

Ancient DNA investigation into infectious
diseases of medieval Europe
- supplementary material

Chapter 6: Genomic and Phylogenetic Analysis of Medieval *Yersinia pestis*

Table S1. Modern *Y. pestis* strains implemented in the phylogenetic analysis.

| Strain ID | Accession No. | Origin |
|-------------------|---------------|---------------------|
| 0.ANT1a_42013 | ADPG000000000 | China |
| 0.ANT1b_CMCC49003 | ADQX000000000 | China |
| 0.ANT1c_945 | ADPV000000000 | China |
| 0.ANT1d_164 | ADOW000000000 | China |
| 0.ANT1e_CMCC8211 | ADRD000000000 | China |
| 0.ANT1f_42095 | ADPJ000000000 | China |
| 0.ANT1g_CMCC42007 | ADQV000000000 | China |
| 0.ANT1h_CMCC43032 | ADQW000000000 | China |
| 0.ANT2_B42003004 | AAJU000000000 | China |
| 0.ANT2a_2330 | ADOY000000000 | China |
| 0.ANT3_231 | JMUF000000000 | Former Soviet Union |
| 0.ANT3_790 | CP006806 | Former Soviet Union |
| 0.ANT3_A-1486 | LYMP | Former Soviet Union |
| 0.ANT3a_CMCC38001 | ADQU000000000 | China |
| 0.ANT3b_A1956001 | ADPX000000000 | China |
| 0.ANT3c_42082 | ADPH000000000 | China |
| 0.ANT3d_CMCC21106 | ADQP000000000 | China |
| 0.ANT3e_42091b | ADPI000000000 | China |
| 0.ANT5_A-1691 | LYMQ | Former Soviet Union |
| 0.ANT5_A-1836 | LYOL000000000 | Former Soviet Union |
| 0.PE2_1412 | CP006783 | Former Soviet Union |
| 0.PE2_1413 | CP006762 | Former Soviet Union |
| 0.PE2_14735 | AYLS000000000 | Former Soviet Union |
| 0.PE2_1522 | CP006758 | Former Soviet Union |
| 0.PE2_1670 | CP006806 | Former Soviet Union |
| 0.PE2_3067 | CP006754 | Former Soviet Union |
| 0.PE2_3544 | LZNH | Former Soviet Union |
| 0.PE2_3551 | MBSJ000000000 | Former Soviet Union |
| 0.PE2_3770 | CP006751 | Former Soviet Union |
| 0.PE2_8787 | CP006748 | Former Soviet Union |
| 0.PE2_C-197 | LIYX | Former Soviet Union |
| 0.PE2_C-235 | LIYY | Former Soviet Union |
| 0.PE2_C-267 | LIYZ | Former Soviet Union |
| 0.PE2_C-290 | LIYU | Former Soviet Union |
| 0.PE2_C-291 | LIZC | Former Soviet Union |
| 0.PE2_C-346 | LIZE | Former Soviet Union |
| 0.PE2_C-359 | LIZB | Former Soviet Union |
| 0.PE2_C-370 | MIDX000000000 | Former Soviet Union |
| 0.PE2_C-535 | MIDY000000000 | Former Soviet Union |
| 0.PE2_C-537 | LIYP | Former Soviet Union |
| 0.PE2_C-590 | LIYQ | Former Soviet Union |
| 0.PE2_C-666 | LIZF | Former Soviet Union |
| 0.PE2_C-678 | MIDZ000000000 | Former Soviet Union |

