

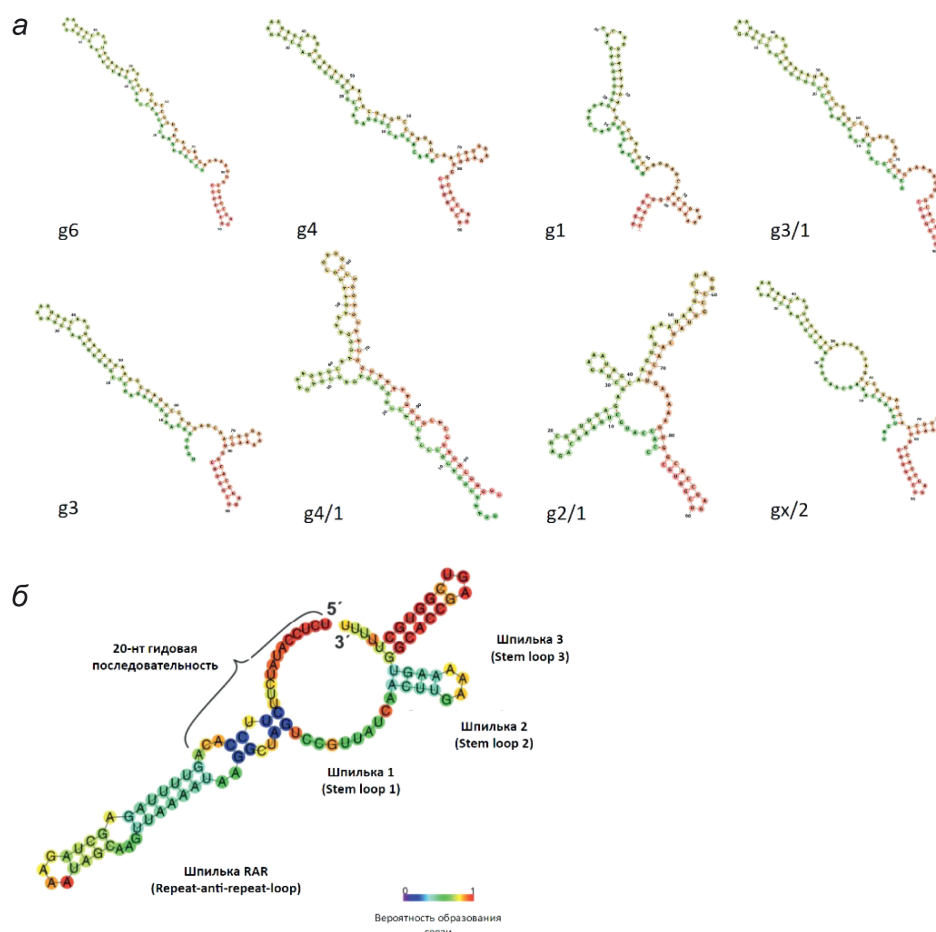


Рис. ДМ4. Вторичные структуры гидов, полученные в RNAfold Web Server. *a* — Вторичные структуры используемых гидов; *б* — вторичная структура с обозначениями RAR-шпилька (repeat and anti-repeat region — область повтор-анти-повтор), шпильки (stem loop) 1, 2 и 3, 20-нуклеотидная последовательность (Bruegmann et al., 2019).

DESIGN AND SELECTION OF GUIDES FOR CRISPR/CAS9-MEDIATED KNOCKOUT OF THE *Kcnv2* GENE IN MOUSE CELLS

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Mutations in the human *KCNV2* gene cause a rare hereditary disease — cone dystrophy with supernormal rod response (CDSRR), characterized by progressive vision loss and impaired color discrimination. The *KCNV2* gene encodes the Kv8.2 subunit of a potassium channel that is critical for the normal function of retinal photoreceptors. Gene therapy offers a promising treatment approach for this condition. To test the efficacy of gene therapy, an appropriate experimental disease model, such as a knockout mouse model, is required. This study focused on selecting optimal guide RNAs for knocking out the *Kcnv2* gene using the CRISPR/Cas9 system and testing their efficiency in a mouse cell line. The selected guide RNAs can be utilized to generate a *Kcnv2*^{-/-} mouse model.

Keywords: *KCNV2* gene, *Kcnv2* gene, guide RNA, deletion, Cas9