

This occasional section within the journal surveys visions and achievements, often not on the main track of the developing biomedical sciences, but all relating to discoveries and developments of medicinals – both ancient and modern. What they have in common, in one way or another, is providing further background and glances around the edges of the core discipline of pharmacognosy, as it has been and continues to evolve within our times.

Pterostilbene, Found in Blueberries Supress Lipid Accumulation in Muscle Cells and Stimulate Fat Metabolism

Ian Edwin Cock[1,2,*]

[1]School of Environment and Science, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland, AUSTRALIA.
[2]Centre for Planetary Health and Food Security, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland, AUSTRALIA.

Correspondence:
Dr. Ian Edwin Cock[1,2]
[1]School of Environment and Science, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland, AUSTRALIA.
[2]Centre for Planetary Health and Food Security, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland, AUSTRALIA.
Email: editor@phcogcommn.org, I.Cock@griffith.edu.au

The accumulation of lipids in skeletal muscle as the result of high fat diets, physical inactivity and during aging can result in metabolic dysfunction. This may result interfere with the ability of the cells to efficiently use glucose and fatty acids for energy metabolism, which can contribute to insulin-resistance. Therefore, the discovery of therapeutics to limit the storage of lipids in muscle cells may improve the health of older individuals, and may reduce the incidence of lifestyle and age-related diseases. A recent study from a Japanese research team examined the effects of pterostilbene isolated from blueberries on C2C12 myocytes and detected substantial suppression of intracellular lipid accumulation.[1] The study used structure-activity analysis to determine that the 3,5-dimethoxy moiety of the pterostilbene structure was crucial for this activity.

The same study examined the mechanism involved in inhibiting lipid accumulation and determined that pterostilbene upregulated genes associated with fatty acid β-oxidation, without affecting either fatty acid synthetic pathways, nor uptake mechanisms. Furthermore, the study demonstrated that this effect is reliant on peroxisome proliferator-activated receptor δ (PPARδ) and that pterostilbene increased PPARδ signalling by suppressing its degradation. Whilst follow-up studies are required, this report highlights the potential of pterostilbene in reducing several age-related pathologies.

REFERENCE

1. Suzuki, M., Iwasaki, M., Higashimura, Y., Takaya, T., Mitani. T. Pterostilbene suppresses intracellular lipid accumulation in C2C12 myocytes via PPARδ stabilization. Food Bioscience, 2026; 83: 109519 DOI: 10.1016/j.fbio.2026.109519

DOI: 10.5530/pc.2026.4.24

Copyright Information :
Copyright Author (s) 2026 Distributed under Creative Commons CC-BY 4.0

Publishing Partner : Manuscript Technomedia. [www.mstechnomedia.com]