

第55回日本免疫学会学術集会 Technical Seminar

1日目 2026年11月17日(火) 11:45-12:45

テクニカルセミナー T02 Room E 会場 (1008)

演題 : Tissue Inflammatory Memory:  
How the Environment Imprints CD4<sup>+</sup> T<sub>RM</sub> Cells and Their Niches

演者 : 平原 潔 先生

(千葉大学大学院医学研究院 免疫発生学)

座長 : 山下 政克 先生

(愛媛大学大学院医学系研究科  
免疫学・感染防御学講座 免疫学・感染防御学)



Dr. Kiyoshi Hirahara

要旨 :

Chronic allergic airway disease is a disorder of memory. Inflammatory CD4<sup>+</sup> tissue-resident memory T (T<sub>RM</sub>) cells persist in inflamed airways and drive fibrosis unless restrained by CD103<sup>hi</sup> Tregs <sup>(1)</sup>. The inflamed tissue also feeds them: locally accumulating unsaturated fatty acids are stored in lipid droplets and catabolized by ATGL-driven lipolysis and microlipophagy, activating PPAR $\gamma$  and inducing ST2<sup>hi</sup> pathogenic Th2 cells <sup>(2)</sup>. Residency is transcriptionally enforced: hepatic leukemia factor (HLF) up-regulates retention receptors, represses egress receptors, and drives inflammatory function via Bhlhe40; its deletion abolishes CD4<sup>+</sup> T<sub>RM</sub> generation and ameliorates airway inflammation <sup>(3)</sup>. CD4<sup>+</sup> T<sub>RM</sub> cells are in turn maintained within tertiary lymphoid tissue (TLT), and this reciprocal support constitutes tissue inflammatory memory. This memory is not strictly local: loss of the CD69-S1PR1 axis releases Ex-T<sub>RM</sub> cells that keep their epigenetic imprint and spread inflammation to distant organs <sup>(4)</sup>. The niche is likewise environmentally shaped: hypoxia engages an Epas1-Myl9/12 axis in pulmonary hypertension <sup>(5)</sup>. I will present our latest work on how environmental stimuli are inscribed into CD4<sup>+</sup> T<sub>RM</sub> cells and their niches, and how erasing it may open new therapies for chronic airway disease.

References:

1. Ichikawa T, et al. Nat Immunol 2019. 2. Yagyu H, et al. Sci Immunol 2025. 3. Kiuchi M, et al. Science 2025. 4. Hirasawa R, et al. Sci Adv 2026. 5. Kuriyama S, et al. Circ Res 2026.

参加方法 : 整理券制

整理券はセミナー当日のみ配布、予定枚数になり次第配布終了

配布時間帯 7:45-11:00 配布場所 : 受付付近 (3F イベントホール入口) ※整理券はセミナー開始時刻を過ぎると無効

【展示会場 3F】 企業展示 ブース番号4 BioLegend社 (抗体試薬) 他  
皆様のご来場を心よりお待ちしております。

共催 : 日本免疫学会・トミーデジタルバイオロジー株式会社