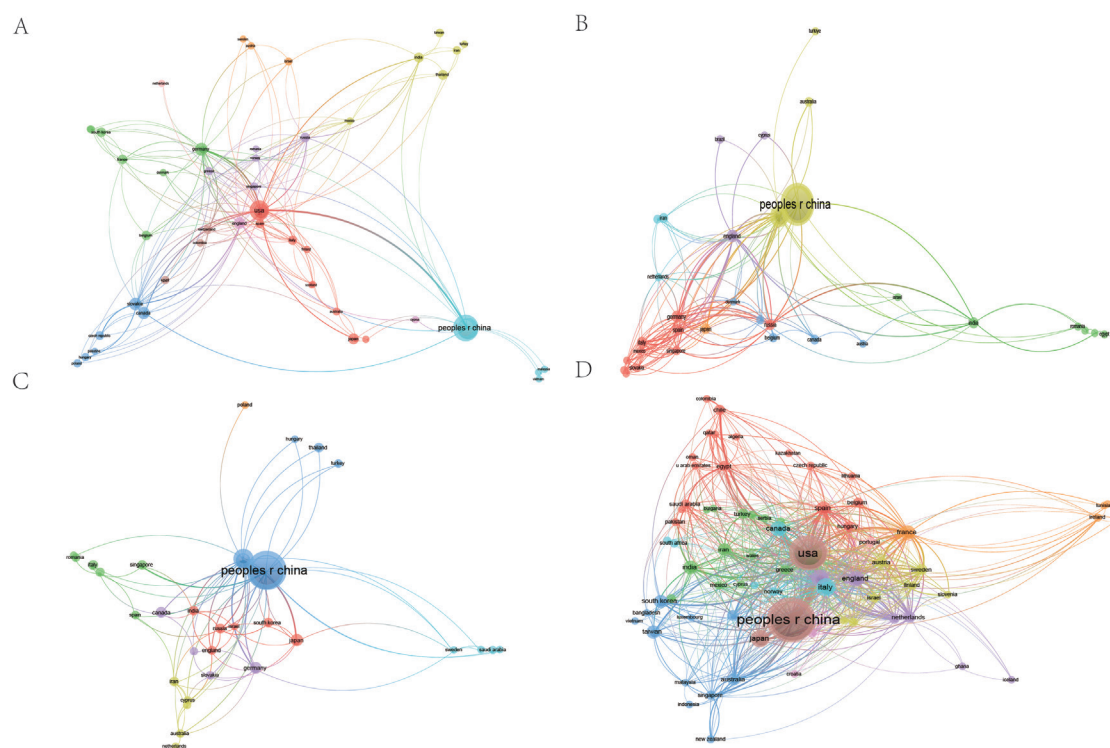
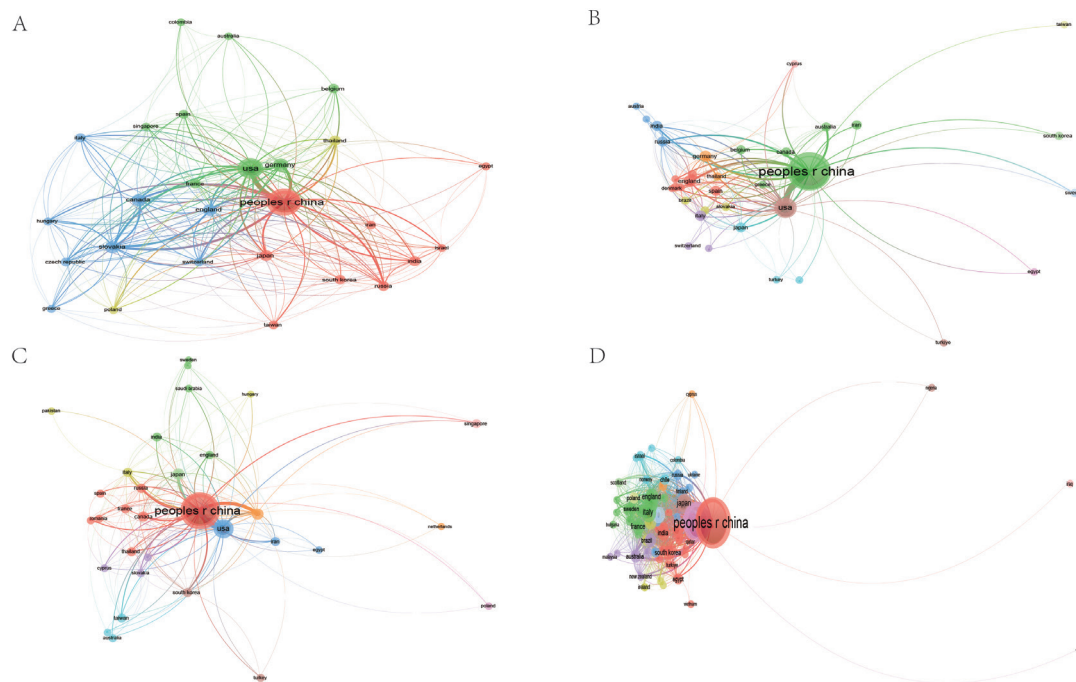


