

## 论著 滁菊总黄酮调控类风湿性关节炎模型大鼠滑膜组织Wnt通路SFRP4表达

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摘要:

目的: 研究中药滁菊中主要活性成分总黄酮对类风湿性关节炎(rheumatoid arthritis, RA)模型大鼠滑膜组织Wnt通路分泌型卷曲蛋白4(secreted frizzled-related protein 4, SFRP4)基因及SFRP4下游基因 $\beta$ -catenin和C-myc表达的调控作用。方法: 采用大鼠关节炎评分法和足爪肿胀评分法评价滁菊总黄酮(Chuju total flavonoids, CJTF)对RA模型大鼠的治疗作用;RT-PCR和Western印迹分别检测CJTF灌胃治疗对模型大鼠滑膜组织Wnt通路中SFRP4,  $\beta$ -catenin和C-myc基因mRNA和蛋白表达的调控作用。结果: 经CJTF灌胃治疗后, 模型大鼠关节炎评分、足爪肿胀评分均明显下降。模型大鼠滑膜组织中SFRP4基因mRNA和蛋白表达明显上调, 而其下游基因 $\beta$ -catenin和C-myc基因mRNA和蛋白表达明显下调。结论: CJTF对RA模型大鼠有明显的治疗作用, 其机制与以SFRP4为靶点, 抑制RA模型大鼠滑膜组织Wnt通路的激活有关。

关键词: 滁菊总黄酮 类风湿性关节炎 滑膜组织 分泌型卷曲蛋白4 Wnt  $\beta$ -catenin

## Chuju total flavonoids control the SFRP4 expression in Wnt pathway in rheumatoid arthritis model rats

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Abstract:

Objective: To determine the effect of Chuju total flavonoids (CJTF) on the secreted frizzled-related protein 4 (SFRP4) expression in Wnt pathway in rheumatoid arthritis (RA) model rats.

Methods: The role of CJTF in the treatment of RA model rats was evaluated by rat arthritis score and paw edema score. The expression regulation of the SFRP4,  $\beta$ -catenin and C-myc in Wnt pathway in RA model rats was detected by RT-PCR and Western blot after CJTF gavage treatment.

Results: After CJTF treatment, the rat arthritis score and paw edema score in RA model rats were significantly decreased when the RA model rats were treated with CJTF, the SFRP4 expression was significantly up-regulated, while the  $\beta$ -catenin and C-myc gene expression were significantly down-regulated in RA model rat synovial tissues.

Conclusion: CJTF has significant therapeutic effect and inhibitory effect on Wnt pathway activation by targeting SFRP4 in RA model rat synovium.

Keywords: Chuju total flavonoids rheumatoid arthritis synovium SFRP4 Wnt  $\beta$ -catenin

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## 参考文献:

