

¿Qué es Genbank?

Isabel Rey Fraile

GenBank

- ▶ Base de datos de secuencias de nucleótidos y de su traducción a proteínas
- ▶ **Acceso abierto** (*Open access* OA) o acceso inmediato, sin requerimientos de registro, suscripción o pago -sin restricciones-
- ▶ Forma parte de un consorcio internacional donde también participan el *European Nucleotide Archive* (ENA) y el DNA Data Bank de Japón, (DDBJ)

▶ BENSON *ET AL.*, 2012



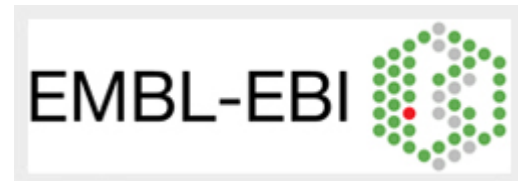
GenBank

Forma parte de un consorcio internacional

National Center for Biotechnology Information (NCBI)



European Nucleotide Archive (ENA) que depende del European Bioinformatics Institute (EBI) integrado en el European Molecular Biology Laboratory (EMBL)

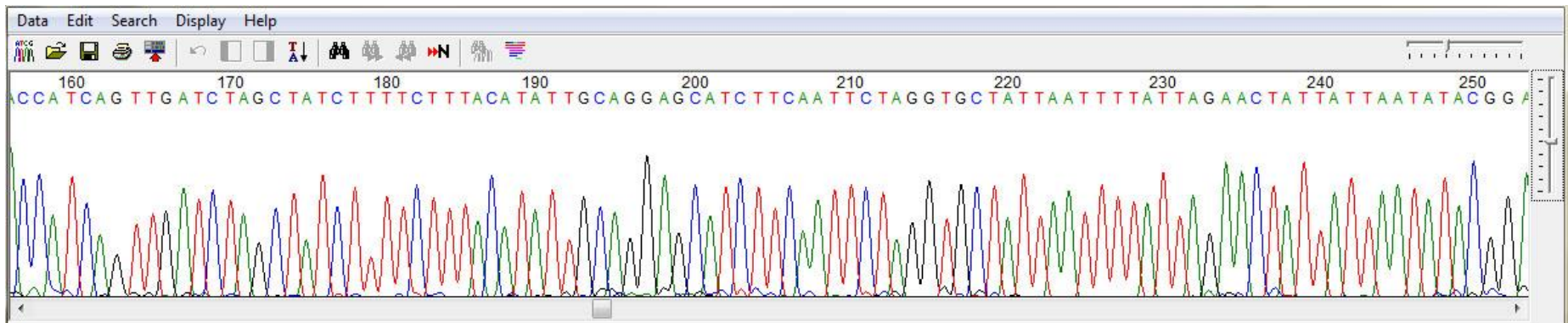


DNA Data Bank de Japón, (DDBJ)



GenBank

- ▶ Envíos individuales desde laboratorios
- ▶ Lotes desde proyectos de secuenciación a gran escala incluyendo whole-genome shotgun (WGS) o ambientales



