

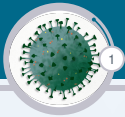
Universidad Nacional de San Agustín

Data bases

The COVID-19 Ontology

MSc. Vicente Machaca Arceda

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The COVID-19 Ontology

Introduction

Material and methods

Results



Motivation

According to Sargsyan [1], there is lots of research about COVID-19.

For example, a simple search with the key words: “(covid-19 OR SARS COV 2) AND drug” return **375000** results on Google Scholar.

Objective

Develop an COVID-19 ontology to facilitate dedicated literature searches on COVID-19 pathophysiology, epidemiology, targets and medical implications.

Material and methods

Source of information



- ▶ 32 Research articles and 10 Reviews.
- ▶ WHO.
- ▶ Radiology Assistant COVID-19.
- ▶ Centre for Evidence-Based Medicine.
- ▶ Texas Medical Center.
- ▶ Yale Medicine.
- ▶ Targeting COVID-19: GHDDI Info Sharing Portal.
- ▶ Summit Medical Group.
- ▶ Georgetown University.
- ▶ SciBiteLabs.

Material and methods

Construction of the ontology



Open Biological and Biomedical
Ontology (OBO) Foundry

BFO Basic Formal Ontology



| Property | Description |
|-----------------------------------|---------------------------|
| <i>label</i> | Name of the concept |
| <i>obolnowl:hasDefinition</i> | Definition |
| <i>rdfs:isDefinedBy</i> | Source of the definition |
| <i>obolnowl:hasDbXRef</i> | Link from Pubmed/NCBI |
| <i>rdfs:seeAlso</i> | Additional relevant links |
| <i>obolnowl:hasExactSynonym</i> | Synonyms |
| <i>obolnowl:hasRelatedSynonym</i> | Related synonyms |

Table: Metadata used in COVID-19 ontology

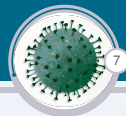
Material and methods

Custom metadata



| Property | Description |
|--------------------------------|--|
| <i>fromSciBite</i> | SciBite |
| <i>fromBEL</i> | COVID-19 BEL |
| <i>fromPubMed</i> | PubMed |
| <i>fromArticle</i> | Other resources than PubMed |
| <i>fromNCBIBook</i> | NCBI Books |
| <i>CommentonDefinition</i> | The information is modified |
| <i>CommentonHierarchy</i> | Explain the hierarchy |
| <i>DrugsinVirtualScreening</i> | Mention the drugs suggested in virtual screening |

Table: Metadata to indicate the source of information.



| Property | No of concepts | Common concepts | Uncommon concepts |
|---------------|----------------|-----------------|-------------------|
| COVID-19 | 2268 | | |
| COVID19-Whuan | 52 | 1 | 51 |
| COVIDCRFRAPID | 398 | 46 | 352 |
| IDO-COVID-19 | 486 | 60 | 426 |
| CIDO | 5156 | 528 | 4628 |
| CODO | 52 | 3 | 49 |

Table: Metadata to indicate the source of information.

Results

Filtering the relevant documents of COVID-19



COVID-19 SCAI VIEW Sign up

JPMTAGGERANNOTATOR(COVID-19NONE-DEFINED:1608192875) x AND [OP] x D016428 x x

Found 4,030,707 documents

Peptidoglycan-hydrolyzing activity of the FlgJ protein, essential for flagellar rod formation in Salmonella typhimurium.

T Nambu, T Minamino, R M Macnab, K Kutsukake
Journal of bacteriology. , 1999 Mär; 181 (5) :1555-61. – 31 Mar 1999
identifiers: PMID:10669380 PNC:FNCR0548 DOI:10.1128/JB.181.5.1555-1561.1999
PubMed Journal Article
Abstract
Annotations: 7

Anti-apoptotic role of telomerase in pheochromocytoma cells.

W Fu, J G Begley, M W Killen, M P Mattson
The Journal of biological chemistry. , 1999 Mär; 274 (11) :7264-71. – 12 Apr 1999
identifiers: PMID:10669789 DOI:10.1074/jbc.274.11.7264 PII:S0021-9258(18)30999-0
PubMed Journal Article
Abstract
Annotations: 27 6 3 2 1 1

Sort Results:
Relevance Relevance Date Date

Highlight Annotations

- ☒ Covid-19 Ontology
- ☐ Human Phenotype Ontology
- ☐ TextMining Clinical Aspect (COVID)
- ☐ Clinical Trial Ontology
- ☐ TextMining Virology (COVID)
- ☐ Medical Subject Headings
- ☐ The DrugBank database
- ☐ TextMining Signs and Symptoms (COVID)
- ☐ TextMining Risk Factor (COVID)
- ☐ Anatomical Therapeutic Chemical (ATC) Classification System

Expand all Abstracts

Figure: Results filtering COVID-19 in scaiview.



- [1] A. Sargsyan, S. Baksi, J. Darms, S. Madan, S. Gebel, O. Keminer, G. M. Jose, H. Balabin, L. N. DeLong, M. Kohler *et al.*, “The covid-19 ontology,” *Bioinformatics*, 2020.

