Some antioxidant antidiabetic agents may link to tumor metastasis in mice

With the support by the National Natural Science Foundation of China, the research team led by Prof. Zheng Hongting (**郑宏庭**) at the Department of Endocrinology, Xinqiao Hospital, Third Military Medical University, revealed the role of some antioxidant antidiabetic agents in accelerating tumor metastasis, which was published in *Science Translational Medicine* (2016, 8(334): 334ra51).

Diabetes is at increased risk of developing cancer, and the number of diabetic patients who also have cancer is growing. However, how antidiabetic drugs affect cancer is poorly understood. Therefore, evaluating the effects of antidiabetic agents on tumor biology is indispensable for the development of specialized drug therapy that is safe for treating diabetic patients with cancer.

Zheng's group discovered that some common classes of antidiabetic drugs used in type 2 diabetes mellitus did not increase tumor incidence but increased the risk of metastasis of existing tumors in mice, indicating they may need to be administered with caution in diabetic patients with cancer. Further research showed that the antidiabetic drugs promoted tumor metastasis through activation of the nuclear factor E2-related factor 2 (NRF2)—mediated antioxidant response, which were consistent with other reports published in *Nature* (2015, 527(7577): 186—91) and *Science Translational Medicine* (2015, 7(308): 308re8) recently that antioxidants might be in favor of cancer cell metastasis. Zheng's group alerted the use of antioxidants that should not be abused since they might have a dark side on some special population. "It remains to be determined whether these findings will hold up in human patients, but it may be best to exercise caution when giving antioxidant drugs to patients at increased risk for cancer." highlighted the editor of *Science Translational Medicine*. Simultaneously, Science Official Website, as well as its portal websites EurekAlert and MedPak posted the study and commons. The research group was also invited to take the interviews by The Scientist magazine, STATnews and Xinhua News Agency, Washington.

The research team led by Prof. Zheng has focused on the association between oxidative stress and diabetes mellitus for several years with the funds of National Natural Science Foundation of China. They found that, as a protective role in diabetic nephropathy, NRF2 might be a potential therapeutic target for treating diabetic nephropathy. The relevant results were published in *Diabetes* (2011, 60(11): 3055—66). In another study on diabetic ulcer also published in *Diabetes* (2016, 65(3): 780—93), this team reported that skin tissue around the wound suffered severe oxidative stress damage, and further data of animal studies supported that NRF2 was involved in diabetic ulcer healing, providing a new therapeutic target for the treatment of diabetic ulcers. The original articles published by Zheng's group above indicate a broad prospect for translational medicine in the endocrine field by implementing the deep combination of basic medicine and clinical medicine.