



Buscar información

- La busqueda se hace en las bases de datos del NCBI: <u>http://www.ncbi.nlm.nih.gov/gquery</u>
- Como ejemplo, buscaremos información sobre el Covid-19.
- Esta es una nueva enfermedad causada por un nuevo virus del tipo coronavirus que se detectó por primera vez en Wuhan (China) a finales del 2019. Tiene unos síntomas similar a una neumonía. Encontrará mucha información en la wikipedia en anglès.



Página inicial de Gquery, sección Databases

NCBI Databases

Literature

The World's largest repository of medical and scientific abstracts, full-text articles, books and

Bookshelf

Books and reports

MeSH

Ontology used for PubMed indexing

NLM Catalog

Books, journals and more in the NLM Collections

Scientific and medical abstracts/citations

PubMed Central

Full-text journal articles

Genes

Gene sequences and annotations used as references for the study of orthologs structure, expression, and evolution

Collected information about gene loci

GEO DataSets

Functional genomics studies

GEO Profiles

Gene expression and molecular abundance

HomoloGene

Homologous genes sets for selected organisms

Sequence sets from phylogenetic and population

Proteins

Protein sequences, 3-D structures, and tools for the study of functional protein domains and active

Conserved Domains

Conserved protein domains

Identical Protein Groups

Protein sequences grouped by identity

Protein

Protein sequences

Protein Clusters

Sequence similarity-based protein clusters

Functional categorization of proteins by domain architecture

Structure

Experimentally-determined biomolecular structures

Genomes

Genome sequence assemblies, large-scale functional genomics data, and source biological samples

Assembly

Genome assembly information

BioCollections

Museum, herbaria, and other biorepository collections

BioProject

Biological projects providing data to NCBI

BioSample

Descriptions of biological source materials

Genome

Genome sequencing projects by organism

Nucleotide

DNA and RNA sequences

Sequence-based probes and primers

High-throughput sequence reads

Taxonomy

Taxonomic classification and nomenclature

Genetics

Heritable DNA variations, associations with human pathologies, and clinical diagnostics and treatments

ClinVar

Human variations of clinical significance

Genotype/phenotype interaction studies

Short genetic variations

dbVar

Genome structural variation studies

GTR

Genetic testing registry

Medical genetics literature and links

Online mendelian inheritance in man

Chemicals

Repository of chemical information, molecular pathways, and tools for bioactivity screening

BioSystems

Molecular pathways with links to genes, proteins and chemicals

PubChem BioAssay

Bioactivity screening studies

PubChem Compound

Chemical information with structures, information and links

PubChem Substance

Deposited substance and chemical information

Acceso directo a la página web.



Covid-19

Busqueda general en les bases de datos del NCBI.

Novel Coronavirus (2019 Wuhan seafood market pneumor Sequence data to support re ongoing novel coronavirus information from the CDC PubMed NCBI Virus GenBank	nia virus esearch and public	•(Date: Januar	y-2020)		
Results by databases	ise				
Literature		Genes		Proteins	
Bookshelf	0	Gene	12	Conserved Domains	0
MeSH	•	GEO DataSets	0	Identical Protein Groups	59
NLM Catalog	0	GEO Profiles	0	Protein	316
PubMed	4	HomoloGene	0	Protein Clusters	0
PubMed Central	0	PopSet	2	Sparcle	0
				Structure	0
Genomes		Genetics		Chemicals	
Assembly	15	ClinVar	0	BioSystems	0
BioCollections	0	dbGaP	0	PubChem BioAssay	0
BioProject	4	dbSNP	0	PubChem Compound	0
BioSample	6	dbVar	0	PubChem Substance	0
Genome	•	GTR	0		
Nucleotide	50	MedGen	0		
Probe	0	OMIM	0		
SRA	3				



Taxonomy

Covid-19: Información general

Indica para cada una de las bases de datos el número de registros con "Wuhan seafood market pneumonia virus" en cualquier campo

- MeSH 1
- PubMed 4
- Gene 12
- •
- Genome 1

Se puede entrar en algunas de estas bases de datos para ver su contenido



(Date: January-2020)

MeSH

COVID-19 [Supplementary Concept]

A viral disorder characterized by high FEVER; COUGH; DYSPNEA; renal dysfunction and other symptoms of a VIRAL PNEUMONIA. A coronavirus SARS-CoV-2 in the genus BETACORONAVIRUS is the suspected agent.

