Prof. Bin Zhang: no pains, no gains

Submitted Nov 21, 2018. Accepted for publication Nov 29, 2018.
doi: 10.21037/atm.2018.12.02
View this article at: http://dx.doi.org/10.21037/atm.2018.12.02

Editor's note

From Nov. 2 to 3, the 2018 Submit Forum on Immunology and Clinical Application (SFICA) was held successfully in Nanjing, China. Prof. Bin Zhang, from Northwestern University, as the special guest, had an excellent speech on "Targeting CD73 to improve cancer immunotherapy". We were honored to have an interview with Prof. Zhang (*Figure 1*).

Figure 1 Prof. Bin Zhang is delivering a speech.

Expert's introduction

Bin Zhang (*Figure 2*), MD, PhD, professor of medicine (hematology and oncology) and microbiology-immunology. His laboratory functions as an integrated translational research program with the goal of designing and developing new immunotherapies and immunologic strategies for cancer treatment. The ongoing projects are focused on dissecting the molecular mechanisms used for tumor immune evasion based on the cutting-edge technical platforms.

Figure 2 Prof. Bin Zhang.

Interview

ATM: Your research mainly focuses on cancer immunology and immunotherapy. Could you briefly introduce the related research work you are doing now? Is there any challenge you are facing now?

Prof. Zhang: My lab has been working in the field of tumor immunology for more than 10 years. My research particular focuses on immunosuppression, which really implicates all to design new targeted immunotherapy. We are trying to emphasize more transitional cancer immunotherapy programs. One of the next focuses in my lab is to find new ways to cure cancer instead of simply inhibit tumor.

ATM: How do you understand the role of CD73 in cancer immunotherapy?

Prof. Zhang: CD73 is one of my favorite molecules and is one focus of the major ongoing projects in my labs. Different from other immune checkpoint molecules, like PD-1, PD-L1, it brings another opportunity in terms of the combination due to its distinct functional internal biology. So, it might be possible to develop novel targeted therapies to conquer cancer with the combination. The anti-CD73 therapy is rapidly evolving, and there are currently 16 active reagents under clinical development for CD73 blockade.

Particularly, there is one phase I/II clinical trial open in our cancer center. This trial is focused on lung cancer patients specifically with *EGFR* mutations, because of much

higher expression levels of CD73 in this group of patients, making an ideal target of CD73.

So far, little is known for clinical relevance of CD73 blockade particularly in the context of human cancer, so we will try to really make an effort on this perspective.

ATM: What kind of development of cancer immunotherapy we could expect in the future?

Prof. Zhang: Combination. Nowadays, I think single-targeted strategy may be insufficient, as seen from both preclinical and clinical data. In the long run, I think the combination therapy is a hallmark of cancer treatment. Tumor comprises a lot of difference in the suppression mechanism. Therefore, we can combine PD-1/PD-L1 immune checkpoint blockade with other immune checkpoint inhibitors such as anti-CD73 to achieve more effective antitumor activity. I believe that combination in immunotherapies, or combination of immunotherapy with conventional cancer therapy such as chemotherapy or radiation therapy would eventually provide new opportunities for complete eradication of cancer. That is something my lab is working on, and hopefully, we could bring good news in the near future.

ATM: What leads you to the study of cancer immunology?

Prof. Zhang: I have to admit that studying the immunology is fairly challenging, given the complexity of the immune system and numerous signal transduction pathways in immune regulation. But when you find out why the immune system can fight infectious disease or cancer, you will find it attractive and impactful. So, the curiosity and exploration motivations of mine really drive me to the field.

ATM: What would be your suggestions for the college students who are pouring their lives into this filed?

Prof. Zhang: The cancer immunology filed is very complicate but very attractive, because it brings new hope to cancer patients eventually. In this fast-moving field, cancer immunotherapeutics are actually becoming standard therapy for cancer. This is pretty much happened now in the US. Also, motivation and passion are the key to keep going especially when the young trainees such as college students are facing any challenge and difficulty that arise during the research experiments. Last but not least, "No pains, on gain". I think you do not need to be very smart, but you do need to work hard in bench research.

Cite this article as: Yan CM. Prof. Bin Zhang: no pains, no gains. Ann Transl Med 2019;7(1):18. doi: 10.21037/atm.2018.12.02

Acknowledgements

We would like to express our sincerest gratitude to Prof. Bin Zhang for sharing his insights and opinions with us.

Footnote

Conflicts of Interest: The author has no conflicts of interest to declare.

(Science Editor: Crystal M. Yan, ATM, editor@atmjournal.org)