

Date / Time:

Friday

18 November 2011

10.30am – 11.30am

Venue:

**CeLS Seminar Room 2,
Centre for Life Sciences,
Level 1,
28 Medical Drive,
Singapore 117456**

Convener:

Dr Zhang Yongliang

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Seminar Coordinators

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Liver-specific Natural Killer Cells: Phenotypic and Functional Features

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Abstract

Liver is an unique immune organ with predominant innate immunity and characterized with very strong immunotolerant features. Understanding the innate immune features and mechanisms of immune tolerance of the livers are helpful to explore the therapeutic approaches to liver diseases including viral hepatitis and hepatocellular carcinoma. One of the particular features of liver is its high content of NK cells, for which we found a big subpopulation of hepatic NK cells which was almost not existed in other immune organs. This liver-specific NK cells are CD3⁻CD122⁺DX5⁻CD49a⁺ and characterized with many other features than those from DX5⁺CD49a⁻ NK cells in liver, spleen, lung, thymus, lymph nodes, blood and bone marrow. Recently, a study group found hepatic NK cells had a potential with adaptive immunity in contact hypersensitivity (CHS) mice, but the phenotypic feature is not clear. Interestingly, we found this liver-specific NK cell was able to deliver the memory of adaptive immunity in CHS wild type mice or RAG2^{-/-} mice. The mechanisms underlying the liver-specific NK cells-delivered adaptive immunity is studied.

Selective Publications

Jin Z, Sun R, Wei H, Gao X, Chen Y, Tian Z. Accelerated liver fibrosis in hepatitis B virus transgenic mice: Involvement of natural killer T cells. **Hepatology**. 2011; 53:73-85

Hou X, Zhou R, Wei H, Sun R, Tian Z. NKG2D-retinoic acid early inducible-1 recognition between natural killer cells and kupffer cells in a novel murine natural killer cell-dependent fulminant hepatitis. **Hepatology** 2009, 49:940-9.

Chen QF, Wei HM, Sun R, Zhang J, Tian Z. Therapeutic RNA silencing of Cys-X3-Cys chemokine ligand 1 gene prevents mice from adenovirus vector-induced acute liver injury. **Hepatology** 2008, 47:648-58

Chen Y, Wei H, Sun R, Dong Z, Zhang J, Tian Z. Increased susceptibility to liver injury in hepatitis B virus transgenic mice involves NKG2D-ligand interaction and natural killer cells. **Hepatology**. 2007; 46(3):706-15.

Dong Z, Zhang J, Sun S, Wei H, Tian ZG. Impairment of liver regeneration correlates with over-activated hepatic NKT cells in HBV transgenic mice. **Hepatology** 2007; 45(6):1400-12.