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|---------------------|--------------|---------------------|
| 0.PE2 C-700 | MIEA00000000 | Former Soviet Union |
| 0.PE2 C-712 | MTZW00000000 | Former Soviet Union |
| 0.PE2 C-739 | MTZX00000000 | Former Soviet Union |
| 0.PE2 C-741 | LPTX | Former Soviet Union |
| 0.PE2 C-746 | MTZY00000000 | Former Soviet Union |
| 0.PE2 C-824 | MTZZ00000000 | Former Soviet Union |
| 0.PE2 KM874 | LZTG | Former Soviet Union |
| 0.PE2 M-986 | LYMO | Former Soviet Union |
| 0.PE2 PEST-F | NC 009381 | Former Soviet Union |
| 0.PE2b G8786 | ADSG00000000 | Former Soviet Union |
| 0.PE4 5307-Gis | LIYS | Former Soviet Union |
| 0.PE4 A-1804 | LIYW | Former Soviet Union |
| 0.PE4 A-1807 | LIYT | Former Soviet Union |
| 0.PE4 A-513 | LIZA | Former Soviet Union |
| 0.PE4 I-3134 | LIYR | Former Soviet Union |
| 0.PE4 I-3442 | NHYH00000000 | Former Soviet Union |
| 0.PE4 I-3443 | MIED00000000 | Former Soviet Union |
| 0.PE4 I-3446 | NHYI00000000 | Former Soviet Union |
| 0.PE4 I-3447 | MIEE00000000 | Former Soviet Union |
| 0.PE4 I-3455 | LIYV | Former Soviet Union |
| 0.PE4 I-3515 | NHYJ00000000 | Former Soviet Union |
| 0.PE4 I-3516 | NHMW00000000 | Former Soviet Union |
| 0.PE4 I-3517 | NHMX00000000 | Former Soviet Union |
| 0.PE4 I-3518 | NHMY00000000 | Former Soviet Union |
| 0.PE4 I-3519 | NHMZ00000000 | Former Soviet Union |
| 0.PE4 M0000002 | ADST00000000 | China |
| 0.PE4 Microtus91001 | NC 005810 | China |
| 0.PE4a B1313 | LYMS | Former Soviet Union |
| 0.PE4a I-2751-55 | LYCL00000000 | Former Soviet Union |
| 0.PE4a I-2998 | LYMR | Former Soviet Union |
| 0.PE4Aa 12 | ADOV00000000 | China |
| 0.PE4Ab 9 | ADPT00000000 | China |
| 0.PE4Ba PestoidesA | ACNT00000000 | Former Soviet Union |
| 0.PE4Ca CMCCN010025 | ADRT00000000 | China |
| 0.PE4Cc CMCC18019 | ADQO00000000 | China |
| 0.PE4Cd CMCC93014 | ADRM00000000 | China |
| 0.PE4Ce CMCC91090 | ADRJ00000000 | China |
| 0.PE4h A-1249 | LYMN | Former Soviet Union |
| 0.PE4m I-3086 | LZNY | Mongolia |
| 0.PE4t A-1815 | LPTY | Former Soviet Union |
| 0.PE5 I-2231 | PVLX00000000 | Mongolia |
| 0.PE5 I-2236 | PVLZ00000000 | Mongolia |
| 0.PE5 I-2239 | LIZD | Mongolia |
| 0.PE5 I-2422a | LIZG | Mongolia |
| 0.PE5 I-2422b | QANK00000000 | Mongolia |
| 0.PE5 I-2457 | PVMB00000000 | Mongolia |
| 0.PE5 I-3189 | LIYO | Mongolia |
| 0.PE5 I-3190 | PVLY00000000 | Mongolia |

