

## Regulatory effects of genes controlling behavior and painting shaping control american mink (*Neovison Vison*) as a model

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**Motivation and Aim:** Evolutionary geneticist D.K. Belyaev considered the evolution of domestic animals as a process of great changes in the process of selection of regulatory genes, or transcription factor genes involved in the regulation of genetic activity at different stages of morphogenetic processes. In an analysis of the possible genetic nature of these regulatory changes, D.K. Belyaev assigned a key role to genes that control behavior. Genes that determine behavior are, as a rule, genes with multiple regulatory functions that contribute to the adaptation of animals to humans and to the anthropogenic environment as a whole. Selection that draws these genes into its sphere of action, D.K. Belyaev defined the term "destabilizing" [1–6].

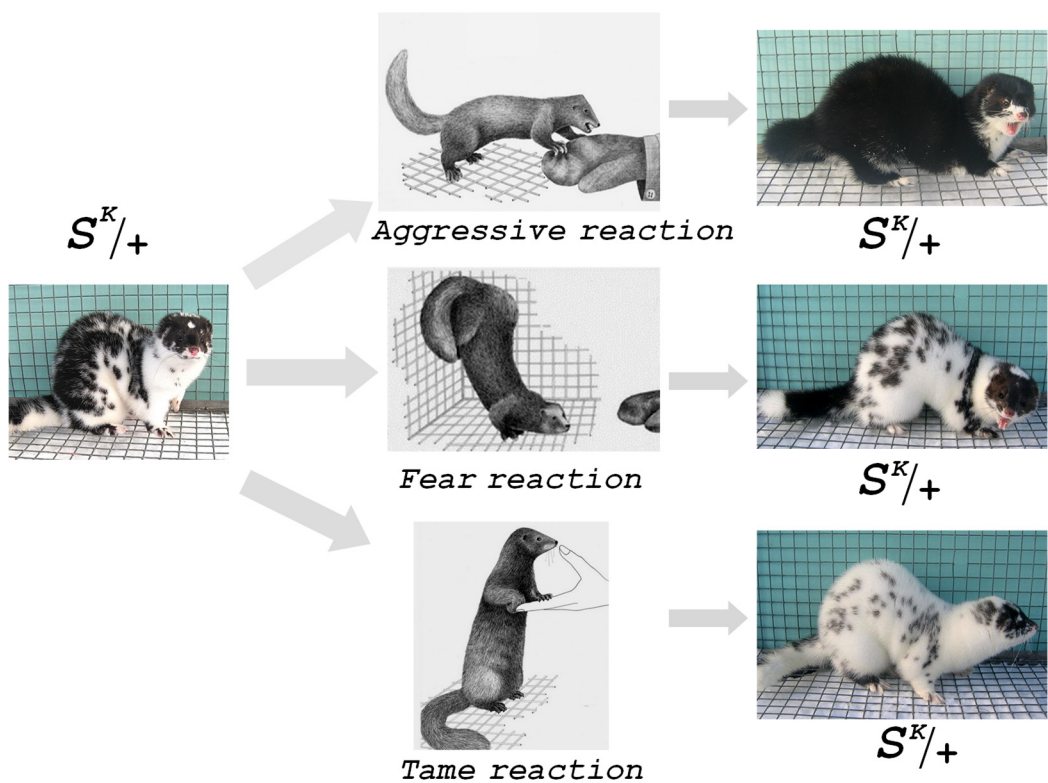
**Methods and Algorithms:** We used minks carrying the color mutation *Karel'skaja spotted* ( $S^k/+$ ) and *standard dark brown* mink ( $+/+$ ) from the aggressive and tame behavioral lines bred at the experimental fur farm of the Institute of Cytology and Genetics of the Siberian Branch of the Russian Academy of Sciences (Fig. 1).

**Conclusion:** One and the same object can be a carrier of one or the other information. Depending on which genotypic environment the signal enters, it can have either one or a completely different meaning.

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**Fig. 1.** Changes in the pigmentation pattern in minks carrying the  $S^K/+$  mutation, depending on the genotypic environment created by the behavior genes