



Optimized CRISPR-Cas screening at scale with Vivlion

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Understanding the complex genetics of coding and non-coding alterations in human cells remains a challenge in biology and medicine. The CRISPR-Cas system is the method of choice to study gene function with a powerful set of tools including editing and regulation, base and prime editing, and combinatorial approaches. Besides aiming at the coding regions, even the non-coding genome has become a feasible target. However, CRISPR-Cas based screening experiments at scale are challenging due to inefficient editing rates, the inherent complexity of multi-genetic contexts and combinatorial therapeutic actions, and the constrained scalability and time requirements of R&D experiments. To exploit the full potential of the CRISPR-Cas system, Vivlion (**vivlion.com**) addresses these challenges with the patent-protected covalently-closed circularly-synthesized (3Cs) technology. Vivlion provides screening solutions including customized 3Cs CRISPR-Cas gRNA library design and generation, parallelized screening experiments at scale, and bioinformatics support for state-of-the-art analysis.

The 3Cs technology facilitates the generation of uniform CRISPR-Cas gRNA libraries in various formats, including single and multi-targeting options. Editing efficiency is maximized using a multi-targeting per gene approach, and multi-genetic contexts and combinatorial therapeutic actions can be resolved with our multiplexed library formats. All library formats can be applied in minimal, parallelizable screening setups that reduce time and cost requirements up to 10-fold.

Vivlion offers parallelized screening experiments that can be designed for custom requirements and performed at scale. Vivlion optionally provides bioinformatics expertise and analysis to ensure optimized hit detection and confidence.

Currently, Vivlion is adding innovative applications to its portfolio including single-cell screens and read outs as well as targeting non-coding regions.

Please find more info at www.vivlion.com.

Contact: info@vivlion.com

Disclosures:

Martin Wegner: Head of Operations of Vivlion GmbH, Frankfurt am Main

Frank Junker: CEO of Vivlion GmbH, Frankfurt am Main

Manuel Kaulich: Co-Founder, CTO and shareholder of Vivlion GmbH, Frankfurt am Main

The Goethe University Frankfurt has filed patent applications related to this work, on which Martin Wegner and Manuel Kaulich are inventors. The Goethe University provides an exclusive license of the 3Cs technology patent families to Vivlion GmbH:

3Cs technology: WO2018122248A1, 2016

3Cs fixed-pair technology: WO2019234258A1, 2018