Date introduced: February 13, 2020

PubMed search builder options

☐ Restrict to MeSH Major Topic.

☐ Do not include MeSH terms found below this term in the MeSH hierarchy.

MeSH Unique ID: C000657245

Heading Mapped to:

- Pneumonia, Viral
- Coronavirus Infections
- Pandemics

Entry Terms:

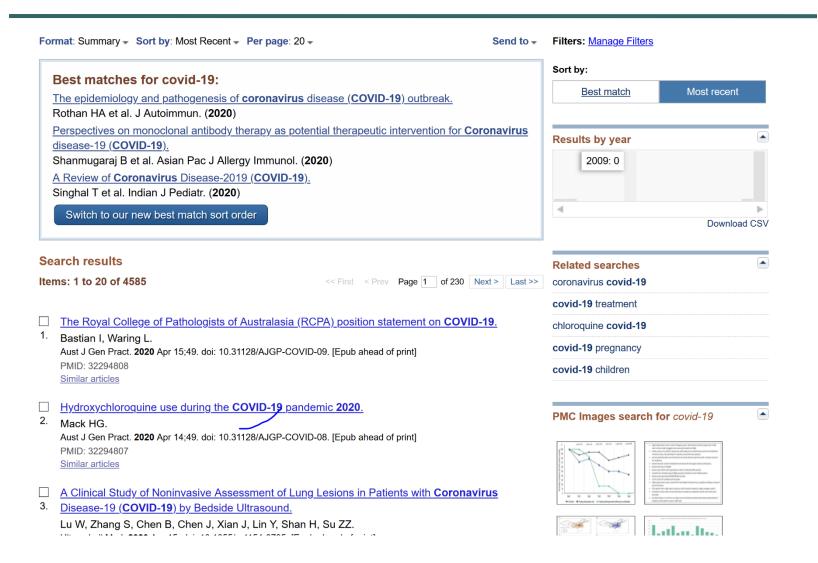
- · 2019 novel coronavirus disease
- COVID19
- COVID-19 pandemic
- SARS-CoV-2 infection
- COVID-19 virus disease
- 2019 novel coronavirus infection
- 2019-nCoV infection
- · coronavirus disease 2019
- coronavirus disease-19
- 2019-nCoV disease
- · COVID-19 virus infection

All MeSH Categories

COVID-19



PubMed





Gene

Search results

Items: 1 to 20 of 28

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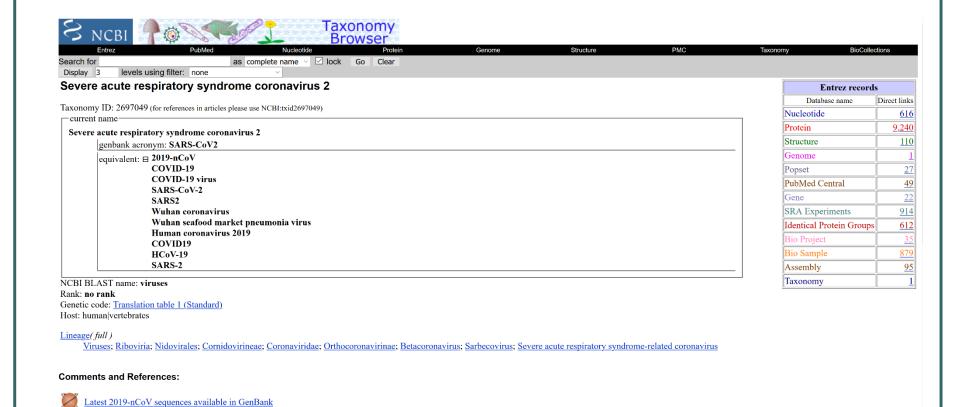


See also 10 discontinued or replaced items.