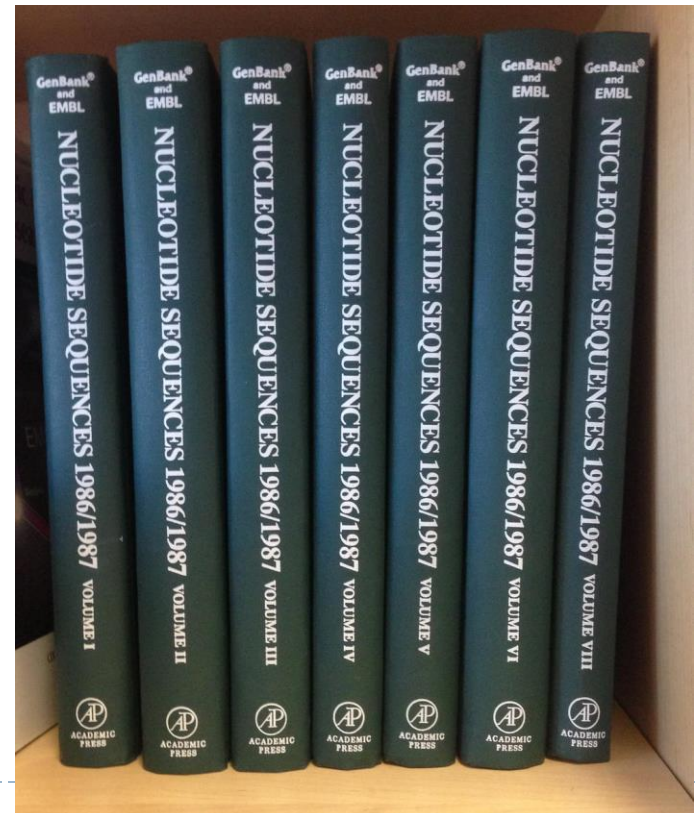
GenBank

▶ Historia

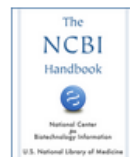
- ▶ Walter Goad del grupo de Biología teórica y biofísica del Laboratorio Nacional Los Alamos y otros, fundaron la base de datos de secuencias de Los Alamos (LANL) en 1979, que culminó en 1982 con la creación de GenBank

- ▶ Hacia fines de 1983 había más de 2000 secuencias almacenadas

Desde 1989 a 1992, el proyecto GenBank tuvo una transición hacia el recién creado Centro Nacional de Información sobre Biotecnología



See "The NCBI Handbook, 2nd Edition"



The NCBI Handbook [Internet].

► [Show details](#)

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Chapter 1 GenBank: The Nucleotide Sequence Database

Ilene Mizrahi.

Created: October 9, 2002; Last Update: August 22, 2007.

Summary

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The [GenBank](#) sequence database is an annotated collection of all publicly available nucleotide sequences and their protein translations. This database is produced at National Center for Biotechnology Information ([NCBI](#)) as part of an international collaboration with the European Molecular Biology Laboratory ([EMBL](#)) Data Library from the European Bioinformatics Institute (EBI) and the [DNA](#) Data Bank of Japan ([DDBJ](#)). GenBank and its collaborators receive sequences produced in laboratories throughout the world from more than 100,000 distinct organisms. GenBank continues to grow at an exponential rate, doubling every 10 months. Release 134, produced in February 2003, contained over 29.3 billion nucleotide bases in more than 23.0 million sequences. GenBank is built by direct submissions from individual laboratories, as well as from bulk submissions from large-scale sequencing centers.

Direct submissions are made to [GenBank](#) using [BankIt](#), which is a Web-based form, or the stand-alone submission program, [Sequin](#). Upon receipt of a sequence submission, the GenBank staff assigns an [Accession number](#) to the sequence and performs quality assurance checks. The submissions are then released to the public database, where the entries are retrievable by [Entrez](#) or downloadable by [FTP](#). Bulk submissions of Expressed Sequence Tag ([EST](#)), Sequence Tagged Site ([STS](#)), Genome Survey Sequence ([GSS](#)), and High-Throughput Genome Sequence ([HTGS](#)) data are most often submitted by large-scale sequencing centers. The GenBank direct submissions group also processes complete microbial genome sequences.

History

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Initially, [GenBank](#) was built and maintained at Los Alamos National Laboratory ([LANL](#)). In the early 1990s, this responsibility was awarded to [NCBI](#) through congressional mandate. NCBI undertook the task of scanning the literature for sequences and manually typing the sequences into the database. Staff then added annotation to these records, based upon information in the published article. Scanning sequences from the literature and placing them into GenBank is now a rare occurrence. Nearly all of the sequences are now deposited directly by the labs that generate the sequences. This is attributable to, in part, a requirement by most journal publishers that nucleotide sequences are first deposited into publicly available databases ([DDBJ/EMBL/GenBank](#)) so that the [Accession number](#) can be cited and the sequence can be retrieved when the article is published. NCBI began accepting direct submissions to GenBank in 1993 and received data from LANL until 1996. Currently, NCBI receives and processes about 20,000 direct submission sequences per month, in addition to the approximately 200,000 bulk submissions that are processed automatically.

International Collaboration

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History

International Collaboration

Confidentiality of Data

Direct Submissions

Bulk Submissions: High-Throughput Genomic Sequence (HTGS)

Whole Genome Shotgun Sequences (WGS)

Bulk Submissions: EST, STS, and GSS

Bulk Submissions: HTC and FLIC

Submission Tools

Sequence Data Flow and Processing: From Laboratory to GenBank

Microbial Genomes

Third Party Annotation (TPA) Sequence Database

Appendix: GenBank, RefSeq, TPA and UniProt: What's in a Name?

