | 0 | 1 | 1 |
| scaffold72591 | 1061 | 0 | 3 | 3 |
| scaffold73804 | 1053 | 0 | 1 | 1 |
| scaffold74257 | 1048 | 0 | 2 | 2 |
| scaffold75389 | 1040 | 0 | 3 | 3 |
| scaffold76782 | 1030 | 0 | 1 | 1 |
| scaffold77269 | 1027 | 0 | 3 | 3 |
| scaffold77464 | 1025 | 0 | 2 | 2 |
| scaffold77662 | 1024 | 0 | 1 | 1 |
| scaffold7800 | 19348 | 0 | 1 | 1 |
| scaffold78792 | 1017 | 0 | 1 | 1 |
| scaffold79001 | 1015 | 0 | 3 | 3 |
| scaffold80495 | 1005 | 0 | 1 | 1 |
| scaffold80563 | 1004 | 0 | 2 | 2 |
| scaffold8802 | 28575 | 0 | 1 | 1 |
| scaffold9129 | 16905 | 0 | 2 | 2 |

**Table S8** *Known NLR genes from other species that were used as a reference.*

|  |  |  |
| --- | --- | --- |
| **Gene name** | **Reference species** | **Protein class** |
| APAF1 | Homo sapiens | - |
| CED-4 | Caenorhabditis elegance | - |
| Bs4 | Solanum lycopersicum | TNL |
| Bs2 | Capsicum chacoense | CNL |
| Gro1-4 | Solanum tuberosum | TNL |
| Hero | Solanum lycopersicum | CNL |
| I-2 | Solanum lycopersicum | CNL |
| M | Linum usitatissimum | TNL |
| Mi-1.2 | Solanum lycopersicum | CNL |
| RPS2 | Arabidopsis thaliana | CNL |
| R1 | Solanum demissum | CNL |
| R3a | Solanum demissum | CNL |
| Rpi-blb1 | Solanum bulbocastanum | CNL |
| Rpi-blb2 | Solanum bulbocastanum | CNL |
| RPM1 | Arabidopsis thaliana | CNL |
| RPP13 | Arabidopsis thaliana | CNL |
| RPP8 | Arabidopsis thaliana | CNL |
| RPS4 | Arabidopsis thaliana | TNL |
| Rx | Solanum tuberosum | CNL |
| Ry-1 | Solanum tuberosum | TNL |
| Tm2 | Solanum lycopersicum | CNL |