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|---------------------|---------------|------------|
| 0.PE7b_620024 | ADPM00000000 | China |
| 1.ANT1_Antiqua | NC_008150 | Congo |
| 1.ANT1_UG05-0454 | AAAYR00000000 | Uganda |
| 1.IN1a_CMCC11001 | ADQK00000000 | China |
| 1.IN1b_780441 | ADPS00000000 | China |
| 1.IN1c_K21985002 | ADSS00000000 | China |
| 1.IN2a_CMCC640047 | ADRA00000000 | China |
| 1.IN2b_30017 | ADPC00000000 | China |
| 1.IN2c_CMCC31004 | ADQR00000000 | China |
| 1.IN2d_C1975003 | ADPZ00000000 | China |
| 1.IN2e_C1989001 | ADQB00000000 | China |
| 1.IN2f_710317 | ADPP00000000 | China |
| 1.IN2g_CMCC05013 | ADQF00000000 | China |
| 1.IN2i_CMCC10012 | ADQG00000000 | China |
| 1.IN2j_CMCC27002 | ADQQ00000000 | China |
| 1.IN2k_970754 | ADPW00000000 | China |
| 1.IN2l_D1991004 | ADRX00000000 | China |
| 1.IN2m_D1964002b | ADRV00000000 | China |
| 1.IN2n_CMCC02041 | ADQC00000000 | China |
| 1.IN2o_CMCC03001 | ADQD00000000 | China |
| 1.IN2p_D1982001 | ADRW00000000 | China |
| 1.IN2q_D1964001 | ADRU00000000 | China |
| 1.IN3a_F1954001 | ADSC00000000 | China |
| 1.IN3b_E1979001 | AAAYV00000000 | China |
| 1.IN3c_CMCC84038b | ADRF00000000 | China |
| 1.IN3d_YN1683 | ADTD00000000 | China |
| 1.IN3e_YN472 | ADTH00000000 | China |
| 1.IN3f_YN1065 | ADTC00000000 | China |
| 1.IN3g_E1977001 | ADRY00000000 | China |
| 1.IN3h_CMCC84033 | ADRE00000000 | China |
| 1.IN3i_CMCC84046 | ADRG00000000 | China |
| 1.ORI1_CA88 | ABCD00000000 | USA |
| 1.ORI1_CO92 | NC_003143 | USA |
| 1.ORI1a_CMCC114001 | ADQL00000000 | China |
| 1.ORI1b_India195 | ACNR00000000 | India |
| 1.ORI1c_F1946001 | ADSB00000000 | China |
| 1.ORI2_F1991016 | ABAT00000000 | China |
| 1.ORI2a_YN2179 | ADTE00000000 | Myanmar |
| 1.ORI2c_YN2551b | ADTF00000000 | China |
| 1.ORI2d_YN2588 | ADTG00000000 | China |
| 1.ORI2f_CMCC87001 | ADRH00000000 | China |
| 1.ORI2g_F1984001 | ADSD00000000 | China |
| 1.ORI2h_YN663 | ADTI00000000 | China |
| 1.ORI2i_CMCK100001a | ADRR00000000 | China |
| 1.ORI2i_CMCK110001b | ADRS00000000 | China |
| 1.ORI3_IP275 | AAOS00000000 | Madagascar |
| 1.ORI3_MG05-1020 | AAYS00000000 | Madagascar |
| 1.ORI3a_EV76 | ADSA00000000 | Madagascar |

