

TABLE 2 | Mechanisms of Chinese medicines and formulae

No.	Chinese medicines and formulae	Level	Mechanism on oxidative stress	Mechanism on inflammation	reference
1	Angong Niu Huang Pill (Formula)	A,B2		induced ApoE-/- mice early and mid-term AS model via regulating Th17/Treg balance, inhibiting chronic inflammation, reducing plaque collagen fibers, and reducing inflammatory cells infiltration, to exert its multi-channel multi-target	Fan et al., 2020
2	Bazi Bushen capsule (Formula)	A,B2		GPER1-dependent anti-inflammatory and anti-apoptotic mechanisms	Huang et al., 2021
3	Bushen Jiangzhi formula (Formula)	B2		regulating the expression of autophagy-related proteins LC3, Beclin 1, and p62,	Cao et al., 2020
4	Bushen Kangshuai Tablet (Formula)	B3		suppress the inflammation reaction in rabbits to prevent AS formation	Zhang et al., 2009
5	Buyang Huanwu decoction (Formula)	B2	promote revascularization on db/db mice with HLI through targeting antioxidation, anti-inflammation, and angiogenesis via the AKT/GSK3 β /NRF2 pathway.		Bao et al., 2021
6	BuYangHuanWu decoction (Formula)	B1		inflammatory cytokines were suppressed and that the NF- κ B signaling pathway	Liu et al., 2019
7	Cardiotonic pills (Formula)	B2		downregulation of plasma macrophage inflammatory protein-1 α and intercellular cell adhesion molecule-1.	Deng et al., 2019
8	Chaihu-Shugan-San (Formula)	A,B2		regulation of proinflammatory factors and BDNF-TrkB signaling	Li et al., 2019

9	Compound Danshen tablet (Formula)	B2	reduced the levels of the oxidative damage molecule 4-HNE	reduced the levels of the inflammatory factor ICAM-1	Guo et al., 2021
10	Danggui Buxue Decoction (Formula)	C		improvement of extracellular matrix (ECM) deposition in the blood vessel wall and the anti-vascular local inflammatory response	Xu et al., 2021
11	Danhong injection (Formula)	B2		attenuation of lipopolysaccharide-induced expression of TNF- α , IL-1 β , IL-6 in macrophages	Chen et al., 2014
12	Dan-Lou prescription (Formula)	A		effectively attenuated macrophage foam cell formation via the TLR4/NF- κ B and PPAR γ signaling pathways	Gao et al., 2018
13	Danshen-shanzha(Formula)	B2		decreased the concentrations of interleukin (IL)-1 β and IL-18	Zhang et al., 2019
14	Danlou tablet (Formula)	B2		regulating the NF- κ B signaling pathway.	Gao et al., 2020
15	Danlou tablet (Formula)	B2		suppressing NF- κ B signaling and triggering PPAR α /ABCA1 signaling pathway	Hao et al., 2019
16	Dingxin recipe (Formula)	A,B2		downregulation of TNF- α , IL-6, ICAM-1 and VCAM-1 through mitogen-activated protein kinase pathways	Cui et al., 2020
17	Formula of removing both phlegm and blood stasis (Formula)	B (Pig)		controlling NF-kappaB p65 nuclear translocation	Ren et al., 2014
18	Fufang-Zhenzhu-Tiaozhi Capsule (Formula)	B3		activation of APN signaling pathway	Li et al., 2020
19	Guanxinkang (Formula)	B2		regulating PPAR γ , LXR α and ABCA1 interactions in the ApoE-knockout mice	Mao et al., 2012

