**Supplementary information 1.** Search strategy; Data processing; Parameter settings of CiteSpace, Bibliomysurf R package and VOSviewer.

**1. Search strategy**

Hydrogel-related keywords are obtained in three databases (PubMed, Embase and Cochrane). By the Boolean operation logic, the final retrieval formula is obtained:

(((((((((TS=(gamma polymerized hydrogel)) OR TS=(Hydrogel)) OR TS=(Hydrogels)) OR TS=(In Situ Hydrogels)) OR TS=(In Situ Hydrogel)) OR TS=(Hydrogel, In Situ)) OR TS=(Hydrogel In Situ)) OR TS=(Patterned Hydrogels)) OR TS=(Patterned Hydrogel)) OR TS=(Hydrogel, Patterned).

**2. Data processing**

Before using Citespace software for analysis, the literature obtained from WOSCC will be de-duplicated and transformed by Citespace.

Journals and authors are ranked by certain standards, and this process will be tested by three team members.

The results of reclassified keywords will be checked and tested five times.

Co-citation networks and burstness analysis will be made twice by Citespace, and the analysis results of the two times will be checked. If the results of the previous two times are inconsistent, it will be re-made to avoid system errors.

The results of citation burstness analysis in various fields need to be analyzed and paid attention to, such as analyzing and summarizing literature or keywords with high outburst intensity and recent burstness.

**3. Parameter setting**

**3.1Citespace**

-Time Slicing (Years Per Slice=1)

-Links (Strength: Cosine; Scope: Within Slices)

-Selection Criteria

The scale factor K of the total literature group is 25; The scale factor K of 20-24 group and district 1 group = 50.

Top N: Select top 50 levels of most cited or occurred items from each slice.

Top N%: Select top 10.0% of most cited or occurred items from each slice. The maximum number of selected items per slice 100.

-Clustering method (Literature co-citation clustering adopts T: Title words.; The clustering of keywords and authors adopts K: Keywords).

- Burstness（α1/α0 =2.0,γ=1.0）

**3.2 VOSviewer**

We create a map based on bibliographic data.

- Co-authorship（Type of analysis: Co-authorship; Unit of analysis: Authors; Minimum number of literature of an author=1; Number of authors to be selected=1000）

- Journal（Type of analysis: Citation；Unit of analysis: Sources; Minimum number of literature of an author=1; Number of authors to be selected=1000）

**3.3 Bibliometrix**

-Sources' Production over Time（Number of Sources=10）

-Authors' Local lmpact（Impact measure：G value and H value; Number of authors=10）