

# Syphilis epidemiology in 1994-2013, molecular epidemiological strain typing and determination of macrolide resistance in *Treponema pallidum* in 2013-2014 in Tuva Republic, Russia

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## Abstract

© 2016 APMIS. Published by John Wiley & Sons Ltd The incidence of syphilis in the Tuva Republic (geographical centre of Asia), Russia has been exceedingly high historically. No detailed examinations and no molecular investigations of *Treponema pallidum* strains transmitted in the Tuva Republic, or in general, in Russia, were published internationally. We examined the syphilis epidemiology in 1994-2013, and the molecular epidemiology and macrolide resistance in *T. pallidum* strains in 2013-2014 in the Tuva Republic. Among 95 mainly primary or secondary syphilis patients, the arp, tpr, tp0548 and 23S rRNA genes in 85 *polA* gene-positive genital ulcer specimens were characterized. The syphilis incidence in Tuva Republic peaked in 1998 (1562), however declined to 177 in 2013. Among the 70 (82%) completely genotyped specimens, six molecular strain types were found. Strain type 14d/f accounted for 91%, but also 14c/f, 14d/g, 14b/f, 14i/f, 9d/f, and 4d/f were identified. Two (2.4%) specimens contained the 23S rRNA A2058G macrolide resistance mutation. This is the first internationally published typing study regarding *T. pallidum* in Russia, performed in the Tuva Republic with the highest syphilis incidence in Russia. The two molecular strain types 4d/f and 9d/f have previously been described only in Eastern and Northern China and for the first time, macrolide-resistant syphilis was described in Russia.

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## Keywords

azithromycin resistance, molecular strain typing, Russia, syphilis, *Treponema pallidum*, Tuva Republic