Effect of *Rhizoma paridis* total saponins on apoptosis of colorectal cancer cells and imbalance of the JAK/STAT3 molecular pathway induced by IL-6 suppression


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**ABSTRACT.** We observed the influence of different concentrations of *Rhizoma paridis* total saponins (RPTS) on the apoptosis of colorectal cancer cells and explored the internal mechanism involved. We determined whether RPTS influences the interleukin-6 (IL-6)/Janus kinase (JAK)-signal transducer and activator of transcription-3 (STAT3) apoptosis
molecular pathway and looked for colon cancer-related signal transduction pathways or targets inducing apoptosis. We also cultured SW480 colorectal cancer cells using different concentrations of RPTS (10, 20, 40, and 80 µg/mL), and observed the effect of RPTS on SW480 cell morphology under a fluorescence inverted microscope. We detected serum IL-6 using the polymerase chain reaction and the expression of JAK-STAT3 protein by western blot. After treating SW480 with RPTS and Hoechst 33258 dyeing, we found that the typical apoptosis morphology had changed. Secretion of IL-6 in the serum decreased significantly (P < 0.05), and STAT3 levels were reduced. RPTS can significantly promote apoptosis in SW480 colorectal cancer cells. The mechanism may be that it suppresses the secretion of IL-6 and inhibits the IL-6/JAK-STAT3 protein signaling pathway.

**Key words:** *Rhizoma paridis* total saponins (RPTS); Apoptosis; IL-6/JAK-STAT3 pathway; Colorectal cancer