Winners for the 14th Hypertension Research Awards and outstanding papers in Hypertension Research

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At the general meeting of the conference held on September 16th, the Japanese Society of Hypertension (JSH) 14th Hypertension Research Awards were announced. These awards were established in 2010 and are presented to papers that have made significant contributions to the advancement of hypertension research over the past year. From among numerous original articles published in Hypertension Research, from the April issue 2022 to the Mach issue 2023, the editorial committee members of Hypertension Research journal has selected three award-winning papers this year. We extend our heartfelt congratulations to the recipients. Along with a recent photo of the awardees, we would like to introduce the key findings of the award-winning papers.

Hypertension Research Excellence Award

The 2023 recipient of this award was Dr Rie Jo, and colleagues from the Division of Endocrinology, Metabolism and Nephrology, Department of Internal Medicine, School of Medicine, Keio University, Tokyo, Japan, for the paper entitled "Mechanisms of mineralocorticoid receptor-associated hypertension in diabetes mellitus: the role of O-GlcNAc modification" [1]. The authors found a novel molecular mechanism of mineralocorticoid receptor (MR)-associated hypertension and its organ damage. They explored the O-linked-N-acetylglucosamine (O-GlcNAc) modification under high-glucose conditions, and found that O-GlcNAcylation increased MR protein levels and transcriptional activity. Specific amino acid mutations reduced O-GlcNAcylation, resulting in lower MR levels and activity. In diabetic mice, inhibiting O-GlcNAcylation reduced both O-GlcNAc levels and MR protein levels. These findings reveal a novel mechanism where O-GlcNAcylation increases the sensitivity of the MR to aldosterone in high-glucose environments, offering potential insights into diabetes-related complications prevention.

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Hypertension Research Award

This award was given to Dr Brandon G. Shokoples, and colleagues from Hypertension and Vascular Research Unit, Lady Davis Institute for Medical Research, McGill University, Montreal, Canada, for their paper entitled "Angiotensin II-induced a steeper blood pressure elevation in IL-23 receptor-deficient mice: Role of interferon-γ-producing T cells" [2]. A specific subset of immune cells, known as γδT17 cells, have been implicated in the progression of hypertension. These cells rely on the stimulation of the IL-23 receptor (IL-23R) for their development. The authors hypothesized that mice lacking functional IL-23R would exhibit reduced blood pressure elevation and vascular injury when exposed to angiotensin II (Ang II). However, experiments using both wild-type and IL-23R-deficient mice showed that IL-23R deficiency did not protect against Ang II-induced blood pressure elevation. IL-23R-deficient mice had stiffer arteries and higher blood pressure, compared to wild-type mice. Blocking interferon-gamma (IFN-γ) partially mitigated hypertension in IL-23R-deficient mice, suggesting a role for IFN-γ in this process.

Hypertension Research Award

This award was given to Dr Ebtehal Salman and colleagues, from NCD Epidemiology Research Center, Shiga University of Medical Science, Shiga, Japan, and OMRON Healthcare Co., Ltd, Kyoto, Japan for the paper entitled "Investigation of the urinary sodium-to-potassium ratio target level based on the recommended dietary intake goals for the Japanese population: The INTERMAP Japan" [3]. This study investigated to determine the optimal cutoff level for the 24 h urinary Na/K ratio, primarily referencing the 'Japanese Dietary Reference Intakes (DRIs) for Japanese. The analysis was based on data collected from 1145 Japanese individuals who participated in the INTERMAP study—an epidemiological investigation conducted to clarify the impact of nutrient intake on blood pressure, collecting data from four countries (China, Japan, the UK, and the US). To determine the optimal urinary Na/K ratio cutoff level, the authors draw a receiver operating characteristic (ROC) curves to explore the relationships between 24 h urinary Na/K ratio and the 24 h dietary intake of Na and K based on the dietary intake standards recommended by the 2020 Japanese DRIs, and showed that a 24 h urinary Na/K ratio of around 2 is a predictive indicator of Na and K intake aligning with the dietary goals of the Japanese DRIs.

Compliance with ethical standards

Conflict of interest The author declares no competing interests.

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