

DavosLife E3 Tocotrienols

The Next Evolution of Tocotrienols

Targeting Ferroptosis for Advanced Cellular Protection

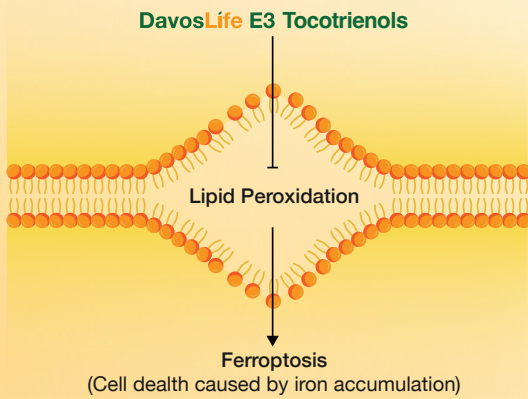


Figure 1: Ferroptosis prevention by Tocotrienols

Ferroptosis is a form of programmed cell death caused by iron accumulation, lipid peroxidation and decline in antioxidant capacity that weakens and damages the cell membrane.

Symptoms of Ferroptosis¹:

- Elevated lipid peroxides
- Increase in harmful free radicals
- Excess iron accumulation

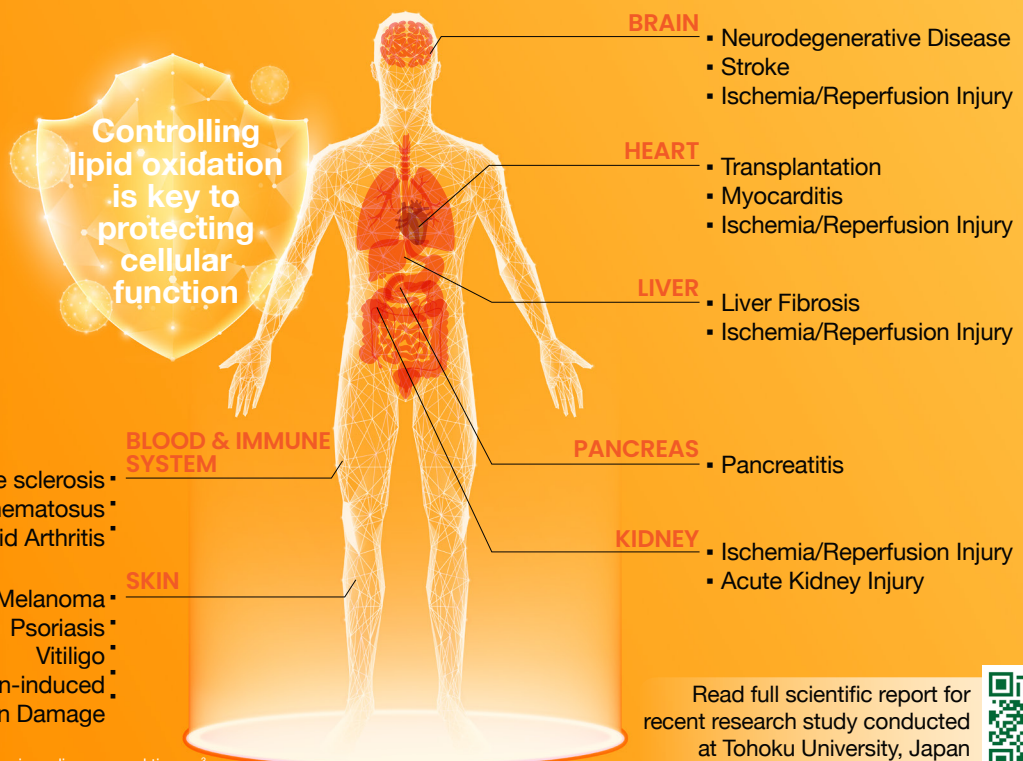
Powerful antioxidant against lipid peroxidation

Protects cellular membranes from oxidative damage

Tocotrienols demonstrate significantly greater anti-ferroptotic potency than tocopherols, with effective inhibition observed at ~17x lower concentrations



Ferroptosis: A New Target in Health Science



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22/4/2026

Read full scientific report for recent research study conducted at Tohoku University, Japan



