

WDCM Data resources: GCM & gcType

Juncai MA, Linhuan WU

World Data Center for Microorganisms(WDCM)

792 culture collections from 78 countries registered in World Data Center for Microorganisms (WDCM)

Global Catalogue of Microorganisms(GCM) 1.0

Since 2012:

- 50 Countries
- 133 Collections
- 457,449 Strains

The information In GCM:

- Strains
- Taxonomy
- Isolation
- Application
- Paper
- Patent
- Sequence
- Protein

Strain Information

Strain Number: JCM 10002^T (Original site)

Name: *Rhodococcus fascians* (Tilford 1936) Goodfellow 1984

Other Collection Numbers: ATCC 12974 ; BCRC 13609 ; CCUG 51073 ; CFBP 2401 ; CGMCC 4.1817 ; CIP 104713 ; CNCTC Cor 66/77 ; DSM 20669 ; ICMP 5833 ; ICPB CF122 ; IFO 12155 ; KCTC 9813 ; LMG 3623 ; MTCC 1531 ; NBRC 100625 ; NBRC 12155 ; NCIMB 13432 ; NCPPB 3067 ; NRRL B-16937 ; VKM Ac-1462

Organism Type: Bacteria

History Of Deposit: LMG 3623 <-- ATCC 12974 <-- W. H. Burkholder CF17 <-- P. Tilford.

Isolated From: Fasciation of sweet peas (*Lathyrus odoratus*)

Type Strain: Type strain

Optimum Temperature For Growth: 28°C

Literature: 5962284

Author: (Tilford 1936) Goodfellow 1984

Medium Number: 57

57		
Glucose	10.0	g
L-Asparagine	1.0	g
K ₂ HPO ₄	0.5	g
Yeast extract	2.0	g
Agar	15.0	g
Distilled water	1.0	L

Adjust pH to 7.3.

Add to shopping cart:

Species Information

Publications	Patents	Sequences
118	6	21

Global Catalogue of Microorganisms 10K sequencing project



COMMENTARY

The global catalogue of microorganisms 10K type strain sequencing project: closing the genomic gaps for the validly published prokaryotic and fungi species

Linhuan Wu^{1,2,3}, Kevin McCluskey^{4,5}, Philippe Desmeth^{4,6}, Shuangjiang Liu^{2,4}, Sugawara Hideaki⁷, Ye Yin⁸, Ohkuma Moriya⁹, Takashi Itoh⁹, Cha Young Kim¹⁰, Jung-Sook Lee¹⁰, Yuguang Zhou¹¹, Hiroko Kawasaki¹², Manzour Hermendo Hazbón¹³, Vincent Robert¹⁴, Teun Boekhout^{14,15,16}, Nelson Lima¹⁷, Lyudmila Evtushenko¹⁸, Kyria Boundy-Mills^{4,19}, Boyke Bunk²⁰, Edward R. B. Moore²¹, Lily Eurwilaichitr^{4,22}, Supawadee Ingsriswang²², Heena Shah²³, Su Yao²⁴, Tao Jin⁸, Jinqun Huang⁸, Wenyu Shi¹, Qinglan Sun¹, Guomei Fan¹, Wei Li¹, Xian Li¹, Ipek Kurtböke^{4,25,*} and Juncai Ma^{1,2,3,4,*}

Working Groups :

1. Bacteria Selection
2. Fungi Selection
3. SOPs
4. Database
5. Intellectual Property Right and Legal Issue.



Nucleic Acids Research

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Article Navigation

gType: a high-quality type strain genome database for microbial phylogenetic and functional research

Wenyu Shi, Qinglan Sun, Guomei Fan, Sugawara Hideaki, Ohkuma Moriya, Takashi Itoh, Yuguang Zhou, Man Cai, Song-Gun Kim, Jung-Sook Lee

Nucleic Acids Research gkae957, <https://doi.org/10.1093/nar/gkaa957>
Published: 29 October 2020 Article history

