

Peripheral inflammation increases PKR activation, Tau phosphorylation and amyloid β production in wild-type mice

François Mouton-Liger, Anne-Sophie Rebillat, Clarisse Pace, Sarah Gourmaud, Mariko Taga, Claire Paquet, Jacques Hugon

► To cite this version:

François Mouton-Liger, Anne-Sophie Rebillat, Clarisse Pace, Sarah Gourmaud, Mariko Taga, et al.. Peripheral inflammation increases PKR activation, Tau phosphorylation and amyloid β production in wild-type mice. *Molecular Neurodegeneration*, BioMed Central, 2013, 8 (Suppl 1), pp.P32. 10.1186/1750-1326-8-S1-P32 . inserm-00868758

HAL Id: inserm-00868758

<https://www.hal.inserm.fr/inserm-00868758>

Submitted on 1 Oct 2013

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

POSTER PRESENTATION

Open Access

Peripheral inflammation increases PKR activation, Tau phosphorylation and amyloid β production in wild-type mice

François Mouton-Liger^{1,2*}, Anne-Sophie Rebillat¹, Clarisse Pace¹, Sarah Gourmaud¹, Mariko Taga^{1,3}, Claire Paquet^{1,2}, Jacques Hugon^{1,2}

From Molecular Neurodegeneration: Basic biology and disease pathways
Cannes, France. 10-12 September 2013

Background

Systemic inflammation is correlated with dementia progression. Pro-inflammatory molecules can communicate from the periphery to the central nervous system to induce neuroinflammation and neurodegeneration. Our protein of interest is the pro-apoptotic kinase PKR (the double strand-RNA dependent protein kinase). Increased activated PKR levels were found in AD patients brain and cerebrospinal fluid. PKR activation can be triggered by inflammatory stresses and induces neurotoxicity *in vitro*. Is *in vivo* PKR-mediated inflammation involved in AD neurodegenerative process?

Learning objective

To investigate whether PKR-mediated neuroinflammation could play a role in AD neurodegenerative process.

Methods

C57BL/6 wild type mice were injected intraperitoneally with LPS (1mk/kg) versus saline once a day for 3 days to induce PKR activation and neuroinflammation (LPS is the bacilli gram negative endotoxin lipopolysaccharide).

Brains were collected and dissected; immunohistochemistry and western blotting were performed for neuroinflammation, PKR activation and AD pathological hallmarks (as Tau hyperphosphorylation).

Results

Mice showed endotoxin-induced sickness behaviour including body weight loss and elevated serum cytokine levels.

Microglial activation, neuronal apoptosis, increase of PKR, GSK3 β and Tau phosphorylation and amyloid β production were found in hippocampus and cortex of LPS-treated mice.

Conclusions

PKR could be involved in the signalling of neurofibrillary tangles formation after a systemic inflammatory challenge.

Authors' details

¹Inserm UMR-S839, Paris, France. ²Hopital Lariboisière APHP, Paris, France. ³University of Southampton, Southampton, UK.

Published: 13 September 2013

doi:10.1186/1750-1326-8-S1-P32

Cite this article as: Mouton-Liger et al.: Peripheral inflammation increases PKR activation, Tau phosphorylation and amyloid β production in wild-type mice. *Molecular Neurodegeneration* 2013 8(Suppl 1):P32.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit



¹Inserm UMR-S839, Paris, France

Full list of author information is available at the end of the article