

## **An update on genome editing with the utilization of CRISPR/Cas 9 system for evaluation and treatment of human diseases-A systemic review**

**Kulvinder Kochar Kaur\*, Gautam NAllahbadiaii and Mandeep Singh**

Kulvinder Kaur Centre for Human Reproduction, India

The CRISPR/Cas9-technique again emerged in 2012 with the generation of the Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)-based gene editing that represents a modulation tool that has been obtained from the defense system of the some bacteria, against viruses in addition to plasmids. This is an economical, simple approach that has got utilized in a lot of experimental models inclusive of cell lines, various laboratory animals, plants, as well as human [Clinical trial](#). The CRISPR/Cas9 system is constituted of guiding the Cas 9 nuclease for generation of site-directed double stranded DNA break with the utilization of small RNA molecules for directing. It is an event that results in permanent manipulation of the genomic target sequence which can heal the injury that occurs in the DNA. Thus here we conducted a systematic review utilizing search engine PubMed, Google scholar and others utilizing the MeSH terms like zinc finger nucleases; TALENs; CRISPR/Cas9 system; DSB; genome editing; trans-encoded small cr RNAs(tracr RNAs); single guide gRNA; protospacer adjacent motif(PAM); endonuclease; HNH domain; RuvC-like nuclease domain; insertions along with deletions(indels); dead Sp-Cas9(dSp-Cas9); n Sp-Cas9(n Cas9); ]. Hirschsprung's disease; megacystis-microcolon- intestinal hyperperistalsis syndrome(MMIHS); β-haemoglobinopathies, sickle cell disease(SCD); β thalassemia, is human papilloma virus(HPV); human immunodeficiency virus(HIV); Hepatitis B virus(HBV); cancers; neurological diseases; from 1990 to 2021 till date. We found a total of 2050 articles out of

which we selected 141 articles for this review. No meta-analysis was done. Here we present app approaches as well as manipulations of enzyme Cas9 for removal of off target cuts away the various applications of CRISPR/Cas9 system for looking besides activation as well as repression. Furthermore, we outline the therapeutic aspects besides the latest updates in their utilization in various [human diseases](#).

**Keywords:** CRISPR/Cas9 system, tracr RNAs, PAM, Hirshsprung Disease, HPV, HIV, Mitochondrial diseases, Breast cancer.

### **Biography**

Kulvinder Kochar Kaur is the scientific director of Dr Kulvinder Kaur Centre For Human Reproduction, Jalandhar, Punjab, India, where she manages the complicated cases of infertility. She graduated from LHMC Delhi in 1980 topping in medicine in all 3 medical colleges thereby getting the DR Devi Chand Gold medal from the late PM Smt Indira Gandhi and also topped in all the MBBS subjects prior to that eg., anatomy, pathology, biochem etc making her basics sound and later she managed the endocrine clinic in PGI Chandigarh during her MD days. Following that she reported the 40th world case hydrometrocolpos working in Saudi Arabia and has been working in the field of neuroendocrinology of obesity. GnRH control along with role of kisspeptins, prokineticins in human reproduction, AIDS & Cancer –during this period, she managed to successfully treat the first case of non-gestational choriocarcinoma of uterine body in a young girl medically thereby preserving her fertility-the first case in world literature of its kind.

[kulvinder.dr@gmail.com](mailto:kulvinder.dr@gmail.com)

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