Name/Gene ID	Description	Location	Aliases	MIM
☐ <u>S</u> ID: 43740568	surface glycoprotein [Severe acute respiratory syndrome coronavirus 2]	NC_045512.2 (2156325384)	GU280_gp02, spike glycoprotein	
☐ <u>NEWENTRY</u> ID: 43562271	Record to support submission of GeneRIFs for a gene not in Gene (COVID-19; COVID-19 virus; COVID19; HCoV-19; Human coronavirus 2019; SARS-2; SARS-CoV-2; SARS2; Wuhan coronavirus; Wuhan seafood market pneumonia virus). [Severe acute respiratory syndrome coronavirus 2]			
ORF1ab ID: 43740578	ORF1a polyprotein;ORF1ab polyprotein [Severe acute respiratory syndrome coronavirus 2]	NC_045512.2 (26621555)	GU280_gp01	
ORF8 ID: 43740577	ORF8 protein [Severe acute respiratory syndrome coronavirus 2]	NC_045512.2 (2789428259)	GU280_gp09	
ORF10 ID: 43740576	ORF10 protein [Severe acute respiratory syndrome coronavirus 2]	NC_045512.2 (2955829674)	GU280_gp11	
□ <u>N</u> ID: 43740575	nucleocapsid phosphoprotein [Severe acute respiratory syndrome coronavirus 2]	NC_045512.2 (2827429533)	GU280_gp10	
ORF7a ID: 43740573	ORF7a protein [Severe acute respiratory syndrome coronavirus 2]	NC_045512.2 (2739427759)	GU280_gp07	
ORF6	ORF6 protein [Severe acute respiratory syndrome	NC_045512.2 (2720227387)	GU280_gp06	



Taxonomy





NCBI virus resource

Protein

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factor binding sites i

MATCH: A tool for s factor binding sites i

Items: 1 to 20 of 9259

- Chain A, Main protease
- 1. 306 aa protein

Accession: 6W63_A GI: 1824676363

<u>Taxonomy</u>

GenPept Identical Proteins FASTA Graphics

- Chain A, Non-structural polyprotein 1ab
- 2. 306 aa protein

Accession: 6Y84_A GI: 1820436239

Taxonomy

GenPept Identical Proteins FASTA Graphics

- ☐ Chain A, SARS-CoV-2 main protease
- 3. 306 aa protein

Accession: 6M03_A GI: 1820435677

<u>Taxonomy</u>

GenPept Identical Proteins FASTA Graphics

- Chain A, SARS-CoV-2 main protease
- 4. 306 aa protein

Accession: 5R84 A GI: 1820435391

Taxonomy

GenPept Identical Proteins FASTA Graphics

- Chain A, SARS-CoV-2 main protease
- 5. 306 aa protein

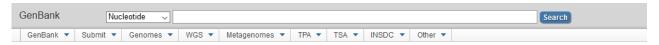
Accession: 5R82_A GI: 1820435389

<u>Taxonomy</u>

GenPept Identical Proteins FASTA Graphics



Genbank



SARS-CoV-2 (Severe acute respiratory syndrome coronavirus 2) Sequences

The tables below list the SARS-CoV-2 sequences currently available in GenBank and the Sequence Read Archive (SRA).

The sequence lists were last updated Tuesday Feb 11 07:40 2020 EST, and are updated as additional sequences are released. The table content is available for download.

Table of Contents

- Submit Sequence Data
- PubMed Articles
- ClinicalTrials.gov
- Nucleotide Sequences
- SRA Sequences
- Reference Genome
- Other Resources

Submit Sequence Data

Submit your SARS-CoV-2 sequence data to GenBank.

PubMed Articles

Articles in PubMed

ClinicalTrials.gov

View clinical studies listed on ClinicalTrials.gov.

Nucleotide Sequences

You can view and download these 53 GenBank sequences and 1 RefSeq sequence in Entrez Nucleotide and the new NCBI Virus resource.

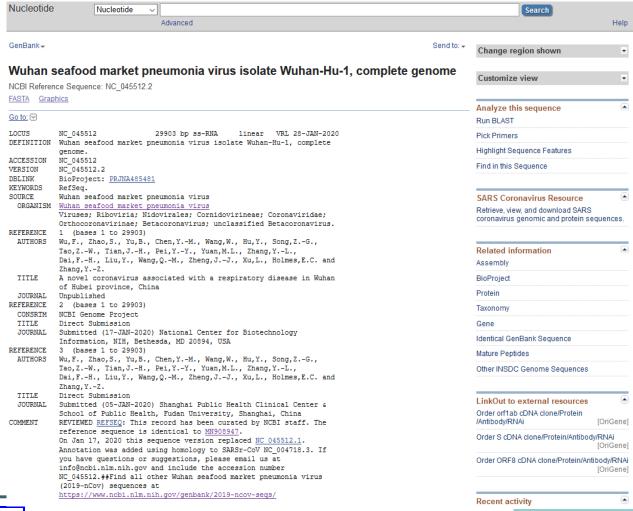
BLAST against Betacoronavirus sequences

GenBank	RefSeq •	Gene Region 🍦	Collection Date \$	Locality \$
MN908947	NC 045512	complete	Dec-2019	China
LC521925		complete	Jan-2020	Japan
LC522350		RdRP	26-Jan-2020	Philippines
LR757995		complete	05-Jan-2020	China: Wuhan
LR757996		complete	01-Jan-2020	China: Wuhan
LR757997		complete, gapped	31-Dec-2019	China: Wuhan
LR757998		complete	26-Dec-2019	China: Wuhan
MN938384		complete	10-Jan-2020	China: Shenzhen



