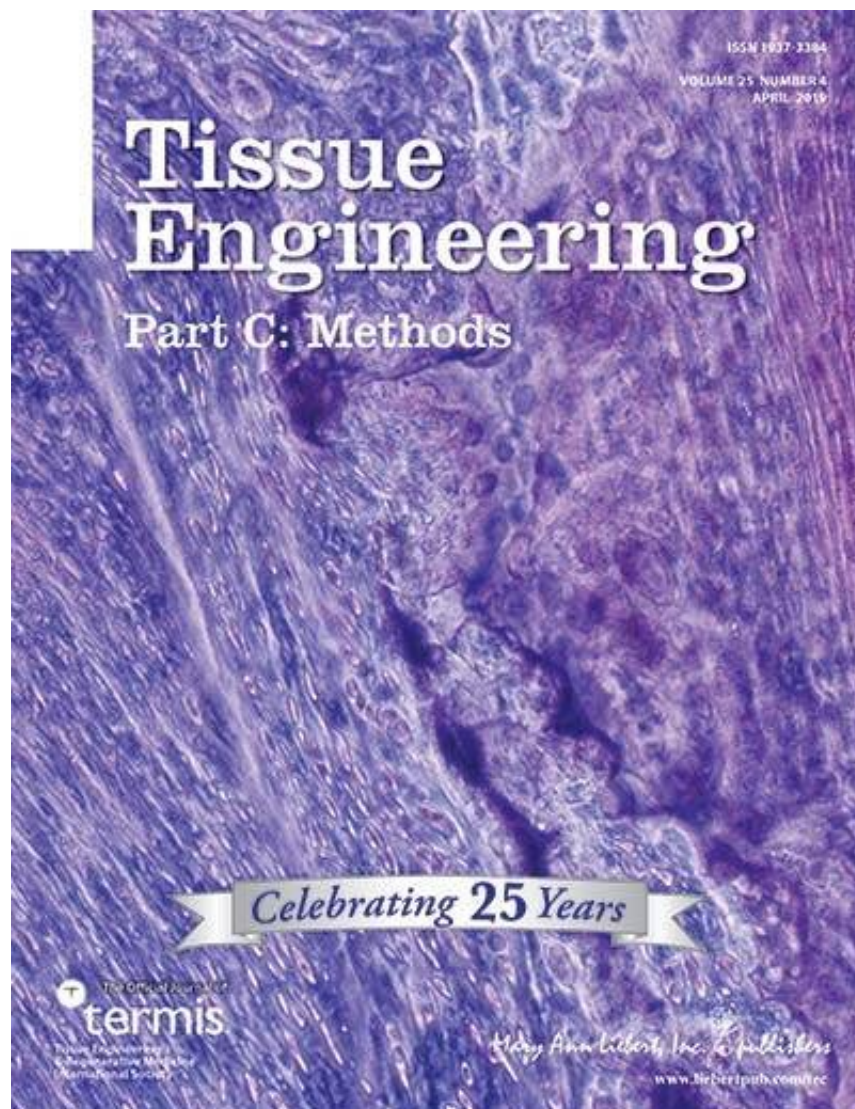


CRISPR/Cas9 improves with better gene knockout method in aneuploid cell lines

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Credit: Tissue Engineering Part C: Methods

CRISPR/Cas9 technology enables convenient and effective genome editing in diploid cell lines based on the isolation and expansion of edited single-cell clones. However, this approach is ineffective for aneuploid cell lines, and a group has now reported an improved method for genome editing based on multiple rounds of modification. The article is published in *Tissue Engineering*.

Maxim N. Karagyaur, MD, Ph.D., Lomonosov Moscow State University, Russia, and a team of colleagues have presented their research in an article titled "Optimization of CRISPR/Cas9 Technology to Knock Out Genes of Interest in Aneuploid Cell Lines." The authors treated four different human and mouse aneuploid cell lines in pooled populations and knocked out a combined six different genes. Their newly developed protocol includes repeated rounds of genome editing and GFP-positive cell sorting. Both on-target and off-target editing was assessed by sequencing predicted sites, and the results showed that additional rounds did not increase the rate of off-target cleavage despite enhancing gene knockout efficacy.

"Dr. Karagyaur and colleagues from Russia describe a critical development in CRISPR/Cas9 technology to create functional cell models from aneuploid cell cultures," says Tissue Engineering Co-Editor-in-Chief John P. Fisher, Ph.D., Fischell Family Distinguished Professor & Department Chair, and Director of the NIH Center for Engineering Complex Tissues at the University of Maryland. "Utilizing an innovative approach of repetitive cycles of CRISPR-/Cas9, the group showed that target protein expression could be suppressed, and therefore bypass clonal effects which are often observed in these complex systems."

More information: Daniyar T. Dyikanov et al. Optimization of CRISPR/Cas9 Technology to Knock Out Genes of Interest in Aneuploid Cell Lines, *Tissue Engineering Part C: Methods* (2019). [DOI: 10.1089/ten.tec.2018.0365](https://doi.org/10.1089/ten.tec.2018.0365)

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