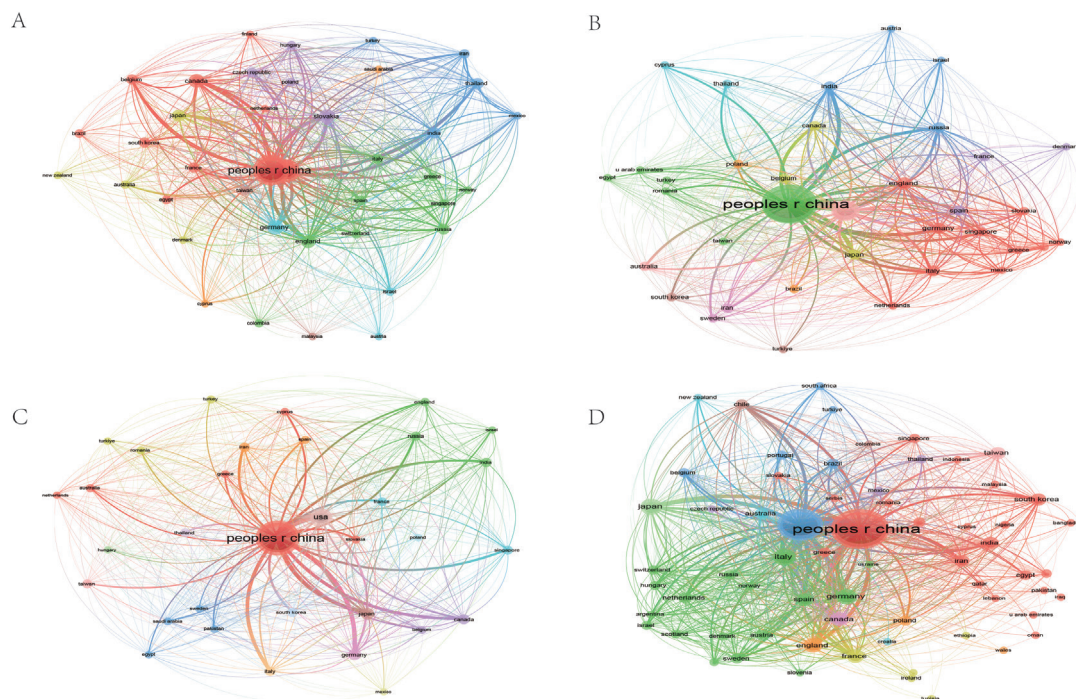
**Figure S1** Flowchart of literature selection.



