Software-Supported USER Cloning Strategies for Site-Directed Mutagenesis and DNA Assembly - DTU Orbit (23/10/2018)

Software-Supported USER Cloning Strategies for Site-Directed Mutagenesis and DNA Assembly

USER cloning is a fast and versatile method for engineering of plasmid DNA. We have developed a user friendly Web server tool that automates the design of optimal PCR primers for several distinct USER cloning-based applications. Our Web server, named AMUSER (Automated DNA Modifications with USER cloning), facilitates DNA assembly and introduction of virtually any type of site-directed mutagenesis by designing optimal PCR primers for the desired genetic changes. To demonstrate the utility, we designed primers for a simultaneous two-position site-directed mutagenesis of green fluorescent protein (GFP) to yellow fluorescent protein (YFP), which in a single step reaction resulted in a 94% cloning efficiency. AMUSER also supports degenerate nucleotide primers, single insert combinatorial assembly, and flexible parameters for PCR amplification. AMUSER is freely available online at .

General information
State: Published
Organisations: Novo Nordisk Foundation Center for Biosustainability, Bacterial Cell Factories, Center for Biological Sequence Analysis, Department of Systems Biology, Department of Chemistry, Drug Resistance and Community Dynamics, University of Copenhagen
Contributors: Genee, H. J., Bonde, M. T., Bagger, F. O., Jespersen, J. B., Sommer, M. O. A., Wernersson, R., Olsen, L. R.
Number of pages: 8
Pages: 342-349
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: ACS Synthetic Biology
Volume: 4
Issue number: 3
ISSN (Print): 2161-5063
Ratings:
Web of Science (2018): Indexed yes
Scopus rating (2017): CiteScore 4.86 SJR 2.625 SNIP 1.107
Web of Science (2017): Impact factor 5.316
Web of Science (2017): Indexed yes
Scopus rating (2016): CiteScore 4.7 SJR 2.793 SNIP 1.05
Web of Science (2016): Impact factor 5.382
Web of Science (2016): Indexed yes
Scopus rating (2015): CiteScore 4.41 SJR 2.308 SNIP 1.056
Web of Science (2015): Indexed yes
Scopus rating (2014): CiteScore 3.84 SJR 3.809 SNIP 1.154
Web of Science (2014): Impact factor 4.978
Web of Science (2014): Indexed yes
Scopus rating (2013): CiteScore 3.42 SJR 1.84 SNIP 0.854
Web of Science (2013): Impact factor 3.951
ISI indexed (2013): ISI indexed yes
Web of Science (2012): Impact factor
ISI indexed (2012): ISI indexed no
Original language: English
Keywords: DNA assembly, USER cloning, Primer design, Site-directed mutagenesis, Point mutation, Web server
DOIs:
10.1021/sb500194z
Source: FindIt
Source-ID: 267415638
Research output: Research - peer-review › Journal article – Annual report year: 2014