Complete genome

RefSeq: NC_045512





- ¿El genoma es de RNA/DNA/ ...?
- ¿Cuál es su longitud?
- ¿Cuantas proteinas codifica este genoma?
- ¿Cuál es el nombre del gen que codifica la primera proteina?
- ¿Cuál es el segmento del genoma que corresponde ha este primer gen? ¿Qué longitud tiene?
- ¿Cuál es el nombre de la primera proteina? ¿Qué longitud tiene?



FEATHRES Location/Qualifiers source /organism="Wuhan seafood market pneumonia virus" /mol_type="genomic RNA" /isolate="Wuhan-Hu-1" /host="Homo sapiens" /db xref="taxon:2697049" /country="China" /collection_date="Dec-2019" 5'UTR 1..265 gene 266..21555 /gene="orf1ab" /locus_tag="GU280_gp01" /db_xref="GeneID:43740578" CDS join(266..13468,13468..21555) /gene="orflab" /locus_tag="GU280_gp01" /ribosomal_slippage /note="pplab; translated by -1 ribosomal frameshift" /codon start=1 /product="orf1ab polyprotein" /protein_id="YP 009724389.1" /db xref="GeneID:43740578" /translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEO LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNEK CSAYTVELGTEVNEFACVVADAVIKTLOPVSELLTPLGIDLDEWSMATYYLFDESGEF KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIOLLKSAYENFNOHEVLLA PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV PTDNYITTYPGOGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKOEILGTVSWNLREM LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ I PCTCGKOATKYLVOOES PFVMMSAPPAOYELKHGT FTCASEYTGNYOCGHYKHITSK PTI VOIDONI I TURCEVUODITTIMEVUENICVITTI UDMITVUI DOMICOTE I DDUI DNIV



- Selección de las bases que corresponenden al primer CDS
- Descargar el genoma completo en formato fasta

FASTA -

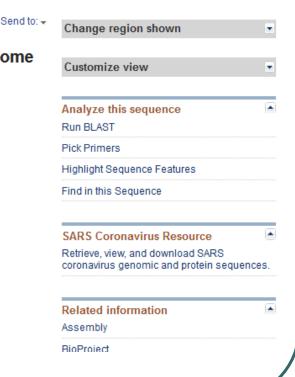
Wuhan seafood market pneumonia virus isolate Wuhan-Hu-1, complete genome

NCBI Reference Sequence: NC_045512.2

GenBank Graphics

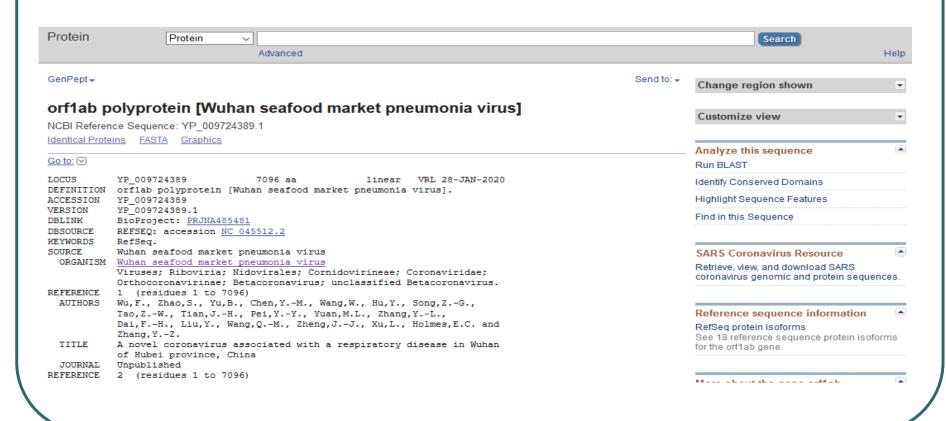
>NC_045512.2 Wuhan seafood market pneumonia virus isolate Wuhan-Hu-1, complete genome