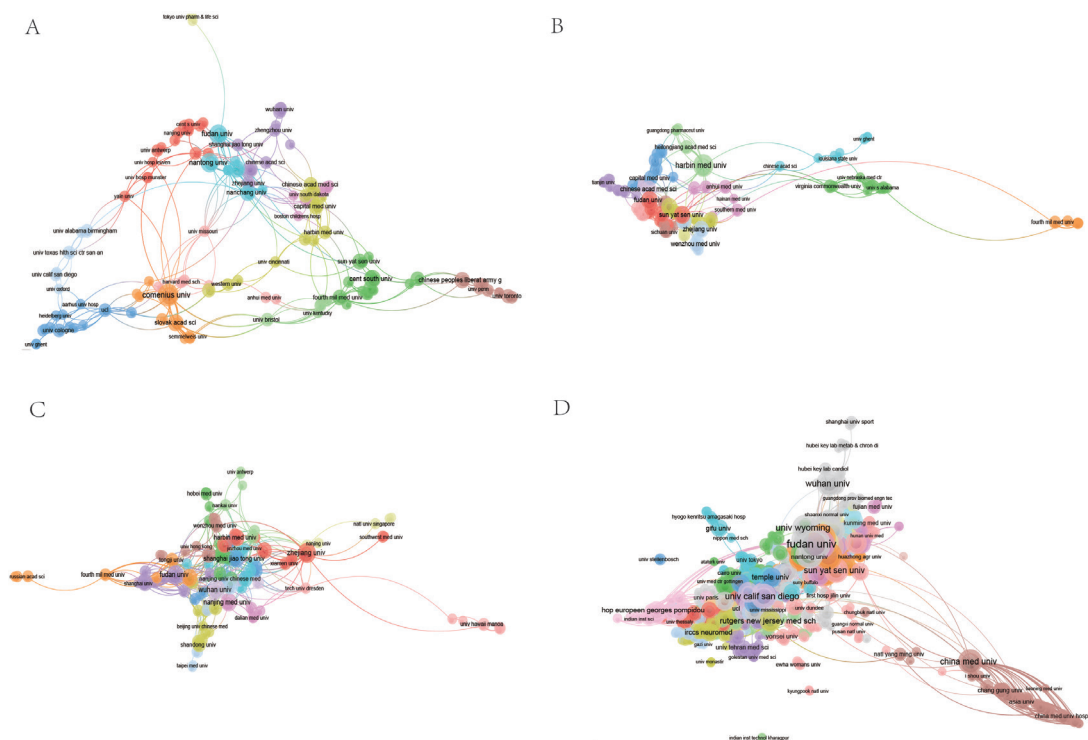
**Figure S2** VOSviewer visualization map of co-authorship collaboration between countries/regions. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.



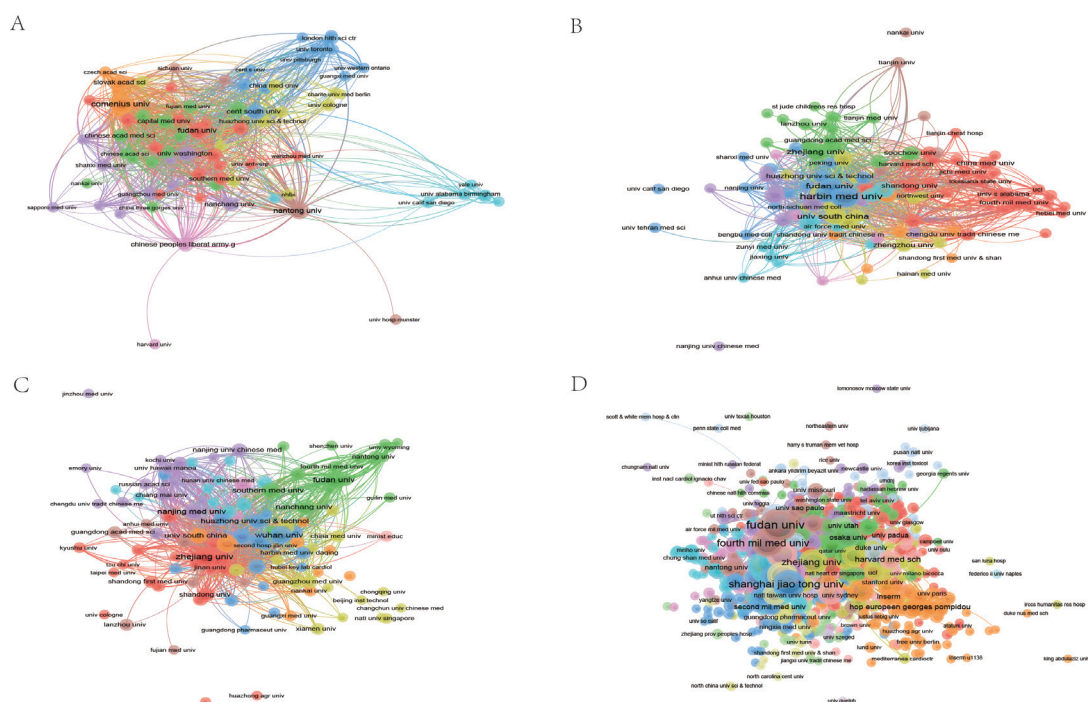
**Figure S3** VOSviewer visualization map of citation collaboration between countries/regions. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.



