

The genetic variation in the R1a clade among the Ashkenazi Levites' Y chromosome

Doron M Behar*^{1,2}, Lauri Saag¹, Monika Karmin¹, Meir G. Gover³, Jeffrey D. Wexler⁴, Luisa Fernanda Sanchez², Elliott Greenspan², Alena Kushniarevich^{1,5}, Oleg Davydenko⁵, Hovhannes Sahakyan^{1,6}, Levon Yepiskoposyan⁶, Alessio Boattini⁷, Stefania Sarno⁷, Luca Pagani^{1,8}, Shai Carmi⁹, Shay Tzur^{9,10}, Ene Metspalu^{1,11}, Concetta Bormans², Karl Skorecki^{10,12}, Mait Metspalu¹, Siiri Roots¹, Richard Villems^{1,11}

¹Estonian Biocentre, Tartu 51010, Estonia

²Genomic Research Center, Gene by Gene, Houston 77008, Texas, USA

³Independent Genetic Genealogy Researcher, Savyon 5690500, Israel

⁴levitedna.org, Los Angeles 90045, California, USA

⁵Institute of Genetics and Cytology, National Academy of Sciences of Belarus, 220072, Minsk, Belarus

⁶Laboratory of Ethnogenomics, Institute of Molecular Biology of National Academy of Sciences, Yerevan, 0014, Armenia

⁷Department of Biological, Geological and Environmental Sciences, University of Bologna, Bologna, 40126, Italy

⁸APE Lab, Dept. of Biology, University of Padova, 35121, Padova, Italy

⁹Braun School of Public Health and Community Medicine, The Hebrew University of Jerusalem, Jerusalem, 9112102, Israel

¹⁰Rambam Health Care Campus, Haifa 3109601, Israel

¹¹Department of Evolutionary Biology, Institute of Molecular and Cell Biology University of Tartu, Tartu 51010, Estonia

¹²Ruth and Bruce Rappaport Faculty of Medicine, Technion-Israel Institute of Technology, Haifa, 3109601, Israel

*Correspondence and requests for materials should be addressed to D.M.B. (email: behardm@genebygene.com)

