Azelaic acid is a dicarboxylic acid originally found in Arabidopsis that exhibits anti-inflammatory activity. Azelaic acid is clinically used to treat rosacea, acne, and hyperpigmentary disorders. Azelaic acid directly inhibits kallikrein 5 (KLK5), downregulating expression of KLK5, toll-like receptor 2 (TLR 2), and cathelicidin, and suppresses activity of serine proteases in vitro, in vivo, and in clinical settings. In PUFA-treated fibroblasts, azelaic acid decreases generation of ROS and upregulates expression of antioxidative enzymes, inhibiting cell damage; agonist activity at PPARγ is thought to drive these effects. Azelaic acid also inhibits proliferation of melanocytes. This compound displays anticancer potential as well, inhibiting the proliferation of cutaneous melanoma cells due to suppression of mitochondrial oxidoreductive activity and DNA synthesis.

References