**Figure S4** VOSviewer visualization map of the bibliographic coupling analysis for the collaboration between countries/regions. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.

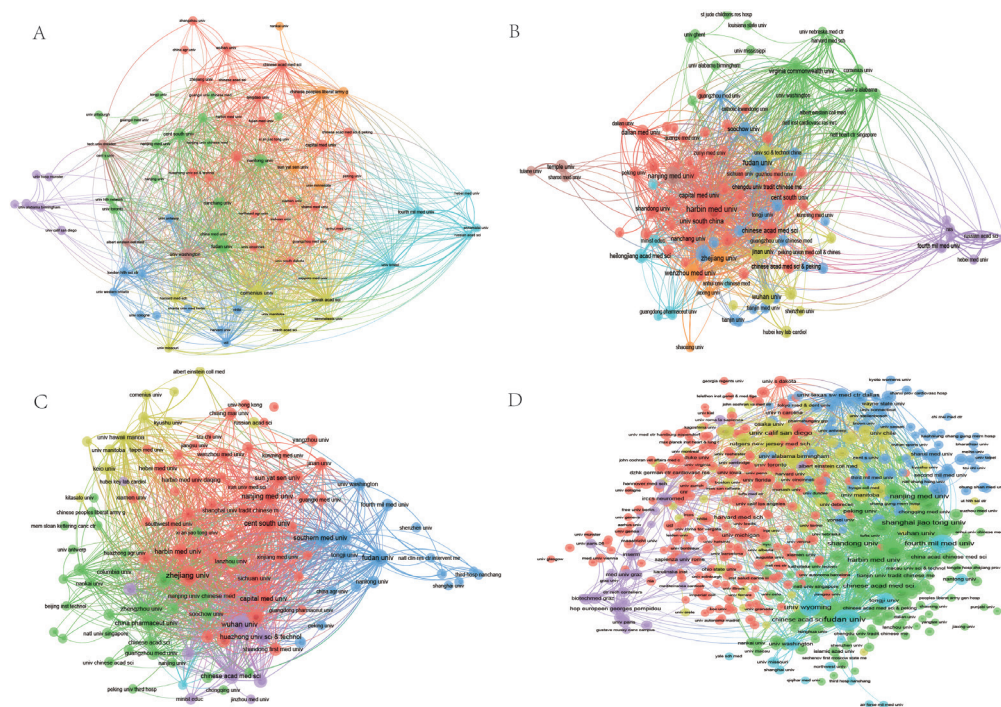


**Figure S5** VOSviewer visualization map of the co-authorship collaboration at the institution level. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.