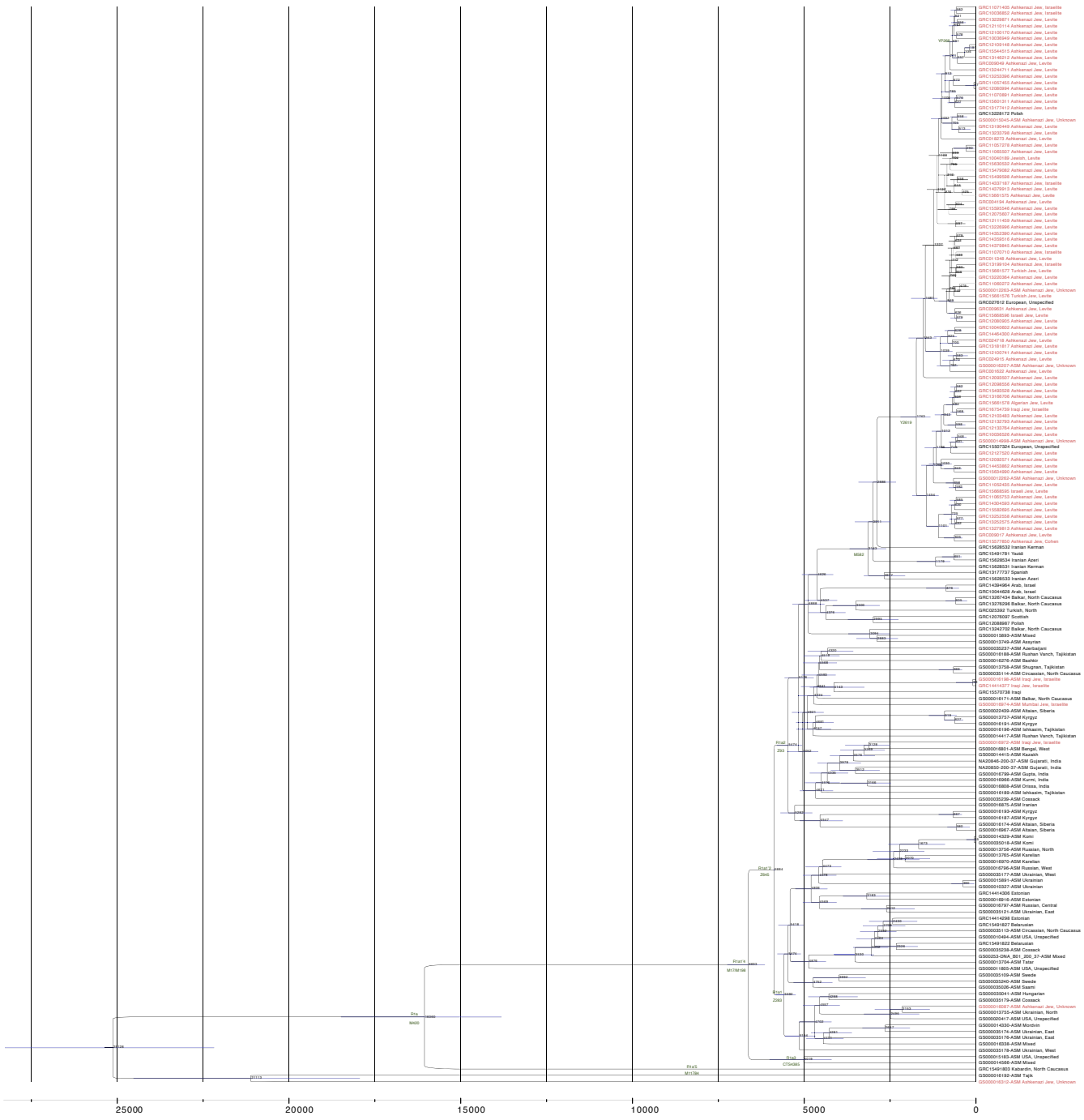


Figure S1. Haplogroup R1a phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.