1. Keen HI, Emery P. How should we manage early rheumatoid arthritis? From imaging to intervention [J]. *Curr Opin Rheumatol*, 2005, 17(3): 280-285.
2. Huang YJ, Shiao AL, Chen SY, et al. Multivalent structure of galectin-1-nanogold complex serves as potential therapeutics for rheumatoid arthritis by enhancing receptor clustering [J]. *Eur Cell Mater*, 2012, 13(23): 170-181.
3. Tugnet N, Cooper S, Douglas K. Methotrexate therapy, rheumatoid arthritis, and life-threatening liver complications: should we be monitoring more closely? [J]. *Scand J Rheumatol*, 2012, 41(2): 163-164.
4. Tedesco A, D Agostino D, Soriente I, et al. A new strategy for the early diagnosis of rheumatoid arthritis: a combined approach [J]. *Autoimmun Rev Jan*, 2009, 8(3): 233-237.
5. Rabelo Fde S, da Mota LM, Lima RA, et al. The Wnt signaling pathway and rheumatoid arthritis [J]. *Autoimmun Rev*, 2010, 9(4): 207-210.
6. Sen M, Reifert J, Lauterbach K, et al. Regulation of fibronectin and metalloproteinase expression by Wnt signaling in rheumatoid arthritis synoviocytes [J]. *Arthritis Rheum*, 2002, 46(11): 2867-2877.
7. Suzuki H, Gabrielson E, Chen W, et al. A genomic screen for genes upregulated by demethylation and histone deacetylase inhibition in human colorectal cancer [J]. *Nat Genet*, 2002, 31(2): 141-149.
8. Urakami S, Shiina H, Enokida H, et al. Combination analysis of hypermethylated Wnt-antagonist family genes as a novel epigenetic biomarker panel for bladder cancer detection [J]. *Clin Cancer Res*, 2006, 12(7Pt1): 2109-2116.
9. Nojima M, Suzuki H, Toyota M, et al. Frequent epigenetic inactivation of SFRP genes and constitutive activation of Wnt signaling in gastric cancer [J]. *Oncogene*, 2007, 26(4): 4699-4713.
10. Lin YW, Chung MT, Lai HC, et al. Methylation analysis of SFRP genes family in cervical adenocarcinoma [J]. *J Cancer Res Clin Oncol*, 2009, 135(12): 1665-1674.
11. Takagi H, Sasaki S, Suzuki H, et al. Frequent epigenetic inactivation of SFRP genes in hepatocellular carcinoma [J]. *J Gastroenterol*, 2008, 43(5): 378-389.
12. Kawakami K, Yamamura S, Hirata H, et al. Secreted frizzled-related protein-5 is epigenetically downregulated and functions as a tumor suppressor in kidney cancer [J]. *Int J Cancer*, 2011, 128(3): 541-550.
13. Sen M, et al. Blockade of Wnt-5A/frizzled 5 signaling inhibits rheumatoid synoviocyte activation [J]. *Arthritis Rheum*, 2001, 44(4): 772-781.
14. Yuasa T, Iwamoto ME. Mechanism of cartilage matrix remodeling by Wnt [J]. *Clin Calcium*, 2006, 16(6): 1034-1039.
15. Nakamura Y, Nawa ta M, Wakitani S. Expression profiles and functional analyses of Wnt-related genes in human joint disorders [J]. *Am J Pathol*, 2005, 167(1): 1-3.
16. Imai K, Morikawa M, D'Armiento J, et al. Differential expression of WNTs and FRPs in the synovium of rheumatoid arthritis and osteoarthritis [J]. *Biochem Biophys Res Commun*, 2006, 345(4): 1615-1620.

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2. 高洁生; 吴轰; 田静. 周围神经损害为首发症状的类风湿性关节炎一例[J]. *中南大学学报(医学版)*, 2003,28(1): 49-
3. 刘芬, 沈守荣, 李宏韬, 王晓艳, 彭娅, 廖曼甜, 郭勤. NGX6对Wnt/ $\beta$ -catenin通路  $\beta$ -catenin/TCF/LEF转录活化的影响[J]. *中南大学学报(医学版)*, 2007,32(06): 985-991
4. 胡政, 蔡芳, 程莉娟, 夏昆\*, 夏家辉, 张灼华. 逆转录病毒载体介导的RNAi技术稳定抑制前列腺癌细胞株 $\beta$ -catenin的表达[J]. *中南大学学报(医学版)*, 2005,30(3): 253-257
5. 刘芬, 沈守荣, 王晓艳, 等. 鼻咽癌相关基因6在人结肠癌 Wnt/ $\beta$ -catenin信号转导通路中的作用[J]. *中南大学学报(医学版)*, 2011,36(3): 235-
6. 程新园; 黎志宏; . 铈来铬青蓝R分光光度法测定人发中痕量铜[J]. *中南大学学报(医学版)*, 2000,25(2): 117-
7. 徐丽娜, 郑军, 李姣, 石磊, 范松青. 高通量组织微阵列研究Wnt5a和LMP1在鼻咽癌癌变中的作用[J]. *中南大学学报(医学版)*, 2012,37(9): 865-870