Cite this as: Wenxiao ZHAO, Chenchen DUAN, Yanli LIU, Guangying LU, Qin LYU, Xiumei LIU, Jun ZHENG, Xuelian ZHAO, Shijun WANG, Haijun ZHAO. Modulating effects of *Astragalus* polysaccharide on immune disorders via gut microbiota and the TLR4/NF-κB pathway in rats with syndrome of dampness stagnancy due to spleen deficiency[J]. Journal of Zhejiang University Science B, 2023, 24(7): 650-662. http://doi.org/10.1631/jzus.B2200491

Modulating effects of *Astragalus* polysaccharide on immune disorders via gut microbiota and the TLR4/NF-κB pathway in rats with syndrome of dampness stagnancy due to spleen deficiency

Key words: **Astragalus polysaccharides, Gut microbiota, TLR4/NF-κB pathway, Dampness stagnancy due to spleen deficiency, Immune disorder, Short- chain fatty acids**

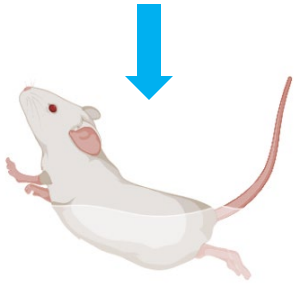
Research Summary

This article aimed to discuss the modulating effects of Astragalus polysaccharides (APS) on immune disorders and the potential mechanisms in rats with syndrome of dampness stagnancy due to spleen deficiency (DSSD) induced by high-fat and low protein (HFLP) diet plus exhaustive swimming.

Radix Astragali

The wild *A. membranaceus* var. *mongholicus*

Astragalus polysaccharides



DSSD rats

Picture adapted from: Yang, M., Li, Z., Liu, L., Bo, A., Zhang, C., Li, M., 2020. Ecological niche modeling of Astragalus membranaceus var. mongholicus medicinal plants in Inner Mongolia, China. *Sci Rep*. 10(1), 12482. [doi.org/10.1038/s41598-020-69391-3]

Innovation points

- **Astragalus polysaccharides as major and representative ingredients in Astragalus membranaceus root can be used as a unique prebiotic and develop a health product.**

- **Astragalus polysaccharides regulate certain gut microbiota associated with immune and inflammatory response, short-chain fatty acid (SCFA) production, and endotoxin levels in rats with syndrome of dampness stagnancy due to spleen deficiency (DSSD).**

- **Astragalus polysaccharides modulate the gut microbiota-mediated TLR4/NF-κB pathway and inflammatory cytokine levels to attenuate immune disorders in rats with DSSD syndrome.**