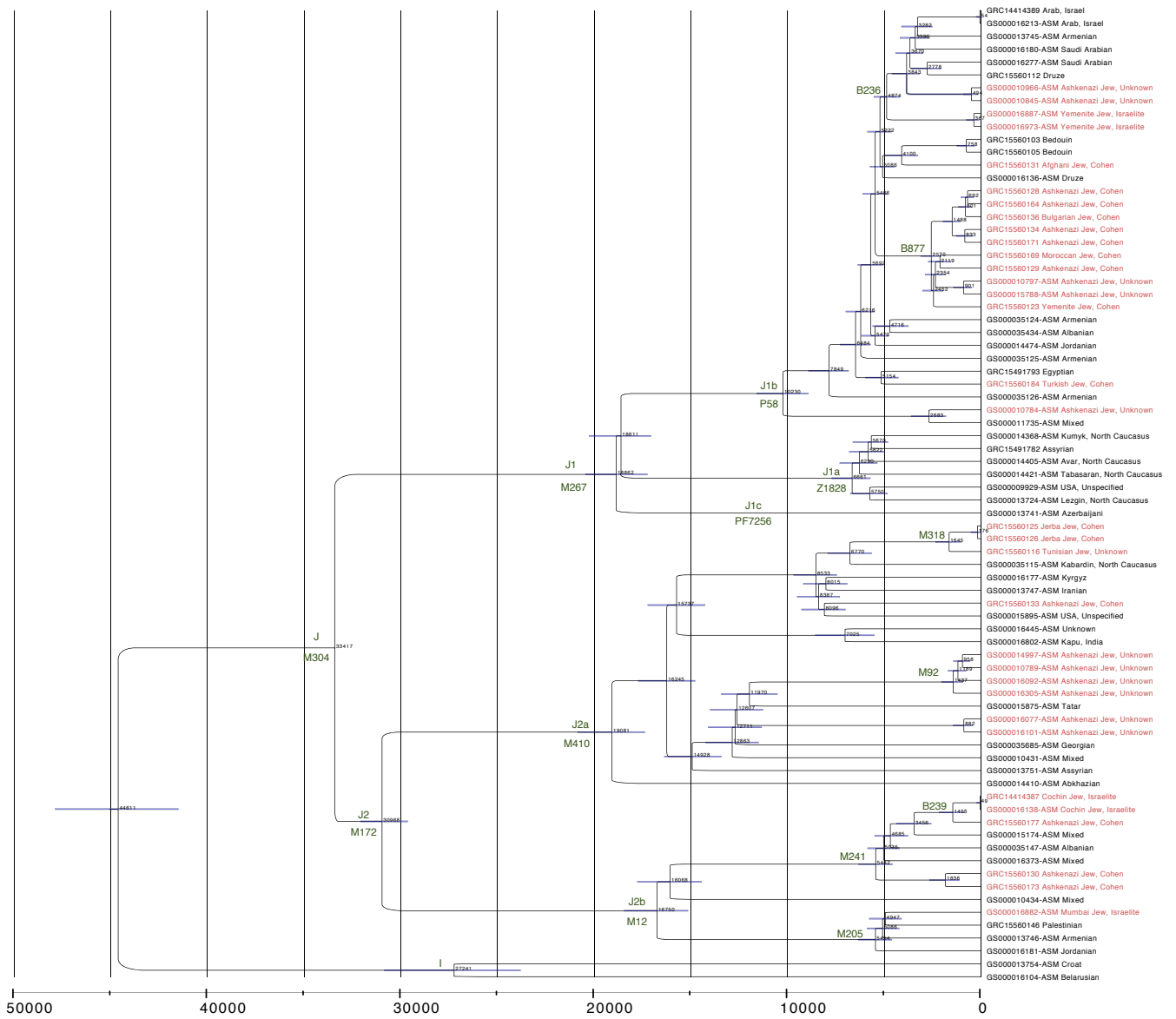


Figure S2. Haplogroup J phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.