中国生物技术网

12913/2114

2017.11

2018.3

2018.11

2020.10

2025

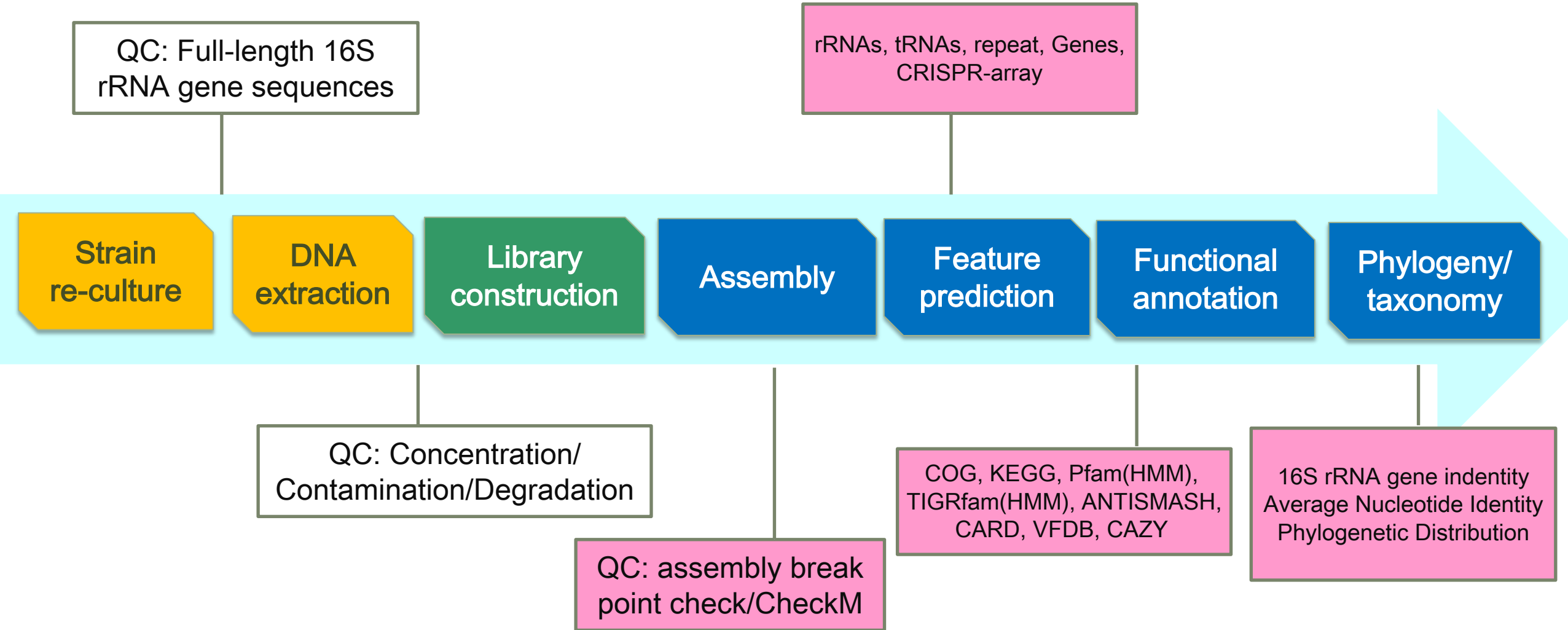
- ATCC, USA
- BCCM/LMG, Belgium
- CAIM, Mexico
- CBS, Netherland
- CCM, Czech
- CCTCC, China
- CCUG, Sweden
- CECT, Spain
- CICC, China
- CIP, France
- CGMCC, China
- FGSC, USA
- ICMP, New Zealand
- IBRC, Iran
- JCM, Japan
- KCTC, Korea
- KMM, Russia
- MUM, Portugal
- NCTC, UK
- NBRC, Japan
- NCAIM, Portugal
- PCU, Thailand
- TBRC, Thailand
- TISTR, Thailand
- UCD-FST, USA
- VKM, Russia

