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p53 Regulation Mechanisms

Guest Editors:

Prof. Dr. Ji Hoon Jung

Department of Science in Korean
Medicine, Graduate School,
Kyung Hee University, 26
Kyungheedaero-ro, Dongdaemun-
gu, Seoul 02447, Republic of
Korea

Dr. Peng Liao

Surgery Department, University
of Michigan, Ann Arbor, MI, USA

Dr. Hyemin Lee

Tulane University, New Orleans,
LA, USA

Deadline for manuscript
submissions:

closed (31 January 2022)

Message from the Guest Editors

Dear Colleagues,

The tumor suppressor p53 is frequently mutated in various human cancers as it can prevent tumorigenesis by inducing cellular senescence, regulating energy metabolism, blocking metastasis, stopping cell proliferation, and inducing apoptosis, mainly via its transcriptional activity. In response to various stressors, p53 is activated to induce or repress the transcription of numerous target genes important for multiple biological functions. For example, the p53 target gene p21 is involved in p53-dependent cell cycle arrest, while the BH3-only-encoding target genes BBC3 (Puma) and PMAIP1 (Noxa) play key roles in p53-mediated apoptosis. Since activated p53 is generally cytotoxic, it is subjected to tight regulation by MDM2, which is encoded by a transcriptional target gene of p53. Via its N-terminal domain, MDM2 directly binds to the N and C termini of p53 and mediates its ubiquitin-dependent proteolysis, as it possesses intrinsic E3 ubiquitin ligase activity, thus creating a negative feedback loop. The main focus of this Special Issue will be on the broad spectrum of functions of p53 in cancer cells.



mdpi.com/si/34241

Special Issue



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Neuroscience, UMN Twin Cities,
6-145 Jackson Hall, 321 Church St
SE, Minneapolis, MN 55455, USA

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Copenhagen, Copenhagen,
Denmark

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Cells Editorial Office
MDPI, St. Alban-Anlage 66
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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