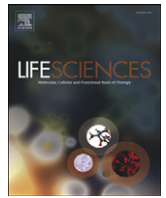




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NALP3-mediated regulation of IL-1β in macrophages

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ABSTRACT

Macrophages are the first line of defense against pathogens. Activation of macrophages leads to the production of pro-inflammatory cytokines, including IL-1β. IL-1β is a key mediator of inflammation and is involved in the pathogenesis of many diseases. In this study, we investigated the role of NALP3 in the regulation of IL-1β production in macrophages. We found that NALP3 is essential for IL-1β production in macrophages. NALP3-deficient macrophages showed significantly reduced IL-1β production in response to various stimuli. Furthermore, we found that NALP3-mediated IL-1β production is dependent on the formation of the inflammasome. Our results suggest that NALP3 plays a critical role in the regulation of IL-1β production in macrophages. © 2015 Elsevier B.V. All rights reserved.

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1. Introduction

Macrophages are the first line of defense against pathogens. Activation of macrophages leads to the production of pro-inflammatory cytokines, including IL-1β. IL-1β is a key mediator of inflammation and is involved in the pathogenesis of many diseases. In this study, we investigated the role of NALP3 in the regulation of IL-1β production in macrophages. We found that NALP3 is essential for IL-1β production in macrophages. NALP3-deficient macrophages showed significantly reduced IL-1β production in response to various stimuli. Furthermore, we found that NALP3-mediated IL-1β production is dependent on the formation of the inflammasome. Our results suggest that NALP3 plays a critical role in the regulation of IL-1β production in macrophages.

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IL-1 β o NF- κ B CCL3 NALP3
 20. O o o P P fi
 (F1.1). F, o o K⁺ fi
 P P fi IL-1 β o o A C
 K⁺ o o A C
 IL-1 β o NALP3 A C 33. o
 O o P P fi A C o
 NALP3 fi O o
 NAC o fi o IL-1 β o
 NALP3 A C o P P fi
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 NALP3 fi o o o
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 o o NF- κ B o NALP3
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 o IL-1 β o A20
 o NALP3 fi o NF- κ B
 o o NALP3 o IL-1 β 74. I o
 o o P o A20 NALP3
 fi o P o

IL-1 β IL-18
 (CN), o o fi o
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 o A o APP/P 1 o
 o AD, o NALP3 fi o o
 APP/P 1/NALP3^{-/-} APP/P 1/-/-
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 IL-1 β o A β o, NALP3 o
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 o o o NALP3
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 o o o NALP3 fi o M1

3.2. The inflammasome in Alzheimer's disease

A (AD) o o
 o o
 o o o o o o - β (A β)
 o o AD o M o
 o o NF- κ B
 IFN- γ o A
 26. I o o o

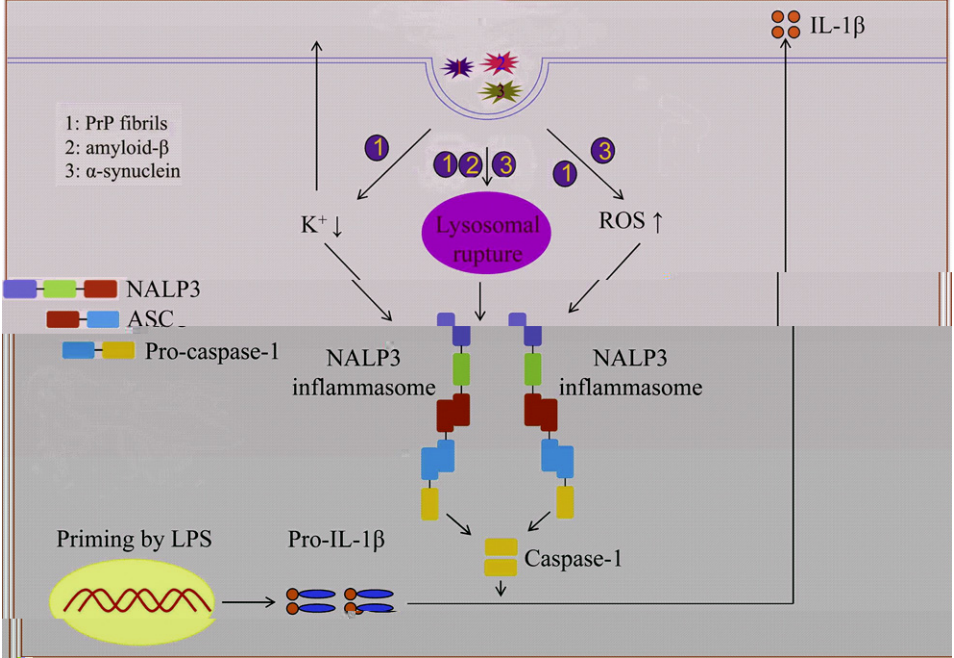


Fig. 1. NALP3 inflammasome activation and IL-1 β secretion.

— 1 1 0 0 1 0 1 | 1 — 1 0 Aß, — 1 1

F... IL-1β... G1) ... 15,50.
IL-1β... 2DM...
... 2,31,32,55,64. Mo o ,
... NOD ... 57.
IL-1β... A ...
IL-1 ... A ...
A ...
... β= ... 29. Ho ,
IL-1β ... fi ...

