Accepted Manuscript

Title: The role of Aurora-A in cancer stem cells

Authors: Minle Li, Keyu Gao, Laili Chu, Junnian Zheng, Jing Yang

PII: S1357-2725(18)30061-X
DOI: https://doi.org/10.1016/j.biocel.2018.03.007
Reference: BC 5322

To appear in: *The International Journal of Biochemistry & Cell Biology*

Received date: 5-12-2017
Revised date: 10-3-2018
Accepted date: 12-3-2018

Please cite this article as: Li, Minle., Gao, Keyu., Chu, Laili., Zheng, Junnian., & Yang, Jing., The role of Aurora-A in cancer stem cells.*International Journal of Biochemistry and Cell Biology* https://doi.org/10.1016/j.biocel.2018.03.007

The role of Aurora-A in cancer stem cells

Minle Li,[1,#] Keyu Gao,[3,#] Laili Chu,[1] Junnian Zheng,[1,2¶] Jing Yang,[1¶]

[1]Jiangsu Center for the Collaboration and Innovation of Cancer Biotherapy, Cancer Institute, [2]Department of Oncology, The First Affiliated Hospital, Xuzhou Medical University, [3]Department of Urology Surgery, The First Affiliated Hospital, Xuzhou Medical University, Xuzhou, Jiangsu 221002, China

# M. L. and K. G. contributed equally to this work.

¶To whom correspondence should be addressed

Junnian Zheng, Email: jnzheng@xzhmu.edu.cn

Jing Yang, Email: jingyang@xzhmu.edu.cn

Phone: +86-0516-83262042

Abstract

Aurora kinase A (Aurora-A), a member of the Aurora family of serine/threonine kinases, plays a critical role in multiple steps of mitotic progression, including microtubule stability during the G1 phase of the cell cycle, chromosome alignment and segregation, and cytokinesis and is aberrantly expressed in various types of human cancers. In addition to its classic functions, recent studies have indicated that Aurora-A is critical for controlling self-renewal of embryonic stem cells through negative regulation of p53. Additionally, aberrant expression of Aurora-A contributes to oncogenic transformation and induces stem cell-like properties in estrogen receptor α-positive breast cancer cells. Silencing of Aurora-A has been implicated in elimination of leukemia stem cells *in vivo*. Therefore, Aurora-A is an attractive target for cancer therapeutics and a growing number of small molecule inhibitors of Aurora-A have been developed. In the present review, we will address the role of Aurora-A in cancer stem cells, as well as the outcomes of clinical trials assessing Aurora-A-specific small molecular inhibitors.