

## Supplementary material. Full search strategies

### Overview

Databases searched: PubMed (MEDLINE), Web of Science Core Collection, CNKI, and Wanfang Data.

Time coverage: inception to 22 Jan 2026.

Last search date: 22 Jan 2026 (all databases).

Reference management and de-duplication: Zotero.

### 1. PubMed (MEDLINE)

Platform: PubMed

Search fields: MeSH terms and Title/Abstract (tiab)

Search strategy (copy-paste ready):

```
(  
  "Inflammatory Bowel Diseases"[Mesh] OR "Crohn Disease"[Mesh] OR  
  "Colitis, Ulcerative"[Mesh]  
  OR "inflammatory bowel disease"[tiab] OR IBD[tiab] OR Crohn*[tiab] OR  
  "ulcerative colitis"[tiab]  
)
```

AND

```
(  
  "Circadian Rhythm"[Mesh] OR circadian[tiab] OR diurnal[tiab] OR  
  "biological clock"[tiab] OR chronobiolog*[tiab]  
  OR chronotherap*[tiab] OR "time-of-day"[tiab]  
  OR "clock gene*" [tiab] OR BMAL1[tiab] OR ARNTL[tiab] OR CLOCK[tiab]  
  OR NPAS2[tiab]  
  OR PER1[tiab] OR PER2[tiab] OR PER3[tiab] OR CRY1[tiab] OR CRY2[tiab]  
  OR NR1D1[tiab] OR "REV-ERB"[tiab] OR RORA[tiab] OR RORC[tiab]  
)
```

AND

```
(
```

microbiota[tiab] OR microbiome[tiab] OR "gut microbiota"[tiab] OR "intestinal microbiota"[tiab]

OR dysbiosis[tiab] OR metabolite\*[tiab] OR "short-chain fatty acid\*" [tiab] OR SCFA[tiab] OR butyrate[tiab]

OR "epithelial barrier"[tiab] OR barrier[tiab] OR permeability[tiab] OR "tight junction\*" [tiab]

OR occludin[tiab] OR claudin\*[tiab] OR "ZO-1"[tiab] OR TJP1[tiab] OR mucin\*[tiab] OR MUC2[tiab]

OR "mucosal immunity"[tiab] OR immune[tiab] OR immunity[tiab] OR cytokine\*[tiab]

OR macrophage\*[tiab] OR monocyte\*[tiab] OR neutrophil\*[tiab] OR "T cell\*" [tiab] OR Th17[tiab] OR "IL-17"[tiab]

OR autophagy[tiab]

)

**Notes:** No additional filters were applied. No language restrictions were applied, and we did not restrict by study type (human vs animal).

## 2. Web of Science Core Collection

Search field: Topic (TS; includes title, abstract, author keywords, and Keywords Plus)

Search strategy (copy-paste ready):

TS=(

("inflammatory bowel disease\*" OR IBD OR "ulcerative colitis" OR "Crohn\* disease" OR "Crohn disease" OR "Crohn's disease")

)

AND TS=(

(circadian OR diurnal OR "biological clock" OR chronobiolog\* OR chronotherap\* OR "time-of-day" OR timing OR timed)

OR ("clock gene\*" OR BMAL1 OR ARNTL OR CLOCK OR NPAS2 OR PER1 OR PER2 OR PER3 OR CRY1 OR CRY2 OR NR1D1 OR "REV-ERB" OR RORA

OR RORC)

)

AND TS=(

(microbiota OR microbiome OR "gut microbiota" OR dysbiosis OR metabolite\* OR "short-chain fatty acid\*" OR SCFA OR butyrate)

OR ("epithelial barrier" OR permeability OR "tight junction\*" OR occludin OR claudin\* OR "ZO-1" OR TJP1 OR mucin\* OR MUC2)

OR ("mucosal immunity" OR immune OR immunity OR cytokine\* OR macrophage\* OR monocyte\* OR neutrophil\* OR "T cell\*" OR Th17 OR "IL-17")

OR autophagy

)

Timespan: inception to 22 Jan 2026. Indexes: Web of Science Core Collection (default). Document types: all (default).

### **3. CNKI (China National Knowledge Infrastructure)**

Recommended field: Subject/Theme (主题)

Search strategy (Chinese; copy-paste ready):

(主题:(("炎症性肠病" OR "溃疡性结肠炎" OR "克罗恩病" OR IBD OR Crohn OR "ulcerative colitis"))

AND

(主题:(("昼夜节律" OR "昼夜节律紊乱" OR "生物钟" OR "生物节律" OR "时钟基因" OR "钟控基因"

OR "计时治疗" OR "时间治疗" OR "时辰给药" OR "给药时间" OR chronotherapy))

AND

(主题:(("肠道菌群" OR "肠道微生物" OR "肠道微生态" OR "菌群失调" OR "代谢物" OR "短链脂肪酸" OR 丁酸

OR "肠上皮屏障" OR "上皮屏障" OR "肠屏障" OR "通透性" OR "紧密连接" OR Occludin OR Claudin OR "ZO-1" OR TJP1

OR "黏膜免疫" OR 免疫 OR 细胞因子 OR 巨噬细胞 OR 单核细胞 OR 中性粒细胞 OR T 细胞 OR Th17 OR IL-17  
OR 自噬))

Note: If the CNKI interface does not support the “主题:” prefix, the same terms were searched using the default combined fields (title/keywords/abstract/subject), as available in the institutional access portal.

#### **4. Wanfang Data**

Recommended field: Subject/Theme ( 主题 ) or combined fields (title/keywords/abstract), depending on portal

Field: Subject/Theme ( 主题 ) when available; otherwise combined fields (title/keywords/abstract/subject) depending on institutional portal.

Search strategy (Chinese; copy-paste ready):

("炎症性肠病" OR "溃疡性结肠炎" OR "克罗恩病" OR IBD)

AND

("昼夜节律" OR "生物钟" OR "生物节律" OR "时钟基因" OR "计时治疗" OR "时间治疗" OR "时辰给药" OR "给药时间" OR chronotherapy)

AND

("肠道菌群" OR "肠道微生物" OR "肠道微生态" OR "菌群失调" OR "代谢物" OR "短链脂肪酸" OR 丁酸

OR "上皮屏障" OR "肠屏障" OR "通透性" OR "紧密连接" OR Occludin OR Claudin OR "ZO-1" OR TJP1

OR "黏膜免疫" OR 免疫 OR 细胞因子 OR 巨噬细胞 OR 单核细胞 OR 中性粒细胞 OR T 细胞 OR Th17 OR IL-17

OR 自噬)

#### **De-duplication and screening**

Records from all databases were exported and de-duplicated in Zotero. Titles/abstracts were screened first, followed by full-text assessment, by two reviewers independently (K.Y. and Z.L.), with disagreements resolved by

consensus.