Figure 2: Role of Ferroptosis in various diseases and tissues³

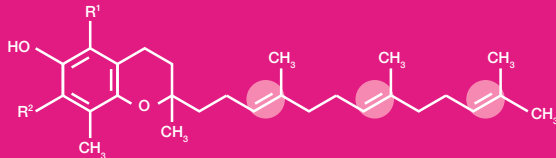
References:
 1. Zhang, M., Chen, X., Zhang, Y. Mechanisms of Vitamins Inhibiting Ferroptosis. *Antioxidants* 2024, 13, 1571. <https://doi.org/10.3390/antiox13121571>
 2. Yang, H., Ito, J., Maejima, T. et al. Tocotrienols exhibit superior ferroptosis inhibition over tocopherols. *Sci Rep* (2023). <https://doi.org/10.1038/s41598-025-34673-1>
 3. Zhou, Q., Meng, Y., Li, J., Sun, Y., Dian, Y., Yao, L., Xiong, Y., Zeng, F., Chen, X., & Deng, G. (2024). Ferroptosis: mechanisms and therapeutic targets. *MedComm*, 5(12), e70010. <https://doi.org/10.1002/mco2.70010>

Tocotrienols, The Extraordinary Vitamin E

Vitamin E is not just a single molecule, but a family of eight fat-soluble substances that are sub-divided into two classes of structurally-similar molecules. These two classes are tocopherol and tocotrienol, each of which have four structurally and chemically diverse molecules termed as alpha (α), beta (β), delta (δ), and gamma (γ) respectively.



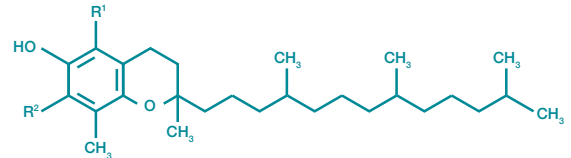
Tocotrienols have up to **60X more antioxidative potency** compared to α-Tocopherol, and have **unique anti-inflammatory properties** not seen in α-Tocopherol¹.



TOCOTRIENOLS

Tocotrienols have unsaturated isoprenoid side chains with three double bonds. This unique property gives it better flexibility with a higher efficiency of penetrating into the cell membrane. Tocotrienols are potent **ANTIOXIDANTS*** with unique **ANTI-INFLAMMATORY** properties.

α : R' = CH₃, R'' = CH₃
 β : R' = CH₃, R'' = H
 γ : R' = H, R'' = CH₃
 δ : R' = H, R'' = H



TOCOPHEROLS

Tocopherols, in contrast, have saturated side chains. They also function as antioxidants, but this chemical structure gives them a lower antioxidative capacity as compared to tocotrienols.

α : R' = CH₃, R'' = CH₃
 β : R' = CH₃, R'' = H
 γ : R' = H, R'' = CH₃
 δ : R' = H, R'' = H

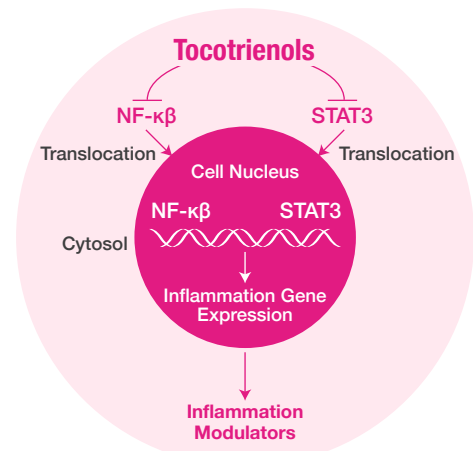
Tocotrienols have Unique Properties that Positively Impact Different Areas of the Body

Tocotrienols are naturally sourced from plant species like oil palm, rice and Annatto seed.

Each analogue of tocotrienol are functionally unique, with α-, β-, δ-, and γ-tocotrienol each exerting different beneficial effects on health and disease that are separate from the biological functions of α-tocopherol.



Potent Anti-Inflammatory Agent



Tocotrienols have pronounced and potent effects on NF-κβ (key master regulator of inflammation) and STAT3 (master inflammatory transcriptional factor) to reduce inflammation^{2,3,4}.

Reference:
 1. Serbinova, E., Kagan, V., Han, D., and Packer, L. (1991). Free radical recycling and intramembrane mobility in the antioxidative properties of alpha-tocopherol and alpha-tocotrienol. *Free Radical Biology and Medicine*, 10: 263 – 275.
 2. Guang et al. (2015). *Am J Transl Res*; 7(9): 1612-1620
 3. Ng et al. (2012). *Food Chemistry*; 134: 920-925
 4. Aggarwal et al. (2010). *Biochem Pharmacol.*; 80(11): 1613-1631.

For medical professional use.

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