

## The mechanism of RNA oxidation involved in the development of heart failure

Tong Liu

Beijing Jishuitan Hospital, China



### Abstract

Heart failure (HF) has become a global public health problem due to its unclear pathogenesis. Our previous studies have found that RNA oxidation is associated with the occurrence and development of a variety of chronic diseases in the elderly, but whether RNA oxidation is related to the pathogenesis of HF remains unclear. Male Dahl salt-sensitive rats (DSSR) were divided into 8% NaCl groups and 0.3% NaCl groups. The blood pressure of DSSR, HE staining of cardiac tissue, cardiac function index of color Doppler echocardiography and plasma N-terminal pro-brain Natriuretic Peptide (NT-ProBNP) were used to evaluate the model-making. The levels of 8-hydroxyguanosine (8-oxoGsn) and 8-hydroxydeoxyguanosine (8-oxodGsn) in myocardium and urine of DSSR were determined by high performance liquid chromatography-mass spectrometry (LC-MS/MS). The expression of ERK-MAPK pathway and MTH1 was detected by Western Blot (WB). Rats in 8% NaCl group developed heart failure symptoms such as increased blood pressure, myocardial hypertrophy, decreased diastolic function, and increased plasma NT-ProBNP. The content of 8-oxoGsn in urine and heart tissue also increased, which was positively correlated with the related indicators of heart failure. This process is also accompanied by the sequential activation of ERK-MAPK pathway molecules and the increase of MTH1. The mechanism of RNA oxidation and inhibition is related to the occurrence and development of HF, which may be involved through ERK-MAPK pathway.

### Biography

Liu Tong studied Cardiology at Peking Union Medical College, Chinese Academy of Medical Science and graduated as PhD in 2020. Now, she works as a doctor at Department of Cardiology, Beijing Jishuitan Hospital. Her main research direction is: the pathogenesis of cardiovascular disease. She has published more than 10 research articles in SCI(E) journals, including the highly-cited "The mechanism of RNA oxidation involved in the development of heart failure".