

Работа выполнена при финансовой поддержке Российского научного фонда (проект 15-15-20026) и Российского фонда фундаментальных исследований (проект 18-34-00279_мол_а).

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Поступила 18 VI 2018

LOCALIZATION OF TRF2 AND DDX5 PROTEINS CONNECTING WITH DNA TANDEM REPEATS IN HUMAN OOCYTES

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The non-coding RNA of the tandem repeating DNA of the pericentromeric heterochromatin is transcribed on the two-cell stage of embryo development. These transcripts play a significant role in embryogenesis. The non-coding telomere RNA is involved in maintaining the telomere structure and in telomere-specific regulation of transcription. However, it is not known whether the proteins participating in the transcription of such repeats accumulate during oogenesis, or they are newly expressed in the embryo. In our laboratory, DDX5 protein associated with human and mouse tandem repeats was identified and characterized as a regulator of pericentric tandem DNA transcription, as well as TRF2 that binds to tandem repeats in telomeres and involved in telomere DNA transcription. We have shown that at the final stages of human oogenesis, DDX5 and TRF2 proteins are detected in the maternal cytoplasm as a part of particles of different sizes. On the basis of these data, it can be assumed that the proteins are deposited for use in early embryogenesis, prior to the activation of transcription in the embryo.

Key words: human oogenesis and embryogenesis, DDX5, TRF2, tandem repeats, telomere