18↑countries 24↑ Culture collections

Global Catalogue of Microorganisms Type Strains Genome Database

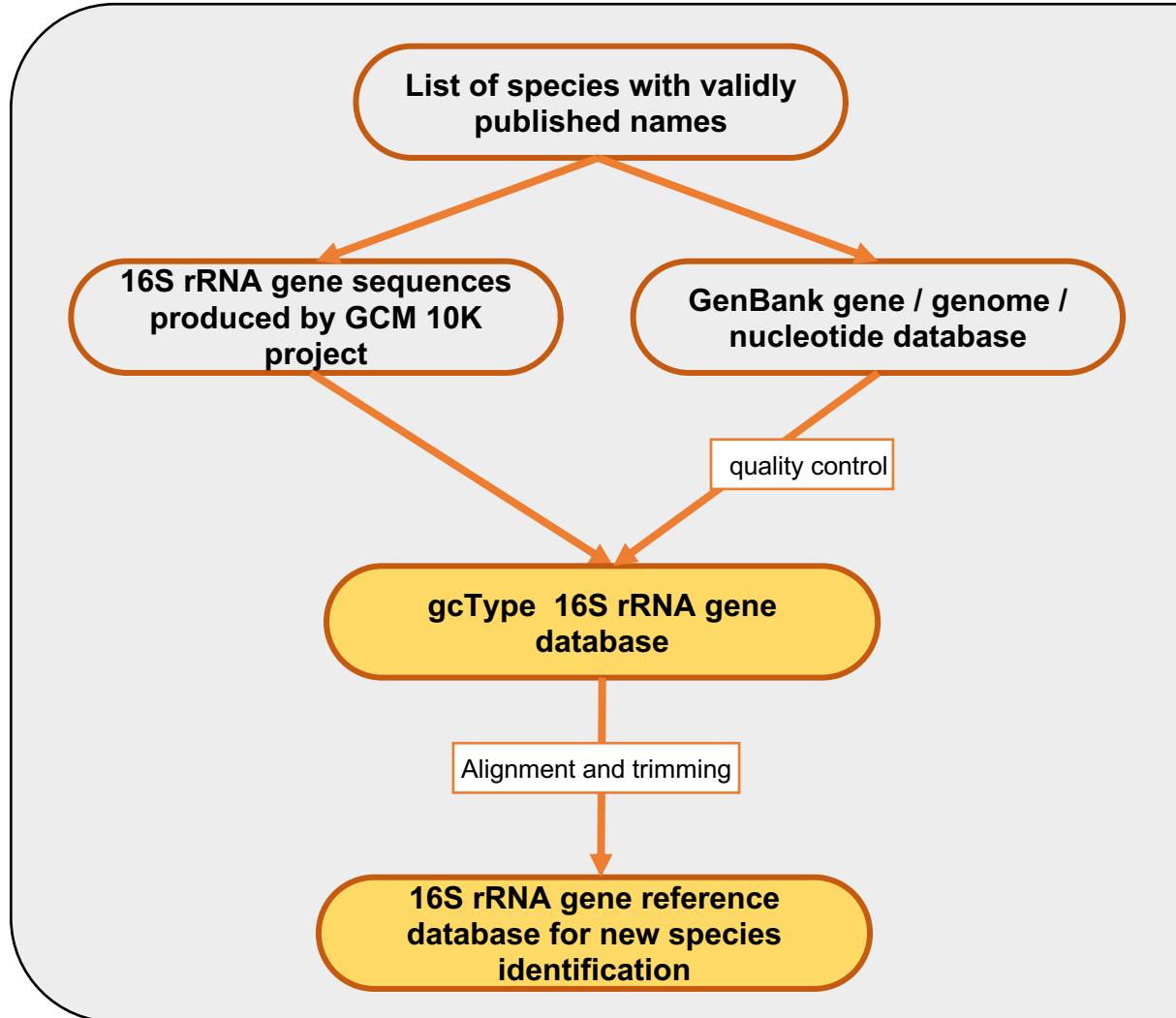
NO.	Culture Collection	Strains of Sample Preparing	Strains of Sequencing	Strains of Data Analyzing	Strains of Project Completed	Strains of Public	Total Strains	Number of genomes
1	ATCC	0	0	0	13	0	13	0
2	BCCM/LMG	0	0	0	2	0	2	0
3	CAM	1	0	0	3	16	19	16
4	CCBAU	0	0	0	0	2	2	2
5	CCM	50	21	0	123	168	267	169
6	CCTCC	0	0	0	4	0	4	0
7	CCUG	630	0	0	0	0	630	0
8	CECT	19	3	0	77	0	86	0
9	CGMCC	5	8	0	56	275	335	275
10	CICC	0	0	0	5	0	5	0
11	EBRC	6	4	0	14	0	19	0
12	ICMP	3	9	0	20	50	53	51
13	JCM	1540	100	0	228	271	1936	271
14	KCTC	132	30	0	141	90	359	90
15	NBRC	0	14	0	37	45	91	45
16	NCAIM	2	7	0	29	0	29	0
17	NCTC	32	0	0	3	0	35	0
18	PCU	1	6	0	7	22	28	22
19	TBRC	0	1	0	37	0	38	0
20	TISTR	16	4	0	8	0	28	0
21	VKM	56	3	0	18	32	105	32
TOTAL		2493	210	0	825	911	4064	913