References

Recent Activity

Turn Off Clear

GenBank: The Nucleotide Sequence Database - The NCBI Handbook Bookshelf

The NCBI Handbook Bookshelf

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PMC

US National Library of Medicine
National Institutes of Health[Limits](#) [Advanced](#) [Journal list](#)[Journal List](#) > [Nucleic Acids Res](#) > v.40(D1); Jan 2012 > PMC3245039

Nucleic Acids Research

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click h**Formats:**[Article](#) | [PubReader](#) | [ePub](#)

Nucleic Acids Res. Jan 2012; 40(D1): D48–D53.

PMCID: PMC3245039

Published online Dec 5, 2011. doi: [10.1093/nar/gkr1202](https://doi.org/10.1093/nar/gkr1202)**Related citations in PubMed**[GenBank](#).[GenBank](#).[GenBank](#).**GenBank**[Dennis A. Benson](#), [Ilene Karsch-Mizrachi](#), [Karen Clark](#), [David J. Lipman](#), [James Ostell](#), and [Eric W. Sayers](#)*[Author information](#) ▶ [Article notes](#) ▶ [Copyright and License information](#) ▶This article has been [cited by](#) other articles in PMC.The EMBL Nucleotide Sequence
accessing data.PseudoMLSA: a database for
Pseudomonas species.**ABSTRACT**Go to:

GenBank® is a comprehensive database that contains publicly available nucleotide sequences for more than 250 000 formally described species. [These sequences are obtained primarily through submissions from individual laboratories and batch submissions from large-scale sequencing projects, including whole-genome shotgun \(WGS\) and environmental sampling projects.](#) Most submissions are made using the web-based BankIt or standalone Sequin programs, and accession numbers are assigned by GenBank staff upon receipt. Daily data exchange with the European Nucleotide Archive (ENA) and the DNA Data Bank of Japan (DDBJ) ensures worldwide coverage. GenBank is accessible through the NCBI Entrez retrieval system, which integrates data from the major DNA and protein sequence databases along with taxonomy, genome, mapping, protein structure and domain information, and the biomedical journal literature via PubMed. BLAST provides sequence similarity searches of GenBank and other sequence databases. Complete bimonthly releases and daily updates of the GenBank database are available by FTP. To access GenBank and its related retrieval and analysis services, begin at the NCBI home page:

Cited by other articles in[pY RNA1-s2: A Highly Retina-
Selectively Binds to Matrin 3 \(](#)[Non-contiguous finished genom
Kallipyqa massiliensis gen. no](#)[Non-contiguous finished genom
Anaerococcus pacaensis sp.](#)[Non-contiguous finished genom](#)

GenBank

- ▶ Según esta publicación Genbank contiene:
- ▶ 260.000 nombres de organismos
- ▶ $80 \cdot 10^{12}$ pares de bases de nucleótidos
- ▶ $76 \cdot 10^{12}$ secuencias individuales

- ▶ $15 \cdot 10^{12}$ secuencias añadidas en 2012
y el tamaño se dobla cada 18 meses

(Nucleic Acids Res. 2012 Jan;40(Database issue):D48-53.)



GenBank

GenBank

Table 1.
Growth of GenBank divisions (nucleotide base pairs)

Division	Description	Release 191 (8/2012)	Annual increase (%) ^a
Taxonomic divisions			
SYN	Synthetic	928 200 038	494.2%
PHG	Phages	84 079 451	34.4%
ENV	Environmental samples	3 374 433 548	32.1%
VRL	Viruses	1 429 464 786	21.1%
BCT	Bacteria	8 439 854 434	21.0%
PLN	Plants	5 481 470 133	15.6%
MAM	Other mammals	863 036 872	6.9%
VRT	Other vertebrates	2 886 594 595	6.7%
PRI	Primates	6 317 656 773	3.3%
UNA	Unannotated	127 803	1.5%
ROD	Rodents	4 435 106 948	0.9%
INV	Invertebrates	2 493 058 927	-1.7%
Functional divisions			
TSA	Transcriptome shotgun data	5 759 588 580	207.3%
WGS	Whole-genome shotgun data	308 196 411 905	47.9%
PAT	Patented sequences	12 118 622 726	8.6%
GSS	Genome survey sequences	21 947 780 105	5.7%
EST	Expressed sequence tags	40 888 051 100	4.8%
HTG	High-throughput genomic	24 359 210 558	0.1%
STS	Sequence tagged sites	636 262 446	0.1%
HTC	High-throughput cDNA	639 165 410	-3.5%
TOTAL	All GenBank sequences	451 278 177 138	33.1%

^aMeasured relative to Release 185 (8/2011).