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| 2.ANT1_Nepal516 | ACNQ00000000 | Nepal |
| 2.ANT1a_34008 | ADPD00000000 | China |
| 2.ANT1b_34202 | ADPE00000000 | China |
| 2.ANT2a_2 | ADOX00000000 | China |
| 2.ANT2b_351001 | ADPF00000000 | China |
| 2.ANT2c_CMCC347001 | ADQS00000000 | China |
| 2.ANT2d_G1996006 | ADSE00000000 | China |
| 2.ANT2e_G1996010 | ADSF00000000 | China |
| 2.ANT2f_CMCC348002 | ADQT00000000 | China |
| 2.ANT3_KM682 | LPVG | Former Soviet Union |
| 2.ANT3a_CMCC92010 | ADRL00000000 | China |
| 2.ANT3b_CMCC95001 | ADRN00000000 | China |
| 2.ANT3c_CMCC96001 | ADRO00000000 | China |
| 2.ANT3d_CMCC96007 | ADRP00000000 | China |
| 2.ANT3e_CMCC67001 | ADRB00000000 | China |
| 2.ANT3f_CMCC104003 | ADQH00000000 | China |
| 2.ANT3g_CMCC51020 | ADQY00000000 | China |
| 2.ANT3h_CMCC106002 | ADQI00000000 | China |
| 2.ANT3i_CMCC64001 | ADQZ00000000 | China |
| 2.ANT3j_H1959004 | ADSI00000000 | China |
| 2.ANT3k_5761 | ADPL00000000 | Russia |
| 2.ANT3l_735 | ADPR00000000 | Russia |
| 2.MED0_C-627 | MBSI00000000 | Former Soviet Union |
| 2.MED1_1045 | CP006794 | Former Soviet Union |
| 2.MED1_1116-D | LPXS | Former Soviet Union |
| 2.MED1_1240 | LZNI | Former Soviet Union |
| 2.MED1_139 | QAPA00000000 | Former Soviet Union |
| 2.MED1_173 | LQAZ | Former Soviet Union |
| 2.MED1_1906 | LYOM | Former Soviet Union |
| 2.MED1_244 | LZND | Former Soviet Union |
| 2.MED1_261 | LZNG | Former Soviet Union |
| 2.MED1_2944 | CP006792 | Former Soviet Union |
| 2.MED1_44 | LZNF | Former Soviet Union |
| 2.MED1_A-1763 | LQAW | Former Soviet Union |
| 2.MED1_A-1809 | LYMF | Former Soviet Union |
| 2.MED1_A-1825 | LYCM | Former Soviet Union |
| 2.MED1_A-1920 | LYCO | Former Soviet Union |
| 2.MED1_C-791 | LQAU | Former Soviet Union |
| 2.MED1_K1973002 | AAYT00000000 | China |
| 2.MED1_KIM10 | NC_004088 | Iran |
| 2.MED1_KM816 | LPXU | Former Soviet Union |
| 2.MED1_KM918 | LPQY | Former Soviet Union |
| 2.MED1_M-1448 | LYCN | Former Soviet Union |
| 2.MED1_M-1453 | LQAY | Former Soviet Union |
| 2.MED1_M-1484 | LQAV | Former Soviet Union |
| 2.MED1_M-1524 | LYCP | Former Soviet Union |
| 2.MED1_M-1773 | LYMG | Former Soviet Union |
| 2.MED1_M-1864 | LOHR | Former Soviet Union |

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| 2.MED1 M-519 | LQAX | Former Soviet Union |
| 2.MED1 M-549 | LQBA | Former Soviet Union |
| 2.MED1 M-595 | LYOH | Former Soviet Union |
| 2.MED1 M-978 | LPXT | Former Soviet Union |
| 2.MED1b 2506 | ADPA00000000 | China |
| 2.MED1c 2654 | ADPB00000000 | China |
| 2.MED1d 2504 | ADOZ00000000 | China |
| 2.MED2b 91 | ADPU00000000 | China |
| 2.MED2c K11973002 | AAYT00000000 | China |
| 2.MED2d A1973001 | ADPY00000000 | China |
| 2.MED2e 7338 | ADPQ00000000 | China |
| 2.MED3a J1963002 | ADSP00000000 | China |
| 2.MED3b CMCC125002b | ADQN00000000 | China |
| 2.MED3c I1969003 | ADSK00000000 | China |
| 2.MED3d J1978002 | ADSQ00000000 | China |
| 2.MED3f I1970005 | ADSL00000000 | China |
| 2.MED3g CMCC99103 | ADRQ00000000 | China |
| 2.MED3h CMCC90027 | ADRI00000000 | China |
| 2.MED3i CMCC92004 | ADRK00000000 | China |
| 2.MED3j I2001001 | ADSO00000000 | China |
| 2.MED3k CMCC12003 | ADQM00000000 | China |
| 2.MED3l I1994006 | ADSN00000000 | China |
| 2.MED3m SHAN11 | ADTA00000000 | China |
| 2.MED3n SHAN12 | ADTB00000000 | China |
| 2.MED3o I1991001 | ADSM00000000 | China |
| 2.MED3p CMCC107004 | ADQJ00000000 | China |
| 3.ANT1a 7b | ADPN00000000 | China |
| 3.ANT1b CMCC71001 | ADRC00000000 | China |
| 3.ANT1c C1976001 | ADQA00000000 | China |
| 3.ANT1d 71021 | ADPO00000000 | China |
| 3.ANT2a MGJZ6 | ADSX00000000 | Mongolia |
| 3.ANT2b MGJZ7 | ADSY00000000 | Mongolia |
| 3.ANT2c MGJZ9 | ADSZ00000000 | Mongolia |
| 3.ANT2d MGJZ11 | ADSU00000000 | Mongolia |
| 3.ANT2e MGJZ3 | ADSW00000000 | Mongolia |
| 4.ANT 1454 | LZNC | Former Soviet Union |
| 4.ANT 338 | LZNX | Former Soviet Union |
| 4.ANT 517 | LYMH | Former Soviet Union |
| 4.ANT KM932 | LZNE | Former Soviet Union |
| 4.ANT M-1944 | LYOK | Former Soviet Union |
| 4.ANT1a MGJZ12 | ADSV00000000 | Mongolia |