				efferocytosis and MAPKs signaling pathways in LDLR ^{-/-} mice and RAW264.7 cells	Zhang et al., 2021
20	Guanxinkang decoction (Formula)	A,B2			
21	Guanxinshutong capsule (Formula)	A	reduced the activity of oxidative parameter MDA and upregulated the activities of antioxidant enzymes (SOD and GSH)	modulated lipid profile, downregulated the level of inflammatory cytokines and NF-κBp65.	Lu et al., 2020
22	Huotan Jiedu Tongluo (Formula)	B3	inhibition of BH4/eNOS uncoupling and the reduction of oxidative stress		Li et al., 2018
23	Hwangryunhaedok-tang (Formula)	A	modulating LDL oxidation and VSMC proliferation		Seo et al., 2015
24	Jianpi Huazhuo Tiaozhi granules (Formula)	A	inhibiting the NOX/ROS-NF-κB pathway.		Liu et al., 2020
25	Kangshuanyihao formula (Formula)	B1		regulating the SIRT1/TLR4/NF-κB signaling pathway	Han et al., 2017
26	modified Yuejuwan (Formula)	A	Inhibiting the Activity of the TRIM37/TRAF2/NF-κ B Pathway		Gui et al., 2022
27	Rongban Tongmai granule (Formula)	B3	prevent atherosclerosis by antioxidative stress and correcting unbalance of redox.		Lin et al., 2011
28	Shen-Hong-Tong-Luo formula (Formula)	A,B2		activating the PPAR-γ/LXR-α/ABCA1 pathway	Zhang et al., 2020
29	Shenmai formula (Formula)	A		suppress the NF-κB p65 expression and IκBα phosphorylation	Zhu et al., 2017
30	Shen-Yuan-Dan Capsule (Formula)	A,B2	up-regulated Beclin1 and LC3II/I proteins	inhibited AKT phosphorylation at Ser473 and mTOR phosphorylation	Zhou et al., 2019

31	Shexiang Baoxin Pill (Formula)	B2		the level elevation of Mfn2 and reduced phosphorylation of p38, JNK, and NF- κ B., reduced the level of SR-A and LOX-1 and elevated the content of LXR α , ABCA1, and ABCG1 in the arterial wall	Lu et al., 2019
32	Shexiang Tongxin dropping (Formula)	B1		the levels of pro-inflammatory cytokines including IL-2, IL-6, TNF- α and γ -IFN were markedly reduced	Xiong et al., 2015
33	Shenlian extract	A,B (Dog)		NF- κ B signaling pathway	Guo et al., 2020
34	Sobokchukeo-Tang (Formula)	C		inhibited TNF- α and IL-6	Lee et al., 2017
35	Suxiao Jiuxin Pill (Formula)	B1	elevate the activity of serum SOD, decrease serum level of MDA and ox-LDL, and reduce the expression of PPARgamma and NF-kappaB proteins		L i et al., 2011
36	Taoren Honghua drug (Formula)	A,B2		MAPKs, ERK5/STAT3, and AKT/NF- κ B p65 signaling pathways	Wang et al., 2020
37	The Angong Niu Huang Pill (Formula)	B1	decreased aortic membrane thickness, the maximum platelet aggregation rates, and the ratio of low density lipoprotein cholesterol (LDL) to high density lipoprotein cholesterol (HDL)		Fu et al., 2017

			reduce plasma lipid profiles and plasma inflammatory cytokines, reduce intracellular lipid accumulation, suppress the production of inflammatory cytokines of macrophages induced by oxidized-LDL, and inhibit the protein expression of heat shock protein 90 and toll-like receptor 4	Chen et al., 2021
38	Tiaogan-Liqi prescription (Formula)	A,B2		
39	Tiaopi Huxin recipe (Formula)	A,B2	decreased expression of caveolin-1 and NF-κB	Wen et al., 2019
40	Tongxinluo (Formula)	A,B2	inhibiting the expression of p22(phox), p47(phox) and HO-1	Wu et al., 2015
41	Tongxinluo (Formula)	B1	reducing expression of inflammatory cytokine MCP-1 and ICAM-1	Yao et al., 2014
42	Tongxinluo (Formula)	A,B2	Suppression of miR-155 expression mediated by Akt1 and blockade of the feedback loop between miR-155 and TNF-α are important pathways whereby	Zhang et al., 2014
43	Tongxinluo (Formula)	B3	inhibit the NLRP3 inflammatory pathway	Qi et al., 2022
44	Tongxinluo capsule (Formula)	B2	The comprehensive mechanisms, in addition to inflammation and lipid metabolism, might also involve cell physical function, hormone secretion, protein binding, and immune response process.	Ma et al., 2019

