

The role of RNA interference in the formation of protective systems of wheat against the pathogen *Septoria Stagonospora nodorum* Berk

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M. Shein^I, I. Maksimov^I, G. Burkhanova^I

^IInstitute of biochemistry and genetics UFRC RAS, Ufa, Russia

RNA interference (RNAi) can control the activity of host genes or partner genes in an interorganismal interaction system. It is well known that RNAi is important in the formation of an immune response against viral pathogens, but its role in infection with fungal pathogens is poorly studied. Dicer-like (DCL) proteins and Argonaute (AGO) proteins are the objects of interest in our research. DCL proteins are RNases that initiate the processing of double-stranded RNAs. AGO proteins bind siRNA and use it as a guide for the recognition of mRNA of target genes or pathogen RNA. Both proteins are involved in the formation of an RNA-induced gene silencing complex. There is evidence that the accumulation of DCL1 protein in wheat upon infection can cause structural defects in pathogens. The importance of AGO1 proteins in the formation of compatible relationships is confirmed by the fact that the suppression of their synthesis increased resistance to fungal infections. RNAi was never studied in local varieties of wheat, so we measured expression level of the genes of these two protein families in variety Tulaykovskaya 108, that was bred to be resistant to *Stagonospora nodorum*, and variety Salavat Yulaev, which is susceptible to septoria.

Tulaykovskaya 108 responded to infection with an aggressive *Stagonospora nodorum* strain by both accumulation of transcripts of TaAGO1 gene and a decrease in TaDCL4 gene activity. Changes in the expression level of these genes in the variety Salavat Yulaev were precisely the opposite. Our results suggest that TaDCL4 and TaAGO1 genes play an important role in the formation of a protective response of the Tulaykovskaya 108 variety. Conversely, the accumulation of TaDCL4 transcripts in a susceptible variety of wheat Salavat Yulaev, as well as a decrease in the transcriptional activity of TaAGO1, may be a substantial condition for the successful formation of compatible relationships and the development of the infection.