

LOW LEVEL OF RESISTANCE TO ANTICOAGULANT RODENTICIDES IN THE *VKORC1* GENE IN HOUSE MICE (*MUS MUSCULUS*) AND NORWAY RATS (*RATTUS NORVEGICUS*) IN RUSSIA

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Genetic resistance to anticoagulants caused by mutations in the *Vkorc1* gene of the most invasive rodent species – Norway rats and house mice – has not been studied in Russia. We analyzed the variability of the *Vkorc1* gene in house mice and Norway rats in various settlements of Russia, and identified mutations responsible for resistance to rodenticides. Two exons of the *Vkorc1* gene were analyzed in 71 Norway rats from four cities (Moscow, Tyumen, Chita, Rostov-on-Don) and 108 house mice from cities and small settlements (Moscow region, Tormosin, Nizhny Tsasuchey). Three Norway rats (15.8% of the studied individuals) in Moscow have a heterozygous state of the Tyr139Ser mutation, which is responsible for resistance. House mice were not found to have mutations in the *Vkorc1* gene responsible for resistance to anticoagulants of the first and second generation in the Leu128Ser and Tyr139Cys positions located in the third exon. However, in cities, we identified two heterozygous mutations in the first exon have not been described previously in scientific literature: Lys58Arg and Ser31Trp. In Russia, the genetic resistance to rodenticides in settlements in the populations of house mice and Norway rats is significantly lower than in Western Europe.

Key words: invasive species, *Mus musculus*, *Rattus norvegicus*, genetic resistance to anticoagulants; *Vkorc1* polymorphism; Tyr139Ser.

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