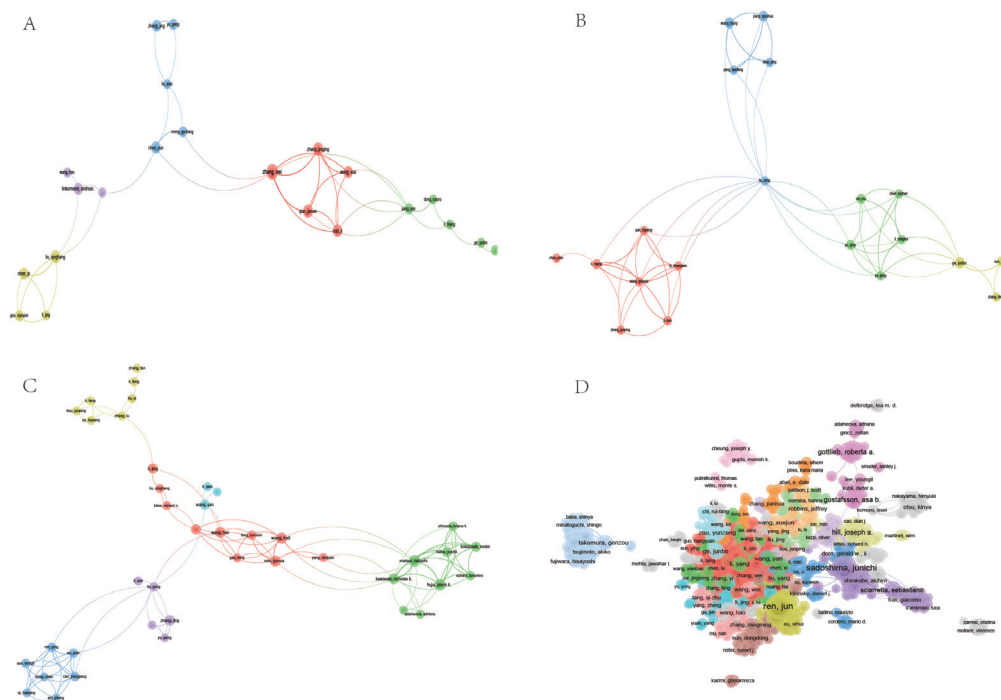


**Figure S6** VOSviewer visualization map of the citation collaboration between institutions. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.