([Nucleic Acids Research, 2013](#)
[Jan;41\(D1\):D36-42](#))



GenBank

GenBank

Table 2.
Top organisms in GenBank (Release 191)

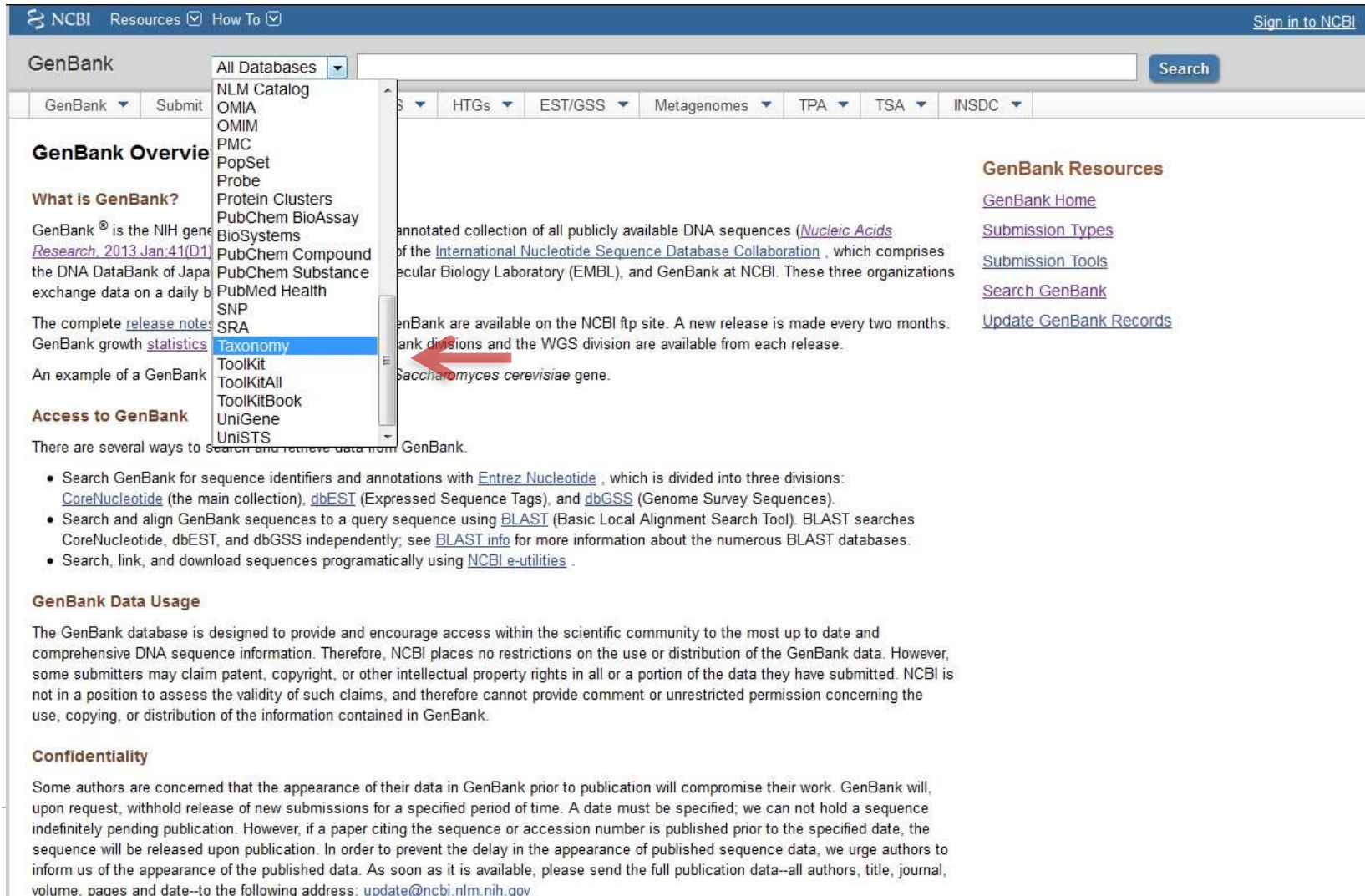
Organism	Non-WGS base pairs
<i>Homo sapiens</i>	16 310 774 187
<i>Mus musculus</i>	9 974 977 889
<i>Rattus norvegicus</i>	6 521 253 272
<i>Bos taurus</i>	5 386 258 455
<i>Zea mays</i>	5 062 731 057
<i>Sus scrofa</i>	4 887 861 860
<i>Danio rerio</i>	3 120 857 462
<i>Strongylocentrotus purpuratus</i>	1 435 236 534
<i>Macaca mulatta</i>	1 256 203 101
<i>Oryza sativa Japonica Group</i>	1 255 686 573
<i>Xenopus (Silurana) tropicalis</i>	1 249 938 611
<i>Nicotiana tabacum</i>	1 197 357 811
<i>Arabidopsis thaliana</i>	1 144 226 616
<i>Drosophila melanogaster</i>	1 119 965 220
<i>Pan troglodytes</i>	1 008 323 292
<i>Vitis vinifera</i>	999 010 073
<i>Canis lupus familiaris</i>	951 238 343
<i>Glycine max</i>	906 638 854
<i>Gallus gallus</i>	899 631 338
<i>Triticum aestivum</i>	898 689 329