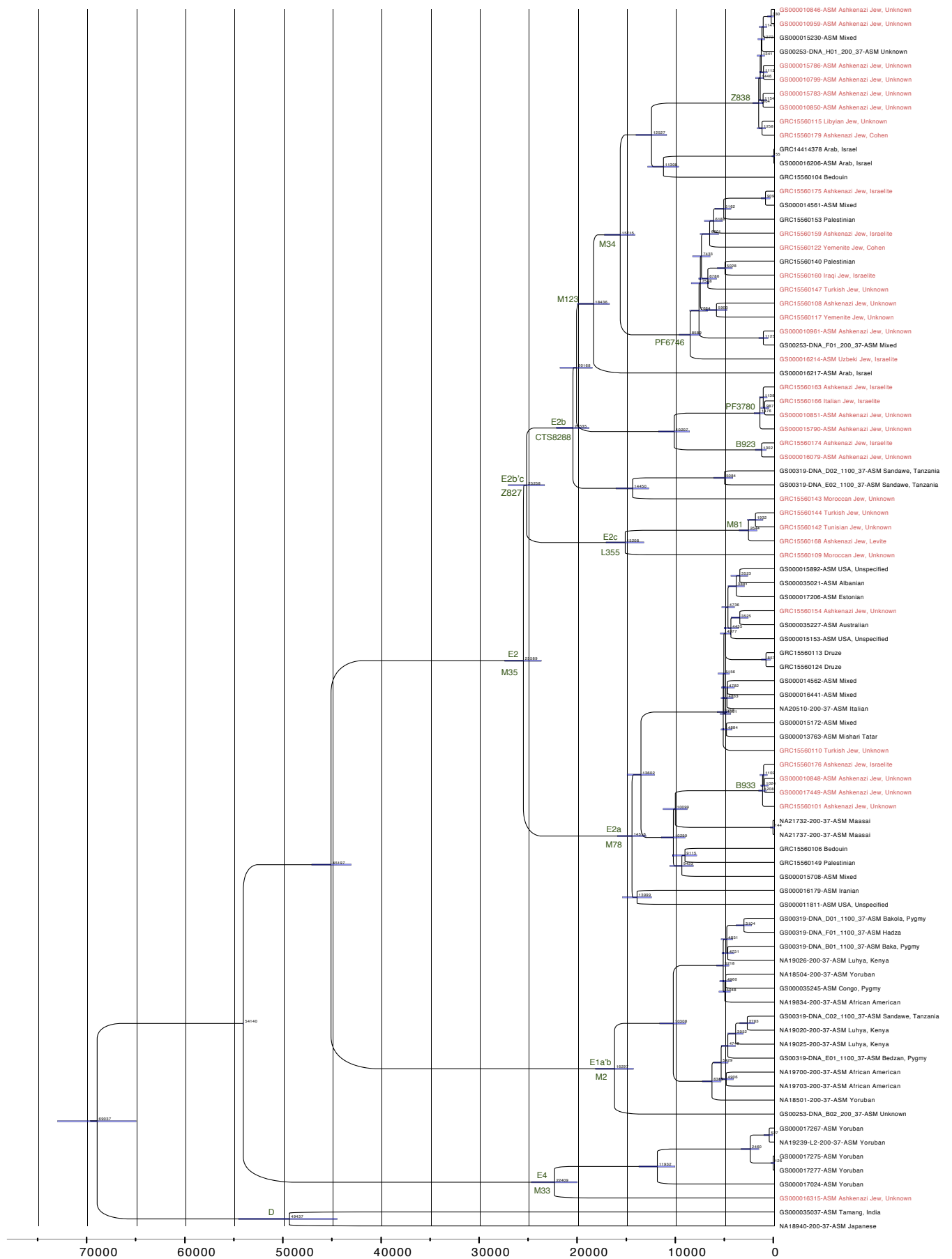


Figure S3. Haplogroup E phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.

