

**Editor-in-Chief,
Jurnal Sains Kesihatan Malaysia**

March 15th, 2023

Assalamualaikum WBT & Salam Sejahtera,

It is a great honor to submit our *Bahasa Melayu* review article entitled “*Teknologi Penyuntingan Genom CRISPR/Cas9 Dan Prime Editing*” to be considered for publication in the highly esteemed *Jurnal Sains Kesihatan Malaysia (JSKM)*.

The developments of CRISPR/Cas9 technology and several Cas9 variants, such as Cas9 nickase (Cas9n) and dead Cas9 (dCas9), have substantially broadened the applications of this technology that presently go beyond the traditional gene editing or perturbation. For instance, the conjugation of dCas9 with various molecular effectors allows precise control over transcriptional processes and epigenetic modifications. Moreover, the Cas9n-based prime editing technology could offer an efficient alternative to attain precise genome editing. These expanded repertoire of CRISPR applications have emerged as an invaluable molecular toolkit that empowers researchers to comprehensively interrogate and gain insights into physiological and pathophysiological processes.

In this review, we delve into the principle of genome editing technologies, emphasizing on the CRISPR/Cas9 and prime editing technologies. Briefly, we discuss the adaptation of CRISPR/Cas9 technology from the bacteria adaptive immune system and how this technology is exploited for gene knockout and precise gene editing purposes. We also describe the progressive Cas9 protein engineering that has widened its capability and versatility as well as improving the efficiency of precise gene editing. Last but not least, we also outline the current CRISPR/Cas9 constraints as well as its transformative potentials in research and clinical applications.



MSISO 9001:2015 Cert.No.: QMS01100

S.I.J.L.A.K.R.E.D.I.T.A.S.I.M.A.K.M.A.L.
MALAYSIA (S.A.M.M.)

INSTITUT BIOLOGI MOLEKUL PERUBATAN UKM

Pusat Perubatan UKM, Jalan Ya'acob Latiff, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, MALAYSIA
Tel.: +603-91456321/9040 Faks: +603-91717185 E-mel: effendisy@ppukm.ukm.edu.my Web: www.ukm.my/umbi

Mengilham Harapan, Mencipta Masa Depan • Inspiring Futures, Nurturing Possibilities

www.ukm.my

We believe that this manuscript fits the scope of *JSKM*, and it should be of interest to the broad readership of *JSKM* journal. We also believe that *JSKM* journal will provide the ideal platform to widely disseminate this manuscript for the benefit of the community working with CRISPR/Cas9 and gene editing in particular; as well to those studying genetics and molecular biology in general. We hope that this manuscript can be reviewed and considered for publication in *JSKM*.

Thank you for your consideration of our manuscript. We look forward to hearing from you.

Sincerely,



Saiful Effendi Syafruddin
Research Fellow / Senior Lecturer
UKM Medical Molecular Biology Institute,
Jalan Yaacob Latiff, Cheras,
56000 Kuala Lumpur, Malaysia.
Email: effendisy@ppukm.ukm.edu.my



MSISO 9001:2015 Cert.No.: QMS01100

SIJILAKREDITASIMAKMAL
MALAYSIA (SAMI)



INSTITUT BIOLOGI MOLEKUL PERUBATAN UKM

Pusat Perubatan UKM, Jalan Ya'acob Latiff, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, MALAYSIA
Tel.: +603-91456321/9040 Faks: +603-91717185 E-mel: effendisy@ppukm.ukm.edu.my Web: www.ukm.my/umbi

Mengilham Harapan, Mencipta Masa Depan •Inspiring Futures, Nurturing Possibilities

www.ukm.my