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CRISPR-Cas: Interactions with Genome and Physiological Maintenance

Guest Editors:

Dr. Ed Bolt
Queen's Medical Centre, The University of Nottingham Medical School, Nottingham NG7 2UH, UK

Dr. Christian Rudolph
Department of Life Sciences, Brunel University, London UB8 3PN, UK

Dr. Ivana Ivancic-Bace
Horvatovac 102a, Department of Biology, University of Zagreb, 10000 Zagreb, Croatia

Deadline for manuscript submissions:
closed (16 November 2020)

Message from the Guest Editors

CRISPR-Cas enzymes provide a growing smorgasbord of tools for genetically altering and editing DNA and RNA through genome editing, for altering cell physiology in bacteria, plants and mammals. Interactions between CRISPR-Cas and host DNA repair enzymes are important for successful genome editing because editing enzymes generate DNA damage sites. These trigger repair systems but can also provoke wider genomic stress with potential to disrupt DNA replication and cell cycle progression. In native cells, CRISPR-Cas adaptive immunity systems functionally interact with DNA repair and genome stability systems, factors that promote building of the DNA-based CRISPR immunity system. Native CRISPR-Cas enzymes also impact on other physiological systems in interesting ways by mechanisms unknown, for example in bacterial biofilm formation. Understanding interplay between CRISPR-Cas enzymes and other host physiologies is a frontier for improving efficacy of gene-editing protocols, furthering understanding of DNA repair in healthcare, and for understanding prokaryotic biology.

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Editor-in-Chief

Prof. Dr. Selvarangan Ponnazhagan
Experimental Cancer Therapeutics, The University of Alabama at Birmingham, 1825 University Blvd., SHEL 814, Birmingham, AL 35294-2182, USA

Message from the Editor-in-Chief

Genes is central to our understanding of biology, and modern advances such as genomics and genome editing have maintained genetics as a vibrant, diverse and fast-moving field. There is a need for good quality, open access journals in this area, and the *Genes* team aims to provide expert manuscript handling, serious peer review, and rapid publication across the whole discipline of genetics. Starting in 2010, the journal is now well established and recognised. Why not consider *Genes* for your next genetics paper?

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Contact Us

Genes Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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mdpi.com/journal/genes
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