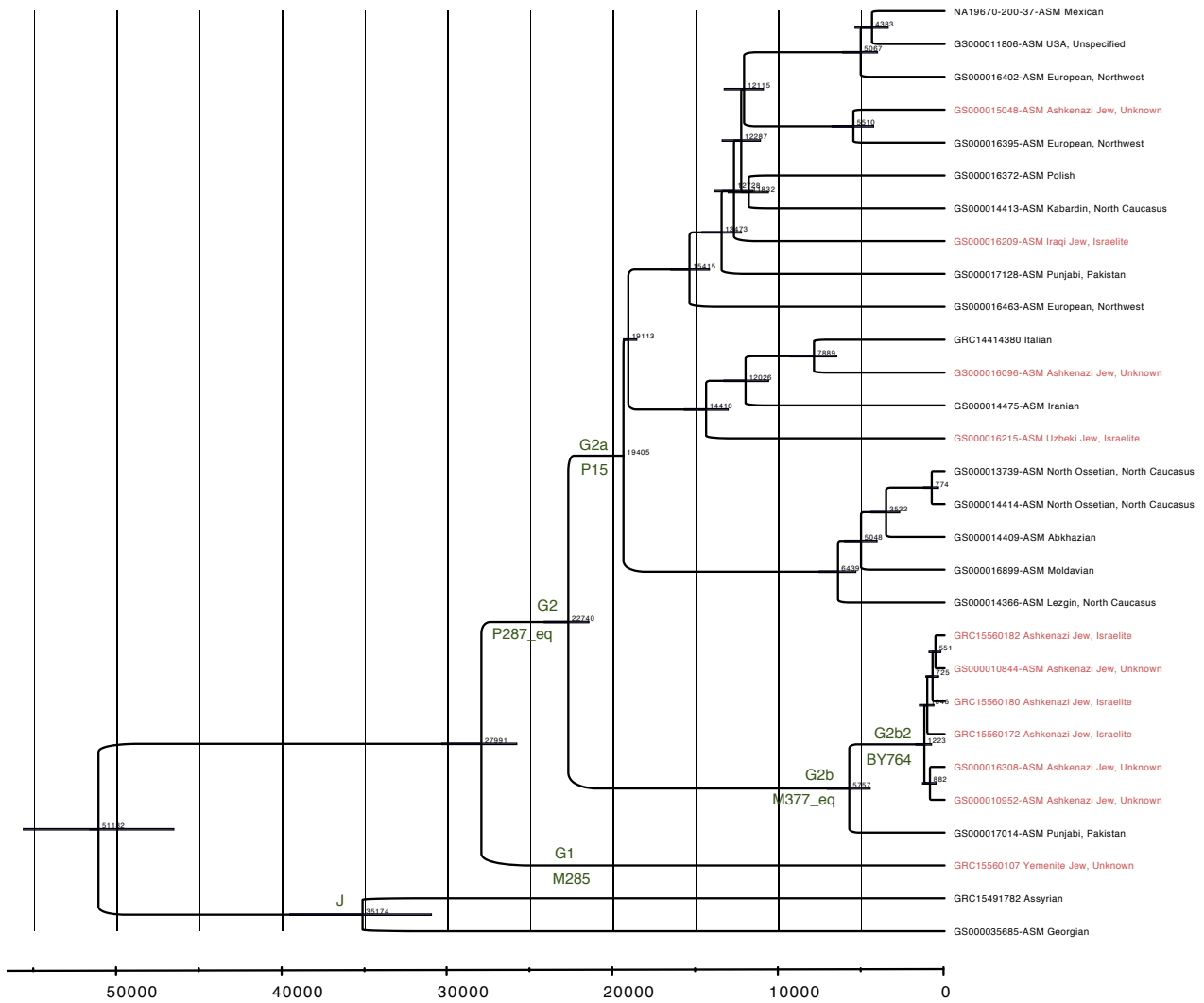


Figure S4. Haplogroup G phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.

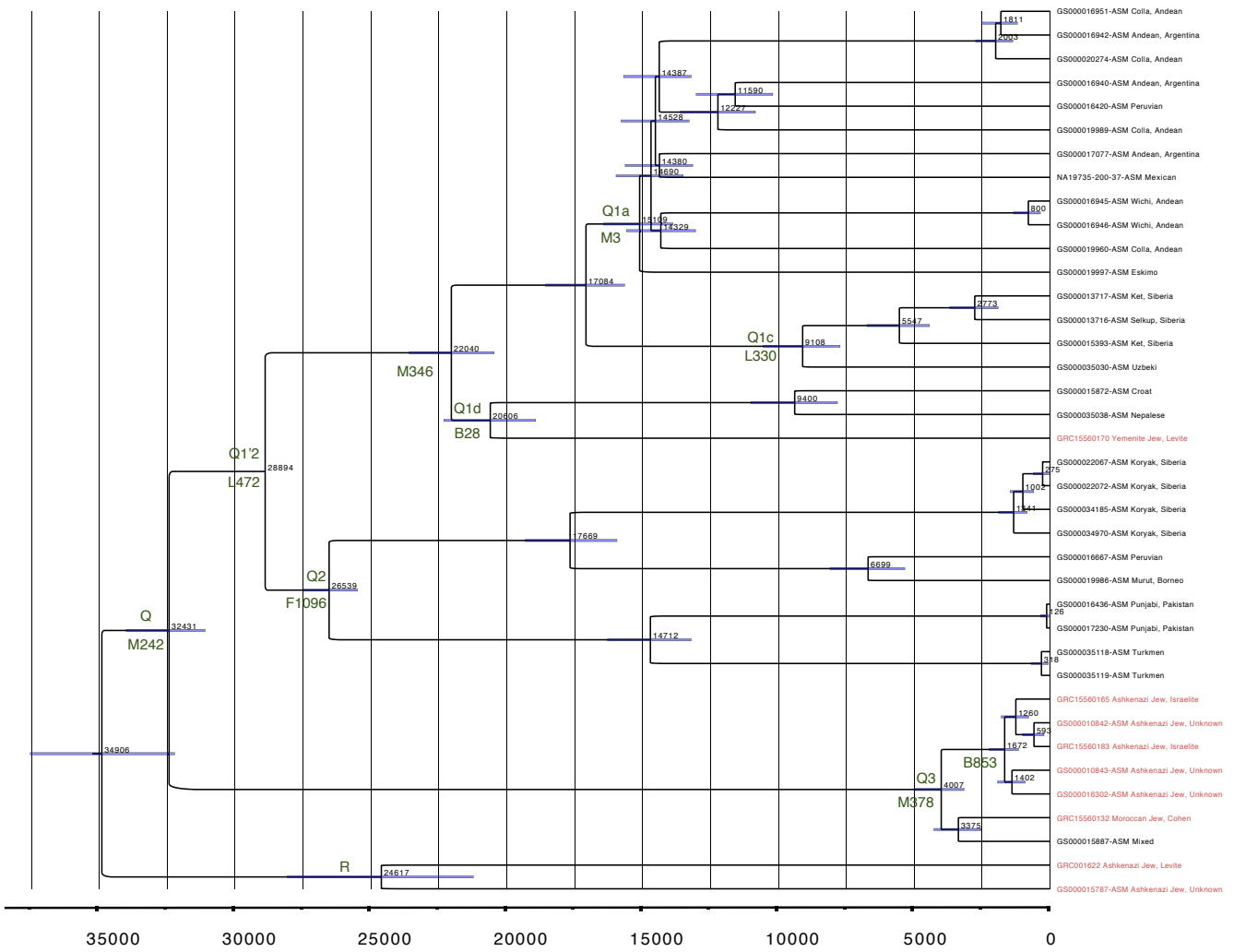


Figure S5. Haplogroup Q phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.

