列出药物所能使用的所有关系谓词（predicates）

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?p

where {

GRAPH <http://www.ztonebv.com/drugbank>

{?s ?p ?o.}

}

ORDER by ?p

List the drug and its indication of DrugBank

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?drug ?indication

where {

GRAPH <http://www.ztonebv.com/drugbank>

{?s drugbank:indication ?indication.

?s rdfs:label ?drug.

}

}

ORDER by DESC(?drug)

列出在适应症描述（Indication）中与抑郁症有关的药物（列出与抑郁症相关的药物）

List the drug for which the indication is relevant with depression

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?drug ?indication

where {

GRAPH <http://www.ztonebv.com/drugbank>

{?s drugbank:indication ?indication.

?s rdfs:label ?drug.

FILTER regex(?indication, "depressi", "i")

}

}

ORDER by ?drug Answer:120

Count how many properties of Drug Bank

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select (COUNT(distinct ?p) AS ?count)

where {

GRAPH <http://www.ztonebv.com/drugbank>

{?s ?p ?o.

}

}

Answer:84

Count which property is used most frequently in Drug Bank

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?p (COUNT(?p) AS ?count)

where {

GRAPH <http://www.ztonebv.com/drugbank>

{?s ?p ?o.

}

}

GROUP by ?p

ORDER by DESC(?count) 2668185

列出药物知识库中所有的分类

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?categoryname

where {

GRAPH <http://www.ztonebv.com/drugbank/>

{

?s drugbank:categoryName ?categoryname.

}

}

ORDER by ?categoryname

List all antipressive agents 列出所有的抗抑郁症药物

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?s

where {

GRAPH <http://www.ztonebv.com/drugbank/>

{

?s drugbank:categoryName "Antidepressive Agents".

}

}

ORDER by ?s 256

或

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?drug

where {

GRAPH <http://www.ztonebv.com/drugbank>

{

?s drugbank:categoryName "Antidepressive Agents".

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

}

}

ORDER by ?drug

Which type of drugs has the most? 哪一类的药最多？

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select ?category (COUNT(?drug) AS ?count)

where {

GRAPH <http://www.ztonebv.com/drugbank>

{

?s drugbank:categoryName ?category.

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

}

}

GROUP by ?category

ORDER by DESC(?count)

列出与抑郁症相关的药物

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?drug ?indication ?drugclass where {

?s drugbank:subclass ?drugclass.

?s drugbank:indication ?indication.

FILTER regex(?indication, "depress")

?s rdfs:label ?drug.

}

ORDER BY ?drug 126

列出能够与法华林（Warfarin）产生相互作用（DrugInteractions）的抗抑郁症药物

**STEP 1:** PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?interactions

where {

GRAPH <http://www.ztonebv.com/drugbank>

{?s drugbank:categoryName "Antidepressive Agents".

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

?s1 drugbank:DrugInteractions ?interactions.

}}

ORDER by ?interactions

**STEP 2:** PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?p

where {

GRAPH <http://www.ztonebv.com/drugbank/>

{?s drugbank:categoryName "Antidepressive Agents".

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

?s1 drugbank:DrugInteractions ?interactions.

?interactions ?p ?o.

}}

ORDER by ?p

**STEP 3:** PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?interaction

where {

GRAPH <http://www.ztonebv.com/drugbank/>

{?s drugbank:categoryName "Antidepressive Agents".

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

?s1 drugbank:DrugInteractions ?interactions.

?interactions drugbank:DrugInteraction ?interaction.

}}

ORDER by ?interaction

**STEP 4:** PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?des

where {

GRAPH <http://www.ztonebv.com/drugbank/>

{?s drugbank:categoryName "Antidepressive Agents".

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

?s1 drugbank:DrugInteractions ?interactions.

?interactions drugbank:DrugInteraction ?interaction.

?interaction drugbank:Description ?des.

}}

ORDER by ?des

**STEP5:** PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

select distinct ?drug ?des

where {

GRAPH <http://www.ztonebv.com/drugbank/>

{?s drugbank:categoryName "Antidepressive Agents".

?s1 drugbank:category ?s.

?s1 rdfs:label ?drug.

?s1 drugbank:DrugInteractions ?interactions.

?interactions drugbank:DrugInteraction ?interaction.

?interaction drugbank:Description ?des.

FILTER regex(?des, "Warfarin", "i")

}}

ORDER by ?des 806

To Check How Many Sleep-Related Concepts in SNOMED have been used in the annotations

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

select distinct ?sleepRelated

where {

?sleepRelated rdfs:subClassOf snomed:106168000.

?t1s1 ztonekg:SenseURL ?sleepRelated.

}

show Sleep-Related Concept IDs and English Labels in SNOMED which have been used in the annotations

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?sleepRelated ?label

where {

?sleepRelated rdfs:subClassOf snomed:106168000.

?t1s1 ztonekg:SenseURL ?sleepRelated.

?sleepRelated sct:hasEnglishLabel ?label.