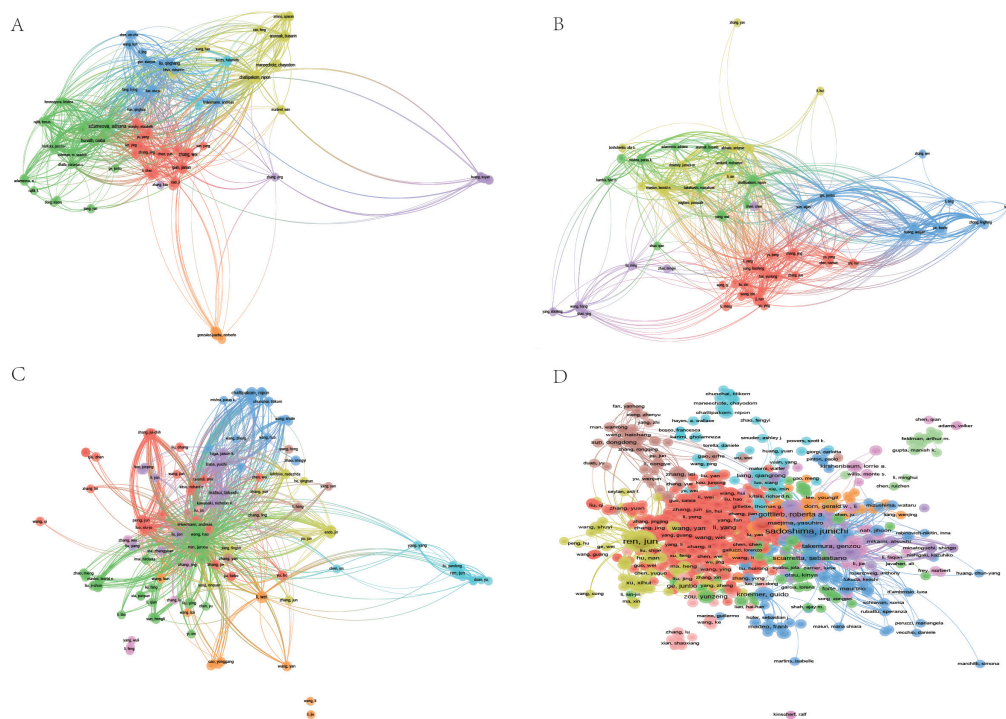




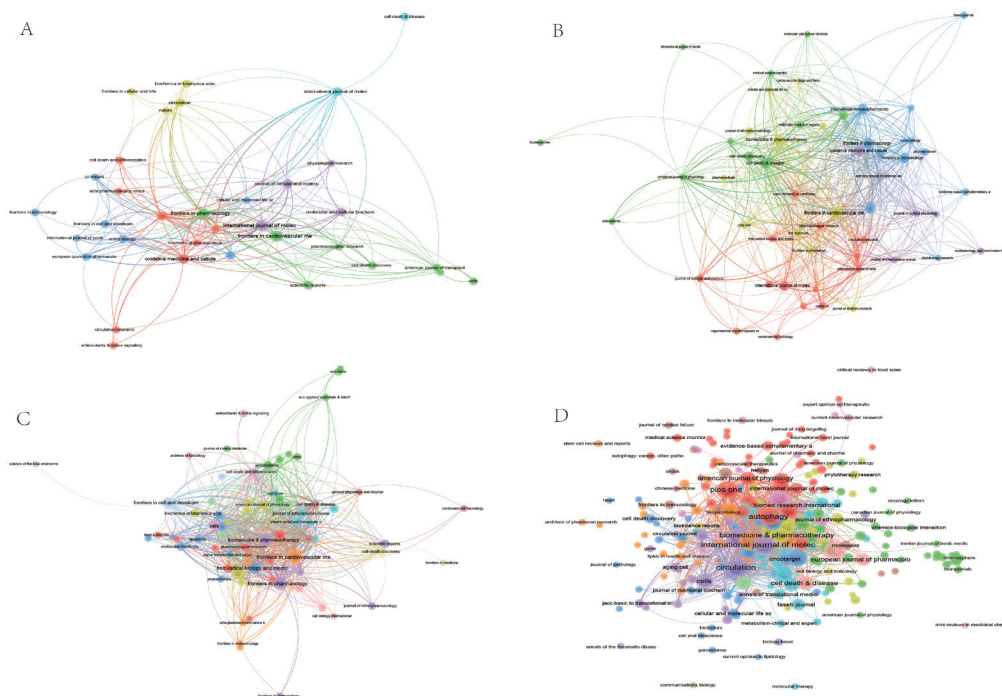
**Figure S7** VOSviewer visualization map of bibliographic coupling analysis for the collaboration between institutions. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.



**Figure S8** VOSviewer visualization map of co-authorship analysis for authors. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.



