Institut Européen de Chimie et Biologie

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# *The genome wide cartography and functional associations of the R-loop formation sequences (RLFS) sequences.*

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R-loop is a RNA-DNA hybrid, comprising a nascent RNA transcript hybridized to template DNA, leaving non-template DNA unpaired. R-loop forming sequence (RLFS) comprises G rich zones including short guanine (G) clusters separated by non-G nucleotides. We developed *in silico* R-loop model and mapped the RLFSs on the mouse and human genomes. Our findings suggest that: *i*)R-looping can be common biological phenomena in mammalian genomes, *ii*)R-loop and the G-quadruplex DNA sequences could be physically and biologically related and *iii*) R-loops could be key players in orchestrating gene transcription and genome integrity in the mammalians.