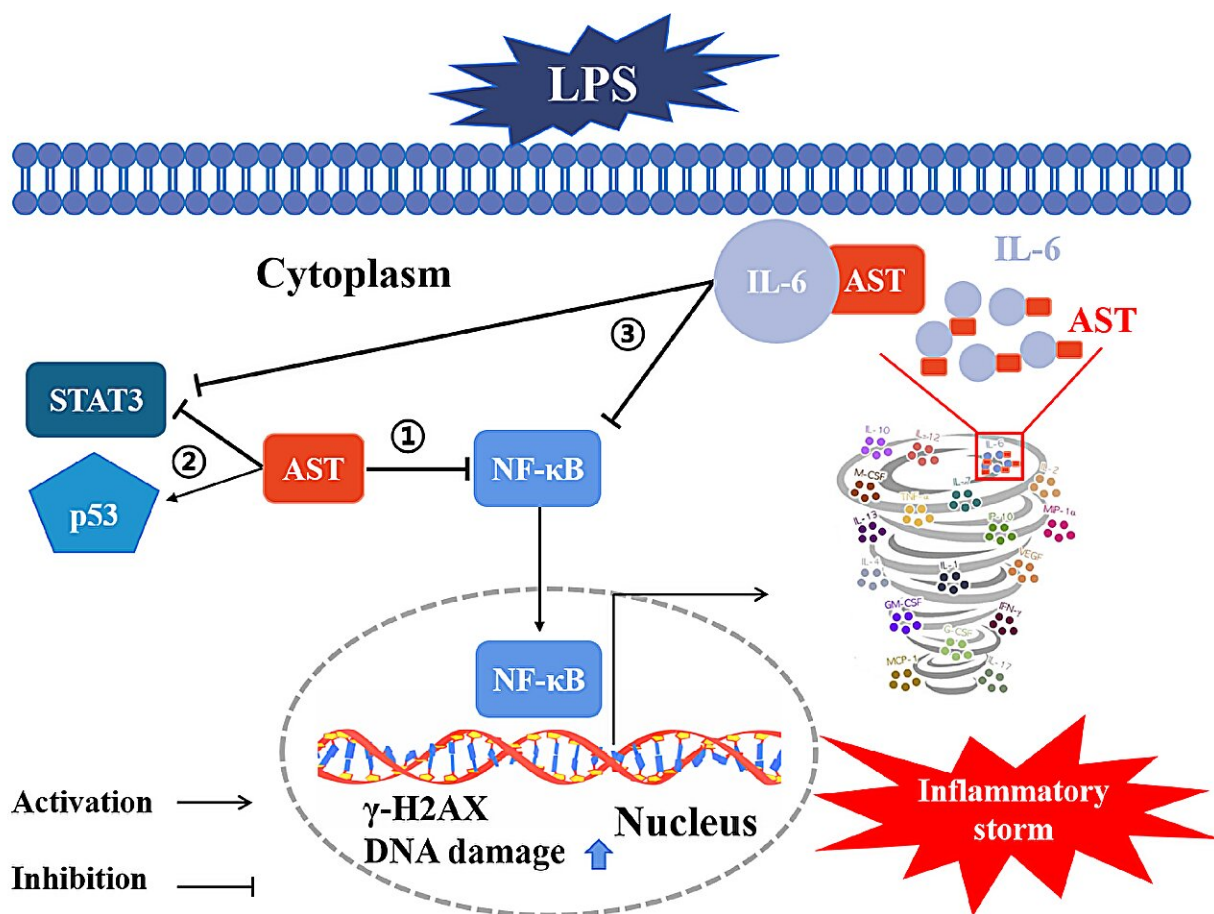


New study uncovers astaxanthin's anti-inflammatory potential against lipopolysaccharide-induced inflammation

May 30 2024, by Zhao Weiwei, Wu Yahui



Schematic diagram of the anti-inflammatory effects of AST. Credit: Wu Yahui

Recently, a research team led by Prof. Huang Qing at Hefei Institutes of Physical Science of Chinese Academy of Sciences found a new mechanism by which astaxanthin (AST) can target IL-6 and thus reduce LPS-induced adverse inflammatory response in macrophages.

The [research results](#) have been published in *Food & Function*.

Astaxanthin is a kind of natural substance with strong antioxidant effect. The latest research shows that it may also have a certain anti-inflammatory effect, but its specific mechanism is unknown.

In this study, researchers selected human monocytic leukemia cell-derived [macrophages](#) (THP-1) as experimental cells and lipopolysaccharide (LPS) as [inflammatory stimuli](#) to study the molecular mechanism of astaxanthin's anti-inflammatory effect.

They found that AST intervention significantly decreased LPS-induced [oxidative stress](#), boosted cell repair, and reduced inflammatory cytokine damage by substantially inhibiting NF- κ B translocation and activation, activating p53 and inhibiting STAT3. Through further analysis and experiments, the team confirmed that AST directly binds to IL-6, disrupting the inflammatory feedback loop and potentially preventing inflammatory storms.

The results suggest that the direct binding of astaxanthin to IL-6 can inhibit the positive feedback loop of inflammatory factors, which may inhibit the inflammatory storm caused by adverse inflammatory reactions.

"Our study provides experimental and theoretical basis for astaxanthin as a [dietary supplement](#) with anti-inflammatory or immunomodulatory functions," said Wu Yahui, a member of the team.

More information: Yahui Wu et al, Astaxanthin targets IL-6 and alleviates the LPS-induced adverse inflammatory response of macrophages, *Food & Function* (2024). [DOI: 10.1039/D4FO00610K](https://doi.org/10.1039/D4FO00610K)

Provided by Chinese Academy of Sciences

Citation: New study uncovers astaxanthin's anti-inflammatory potential against lipopolysaccharide-induced inflammation (2024, May 30) retrieved 20 June 2024 from <https://medicalxpress.com/news/2024-05-uncovers-astaxanthin-anti-inflammatory-potential.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.