Yuki Nakamura

Personal Information
Date of Birth: 11/11/1982
Nationality: Japanese

Work Experience

2010- Present	Assistant Professor, Department of Immunology, Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi
2009- 2010	Research Scientist, R&D Placement Business Division, World Intec Co., Ltd.

Education

2014	Ph.D. in Medical Science, University of Yamanashi
2009	M.S. in Medical Science, University of Yamanashi
2007	B.S. in Engineering, University of Yamanashi

Awards

2011	7th Annual Meeting of the Japanese Society of Allergology Scientific Congress Award
2011	21st Abbott Japan Allergy Academic Award

Research Interest
Circadian rhythm, Mast cell

Publication

1. Nakamura Y et al: Circadian regulation of allergic reaction by the mast cell clock in mice.*J Allergy Clin Immun* 133(2)568-575.e12, 2014.
2. Nakamura Y et al: Circadian clock gene Period2 regulates a time-of-day-dependent variation in cutanenous anaphylactic reaction. *J Allergy Clin Immun* 127(4)1038-1045, 2011.
3. Nakamura Y et al: The latent form of transforming growth factor-β administered orally is activated by gastric acid in mice. *J Nutr* 139(8)1463-1468, 2009.
4. Nakamura Y et al: House dust mite allergen Der f 1 can induce the activation of latent TGF-β via its protease activity. *FEBS Letters* 583(12)2088-2092, 2009.
5. Nakamura Y et al: Cigarette smoke extract induces thymic stromal lymphopoietin expression, leading to TH2-type immune responses and airway inflammation. *J Allergy Clin Immun* 122(6)1208-1214, 2008.

Circadian regulation of allergic reaction by the mast cell clock in mice

Yuki Nakamura, Department of Immunology, Faculty of Medicine, University of Yamanashi, Japan

Background: It remains elusive how allergic symptoms exhibit prominent 24-hour variations. Recently, we have shown that the circadian clocks drive the daily rhythms in IgE/mast cell-mediated allergic reactions. However, the precise mechanisms, particularly the specific roles of the mast cell-intrinsic clockwork in the temporal regulation, remain unclear.
Objective: We determined whether the mast cell clockwork contributes to the temporal regulation of IgE/mast cell-mediated allergic reactions.
Methods: The kinetics of a time-of-day-dependent variation in passive cutaneous anaphylactic (PCA) reaction were compared between mast cell-deficient mice reconstituted with bone marrow-derived mast cells (BMMCs) generated from mice with wild-type allele and a non-functional mutation of a key clock gene Clock. In addition, we examined the temporal responses of wild-type and Clock-mutated BMMCs to IgE stimulation in vitro.
Results: The Clock-mutation in mast cells resulted in the absence of temporal variations in IgE-mediated degranulation in mast cells both in vivo and in vitro in association with the loss of temporal regulation of FcεRI signaling in mast cells.
Conclusion: The mast cell-intrinsic clockwork primarily contributes to the temporal regulation of IgE/mast cell-mediated allergic reaction. The results reveal a novel regulatory mechanism for IgE-mediated mast cell response that may underlie the circadian pathophysiology in allergic diseases.