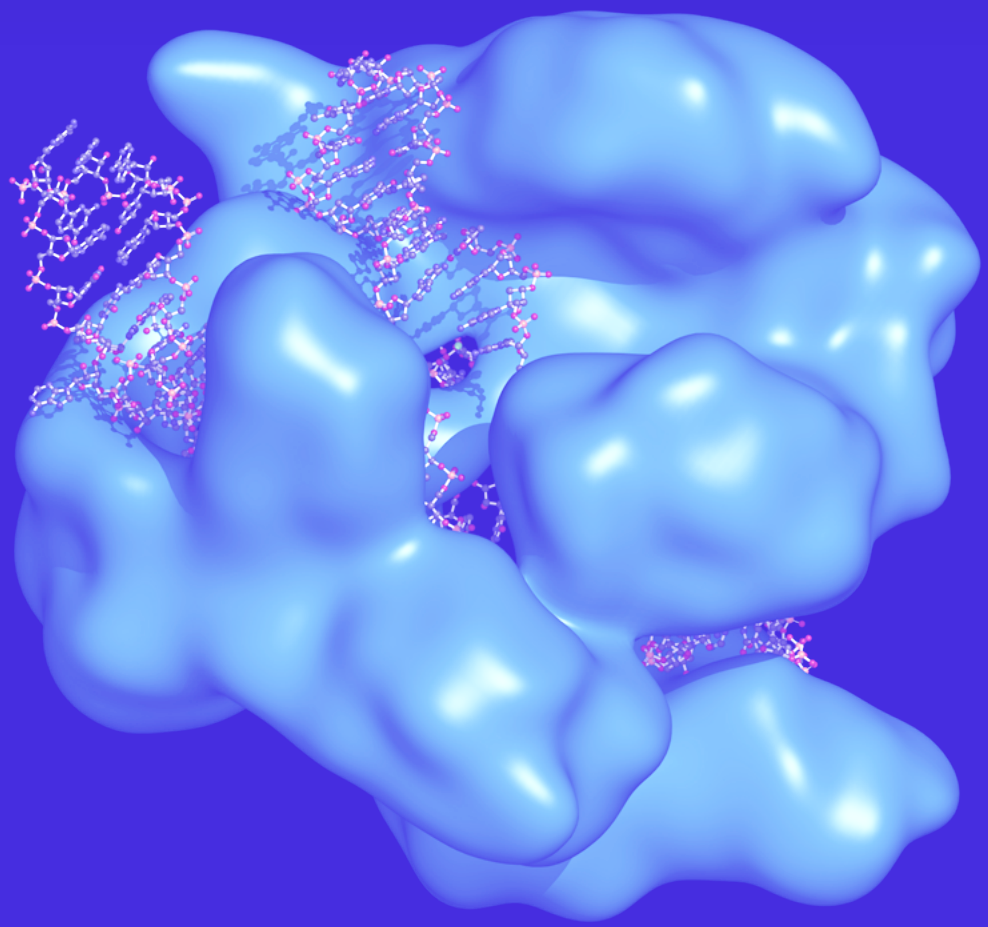
Alternative & Novel CRISPR*/ Cas System

#weCRISPRforyou
#GenomeEditing
#BRAINengineeredCAS
#biobasedFuture



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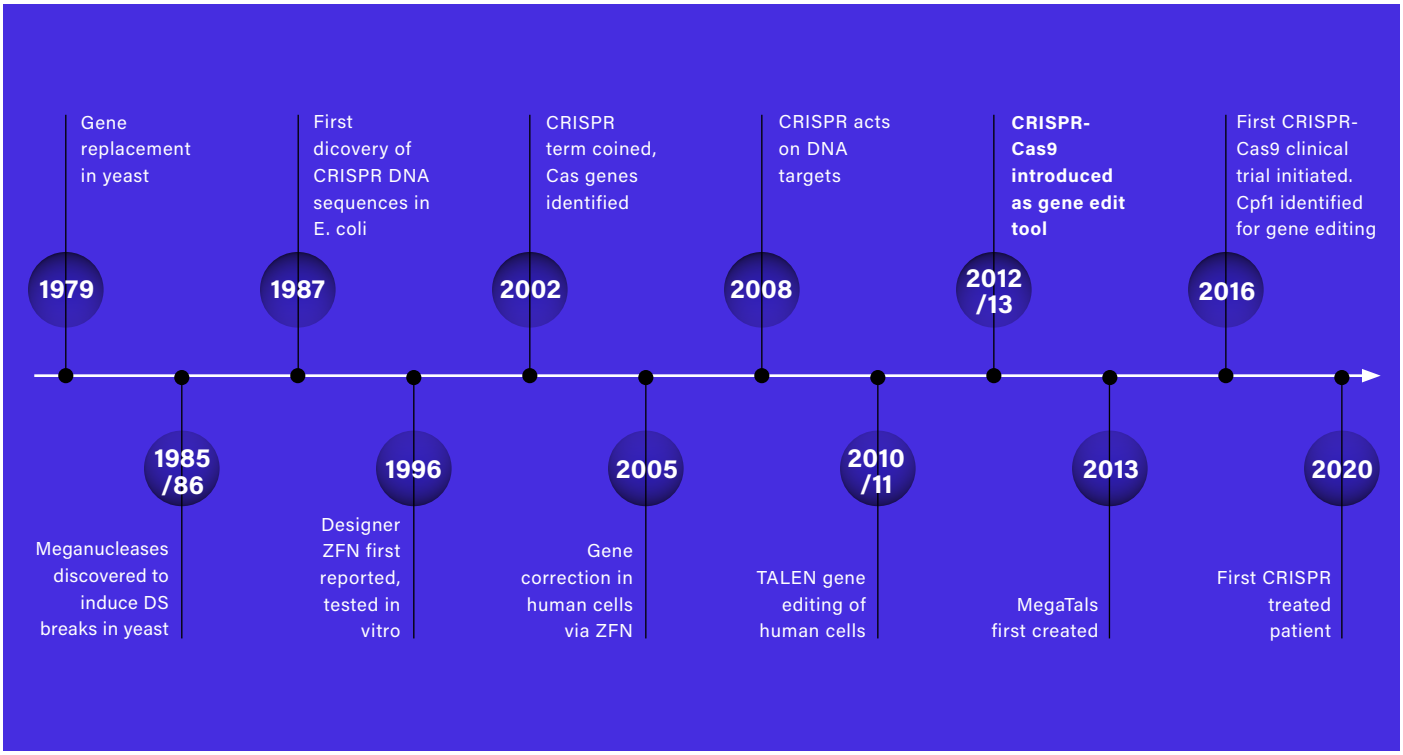
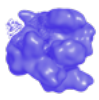


Fig 01:

Chronological development and type of targeted genome modifications.
Targeted genome modifications can be achieved using rare cleaving nucleases, such as zinc-finger nucleases (ZFNs), transcription activator-like effector nucleases (TALENs), meganucleases (mns, also termed homing endonucleases); MegaTals as fusions of meganucleases and Talens; and clustered, regularly interspaced, short palindromic repeat (CRISPR) RNA-guided nucleases.



*** CRISPR:**

Clustered
Regularly
Interspaced
Short
Palindromic
Repeats

Synopsis

The outlined content is about BRAIN Biotech AG that is offering access to a novel and alternative CRISPR*/Cas system other than the existing CRISPR/Cas9 and Cpf1 genome editing tools on the market. BRAIN Biotech AG is looking for strong licensing partnerships and co-development partners with an expertise in genome editing application in their respective fields. Currently the technology is already active in major microbial organisms and plants, activity in further organisms is currently being developed.

Introduction

Modern Biotechnology has developed to an extent that copes with industrial standards and offers disruptive solutions especially in the pharma and food sectors. Based on the recent developments and accumulated knowhow, elucidation of genomic content, bioinformatics analysis and most notably gene editing technologies in the field of "Synthetic Biology" has been revolutionized. The desire to design a molecular tool that enables access to almost any genomic locus is inspiring Biotech since decades (see *Fig. 01*).