} 47

To Show PubMed IDs of Pro-Prebiotic Articles which talk about Sleep-Related Diseases

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?pubmed

where {

?sleepRelated rdfs:subClassOf snomed:106168000.

?t1s1 ztonekg:SenseURL ?sleepRelated.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?pubmed ztonekg:hasAnnotations ?s1.

}

ORDER by ?pubmed

To Show PubMed IDs of Pro-Prebiotic Articles in which the title talk about Sleep-Related Diseases

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?pubmed

where {

?sleepRelated rdfs:subClassOf snomed:106168000.

?t1s1 ztonekg:SenseURL ?sleepRelated.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?s1 ztonekg:hasSource "Title".

?pubmed ztonekg:hasAnnotations ?s1.

} 10

Which bacteria has been mentioned most frequently in the title of Pro-Prebiotic Articles

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?label (COUNT(?bacteria) AS ?count)

where {

?bacteria rdfs:subClassOf snomed:409822003.

?t1s1 ztonekg:SenseURL ?bacteria.

?bacteria sct:hasEnglishLabel ?label.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?s1 ztonekg:hasSource "Title".

?pubmed ztonekg:hasAnnotations ?s1.}

GROUP BY ?bacteria ?label

ORDER BY DESC(?count) 第一个1018

Remove Trivial Answers: To See the concept ID of Bacteria

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?label ?bacteria (COUNT(?bacteria) AS ?count)

where {

?bacteria rdfs:subClassOf snomed:409822003.

?t1s1 ztonekg:SenseURL ?bacteria.

?bacteria sct:hasEnglishLabel ?label.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?s1 ztonekg:hasSource "Title".

?pubmed ztonekg:hasAnnotations ?s1.

}

GROUP BY ?bacteria ?label

ORDER BY DESC(?count)

To Remove Trivial Answers 去掉1018

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?label ?bacteria (COUNT(?bacteria) AS ?count)

where {

?bacteria rdfs:subClassOf snomed:409822003.

?t1s1 ztonekg:SenseURL ?bacteria.

?bacteria sct:hasEnglishLabel ?label.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?s1 ztonekg:hasSource "Title".

?pubmed ztonekg:hasAnnotations ?s1.

FILTER (?bacteria!=snomed:41146007)

}

GROUP BY ?bacteria ?label

ORDER BY DESC(?count)

To Search for Pro-prebiotic Articles which mention a disease of sleep related disorder in the title and mention a bacteria in the abstract

PREFIX snomed: <http://www.ihtsdo.org/SCT\_>

PREFIX sct: <http://wasp.cs.vu.nl/sct/sct#>

PREFIX drugbank: <https://www.drugbank.ca/drugs/>

PREFIX ztonekg:<http://www.ztonebv.nl/KG#>

PREFIX pubmed:<http://www.ncbi.nlm.nih.gov/pubmed/>

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

select distinct ?label ?labelb (COUNT(?bacteria) AS ?count)

where {?bacteria rdfs:subClassOf snomed:409822003.

?t1s1 ztonekg:SenseURL ?bacteria.

?bacteria sct:hasEnglishLabel ?label.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?s1 ztonekg:hasSource "Abstract".

?pubmed ztonekg:hasAnnotations ?s1. FILTER (?bacteria!=snomed:41146007)

?pubmed ztonekg:hasAnnotations ?s1b.

?s1b ztonekg:hasSource "Title".

?s1b ztonekg:hasAnnotation ?sb.

?sb ztonekg:hasTerm ?s7b.

?s7b ztonekg:hasSenses ?t1b.

?t1b ztonekg:hasSense ?t1s1b.

?t1s1b ztonekg:SenseURL ?sleepRelated.

?sleepRelated rdfs:subClassOf snomed:106168000.

?sleepRelated sct:hasEnglishLabel ?labelb.}

GROUP BY ?bacteria ?label ?labelb

ORDER BY DESC(?count)

select distinct ?label ?labelb ?pubmed

where {

?bacteria rdfs:subClassOf snomed:409822003.

?t1s1 ztonekg:SenseURL ?bacteria.

?bacteria sct:hasEnglishLabel ?label.

?t1 ztonekg:hasSense ?t1s1.

?s7 ztonekg:hasSenses ?t1.

?s ztonekg:hasTerm ?s7.

?s1 ztonekg:hasAnnotation ?s.

?s1 ztonekg:hasSource "Abstract".

?pubmed ztonekg:hasAnnotations ?s1.

FILTER (?bacteria!=snomed:41146007)

?pubmed ztonekg:hasAnnotations ?s1b.

?s1b ztonekg:hasSource "Title".

?s1b ztonekg:hasAnnotation ?sb.

?sb ztonekg:hasTerm ?s7b.

?s7b ztonekg:hasSenses ?t1b.

?t1b ztonekg:hasSense ?t1s1b.

?t1s1b ztonekg:SenseURL ?sleepRelated.

?sleepRelated rdfs:subClassOf snomed:106168000.

?sleepRelated sct:hasEnglishLabel ?labelb.

}