Type strain sequencing and data analysis pipeline

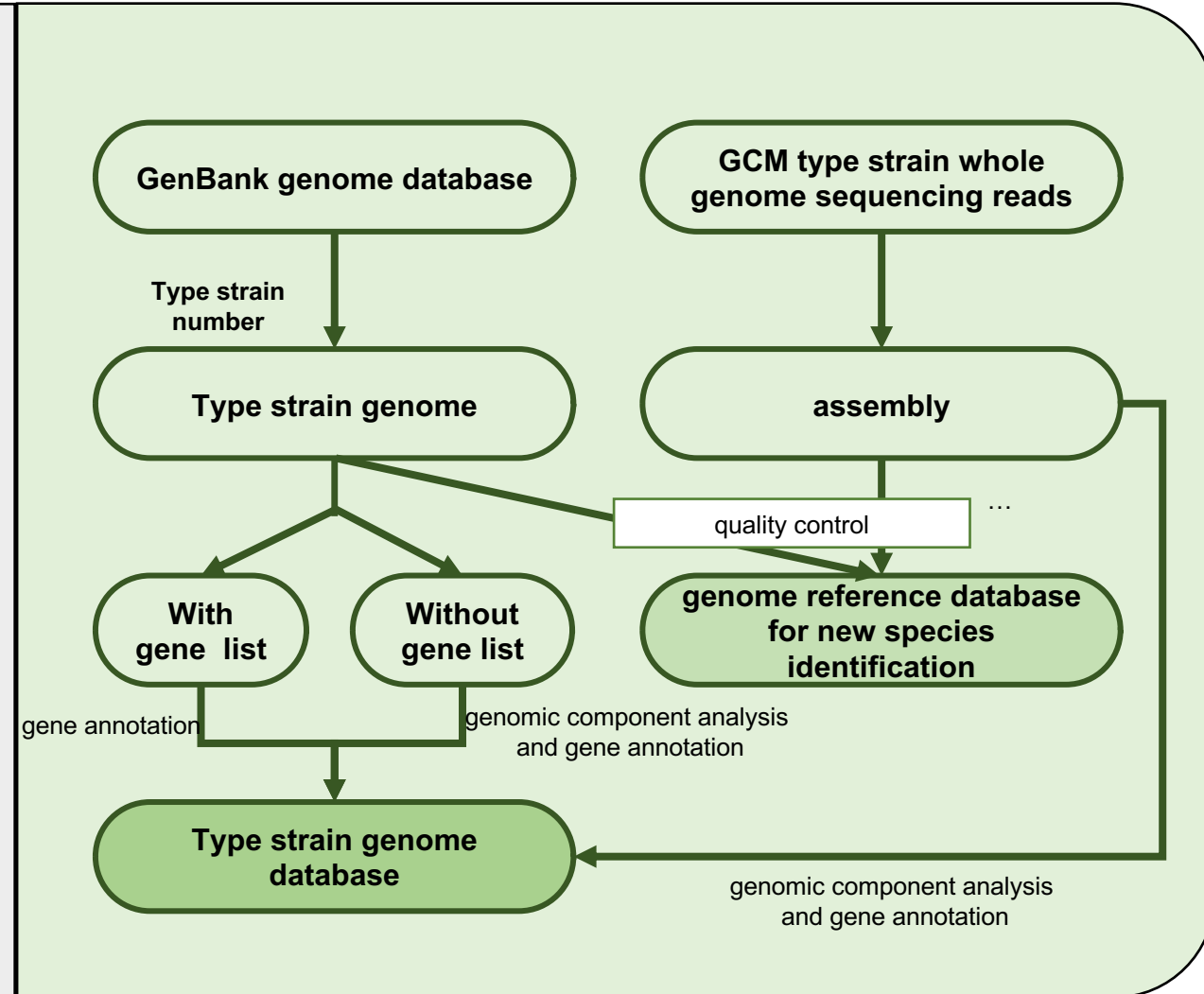


High quality reference database

16S rDNA sequence database



Reference genome database



Comprehensive Information of all the validly published species

Global Catalogue of Microorganisms Type Strains Genome Database

The screenshot shows the website's main interface. On the left is a navigation menu with options: Home, Project, Data, Novel Species, Search, Tools, Statistics, and Data Usage Policy. The main content area features a search bar with a search button and a search icon. Below the search bar are four colored boxes representing statistics: 16,386 Species with validly published names (blue), 66,335 Number of Type strains (green), 12,983 Number of Type strain Genomes (blue), and 1,549 Genomes sequenced by GCM (pink). There are three columns of text: 'Cite Us' with two references, 'About the Project' with a paragraph about genomic information, and 'Services' with two icons for 'Genome Analysis' and 'Species Identification'. At the bottom, there is a section titled 'Sequenced species in phylum' with six circular progress charts for Proteobacteria (48%), Firmicutes (55%), Bacteroidetes (40%), Actinobacteria (38%), Chloroflexi (63%), and Euryarchaeota (53%).

NO.	SPECIES	STRAIN	PROJECT ID	SEQUENCING STATUS	SEQUENCING CENTER
1	<i>Abditobacterium ulsteinese</i> LPSN	DSM 105287	N		
		LMG 29911	GCM10012433		
		R-68213	N		
2	<i>Abiotrophia defectiva</i> LPSN GCM	ATCC 49176	GCM10000462	Permanent Draft	Washington University in St. Louis
		LMG 14740	N		