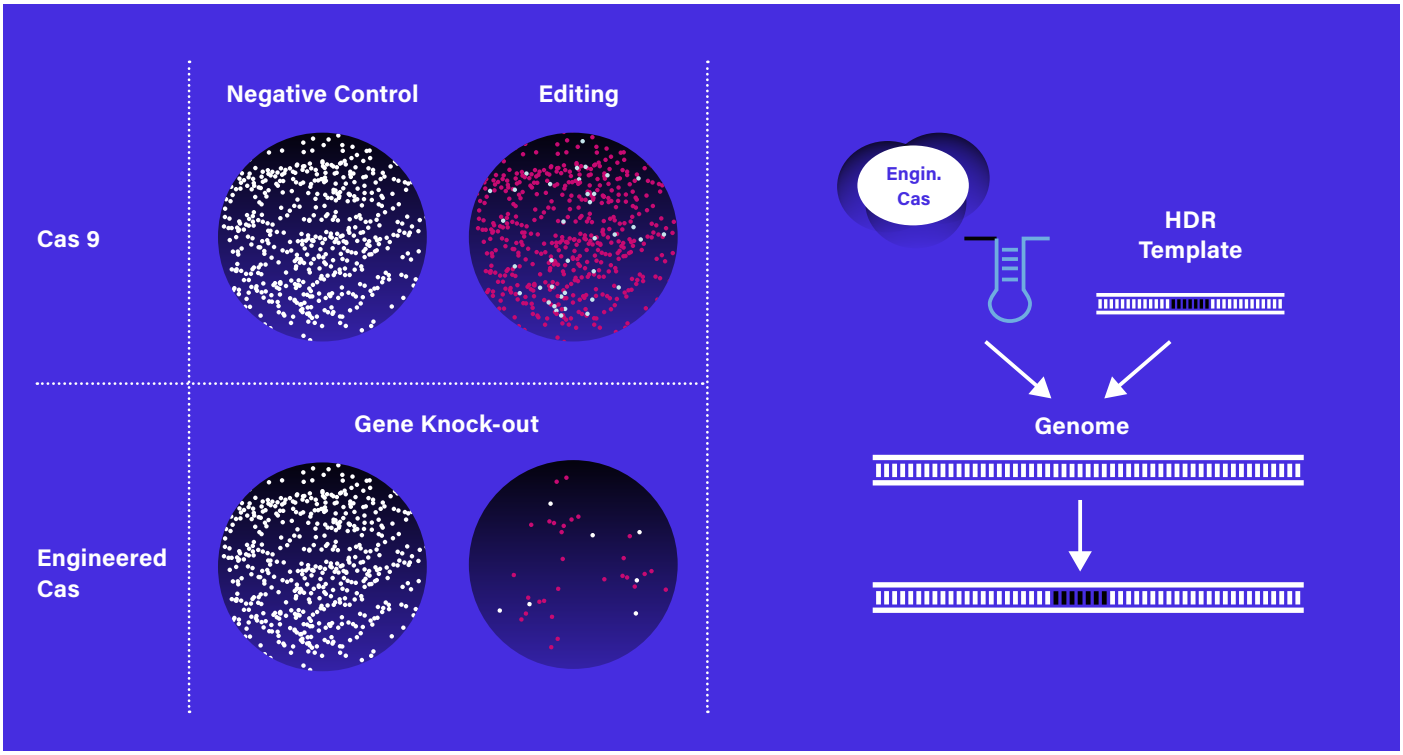


Fig 02:

Function and comparison of the Engineered Cas versus Cas9 in a yeast system.
Successfully edited colonies show a red phenotype and the editing event was additionally verified by next generation sequencing.

The identification of natural, innate CRISPR systems from prokaryotic species is nowadays a Cas-Nuclease(s) based genome editing tool that is close to full realization of that desire.

The Motivation

CRISPR/Cas systems on the market are dominated by two licensers, the BROAD Institute and the University of Califonia/Berkeley mainly based on Cas9 and Cpf1 nucleases. This led to the status quo that license rights are fuzzy, hard to get, often unaffordable and for several reasons not obtainable to everyone. The right to commercially use genome editing tools is with a few companies only and the BRAIN Biotech AG wanted to create a solution to generate freedom to operate for its own, but also to diversify the genome editing market.

The Realization

BRAIN Biotech AG applied its biotech expertise by using bioinformatics to access a proprietary metagenomics sequence space that has been successfully screened for more than 2000 novel CRISPR/Cas nucleases. From this diverse sequence space a lead nuclease was selected and optimized for activity and qualification for freedom to operate. In a first step, BRAIN Biotech AG was focusing on developing the lead candidate, but the BRAIN Biotech AG still possess a

large number of novel and former unknown CRISPR/Cas nucleases for further development. Throughout the project major patents have been applied for the lead candidate as well as part of the other new sequences.

The Solution

BRAIN Biotech AG developed an "Engineered CRISPR/Cas" tool that is independent and different from Cas9 and Cpf1 type nucleases, gives freedom to operate and is active as a genome editing tool already in yeasts, fungi, E. coli and plant cells.

BRAIN Biotech AG has already filed IP on the Engineered Cas nuclease as well as further identified Cas nucleases which will become public in 2021 and 2022.

The Request

BRAIN Biotech AG is striving for strong partnerships and customers to leverage the potential of the novel and alternative genome editing tool in diverse market applications and products. For this vision BRAIN Biotech AG wants to diversify the technology in industrial production organisms, making mammalian cells accessible, exploring currently untapped application fields e.g. diagnostics and therapeutics and to unlock the full potential of the Engineered Cas by verifying its unique and differentiating mode of action. BRAIN Biotech AG wants to offer this technology either to licensing partners that seek an alternative solution to the current CRISPR/Cas systems or partners with a strong expertise in genome editing in different application fields to co-develop and commercialize the technology in different markets. BRAIN Biotech AG also offers genome editing as a fee for service business for customers which do not have expertise in the field of genome editing yet.

The Recipient

BRAIN Biotech AG appreciates every interested party, research and commercial institution/company , which is interested to learn more in a subsequent discussion with BRAIN Biotech AG and is open for a collaboration. We are looking forward to getting in contact with you to identify a path to commercial success.

Contact us

You wish further information regarding our CRISPR Cas solutions? Contact us here:

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