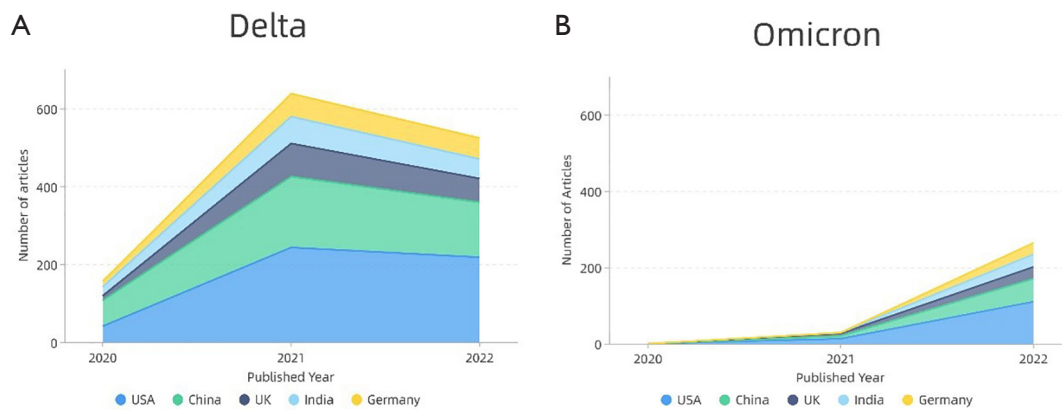


**Table S1** The top 5 most active countries for articles in both Delta and Omicron of COVID-19 pandemic during study period

Countries	Delta		Omicron	
	Publications	Citations	Publications	Citations
USA	501	4,686	123	866
China	412	2,856	73	292
UK	166	3,472	37	296
India	142	1,217	35	109
Germany	127	1,319	31	299

COVID-19, coronavirus disease 2019.



**Figure S1** Publication output in Delta and Omicron of COVID-19 pandemic during study period. Top 5 countries were the same at both study areas based on the annual numbers of publication. COVID-19, coronavirus disease 2019.

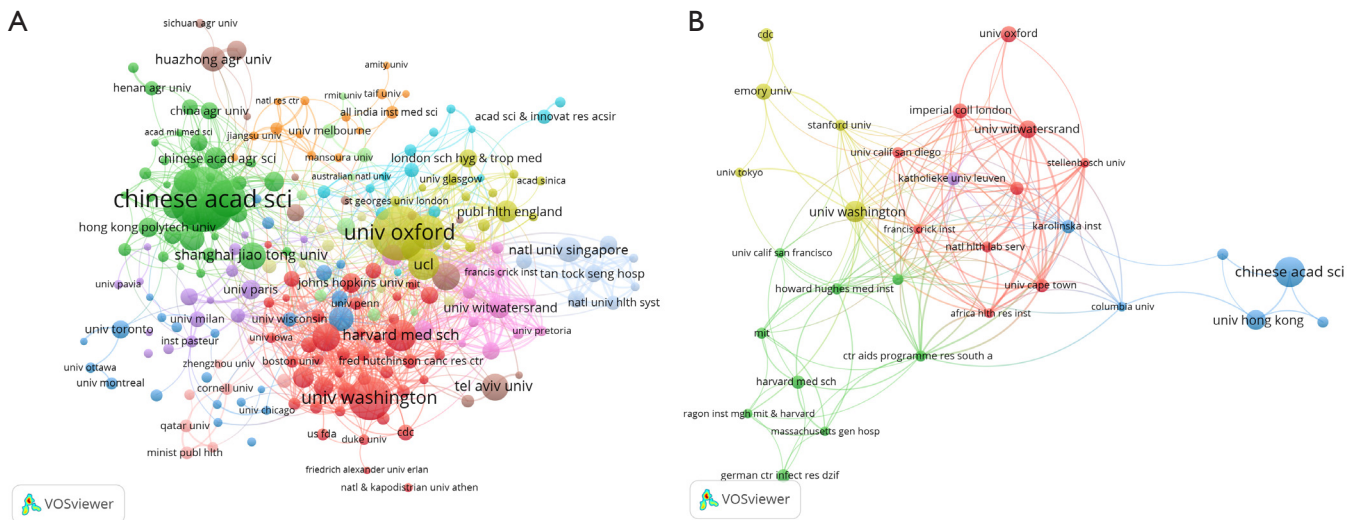


**Figure S2** Network map of authors. (A) Cooperation of Delta in COVID-19 pandemic (32 authors over 5 articles were included in the map). (B) Cooperation of Omicron in COVID-19 pandemic (33 authors over 3 articles were included in the map). Nodes demonstrates the different authors and the lines indicate the cooperation. COVID-19, coronavirus disease 2019.

**Table S2** The top 5 productive organizations for articles in both Delta and Omicron of COVID-19 pandemic during study period

Organizations	Delta			Omicron			
	Publications	Citations	Total link strength	Organizations	Publications	Citations	Total link strength
Chinese Acda Sci	54	292	77	Chinese Acad Sci	18	130	7
Oxford Univ	44	1,760	119	Washington Univ	12	260	41
Washington Univ	34	383	113	Hong Kong Univ	11	110	8
Fudan Univ	28	440	42	Univ Witwatersrand	10	167	51
Zhejiang Univ	28	193	30	Oxford Univ	9	92	7

COVID-19, coronavirus disease 2019; Chinese Acda Sci, Chinese Academy of Sciences; Univ, University.



**Figure S3** Network map of organizations. (A) Cooperation of Delta in COVID-19 pandemic (228 organizations over 5 articles were included in the map). (B) Cooperation of Omicron in COVID-19 pandemic (31 organizations over 5 articles were included in the map). Nodes demonstrates organizations and the lines indicate the cooperation. COVID-19, coronavirus disease 2019.