		DSM 9849	N		
		CCUG 27804	N		
		CCUG 27639	N		
		CIP 103242	N		
3	<i>Absicoccus parvi</i> LPSN	JCM 32769	N		
		KCTC 15747	N		
		YH-pamp20	GCM10014272		
4	<i>Abyssibacter profundii</i> LPSN	MCCC 1K03450	N		
		OUC007	GCM10012456	Complete	Ocean University of China
		KCTC 52933	N		
5	<i>Abyssicoccus albus</i> LPSN	CCTCC AB 2014213	N		
		YIM M12140	N		
		DSM 29158	GCM10006433		
6	<i>Abyssivirga alkaniphila</i> LPSN	JCM 30920	N		
		DSM 29592	N		
		L81	N		
7	<i>Acanthopleuribacter pedis</i> LPSN GCM	NBRC 101209	N		
		KCTC 12899	N		
		FYK2218	N		

<http://gctype.wdcm.org/>

Data Service

- Search the species, type strain, genome
- Browse the type strain by culture collections, check the sequencing status, sequences and annotation results

Analysis Service

- Online genome assembly and annotation
- Novel species identification
- Phylogenetic analysis



Online genome assembly and annotation

Quality control and Assembly

NGS reads only TGS reads only NGS reads + TGS reads

inputReads*

trimProgram* Sickle Trimmomatic

assemblyProgram* SOAPdenovo2 SPAdes Velvet Platanus-b

sampleName*

threads*

Genome structural analysis

structurePrograms* Prodigal CheckM RNAmmer tRNAscan TRF PILER-CR

lineage* Bacteria Archaea Eukaryota

threads*

Genome annotation

database* KEGG COG NR CARD CAZy PHI Swiss-Prot VFDB Pfam MetaCyc AntiSMASH

threads*



Novel species identification

Species identification

Genome sequence 16S rRNA gene sequence Genome sequence + 16S rRNA gene sequence

genome sequence*

additional sequence

additional strain:

set root:

lineage* Bacteria Archaea

maxTargetSeqs*

K₁

K₂

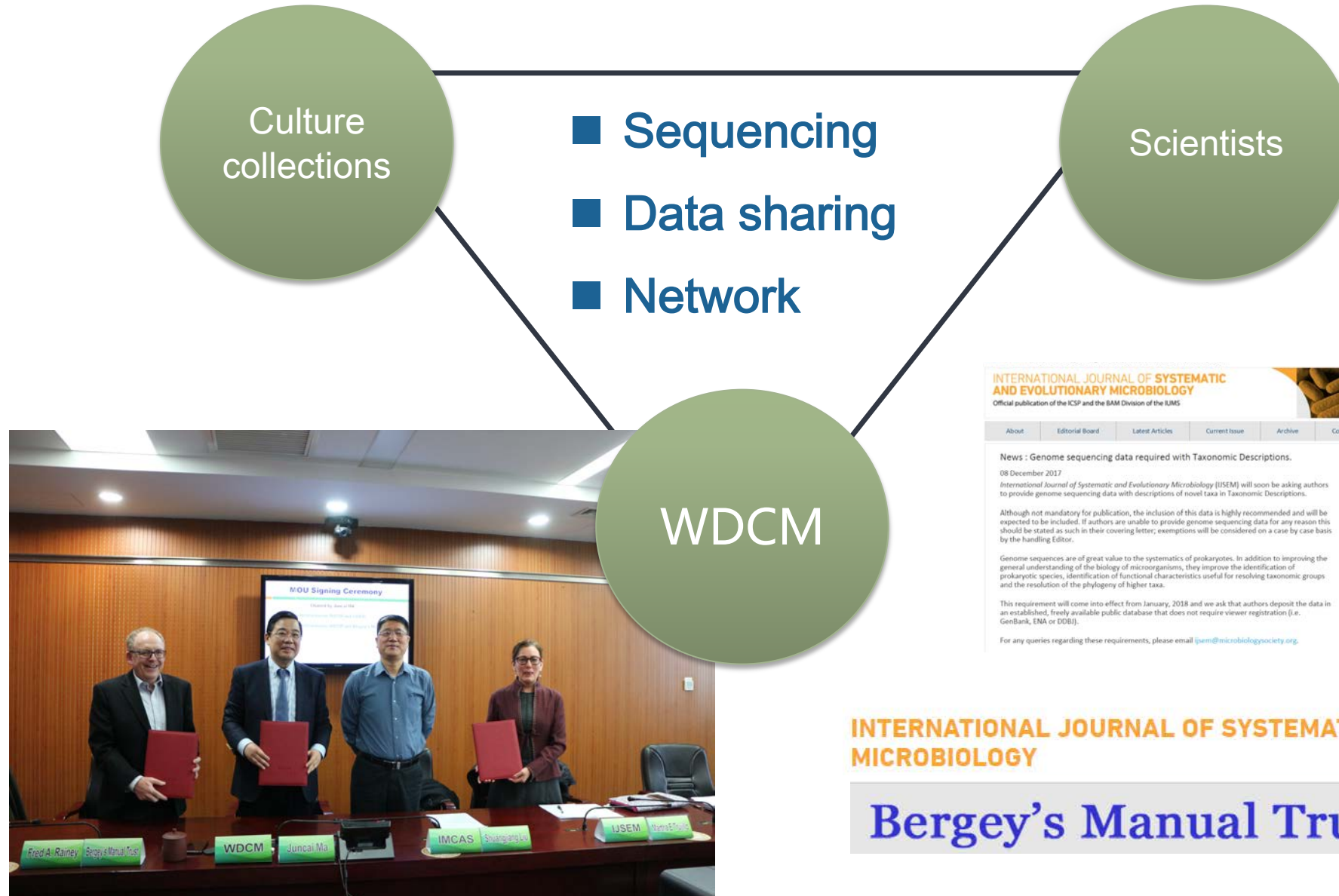
phylogeneticAnalysis* MEGA FastTree

Feedback

Email*

A link to your data analysis status and the task-finish notification will be mailed to this address.