Table S2. Medieval *Y. pestis* strains implemented in the phylogenetic analysis.

| Strain ID | Accession No. | Origin |
|---------------------------------------|--|-------------------|
| Azov_38 | ERP118465 | Russia |
| Gdansk_8 | ERP118465 | Poland |
| Che1 | PRJEB27821 | Russia |
| Peb10 | PRJEB27821 | Sweden |
| SPN7 | PRJEB27821 | Italy |
| STN020 | PRJEB29990 | Switzerland |
| STN021 | PRJEB29990 | Switzerland |
| Rostov_2033 | ERP118465 | Russia |
| Rostov_2039 | ERP118465 | Russia |
| Col001 | PRJEB27821 | Italy |
| SPN1 | PRJEB27821 | Italy |
| SPN19 | PRJEB27821 | Italy |
| DA101 | PRJEB25891 | Kyrgyzstan |
| Altenerding | PRJEB14851 | Germany |
| London_EastSmithfield_8124_8291_11972 | SRR341961, SRR341962, SRR341963 | United Kingdom |
| London_EastSmithfield_6330 | SAMN00715799 | UK |
| Ellwangen | PRJEB13664 | Germany |
| Bolgar | PRJEB13664 | Russia |
| Barcelona | PRJEB13664 | Spain |
| OBS107 | PRJEB12163 | France |
| OBS110 | PRJEB12163 | France |
| OBS116 | PRJEB12163 | France |
| OBS124 | PRJEB12163 | France |
| OBS137 | PRJEB12163 | France |
| EDI001.A | SAMEA5661363 | UK |
| LVC_merged | SAMEA5661382, SAMEA5661378, SAMEA5661380, | France |
| NMS002 | PRJEB29990 | UK |
| BRA001 | PRJEB29990 | UK |
| BED024 | PRJEB29990 | UK |
| BED028 | PRJEB29990 | UK |
| BED030 | PRJEB29990 | UK |
| BED034 | PRJEB29990 | UK |
| STN002 | PRJEB29990 | Switzerland |
| STN007 | PRJEB29990 | Switzerland |
| STN008 | PRJEB29990 | Switzerland |
| STN013 | PRJEB29990 | Switzerland |
| STN014 | PRJEB29990 | Switzerland |
| STN019 | PRJEB29990 | Switzerland |
| BED024 | PRJEB29990 | UK |
| BED028 | PRJEB29990 | UK |
| BED030 | PRJEB29990 | UK |
| BED034 | PRJEB29990 | UK |
| STN002 | PRJEB29990 | Switzerland |
| STN007 | PRJEB29990 | Switzerland |
| STN008 | PRJEB29990 | Switzerland |
| STN013 | PRJEB29990 | Switzerland |
| STN014 | PRJEB29990 | Switzerland |
| STN019 | PRJEB29990 | Switzerland |