([Nucleic Acids Research, 2013](#)
[Jan;41\(D 1\):D36-42](#))



GenBank

► Busqueda



The screenshot shows the NCBI GenBank website. At the top, there is a navigation bar with "NCBI Resources" and "How To" links, and a "Sign in to NCBI" button. Below this is the "GenBank" header with a search bar and a "Search" button. A dropdown menu is open, listing various databases: NLM Catalog, OMA, OMIM, PMC, PopSet, Probe, Protein Clusters, PubChem BioAssay, BioSystems, PubChem Compound, PubChem Substance, PubMed Health, SNP, SRA, Taxonomy (highlighted in blue), ToolKit, ToolKitAll, ToolKitBook, UniGene, and UniSTS. A red arrow points to the "Taxonomy" option. The main content area is partially visible, showing a search bar with "S" and "HTGs" selected, and a list of databases: EST/GSS, Metagenomes, TPA, TSA, and INSDC. The page content includes a "GenBank Overview" section with a "What is GenBank?" subsection, a "GenBank Resources" section with links to "GenBank Home", "Submission Types", "Submission Tools", "Search GenBank", and "Update GenBank Records", and a "GenBank Data Usage" section with a paragraph of text. A "Confidentiality" section is also visible at the bottom.

NCBI Resources How To Sign in to NCBI

GenBank Search

All Databases

NLM Catalog
OMA
OMIM
PMC
PopSet
Probe
Protein Clusters
PubChem BioAssay
BioSystems
PubChem Compound
PubChem Substance
PubMed Health
SNP
SRA
Taxonomy
ToolKit
ToolKitAll
ToolKitBook
UniGene
UniSTS

GenBank Overview

What is GenBank?

GenBank® is the NIH genetic sequence database, an annotated collection of all publicly available DNA sequences (*Nucleic Acids Research*, 2013 Jan 41(D1): 25-33). It is part of the International Nucleotide Sequence Database Collaboration, which comprises the DNA Data Bank of Japan, the European Molecular Biology Laboratory (EMBL), and GenBank at NCBI. These three organizations exchange data on a daily basis.

The complete release notes for GenBank are available on the NCBI ftp site. A new release is made every two months. GenBank divisions and the WGS division are available from each release.

GenBank Resources

[GenBank Home](#)
[Submission Types](#)
[Submission Tools](#)
[Search GenBank](#)
[Update GenBank Records](#)

GenBank Data Usage

The GenBank database is designed to provide and encourage access within the scientific community to the most up to date and comprehensive DNA sequence information. Therefore, NCBI places no restrictions on the use or distribution of the GenBank data. However, some submitters may claim patent, copyright, or other intellectual property rights in all or a portion of the data they have submitted. NCBI is not in a position to assess the validity of such claims, and therefore cannot provide comment or unrestricted permission concerning the use, copying, or distribution of the information contained in GenBank.

Confidentiality

Some authors are concerned that the appearance of their data in GenBank prior to publication will compromise their work. GenBank will, upon request, withhold release of new submissions for a specified period of time. A date must be specified; we can not hold a sequence indefinitely pending publication. However, if a paper citing the sequence or accession number is published prior to the specified date, the sequence will be released upon publication. In order to prevent the delay in the appearance of published sequence data, we urge authors to inform us of the appearance of the published data. As soon as it is available, please send the full publication data—all authors, title, journal, volume, pages and date—to the following address: update@ncbi.nlm.nih.gov

GenBank

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The screenshot shows the NCBI Taxonomy search interface. At the top, there is a navigation bar with 'NCBI Resources' and 'How To' links, and a 'Sign in to NCBI' button. Below this is a search bar with 'Taxonomy' selected in a dropdown menu and 'iberobathynella' entered in the search field. A 'Search' button is to the right of the search field. Below the search bar are links for 'Save search', 'Limits', and 'Advanced', and a 'Help' link on the far right.

