AA> Vol.2 No.1, February 2012

OPEN ACCESS

Haplogroup R1a as the Proto Indo-Europeans and the Legendary Aryans as Witnessed by the DNA of Their Current Descendants

PDF (Size:566KB) PP. 1-13 DOI: 10.4236/aa.2012.21001

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ABSTRACT

This article aims at reconstructing history of R1a1 ancient migrations between 20,000 and 3500 years before present (ybp). Four thousand four hundred sixty (4460) haplotypes of haplogroup R1a1 were considered in terms of base (ancestral) haplotypes of R1a1 populations and timespans to their common ancestors in the regions from South Siberia and northern/northwestern China in the east to the Hindustan and further west across Iranian Plateau, Anatolia, Asia Minor and to the Balkans in Europe, including on this way Central Asia, South India, Nepal, Oman, the Middle East, Comoros Islands, Egypt, etc. This study provides a support to the theory that haplogroup R1a arose in Central Asia, apparently in South Siberia and/or neighboring regions, around 20,000 ybp. Not later than 12,000 ybp bearers of R1a1 already were in the Hindustan, then went across Anatolia and the rest of Asia Minor apparently between 10,000 and 9000 ybp, and around 9000 - 8000 ybp they arrived to the Balkans and spread over Europe east to the British Isles. On this migration way or before it bearers of R1a1 (or the parent, upstream haplogroups) have developed Proto Indo-European language, and carried it along during their journey to Europe. The earliest signs of the language on passing of bearers of R1a1 through Anatolia were picked by the linguists, and dated by 9400 - 9600 - 10,100 ybp, which fairly coincides with the data of DNA genealogy, described in this work. At the same time as bearers of the brother haplogroup R1b1a2 began to populate Europe after 4800 ybp, haplogroup R1a1 moved to the Russian Plain around 4800 - 4600 ybp. From there R1a1 migrated (or moved as military expeditions) to the south (Anatolia, Mitanni and the Arabian Peninsula), east (South Ural and then North India), and south-east (the Iranian Plateau) as the historic legendary Aryans. Haplotypes of their direct descendants are strikingly similar up to 67 markers with contemporary ethnic Russians of haplogroup R1a1. Dates of those Aryan movements from the Russian Plain in said directions are also strikingly similar, between 4200 and 3600 ybp.

KEYWORDS

Y Chromosome; Mutations; Haplotypes; Haplogroups; TMRCA; STR; SNP; Indo-European; India; Aryans; R1a1

Cite this paper

Klyosov, A. & Rozhanskii, I. (2012). Haplogroup R1a as the Proto Indo-Europeans and the Legendary Aryans as Witnessed by the DNA of Their Current Descendants. *Advances in Anthropology, 2,* 1-13. doi: 10.4236/aa.2012.21001.

References

[1] Abu-Amero, K. K., Hellani, A., Gonzalez, A. M., Larruga, J. M., Cabrera, V. M., & Underhill, P. A. (2009). Saudi Arabian Y-chromosome diversity and its relationship with nearby regions. BMC Genetics, 10, 1959. doi:10.1186/1471-2156-10-59

[2] Adamov, D., & Klyosov, A. A. (2008). Theoretical and practical eva- luations of back mutations in haplotypes of Y chromosome. Proceedings of the Russian Academy of DNA Genealogy, 1, 631-645.

[3] Anthony, D. W. (2007). The horse, the wheel, and language. Princeton: Princeton University Press.

[4] Barac, L., Pericic, M., Klaric, I. M., Janicijevic, B., Parik, J., Rootsi, S. & Rudan, P. (2003a). Y

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chromosome STRs in Croatians. Forensic Science International, 138, 127-133. doi:10.1016/j.forsciint.2003.09.004

[5] Barac, L., Pericic, M., Klaric, I. M., Rootsi, S., Janicijevic, B., Kivisild, T., Parik, J., Rudan, I., Villems, R., & Rudan, P. (2003b). Y chromosomal heritage of Croatian population and its island isolates. European Journal of Human Genetics, 11, 535-542. doi:10.1038/sj.ejhg.5200992

[6] Bittles, A. H., Black, M. L., & Wang, W. (2007). Physical anthropology and ethnicity in Asia: the transition from anthropology to genome- based studies. Journal of Physical Anthropology, 26, 77-82. doi:10.2114/jpa2.26.77

[7] Burgarella, C. & Navascues, M. (2011). Mutationrate estimates for 110 Y-chromosome STRscombining population and father-son pairdata. European Journal of Human Genetics, 19, 70-75. doi:10.1038/ejhg.2010.154

[8] Cadenas, A. M., Zhivotovsky, L. A., CavalliSforza, L. L., Underhill, P. A., & Herrera, R. J. (2008). Y-chromosome diversity characterizes the Gulf of Oman. European Journal of Human Genetics, 16, 374-386. doi:10.1038/sj.ejhg.5201934

[9] Dixon, R. M. W. (1997). The rise and fall of language. Cambridge: Cam- bridge University Press.