Cooperation Mechanisms



INTERNATIONAL JOURNAL OF SYSTEMATIC AND EVOLUTIONARY MICROBIOLOGY

Bergey's Manual Trust

Clostridium prolinivorans sp. nov., a thermophilic bacterium isolated from an anaerobic reactor degrading propionate

Yan Huang,^{1,2} Zhixian Wei,^{1,2} Lulu Cong,³ Zhongwei Qiu,^{1,2} Rui Chen,^{1,2} Yi Shichun Ma^{1,2,*}

Author affiliations: ¹Biogas Institute of Ministry of Agriculture, Section 4-13, Chengdu, Si and Application of Rural Renewable Energy of Ministry of Agriculture, Section 4-13, CI Geography and Limnology, Chinese Academy of Sciences, Nanjing 210008, PR China. ***Correspondence:** Shichun Ma, mashichun@caas.cn
Keywords: *Clostridium*; thermophilic; *Clostridium prolinivorans*; saccharolytic.
Abbreviation: PFG, peptone-yeast glucose.
The GenBank accession number for the 16S rRNA gene is MH000668. The DDBJ/ENA/Gen for the draft genome sequence are RJW000000000 and GCM0048815, respectively. Four supplementary figures are available with the online version of this article.

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Halostella limicola sp. nov., isolated from saline soil sampled at the Tarim Basin

Dong Han, Li-Guo Hong, Qin Xu and Heng-Lin Cui*

Abstract

A halophilic archaeon, strain LT12^T, was isolated from saline soil sampled at the Tarim Basin, PR China. The novel strain

Acronym	Full Name/Institution	Country
1	ATCC® American Type Culture Collection	USA
2	BCRC "Bioresource Collection and Research Center/Food Industry Research and Development Institute"	Chinese Taipei
3	CAIM Collection of Aquatic Important Microorganisms/CIAD/Mazatlan Unit for Aquaculture and Environmental Management	Mexico
4	CCM Czech Collection of Microorganisms/ Masaryk University	Czech
5	CCUG Culture Collection University of Gothenburg	Sweden
6	CECT Spanish Type Culture Collection / University of Valencia	Spain
7	CGMCC China General Microbiological Culture Collection Center	China
8	CICC China Center of Industrial Culture Collection	China
9	CIP Collection de l'Institut Pasteur	France
10	DSMZ Leibniz-Institut DSMZ-Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH	Germany
11	ICMP International Collection of Microorganisms from Plants	New Zealand
12	JCM Japan Collection of Microorganisms/RIKEN BioResource Center	Japan
13	KACC Korean Agricultural Culture Collection	Korea
14	KCTC Korean Collection for Type Cultures, Korea Research Institute of Bioscience and Biotechnology	Korea
15	KMM G.B. Elyakov Pacific Institute of Bioorganic Chemistry, Far-Eastern Branch, Russian Academy of Sciences	Russian
16	NBRC Biological Resource Center/National Institute of Technology and Evaluation	Japan
17	NCAIM National Collection of Agricultural and Industrial Microorganisms	Hungary
18	NCTC National Collection of Type Cultures	United Kingdom
19	PCU Pharmaceutical Sciences Chulalongkorn University Culture Collection/ Chulalongkorn University	Thailand
20	TBRC Thailand Bioresource Research Center/National Center for Genetic Engineering and Biotechnology	Thailand
21	TISTR TISTR Culture Collection/Bangkok MIRCEN	Thailand
22	VKM All-Russian Collection of Microorganisms	Russian Federation



6 Publish the data



8 Publish the data

Global Catalogue
of Microorganisms



WDCM

WFCC-MIRCEN World Data
Centre for Microorganisms



2 Send DNA samples

3 Send back sequence

4 Inform the Acceptance

1 Deposit strains to two culture collections

1 Deposit strains to two culture collections



5 Link the sequence with the strain

Culture
collections

Taxonomists



7 Submit the manuscript

INTERNATIONAL JOURNAL OF SYSTEMATIC
AND EVOLUTIONARY MICROBIOLOGY

Official publication of the ICSP and the BAM Division of the IUMS

170 species sequenced

Acknowledgement

The great contributions from the culture collections worldwide

Linhuan Wu wulh@im.ac.cn

<http://gctype.wdcm.org/>