The main content area is divided into two columns. The left column has a 'Display Settings' section with a 'Summary' option checked. Below this, the search results are displayed: 'iberobathynella' is the primary result, followed by 'genus, crustaceans'. There are two links below the result: 'Nucleotide' and 'Protein'. A red arrow points to the 'iberobathynella' text.

The right column has a 'Send to' section with a dropdown menu. Below this are three expandable sections: 'Related information', 'Search details', and 'Recent activity'. The 'Related information' section has links for 'Nucleotide', 'Protein', 'Full text in PMC', and 'PopSet'. The 'Search details' section shows the search term 'iberobathynella [All Names]' and a 'Search' button. The 'Recent activity' section shows a list of recent searches: 'iberobathynella (1)' (Taxonomy), 'Homo' (taxonomy), 'homo (1)' (Taxonomy), 'GenBank.' (PubMed), and 'GenBank.' (PubMed). There are 'Turn Off' and 'Clear' links for the recent activity, and a 'See more...' link at the bottom.

GenBank

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NCBI Taxonomy Browser

Entrez PubMed Nucleotide Protein Genome Structure PMC Taxonomy Books

Search for as lock

Display levels using filter:

Nucleotide Nucleotide EST Nucleotide GSS Protein Structure Genome Popset SNP

Domains GEO Datasets UniGene UniSTS PubMed Central Gene HomoloGene SRA Experiments

MapView LinkOut BLAST TRACE ~~Prote~~ Assembly Bio Project Bio Sample

Bio Systems Clone DB dbVar Epigenomics GEO Profiles PubChem BioAssay Protein Clusters Host

Lineage (full): [root](#); [cellular organisms](#); [Eukaryota](#); [Opisthokonta](#); [Metazoa](#); [Eumetazoa](#); [Bilateria](#); [Protostomia](#); [Ecdysozoa](#); [Panarthropoda](#); [Arthropoda](#); [Mandibulata](#); [Pancrustacea](#); [Crustacea](#); [Malacostraca](#); [Eumalacostraca](#); [Syncarida](#); [Bathynellacea](#); [Parabathynellidae](#)

○ [Iberobathynella](#) *Click on organism name to get more information.*

- [Iberobathynella burgalensis](#)
- [Iberobathynella cantabriensis](#)
- [Iberobathynella celiana](#)
- [Iberobathynella imuniensis](#)
- [Iberobathynella magna](#)
- [Iberobathynella sp. ABI 2010a](#)
- [Iberobathynella sp. ABI 2010b](#)

Disclaimer: The NCBI taxonomy database is not an authoritative source for nomenclature or classification - please consult the relevant scientific literature for the most reliable information.

GenBank

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The screenshot shows the NCBI Taxonomy Browser interface. At the top, there is a navigation bar with links for Entrez, PubMed, Nucleotide, Protein, Genome, Structure, PMC, Taxonomy, and Books. Below this is a search bar with the text "Search for" followed by a text input field containing "Iberobathynella", a dropdown menu set to "as complete name", a checked "lock" checkbox, and "Go" and "Clear" buttons. Below the search bar, there is a "Display" button, the number "3", and a "levels using filter" dropdown set to "none".

The main content area displays the following information for **Iberobathynella**:

- Taxonomy ID:* 205103
- Inherited blast name:* crustaceans
- Rank:* genus
- Genetic code:* [Translation table 1 \(Standard\)](#)
- Mitochondrial genetic code:* [Translation table 5 \(Invertebrate Mitochondrial\)](#)

Lineage(full)

[cellular organisms](#); [Eukaryota](#); [Opisthokonta](#); [Metazoa](#); [Eumetazoa](#); [Bilateria](#); [Protostomia](#); [Ecdysozoa](#); [Panarthropoda](#); [Arthropoda](#); [Mandibulata](#); [Pancrustacea](#); [Crustacea](#); [Malacostraca](#); [Eumalacostraca](#); [Syncarida](#); [Bathynellacea](#); [Parabathynellidae](#)

On the right side, there is a table titled "Entrez records":

Database name	Subtree links	Direct links
Nucleotide	21	1
Protein	19	-
Popset	2	1
PubMed Central	1	1
Taxonomy	8	1

A red arrow points to the "Direct links" column for the "Nucleotide" row.