[10] Fornarino, S., Pala, M., Battaglia, V., Maranta, R., Achilli, A., Modiano, G., Torroni, A., et al. (2009). Mitochondrial and Y-chromosome diversity of the Tharus (Nepal): A reservoir of genetic variation. BMC Evolutionary Biology, 9, 154-170. doi:10.1186/1471-2148-9-154

[11] Gamkrelidze, T.V., & Ivanov, V.V. (1995). Trends in linguistics 80: Indo-European and the Indo-Europeans. Berlin: Mouton de Gruyter.

[12] Gimbutas, M. (1973) The beginning of the bronze age in Europe and the Indo-Europeans 3500-2500 B.C. Journal of Indo-Europeans Stu- dies, 1, 163-214.

[13] Gimbutas, M. (1994) The civilization of the goddess. In: J. Marler (Ed.), The End of Old Europe: the Intrusion of Steppe Pastoralists from N. Pontic and the Transformation of Europe. San-Francisco: Harper.

[14] Gray, R. D., & Atkinson, Q. D. (2003) Language-tree divergence times support the Anatolian theory of Indo-European origin. Nature, 426, 435-439. doi:10.1038/nature02029

[15] J?rve, M., Zhivotovsky, L. A., Rootsi, S., Help, H., Rogaev, E. I., Khusnutdinova, E. K. et al.(2009) Decreased rate of evolution in Y chromosome STR loci of increased size of the repeat unit. PLOS One, 4, e7276. doi:10.1371/journal.pone.0007276

[16] Kang, L., Lu, Y., Wang, C., Hu, K., Chen, F., Liu, K. et al. (2011). Y-chromosome O3 haplogroup diversity in Sino-Tibetan populations reveals two migration routes into the Eastern Himalayas. Annals of Human Genetics, 76, 92-99.

[17] Kivisild, T., Rootsi, S., Metspalu, M., Mastana, S., Kaldma, K., Parik, J., Metspalu, E. et al. (2003). The genetic heritage of the earliest settlers persists both in Indian tribal and caste populations. American Journal of Human Genetics, 72, 313-332. doi:10.1086/346068

[18] Klyosov, A. A. (2008). Where Slavs and Indo-Europeans came from? Proceedings of the Russian Academy of DNA Genealogy, 1, 400-477.

[19] Klyosov, A. A. (2009a). DNA Genealogy, mutation rates, and some his- torical evidences written in Y-chromosome. I. Basic principles and the method. Journal of Genetic Genealogy, 5, 186-216.

[20] Klyosov, A. A. (2009b). DNA Genealogy, mutation rates, and some historical evidences written in Y-chromosome. II. Walking the map. Journal of Genetic Genealogy, 5, 217-256.

[21] Klyosov, A. A. (2009c). A comment on the paper: Extended Y chromosome haplotypes resolve multiple and unique lineages of the Jewish priesthood. Human Genetics, 126, 719-724. doi:10.1007/s00439-009-0739-1

[22] Klyosov, A. A. (2010a). Haplogroup R1a1 and its subclades in Asia. Proceedings of the Russian Academy of DNA Genealogy, 3, 1866- 1896 (in Russian).

[23] Klyosov, A. A. (2010b). Ancient (non-Indo European haplotypes of haplogroup R1a1 in North-Western China. Proceedings of the Russian Academy of DNA Genealogy, 3, 925-941 (in Russian).

[24] Klyosov, A. A. (2011a). Haplotypes of R1b1a2-P312 and related subclades: Origin and “ages” of

most recent common ancestors. Proceedings of the Russian Academy of DNA Genealogy, 4, 1127-1195.

[25] Klyosov, A. A. (2011b). Biological chemistry as a foundation of DNA genealogy: The emergence of "Molecular history". Biokhimiya, 76, 517-533. doi:10.1134/S0006297911050026

[26] Klyosov, A. A., & Rozhanskii, I. L. (2011). Re-examining the "out of Africa" theory and the origin of Europeoids (Caucasoids) in light of DNA genealogy. Advances in Anthropology, 1, 1 (in press).

