No. 2018-12

Thu., **26 Apr.**, 4pm

Jukhyun Bio Auditorium(RM.121)

School of Life Sciences

Seminar Series

2018 Spring Semester

T Cell-mediated Immunopathogenesis during Viral Infection

Korean

Speaker | Eui-Cheol Shin, Ph.D.

Affiliation | KAIST

Host | Prof. Sung-Gyoo Park

광주과학기술원 생명과학부

Gwangju Institute of Science and Technology School of Life science

School of Life Sciences

Seminar Series

Thursday, **26 April** 2018, 4:00 PM

Jukhyun Bio Auditorium(RM.121)

No. 2018-12

Abstract

During hepatitis virus infection, liver injury is not directly caused by the hepatitis virus but is instead caused by immune-mediated mechanisms. Hepatitis A virus (HAV) is a hepatotropic RNA virus that preferentially infects hepatocytes and causes liver inflammation. HAV infection often causes severe liver injury in adults, whereas it results in asymptomatic subclinical infection in children. In the present study, we investigated the activation status and functions of CD8+ T cells, and the mechanisms by which CD8+ T cells mediate host injury in acute hepatitis A (AHA), which is caused by HAV infection. While it was known that HAV-specific CD8+ T cells are responsible for liver injury in AHA, a recent study showed that HAV-specific CD8+ T cells did not display effector function in HAV-infected chimpanzees. In this context, we examined HAV-specific and non-HAV-specific CD8+ T cells in AHA patients, and studied a mechanism of immune-mediated liver injury in AHA. We demonstrate that (i) non-HAV-specific CD8+ T cells are activated and proliferate during AHA, (ii) HAV-infected cells produce IL-15 which induced antigen-independent activation of CD8+ T cells, (iii) CD8+ T cells isolated from AHA patients exert innate-like cytolytic activity, (iv) the innate-like cytolytic activity is triggered by ligation of NKG2D and/or NKp30 without TCR engagement, (v) hepatocytes of HAV-infected liver overexpress NKG2D ligands, and therefore, could be cytolytic targets of bystander activated non-HAV-specific CD8+ T cells, and (vi) liver injury during AHA is mainly associated with innate-like cytotoxic function of bystander activated CD8+ T cells. Taken together, we report a human viral disease in which host injury is associated with innate-like cytolytic activity of antigen-independently activated CD8+ T cells lacking specificity for the infecting virus.

School of Life Sciences

Seminar Series

Thursday, **26 April** 2018, 4:00 PM

Jukhyun Bio Auditorium(RM.121)

No. 2018-12

Speaker

Eui-Cheol Shin, Ph.D.

Education/Experience

1990-1996	M.D., Medical School, Yonsei University
1996-2001	Ph.D., Medical School, Yonsei University
2002-2007	Postdoctoral fellow, NIDDK, NIH, USA
2007-2013	Assistant Professor, Medical Science and Engineering, KAIST
2013-present	Associate Professor, Medical Science and Engineering, KAIST
2017-present	Chair Professor, KAIST

Research Interests

Our laboratory studies T cell immune responses in viral diseases and immunologic diseases. In order to understand T cell immune responses comprehensively, we study not only anti-viral immune responses but also immunopathologic mechanisms in host damage. In addition, we try to develop T cell vaccines and apply them in viral diseases.

GIST 광주과학기술원 생명과학부
Gwangju Institute of Science and Technology School of Life Sciences