ATTAAAGGTTTATACCTTCCCAGGTAACAAACCAACCATTTCGATCTCTTGTAGATCTGTTCTCTAAA TAATTACTGTCGTTGACAGGACACGAGTAACTCGTCTATCTTCTGCAGGCTGCTTACGGTTTCGTCCGTG TTGCAGCCGATCATCAGCACATCTAGGTTTCGTCCGGGTGTGACCGAAAGGTAAGATGGAGAGCCTTGTC CCTGGTTTCAACGAGAAAACACACGTCCAACTCAGTTTGCCTGTTTTACAGGTTCGCGACGTGCTCGTAC GTGGCTTTGGAGACTCCGTGGAGGAGGTCTTATCAGAGGCACGTCAACATCTTAAAGATGGCACTTGTGG CTTAGTAGAAGTTGAAAAAGGCGTTTTGCCTCAACTTGAACAGCCCTATGTGTTCATCAAACGTTCGGAT GCTCGAACTGCACCTCATGGTCATGTTATGGTTGAGCTGGTAGCAGAACTCGAAGGCATTCAGTACGGTC GTAGTGGTGAGACACTTGGTGTCCTTGTCCCTCATGTGGGCGAAATACCAGTGGCTTACCGCAAGGTTCT TCTTCGTAAGAACGGTAATAAAGGAGCTGGTGGCCATAGTTACGGCGCCGATCTAAAGTCATTTGACTTA GGCGACGAGCTTGGCACTGATCCTTATGAAGATTTTCAAGAAAACTGGAACACTAAACATAGCAGTGGTG TTACCCGTGAACTCATGCGTGAGCTTAACGGAGGGGCATACACTCGCTATGTCGATAACAACTTCTGTGG CCCTGATGGCTACCCTCTTGAGTGCATTAAAGACCTTCTAGCACGTGCTGGTAAAGCTTCATGCACTTTG TCCGAACAACTGGACTTTATTGACACTAAGAGGGGTGTATACTGCTGCCGTGAACATGAGCATGAAA CTTGGTACACGGAACGTTCTGAAAAGAGCTATGAATTGCAGACACCTTTTGAAATTAAATTGGCAAAGAA CCAAGGGTTGAAAAGAAAAGCTTGATGGCTTTATGGGTAGAATTCGATCTGTCTATCCAGTTGCGTCAC





 Selección del registro de la primera proteina: orflab polyprotein (YP_009724389)





Descargar la proteina en formato fasta

FASTA -

orf1ab polyprotein [Wuhan seafood market pneumonia virus]

NCBI Reference Sequence: YP_009724389.1

GenPept Identical Proteins Graphics

>YP 009724389.1 orflab polyprotein [Wuhan seafood market pneumonia virus] MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQHLKDGTCGLVEVEKGVLPQLEQPYVF IKRSDARTAPHGHVMVELVAELEGIQYGRSGETLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHSYGADL KSFDLGDELGTDPYEDFOENWNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGK ASCTLSEQLDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFPLNSI IKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNOMCLSTLMKCDHCGETSWQTGDFVKATCEFCGTENLT KEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESGLKTILRKGGRTIAFGGCVFSYVGCHNKC AYWVPRASANIGCNHTGVVGEGSEGLNDNLLEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVET VKGLDYKAFKQIVESCGNFKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVR VLQKAAITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKLKPVLDW LEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLVNKFLALCADSIIIGGAKL KALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEIIFLEGETLPTEVLTEEVVLKTGDLQPLEQPT SEAVEAPLVGTPVCINGLMLLEIKDTEKYCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVN ITFELDERIDKVLNEKCSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDE SGEFKLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPEEEQEEDWL DDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSGYLKLTDNVYIKNADIVEEAK KVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESDDYIATNGPLKVGGSCVLSGHNLAKHCLHVVGP NVNKGEDIQLLKSAYENFNQHEVLLAPLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSF LEMKSEKOVEOKIAEIPKEEVKPFITESKPSVEORKODDKKIKACVEEVTTTLEETKFLTENLLLYIDIN



Activitats

- Ejecutar el programa Biostring_Covid-19.R asociado al coronavirus de Covid-19.
- Task: Sequence analysis 3: Biostring funcions
 - Reconocer que partes del código anterior son parámetros que pueden variar en otra ejecución similar.
 - Realizar un informe dinámico que muestre y explique que se obtiene. Uno de los primeros "chunks" contendrá las asignaciones de las variables que sirven como parámetros.

