

Summary of Grape and Immune Health Studies

Research is needed on grapes and immune health. To date some studies have been conducted on grape compounds resveratrol, quercetin, and vitamin K for their influence on immunity. Further information is provided in citations below.

PUBLISHED RESEARCH

Polyphenols

Ding, S., Jiang, H., & Fang, J. (2018). Regulation of immune function by polyphenols. *Journal of Immunology Research*. Doi.org/10.1155/2018/1264074.

Resveratrol

Malaguarnera, L. (2019). Influence of resveratrol on the immune response. *Nutrients*. 11(5).

Filardo, S., Di Pietro, M., Mastromarino, P., & Sessa, R. (2020). Therapeutic potential of resveratrol against emerging respiratory viral infections. *Pharmacology & Therapeutics*, 214, 107613. Doi:10.1016/j.pharmthera.2020.107613.

Ramdani, L.H. & Bachari, K. (2020). Potential therapeutic effects of resveratrol against SARS-CoV-2. *Acta Virol*, 2020:64(3)276-280. Doi:10.4149/av_2020_309.

Feng, L., Yasmeen, R., Schoene, N. W., Lei, K.Y., & Want, T.T.Y. (2019). Resveratrol differentially modulates immune responses in human THP-1 monocytes and macrophages. *Nutrition Research*, Dec;72:57-69. Doi: 10.1016/j.nutres.2019.10.003.

Moussa, C., Hebron, M., Huang, X., Ahn, J., Rissman, R.A., Aisen, P.S., & Turner, R.S. (2017). Resveratrol regulates neuro-inflammation and induces adaptive immunity in Alzheimer's disease. *Journal Neuroinflammation*, Jan 3; 14(1):1. Doi:10.1186/s12974-016-0779-0.

Marinella, M. (2020). Indomethacin and resveratrol as potential treatment adjuncts for SARS-CoV-2/COVID-19. *International Journal Clinical Practice*, Sept;74(9):e13535. Doi:10.1111/ijcp.13535.

Farkhondeh, T., Fogado, S.L., Pourbagher-Shahri, A.M., Ashrafizadeh, M., & Samarghandian, S. The therapeutic effect of resveratrol: focusing on the Nrf2 signaling pathway. *Biomedicine & Pharmacotherapy*, 127 (2020) 110234. Doi: 10.1016/j.biopha.2020.110234.

Quercetin

Brito, J.C.M., Lima, W.G., Cordeiro, L.P., & Da Cruz Nizer, W.S. (2021). Effectiveness of supplementation with quercetin-type flavonols for treatment of viral lower respiratory tract infections: systemic review and meta-analysis of preclinical studies. *Phytotherapy Research*, 2021: 1-13. Doi:10.1002/ptr.7122

Li, Y., Yao, Jiaying, Han, C., Yang, J., Chaudhry, M.T., Wan, S., Liu, H., & Yin, Y. (2016). Quercetin, inflammation and immunity. *Nutrients*, 8,167. Doi:10.3390/nu8030167.

Choi, H.J., Song, J. H., Park, K.S., & Kwon, D.H. (2009). Inhibitory effects of quercetin 3-rhamnoside on influenza A virus replication. *Eur J Pharm Sci Jun 28:37(3-4):329-33*. Doi:10.1016/j.ejps.2009.03.002

Choi, H.J., Song, J. H., Park, K.S., & Kwon, D.H. (2012). Quercetin 3-rhamnoside exerts anti influenza A virus activity in mice. *Phytother Res. Mar 26(3):462-2*. Doi:10.1002/ptr.3529.

Mlcek, J., Jurikova, T., Skrovankova, S., and Sochor, J. (2016). Quercetin and its anti-allergic immune response. *Molecules*, May 12:21(5). Doi: 10.3390/molecules21050623.

Vitamin K

Dofferhoff, A.S., Piscaer, I., Schurgers, L.J., Visser, M.P.J., et al. (2020). Reduced vitamin K status as a potentially modifiable risk factor of severe coronavirus disease. *Clin Infect Disease*. doi:10.1093/cid/claa/258.

Janssen, R., Visser, M.P.J., Dofferhoff, A.S.M., Vermeer, C., Janssens W., Walk, J. (2020). Vitamin K metabolism as the potential missing link between lung damage and thromboembolism in Coronavirus disease 2019. *British Journal of Nutrition*, doi: 10.1017/S0007114520003979.

Anastasi, E., Lalongo, C., Labriola, R., Ferragut, G., Lucarelli, M., and Angeloni, A. (2020). Vitamin K deficiency & Covid-19. *Scand J Clin Lab Invest*, 80:7, 525-527. <https://doi.org/10.1080/00365513.2020.1805122>.