**Fig. 1. Mechanism of RNA interference**

Introducing of exogenous dsRNA into a cell activates the ribonuclease protein Dicer, which binds and cleaves double-stranded RNA to short (21-24 bp) fragments – siRNAs (1). The sense strand of siRNA is degraded (2), while the anti-sense strand binds to active RISC complex (3). The RISC-siRNA complex identifies homologous target mRNA (4) and induces its cleavage (5), preventing it from being used as a template for translation of target proteins: HIF1α (6a), α3 integrin (6b), ABCG2 (6c), Bmi1 (6d), AURKA (6e). This process results in the transcriptional inhibition of numerous genes involved in anaerobic glycolysis, pH regulation, survival, antiapoptotic and angiogenic effects, metastases, self-renewal and treatment resistance of cancer cells.