45	Xiao-Zhi formula (Formula)	A,B2	promotes lipid efflux and inhibits macrophage-mediated inflammation, producing a therapeutic effect against atherosclerosis	Li et al., 2021
46	Xin-mai-jia (Formula)	A,B1	reduced NO levels and increased ROS productions	Yin et al., 2017
47	Yangyin Qingre Huoxue Prescription (Formula)	A,B2	Suppressed IL-6-p-STAT3 signaling and restored IL-2-p-STAT5 signaling in the presence of YQHP may partake in the regulation of Th17 and Treg differentiation. Moreover, YQHP modulated transcriptional levels of costimulator CD80 in aortas as well corresponding to the downregulation of GM-CSF in serum and CD3 expression in CD4+ T cells	Qiu et al., 2019
48	Yindanxinnaotong (Formula)	B1	inhibiting the nuclear factor-kappa B signal pathway	Cheng et al., 2015
49	Yiqi-Huoxue granule (Formula)	A	regulating the KLF2 expression and NF-κB signaling pathway	Wu et al., 2019
50	Yirui capsules (Formula)	B2	reduces the atherosclerotic plaque burden, thereby alleviating AS by modulating the lipid profile and inhibiting inflammation	Xu et al., 2018
51	Zhixiong Capsule (Formula)	B1	IL-4, IL-13, MAPK1, MAPK14, JUN and P53 were confirmed as key targets	Zhai et al., 2019
52	Zhizi Chuanxiong Capsule (Formula)	B3	treat AS through regulating the abnormal hypermethylated and hypomethylated genes in AS rabbit model.	Zhou et al., 2018

			alleviate the lipid metabolism disorder, oxidative stress, and inflammation to reduce the plaque formation of AS zebrafish larval model.	
53	<i>Dendrobium catenatum</i> Lindl.	B (Zebrafish)		Han et al., 2021
54	<i>Fermentum Rubrum</i>	B2		reduced the protein levels of NF- κ B and MMP-9 of the aorta Wu et al., 2017
55	<i>Ginkgo biloba</i>	B2		inhibition of mTOR Tian et al., 2019
56	<i>Hirudo nipponica</i>	A		regulating the LOX-1/LXR- α /ABCA1 pathway Lu et al., 2019
57	<i>Patrinia villosa</i> Juss., <i>Patrinia scabiosaefolia</i> Fisch.	B2		reversing lysophosphatidylcholine (LPC) in the glycerophospholipid metabolic pathway Su et al., 2022
58	<i>Pueraria lobata</i>	A	protected HUVECs against rotenone-induced oxidative stress and apoptosis	Gao et al., 2016
59	<i>Salvia miltiorrhiza</i>	A	induced HO-1 expression through PI3K/Akt-MEK1-Nrf2 pathway and reduced intracellular production of reactive oxygen species via induction of HO-1 expression	Lee et al., 2012
60	<i>Schisandra chinensis</i>	B1	reduced the malondialdehyde levels (72.5, 69.3, 67.3%), and up-regulated the Nrf-2 and HO-1 expression ($p < 0.05$).	Chen et al., 2018

61	Usnea diffracta Vain.	B1	promoting the expression of serum IL-10 and inhibition of TLR5/NF-κB signaling pathway.	Zhao et al., 2019
62	Astragali Radix, Coptis Rhizoma	C	M1/M2 and Th1/Th2 immune balance	Li et al., 2022

Notes: In Level, A represents in vitro; B represents in vivo; B1 represents rats; B2 represents mice; B3 represents rabbit; C represents network pharmacology.