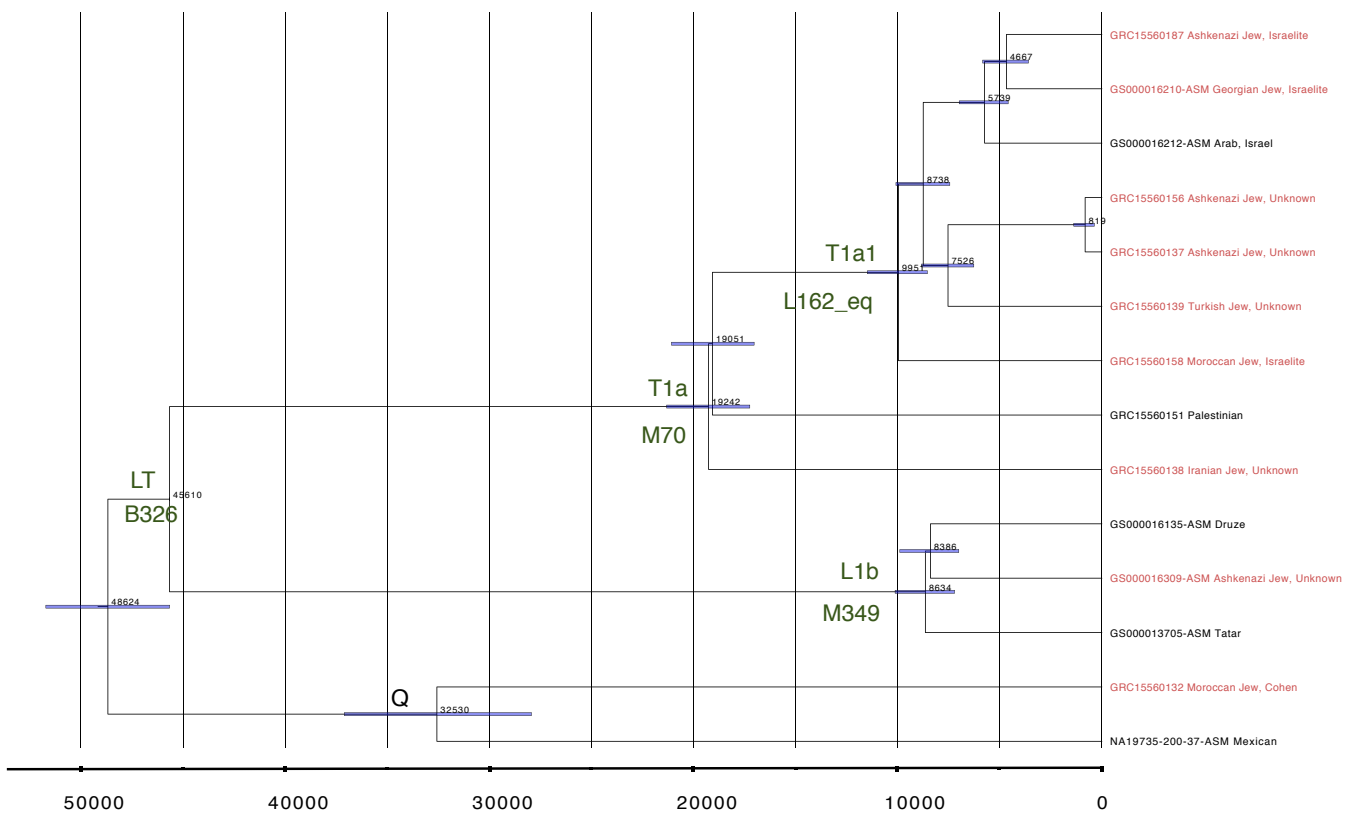


Figure S6. Haplogroup LT phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.