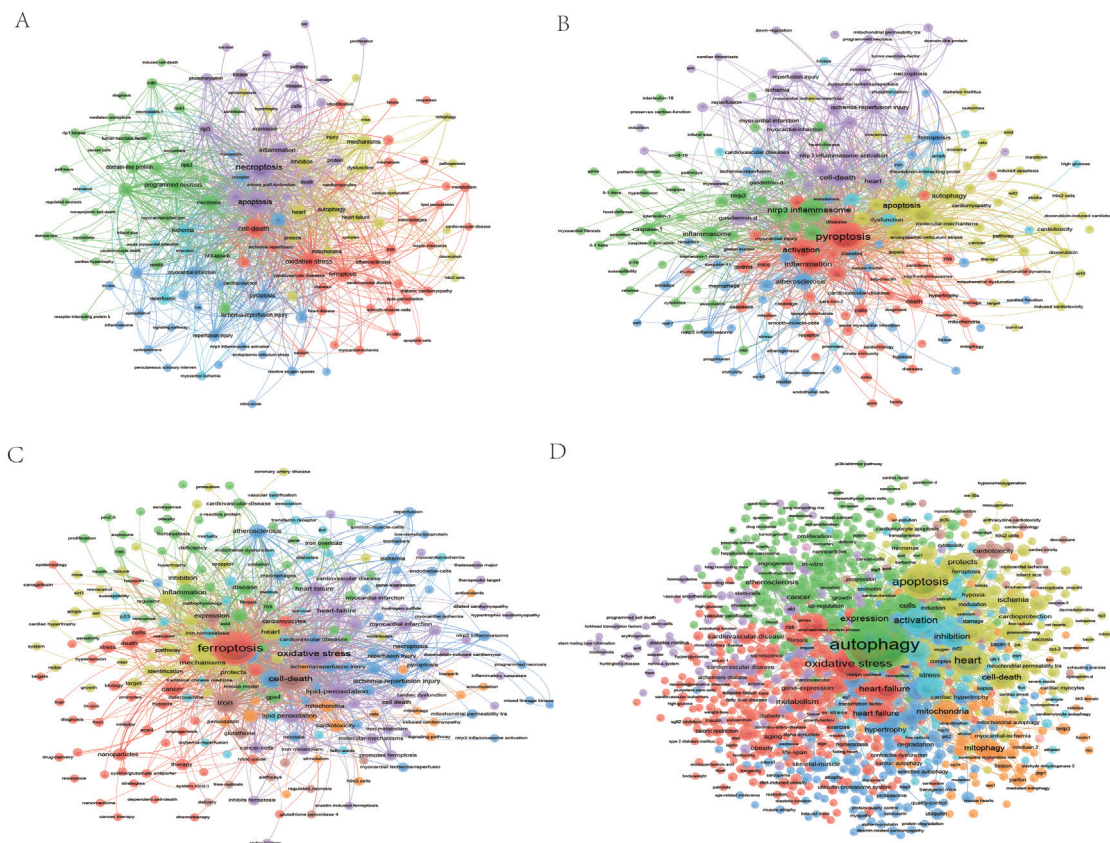
**Figure S9** VOSviewer visualization map of citation analysis for authors. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.



**Figure S10** VOSviewer visualization map of citation analysis. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.

**Table S1** The top 10 keywords related to necroptosis in cardiovascular disease, pyroptosis in cardiovascular disease, ferroptosis in cardiovascular disease, and autophagy in cardiovascular disease

Type	Rank	Keywords	Occurrences	Avg.pub.year	Avg. citations
Necroptosis	1	Necroptosis	235	2020	36
	2	Apoptosis	162	2020	40
	3	Cell-death	117	2020	49
	4	Oxidative stress	84	2021	37
	5	Necrosis	69	2019	55
	6	Inflammation	61	2020	31
	7	Autophagy	55	2020	39
	8	Heart	55	2020	25
	9	Activation	51	2019	58
	10	Programmed necrosis	51	2019	51
Pyroptosis	1	Pyroptosis	379	2021	23
	2	Nlrp3 inflammasome	174	2021	34
	3	Activation	149	2021	29
	4	Apoptosis	144	2021	31
	5	Oxidative stress	133	2021	29
	6	Inflammation	117	2021	36
	7	Cell-death	112	2021	41
	8	Atherosclerosis	78	2021	31
	9	Mechanisms	69	2021	21
	10	Autophagy	67	2021	23
Ferroptosis	1	Ferroptosis	514	2022	21
	2	Oxidative stress	203	2022	26
	3	Cell-death	197	2022	45
	4	Iron	132	2022	42
	5	Apoptosis	106	2022	26
	6	Mechanisms	97	2022	41
	7	Lipid-peroxidation	96	2022	26
	8	Heart	82	2022	24
	9	Metabolism	78	2022	52
	10	Autophagy	71	2022	21
Autophagy	1	Autophagy	4179	2019	30
	2	Apoptosis	1495	2019	34
	3	Oxidative stress	1345	2019	39
	4	Heart	1112	2018	32
	5	Activation	765	2019	27
	6	Expression	719	2019	30
	7	Heart-failure	619	2018	37
	8	Inflammation	613	2020	31
	9	Mechanisms	572	2019	29
	10	Cell-death	556	2018	49



**Figure S11** VOSviewer visualization map of keyword cooccurrence analysis. (A) Necroptosis in cardiovascular disease. (B) Pyroptosis in cardiovascular disease. (C) Ferroptosis in cardiovascular disease. (D) Autophagy in cardiovascular disease.