[27] Mallory, J. P. (1989). In search of the Indo-Europeans: Language, archaeology and myth. London: Thames and Hudson.

[28] Msaidie, S., Ducourneau, A., Boetsch, G., Longepied, G., Papa, K., Allibert, C. et al. (2011). Genetic diversity on the Comoros Islands shows early seafaring as major determinant of human biocultural evolution in the Western Indian Ocean. EEuropean Journal of Human Genetics, 19, 89-94. doi:10.1038/ejhg.2010.128

[29] Myres, N. M., Rootsi, S., Lin, A. A., Jarve, M., King, R. J., Kutuev, I. et al. (2010). A Major Y-chromosome haplogroup R1b Holocene era founder effect in Central and Wester Europe. European Journal of Human Genetics, 19, 95-101.

[30] Pericic, M., Lauc, L. B., Klaric, A. M. et al. (2005). High-resolution phylogenetic analysis of southeastern Europe traces major episodes of paternal gene flow among Slavic populations. Molecular Biology and Evolution, 22, 1964-1975. doi:10.1093/molbev/msi185

[31] Renfrew, C. (2000). Time depth in historical linguistics. In: C. Renfrew, A. McMahon, & L. Trask (Eds.) (pp. 413-439). Cambridge: The Mc- Donald Institute for Archaeological Research.

[32] Rozhanskii, I. L., & Klyosov, A. A. (2009). Haplogroup R1a: Haplotypes, genealogical lineages, history, geography. Proceedings of the Russian Academy of DNA Genealogy, 2, 974-1099 (in Russian).

[33] Rozhanskii, I. L., & Klyosov, A. A. (2011). Mutation rate constants in DNA genealogy (Y chromosome). Advances in Anthropology, 1, 26- 34. doi:10.4236/aa.2011.12005

[34] Sahoo, S., Singh, A., Himabindu, G., Banerjee, J., Sitalaximi, T., Gaikwad, S., Trivedi, R., Endicott, P., Kivisild, T., Metspalu, M., Villems, R., & Kashyep, V. K. (2006). A prehistory of Indian Y chromosomes: Evaluating demic diffusion scenarios. PNAS, 103, 843- 848. doi:10.1073/pnas.0507714103

[35] Sengupta, S., Zhivotovsky, L. A., King, R., Mehdi, S. Q., Edmonds, C. A., Chow, C. E. T., Lin, A. A., et al. (2006). Polarity and temporality of high-resolution Y-chromosome distributions in India identify both indigenous and exogenous expansions and reveal minor genetic influence of Central Asian Pastoralis. Human Genetics, 78, 202-221. doi:10.1086/499411

[36] Sharma, S., Rai, E., Sharma, P., Jena, M., Singh, S., Darvishi, K., Bhat, A. K., Bhanwer, A. J. S., Tiwari, P. K., & Bamezai, R. N. K. (2009). The Indian origin of paternal haplogroup R1a1* substantiates the autochthonous origin of Brahmins and the caste system. Human Genetics, 54, 47-55. doi:10.1038/jhg.2008.2

[37] Shou, W. H., Qiao, E. F., Wei, C. Y., Dong, Y. L., Tan, S. J., Shi, H. et al. (2010). Y-chromosome distributions among populations in Northwest China identify significant contribution from Central Asian pastoralis and lesser influence of western Eurasians. Human Genetics, 23, (Advance Online Publiccation).

[38] Thanseem, I., Thangaraj, K., Chaubey, G., Singh, V. K., Bhaskar, L. V., Reddy, M. B., Reddy, A. G., & Singh, L. (2006). Genetic affinities among the lower castes and tribal groups of India: Inference from Y chromosome and mitochondrial DNA. BMC Genetics, 7, 42-53. doi:10.1186/1471-2156-7-42

[39] Underhill, P. A., Myres, N. M., Rootsi, S., Metspalu, M., Zhivotovsky, M. A., King, R. J. et al. (2010). Separating the post-Glacial coancestry of European and Asian Y chromosomes within haplogroup R1a. European Journal of Human Genetics, 18, 479-484.

[40] Zhong, H., Shi, H., Qi, X.-B., Duan, Z.-Y., Tan, P.-P., Jin, L. et al. (2010). Extended Y-chromosome investigation suggests postGlacial migrations of modern humans into East Asia via the northern route. Molecular Biology and Evolution, 28, 717-727.