"Screening of Active Ingredients from Wendan Decoction in Alleviating Palmitic Acid-Induced Endothelial Cell Injury"

Dr. Muhammad Ijaz (Associate Professor, Qilu institute of Technology, China)

Abstract: (1) Objective: Traditional Chinese medicine (TCM) plays an important role in the treatment of numerous illnesses. As a classic Chinese medicine, Wendan Decoction (WDD) encompasses a marvelous impact on the remedy of hyperlipidemia. It is known that hyperlipidemia leads to cardiovascular injury, therefore anti-vascular endothelial cell injury (AVECI) may be an underlying molecular mechanism of WDD in the cure of hyperlipidemia. However, there is no relevant research on the effect of WDD on vascular endothelial cells and its pharmacodynamic substances. Therefore, the purpose of this study was to investigate the protective effect of WDD on vascular endothelial cells. **(2) Methods:** The chemical constituents of WDD were determined by LC-MS/MS technology. The protective effects of 16 batches of WDD on samples from human umbilical vein endothelial cells (HUVECs) were evaluated. Finally, gray relation analysis (GRA) and partial least squares regression (PLSR) were used to analyze the potential correlation between chemical ingredients and AVECI. **(3) Results:** The results indicated that WDD had apparent protective effect on endothelial cells, and pharmacological properties in 16 batches of WDD tests were apparently discrepant. The GRA and PLSR showed that trigonelline, liquiritin, hesperidin, hesperetin, scopoletin, morin, quercetin, isoliquiritigenin, liquiritigenin and formononetin may be the active ingredients of AVECI in WDD. **(4) Conclusion:** WDD has a protective effect on endothelial cell injury induced by palmitic acid, which may be related to its component content. This method was suitable for the search of active components in classical TCM.

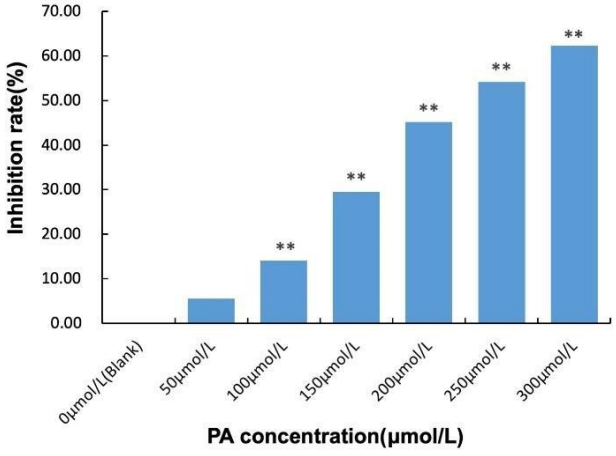

Figure. The inhibition rate of PA extracted from HUVEC. The results were derived from three independent experiments performed in quintuplicate. Results are expressed as mean ± SD (n=6). Compared with blank group, **P<0.01, ***P<0.001.

Recent Publications (minimum 5)

