

Deposit of Microorganisms - Experience of Users

21st Oct 2020

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Disclaimer

The here presented material and given presentation represents my own opinion and does not reflect any views of the Agency of Science, Technology and Research Singapore (A*STAR) nor of one of its institutes such as the Singapore Institute of Food and Biotechnology Research (SIFBI) or the Institute of Chemical and Engineering Sciences (ICES). As such, neither A*STAR, SIFBI nor ICES are endorsing any of my opinions or any service or product from any company.

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Background



- **since 2020** **A*STAR SIFBI, Singapore**
Biopolymers, Flavor & Fragrances
- **2016 – 2020** **A*STAR ICES, Singapore**
Biosurfactants, Biopolymers
- **2011 – 2015** **Doctorate, University of Leipzig, Germany/**
A*STAR ICES, Singapore
Fungi, Enzymes, Renewables
- **2009 – 2010** **BMBF Project, Vietnam**
Biogas, Enzymes
- **2009** **Diplom, University of Bonn, