

## Title of the Thematic Issue

New Use of Old Drugs: Repurposing of non-oncology drugs for cancer and oncology drugs for other human diseases

## Guest Editor

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## Scope of the Thematic Issue

Repurposing of approved drugs or clinical candidates with known pharmacokinetic and pharmacodynamic properties and toxicity profiles is being recognized as one of the potential strategies to meet the growing demand for effective, accessible, and affordable drugs for common and rare human ailments [1]. There have been many successes in this field and include the stories of Sildenafil, originally developed as an antihypertensive drug but later used for the treatment of erectile dysfunction and thalidomide, a drug currently used against cancer, infectious diseases, and autoimmune diseases that finds its origin as an antiemetic, among others, in the late 1950s [2, 3]. Although these were serendipitous 're-discoveries', the known pharmacokinetic and pharmacodynamic properties, toxicity profiles, and the retrospective analysis of clinical effects from use against the original indication have a major impact on finding a new use of an old drug [1, 2]. Currently, several drugs or drug-like candidates against non-oncology indications, such as aspirin, disulfiram, ritonavir, curcumin, chloroquine, rapamycin, etc. are under investigation as potential anticancer candidates [1]. Conversely, many approved oncology drugs are being investigated as candidates against COVID-19 infection [4], infectious diseases [5], and neurodegenerative diseases [2, 6, 7]. Given the wide scope of drug repurposing for human diseases, this issue aims to focus on the repurposing of non-oncology drugs for cancer and oncology drugs for neurodegenerative and infectious diseases. Contributions to this issue in the form of review articles may focus on current knowledge and pros and cons of drug repurposing, and original articles may present work from basic to nonclinical research, including the use of medicinal chemistry in the designing and synthesis of better candidates with improved biological activities. You may submit your manuscript now or till May 31, 2021. Authors are also encouraged to send a tentative title or/and short abstract to the Editorial office or the Guest Editor in advance.

[1] Zhang, Z. et al. *Signal Transduct. Target. Ther.* 2020, 5:113. <https://doi.org/10.1038/s41392-020-00213-8> [2] Pushpakom, S. et al. *Nat. Rev. Drug Discov.* 2019, 18:41–58. <https://doi.org/10.1038/nrd.2018.168> [3] Millrine D. & Kishimoto T. *Trends Mol Med.* 2017, 23:348-361. <https://doi.org/10.1016/j.molmed.2017.02.006> [4] Saini, K. S. et al. *Br. J. Cancer* 2020, 123:694–697. <https://doi.org/10.1038/s41416-020-0948-x> [5] Quezada, H. et al. *Expert Rev. Anti Infect. Ther.* 2020, 18:609–612. <https://doi.org/10.1080/14787210.2020.1752665>

[6] Pagan, F. L. et al. *JAMA Neurol.* 2020, 77:309–317. <https://doi.org/10.1001/jamaneurol.2019.4200>

[7] Henderson, B. W. et al. *Sci. Signal.* 2019, 12:eaaw9318. <https://doi.org/10.1126/scisignal.aaw9318>

**Subtopics:**

Topics of interest include, but are not limited to:

- Anticancer properties of non-oncology drugs
- Anti-cancer agents in the treatment of human viral and bacterial infections
- Therapeutic effects of anticancer drugs in neurodegenerative disorders

**Keywords**

Anticancer drugs; Cancer; Drug purposing; Infectious diseases; Medicinal chemistry; Neurodegenerative diseases; Non-oncology drugs; Small molecules

**Schedule**

Manuscript submission deadline: May 31, 2021

Peer review due: June 21, 2021

Revision due: July 20, 2021

Announcement of acceptance by the Guest Editor(s): July 30, 2021

Final manuscripts due: August 15, 2021

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