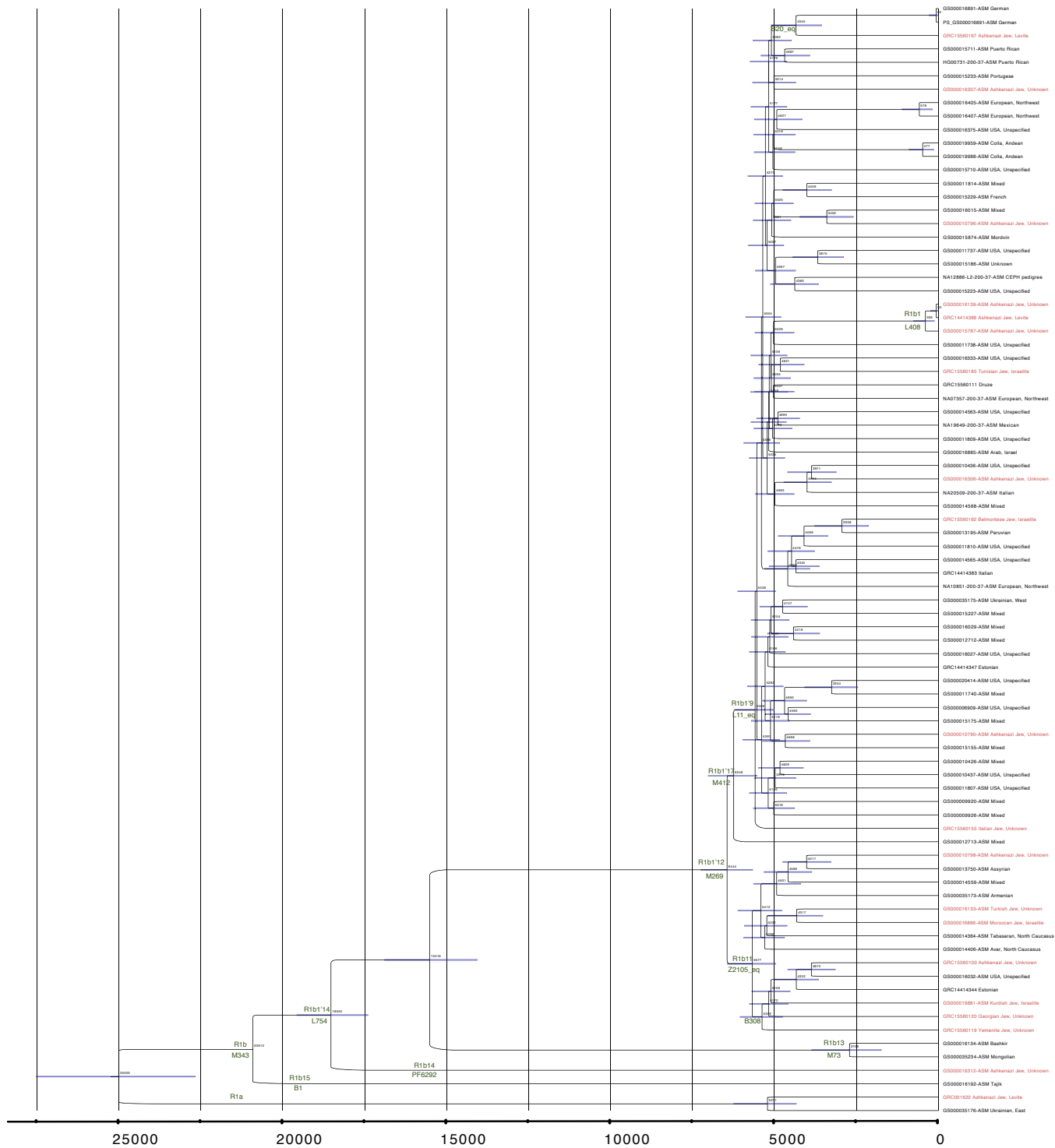


Figure S7. Haplogroup R1b phylogeny as reconstructed by BEAST with estimated coalescence ages of the nodes. Haplogroup annotations and marker names are noted along branches of interest. Coalescence ages are marked on the bifurcating nodes with bars representing the 95% confidence intervals. Individuals with Jewish ancestry are marked in red.