1. Ijaz M, Shahbaz M, Jiang W, Shi Y, Guo X, Wang F. Thymic Immunosuppressive Pentapeptide (TIPP) Shown Anticancer Activity in Breast Cancer and Chronic Myeloid Leukemia Both In Vitro and In Vivo. Protein Pept Lett. 2021;28(10):1148-1156. doi: 10.2174/0929866528666210622150500. PMID: 34161204.
2. Xu N, Ijaz M, Shi H, Shahbaz M, Cai M, Wang P, Guo X, Ma L. Screening of Active Ingredients from Wendan Decoction in Alleviating Palmitic Acid-Induced Endothelial Cell Injury. Molecules. 2023 Jan 30;28(3):1328. doi: 10.3390/molecules28031328. PMID: 36770995; PMCID: PMC9919343.
3. Ijaz M, Wang F, Shahbaz M, Jiang W, Fathy AH, Nesa EU. The Role of Grb2 in Cancer and Peptides as Grb2 Antagonists. Protein Pept Lett. 2018 Feb 8;24(12):1084-1095. doi: 10.2174/0929866525666171123213148. PMID: 29173143.
4. Zhang J, Shahbaz M, Ijaz M, Zhang H. Bibliometric analysis of antimalarial drug resistance. Front Cell Infect Microbiol. 2024 Feb 12;14:1270060. doi: 10.3389/fcimb.2024.1270060. PMID: 38410722; PMCID: PMC10895045.
5. Xu N, Ijaz M, Shu Y, Wang P, Ma L, Wang P, Ding H, Shahbaz M, Shi H. The *in vivo* study on antioxidant activity of wendan decoction in treating hyperlipidemia: a pharmacokinetic-pharmacodynamic (PK-PD) model. Front Pharmacol. 2024 Jan 23;15:1260603. doi: 10.3389/fphar.2024.1260603. PMID: 38323083; PMCID: PMC10844532.
6. Huang S, Wang D, Zhang S, Huang X, Wang D, Ijaz M, Shi Y. Tunicamycin potentiates paclitaxel-induced apoptosis through inhibition of PI3K/AKT and MAPK pathways in breast cancer. Cancer Chemother Pharmacol. 2017 Oct;80(4):685-696. doi: 10.1007/s00280-017-3393-7. Epub 2017 Aug 4. PMID: 28779263.
7. Li L, Li Y, Ijaz M, Shahbaz M, Lian Q, Wang F. Review on complement analysis method and the roles of glycosaminoglycans in the complement system. Carbohydr Polym. 2015 Dec 10;134:590-7. doi: 10.1016/j.carbpol.2015.08.028. Epub 2015 Aug 18. PMID: 26428162.
8. Honglei G, Shahbaz M, Farhaj Z, Ijaz M, Kai SY, Davrieux CF, Cheng SZ. Ultrasound guided microwave ablation of thyroid nodular goiter and cystadenoma: A single center, large cohort study. Medicine (Baltimore). 2021 Aug 27;100(34):e26943. doi: 10.1097/MD.0000000000026943. PMID: 34449459; PMCID: PMC8389940.
9. Jiang W, Tian W, Ijaz M, Wang F. Inhibition of EGF-induced migration and invasion by sulfated polysaccharide of Sepiella maindroni ink via the suppression of EGFR/Akt/p38 MAPK/MMP-2 signaling pathway in KB cells. Biomed Pharmacother. 2017 Nov;95:95-102. doi: 10.1016/j.biopha.2017.08.050. Epub 2017 Aug 19. PMID: 28830011.
10. Zhang J, Shahbaz M, Fang R, Liang B, Gao C, Gao H, Ijaz M, Peng C, Wang B, Niu Z, Niu J. Comparison of the BISAP scores for predicting the severity of acute pancreatitis in Chinese patients according to the latest Atlanta classification. J Hepatobiliary Pancreat Sci. 2014 Sep;21(9):689-694. doi: 10.1002/jhbp.118. Epub 2014 May 22. PMID: 24850587.

Dr. Muhammad Ijaz, from Pakistan, graduated from Shandong University with a Ph.D. in Pharmacology. Currently, he is working as an associate Professor of Pharmacology at Qilu Institute of Technology. His main research interests include anti-cancer study and antihyperlipidemic study. He has published 12 Sci research papers and review articles in different well renowned international core Journals with high impact factors. In 2020, he was appointed as the Principal at the Apex college of Pharmacy, Pakistan. Shandong University awarded him the 'Outstanding Graduate 2017 Shandong University International Student', and '2019-2020 Winner of Shandong University Distinguished International Graduate Student Scholarship'. Moreover, He has published several articles on the vital 'the belt and road' initiative in China Daily and other print media forums. He has published an article on 'Life in China'and got third prize in 'My journey in SDU' writing/photo contest held by the International School, Shandong University. While being active in research, he has actively participated in the co-curricular activities. He enthusiastically participated in International Sports Gala and won the title of 'Champions' in the game of cricket.

Presenting author details

Full name: Dr. Muhammad Ijaz
Contact number: +86 15053165361
Email: drmuhammadijaz1@gmail.com