Letter to the editor: Decreased SIRT3 expression is a good potential biomarker associated with diseases

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TO THE EDITOR: Sirtuin-3 (SIRT3), one of the Sirtuin’s family members, functions as a critical mitochondrial deacetylase, which implicates in a series of metabolic processes. However, the molecular mechanism of SIRT3 remains unclear. Recently, the article by Porter et al. (3), published in the American Journal of Physiology-Heart and Circulatory Physiology, manifested that SIRT3 knockdown cells were more vulnerable to simulated ischemia-reperfusion injury. The results hinted that decreased SIRT3 might increase the susceptibility of cardiac-derived cells and adult hearts to ischemia-reperfusion injury. It suggested that SIRT3 deficiency was a good potential biomarker associated with ischemia-reperfusion injury.

Other researchers have reported the similar results. The article by Paulin et al. (2) had demonstrated that SIRT3 deficiency increased the acetylation and inhibition of many mitochondrial enzymes and complexes, suppressing mitochondrial function. And SIRT3 deficiency was associated with pulmonary arterial hypertension in an unbiased cohort of 162 patients and controls. It suggested that SIRT3 deficiency was a good potential biomarker related to pulmonary arterial hypertension.

Moreover, the article by Winnik et al. (5) indicated that loss of SIRT3 was associated with expedited weight gain and an impaired rapid metabolic adaptation. Furthermore, the article by Wang et al. (4) showed that the expression of SIRT3 significantly decreased in patients with prognosis of hepatocellular carcinoma. It indicated that downregulation of SIRT3 was relevant to poor prognosis in hepatocellular carcinoma. In addition, the article by Desouki et al. (1) demonstrated that the expression of SIRT3 was lower in neoplastic than normal breast epithelium. These results showed that decreased mitochondrial SIRT3 expression was associated with poor outcome in breast cancer.

Taken together, these findings suggested that SIRT3 played an important role in the progress of cancer, cardiovascular disease and pulmonary arterial hypertension. We read with interest and enjoyed reading the article by Porter GA et al. and thought that decreased SIRT3 expression was a good potential biomarker associated with diseases.

DISCLOSURES
No conflicts of interest, financial or otherwise, are declared by the author(s).

AUTHOR CONTRIBUTIONS
W.-L.Y. and Y.S. conception and design of research; W.-L.Y. analyzed data.

REFERENCES