WiPI dependent non-canonical autophagy operating in neutrophil differentiation of APL cells

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Introduction

Acute promyelocytic leukemia (APL) is characterized by a block in neutrophilic differentiation, which is associated with the transcriptional repressor RARα. Recent studies have shown that the c-Jun N-terminal kinase (JNK) pathway is involved in the regulation of RARα expression and subsequent differentiation of APL cells. In this study, we aimed to investigate the role of WiPI in the differentiation of APL cells.

Results

1. Decreased WiPI expression in AML patient samples
2. Increased WiPI expression in AML patient samples
3. WiPI expression in normal human cells
4. WiPI expression in AML cell lines
Role of LRH-1 in T cell development and function

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AIM OF STUDY

LRH-1 is a nuclear transcription factor that is not only involved in lipid metabolism, but also plays a crucial role in the development of lymphocytes. To investigate the expression and function of LRH-1 in T cell development and function, we have generated conditional knockout mice specifically in T cells. Therefore, we have determined whether LRH-1 expression is induced in cell cycle progression, and whether this induction is necessary for cell cycle progression. The data indicate that LRH-1 expression is necessary for cell cycle progression, and that overexpression of LRH-1 expression using cell cycle culture

METHODS & RESULTS

LRH-1 is expressed in mature and immature T cells.

WT or cKO (DIF1-precursor controlled, LRE-lacking, CDS-KO) expression

Conditional deletion of LRH-1 in T cells

WT or cKO (DIF1-precursor controlled, LRE-lacking, CDS-KO) expression

LRH-1 plays a role in the regulation of cell cycle progression.

WT or cKO (DIF1-precursor controlled, LRE-lacking, CDS-KO) expression

OUTLOOK

Future plans...

My key novations are why the deletion of LRH-1 expression in T cells leads to a decrease of mature T cells. Understanding this phenomenon may help us to understand the role of LRH-1 in T cell development and function.
Single cell resolution, quantitative measurements in 3-dimensional datasets of entire lymphoid tissue using laser sheet microscopy

INTRODUCTION

EXPERIMENTAL SETUP

RESULTS

Figure 1: Detection of rare adaptive transfused T cells in the entire FL of OT-I-11 mice with time.

Figure 2: Comparison of FL cellularity and CD8^T cell distribution between OT-I-11 and WT mice.
The blood-brain barrier:

Checkpoint Charlie for immune cell entry into the CNS
Granule Serine Proteases and Serpins: Fine tuning cell survival and inflammation

Charaf Benarafa, DVM PhD
Theodor Kocher Institute

5th International BRC Summer School, Böingen, 12-14.08.2012
Overexpression of BCL-2 in the granulocyte lineage induces an AML like, neutropenic phenotype.

Summer School 2012
Adaptive immunity relies on intercellular communication

- Antigen capture
- Cross-presentation
- T cell response

- Infected cells and viral antigens picked up by host APCs
- Dendritic cell
- Phagolysed infected cell
- Viral-specific CD8+ T cell
- Viral antigen
- Costimulator
DOCK8 in T cell migration & effector cell differentiation

Summer School 2012

14.08.2012
Markus Piechacz
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