

About

1.1 What is GenoDesigner

Genome design is the cornerstone of genome synthesis. Recent advancements in larger genome synthesis demand systematic alternations to the original genome, necessitating a comprehensive design process. The larger the genome size, the more intricate its design becomes. GenoDesigner is an open-source software with a graphical interface for the design of synthetic genomes. The development of GenoDesigner aim at helping scientists to design their genomes with customized needs.

1.2 What can I do using GenoDesigner?

GenoDesigner supports genome visualization from megabase to gigabase level. Further, GenoDesigner extends full genome manipulation capacities, including “copy”, “paste”, “cut”, “insert”, “delete”, and “replace” functions, thereby facilitating intuitive genome design. GenoDesigner supports global modification of whole genome like genome reduction, stop codon replacement, element insertion, etc.

GenoDesigner is a software that is always being updated. While GenoDesigner is currently tailored to specific purposes, future enhancements are anticipated as more scientists utilize the tool and contribute feedback, thereby bolstering the development of robust engineering software for “genome synthesis”.

1.3 Installation

The online server of Genodesigner is freely available at <http://49.51.34.198:3000/client/chromosome/en/#/>. The codes of Genodesigner for local installation is freely available at <https://github.com/SynMoss/GenoDesigner>. The additional python and R scripts such as PCRmark design attached to GenoDesigner is freely available at https://github.com/WenfeiY/P.patens_genome_design. There are no requirements for accessing the Genodesigner online server. However, to install Genodesigner locally, it is recommended that you use a server or PC with 4 cores⁺ CPU, 16 GB of memory, and a 500 GB hard drive.

1.4 Citation

For any citation, please refer to:

Wenfei Yu, Shuo Zhang, Shijun Zhao, Liange Chen, Jianbin Yan, Qiao Zhao, Beixin Mo, Ying Wang, Yuling Jiao, Yixing Ma, Xiaoluo Huang, Wenfeng Qian, Junbiao Dai. “Design a synthetic Moss genome using GenoDesigner”. In submission.

1.5 Account and use

To identify the “genome design” tasks from different users, Genodesigner’s web server allows users to create an account by entering a personalized “username” and a “pin”.