External Information Resources (NCBI LinkOut)

LinkOut	Subject	LinkOut Provider
Iberobathynella	taxonomy/phylogenetic	Encyclopedia of life
search NomZoo	taxonomy/phylogenetic	Nomenclator Zoologicus

Notes:

Groups interested in participating in the LinkOut program should visit the [LinkOut home page](#). A list of our current non-bibliographic LinkOut providers can be found [here](#).

GenBank

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NCBI Resources How To Sign in to NCBI

Nucleotide Help

[Save search](#) [Limits](#) [Advanced](#)

Display Settings: Summary, 20 per page, Sorted by Default order

Send to:

Filter your results:

Results: 1 to 20 of 21

<< First < Prev Page 1 of 2 Next > Last >>

All (21)

Bacteria (0)

[INSDC \(GenBank\) \(21\)](#)

mRNA (0)

RefSeq (0)

[Manage Filters](#)

[Iberobathynella sp. ABI 2010b voucher MNCN/ADN 29488 cytochrome oxidase subunit I \(Col\) gene, partial cds: mitochondrial](#)

1. 507 bp linear DNA

Accession: HQ659867.1 GI: 323714753

[GenBank](#) [FASTA](#) [Graphics](#) [PopSet](#)



[Iberobathynella sp. ABI 2010a voucher MNCN/ADN 29473 cytochrome oxidase subunit I \(Col\) gene, partial cds: mitochondrial](#)

2. 633 bp linear DNA

Accession: HQ659866.1 GI: 323714751

[GenBank](#) [FASTA](#) [Graphics](#) [PopSet](#)

[Iberobathynella sp. ABI 2010a voucher MNCN/ADN 9003 cytochrome oxidase subunit I \(Col\) gene, partial cds: mitochondrial](#)

3. 507 bp linear DNA

Accession: HQ659865.1 GI: 323714749

[GenBank](#) [FASTA](#) [Graphics](#) [PopSet](#) [Related Sequences](#)

[Iberobathynella sp. ABI 2010a voucher MNCN/ADN 9002 cytochrome oxidase subunit I \(Col\) gene, partial cds: mitochondrial](#)

4. 498 bp linear DNA

Accession: HQ659864.1 GI: 323714747

[GenBank](#) [FASTA](#) [Graphics](#) [PopSet](#) [Related Sequences](#)

[Iberobathynella sp. ABI 2010a voucher MNCN/ADN 9001 cytochrome oxidase subunit I \(Col\) gene, partial cds: mitochondrial](#)

5. 507 bp linear DNA

Accession: HQ659863.1 GI: 323714745

[GenBank](#) [FASTA](#) [Graphics](#) [PopSet](#) [Related Sequences](#)

[Iberobathynella celiana voucher MNCN/ADN 29452 cytochrome oxidase subunit I \(Col\) gene, partial cds: mitochondrial](#)

6. 507 bp linear DNA

Accession: HQ659862.1 GI: 323714743

▼ Top Organisms [\[Tree\]](#)

[Iberobathynella magna](#) (6)

[Iberobathynella sp. ABI 2010a](#) (4)

[Iberobathynella imuniensis](#) (3)

[Iberobathynella cantabriensis](#) (3)

[Iberobathynella burgalensis](#) (3)

[All other taxa](#) (2)

[More...](#)

Find related data

Database:

Search details

txid205103[Organism.exp]

Display Settings: GenBank

Send:

Iberobathynella burgalensis voucher MNCN/ADN 29521 cytochrome oxidase subunit I (Col) gene, partial cds; mitochondrial

GenBank: HQ659860.1
FASTA Graphics PopSet

Go to:

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ACCESSION HQ659860
VERSION HQ659860.1 GI:323714739
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ORGANISM Iberobathynella burgalensis
Eukaryota; Metazoa; Ecdysozoa; Arthropoda; Crustacea; Malacostraca; Eumalacostraca; Syncarida; Bathynellacea; Parabathynellidae; Iberobathynella.
REFERENCE 1 (bases 1 to 489)
AUTHORS Camacho,A.I., Dorda,B.A. and Rey,I.
TITLE Undisclosed Taxonomic Diversity of Bathynellacea (Malacostraca:Syncarida) in the Iberian Peninsula Revealed by Molecular Data
JOURNAL J. Crust. Biol. 32 (5), 816-826 (2012)
REFERENCE 2 (bases 1 to 489)
AUTHORS Camacho,A.I., Dorda,B.A. and Rey,I.
TITLE Undisclosed Taxonomic Diversity of Bathynellacea (Malacostraca:Syncarida) in the Iberian Peninsula Revealed by Molecular Data
JOURNAL J. Crust. Biol. 32 (5), 816-826 (2012)
REFERENCE 2 (bases 1 to 489)
AUTHORS Camacho,A.I., Dorda,B.A. and Rey,I.
TITLE Direct Submission
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MDRLPLFWAVFITAILLLLALPVLGAIITMLLTDRLNLTSPFDPAGGGDPILYQHLF
WF"

ORIGIN
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121 gagcttagta gaaagaggag taggaacagg ttgaactgct tatccccccc tagcttctag
181 actatttcoat agaggacott ctgtagattt agctattttt tccttacata ttgcaggagc
241 ttcttctatt ataggagcta ttaattttat tagtaaggta gtaaatatac gaagaactgg
301 aaataacata gatcggttac ctttatttgt gtagacgata ttattactgt ctatttttgt
361 acttttagct ctgccagttc tgcaggagc tattactata ttattaacag atcgcatttt
421 aaatactttc ttttttgatc ctgctggggg gggagatcct attttatata aacatttatt
481 ttgattttt

Change region shown
Customize view
Analyze this sequence
Run BLAST
Pick Primers
Highlight Sequence Features
Find in this Sequence
Related information
Related Sequences
PopSet
Protein
Taxonomy
Recent activity
Turn Off Clear
Iberobathynella burgalensis voucher

Recent activity
Turn Off Clear
Iberobathynella burgalensis voucher MNCN/ADN 29521 cytochrome oxidase subunit I Nucleotide
Iberobathynella sp. ABI 2010b voucher MNCN/ADN 29488 cytochrome oxidase subunit I Nucleotide
txid205103[Organism:exp] (21) Nucleotide
txid205103[Organism:exp] (1) PMC
Iberobathynella taxonomy
See more...

Display Settings: GenBank Send:

Iberobathynella burgalensis voucher MNCN/ADN 29521 cytochrome oxidase subunit I (Col) gene, partial cds; mitochondrial

GenBank: HQ659860.1
[FASTA](#) [Graphics](#) [PopSet](#)

Go to:

LOCUS HQ659860 489 bp DNA linear INV 12-JUL-2012
 DEFINITION Iberobathynella burgalensis voucher MNCN/ADN 29521 cytochrome oxidase subunit I (Col) gene, partial cds; mitochondrial.

ACCESSION HQ659860
 VERSION HQ659860.1 GI:323714739

KEYWORDS
 SOURCE mitochondrion Iberobathynella burgalensis
 ORGANISM Iberobathynella burgalensis
 Eukaryota; Metazoa; Ecdysozoa; Arthropoda; Crustacea; Malacostraca; Eumalacostraca; Syncarida; Bathynellacea; Parabathynellidae; Iberobathynella.
 REFERENCE 1 (bases 1 to 489)
 AUTHORS Camacho,A.I., Dorda,B.A. and Rey,I.
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Related Sequences
 PopSet
 Protein
 Taxonomy

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Turn Off Clear
 Iberobathynella burgalensis voucher

Recent activity

Turn Off Clear
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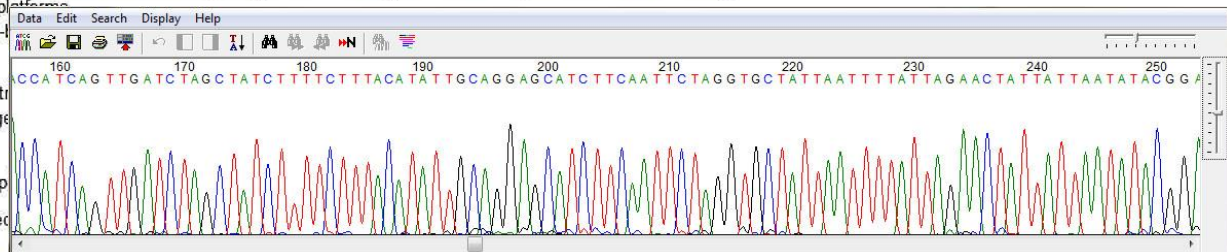
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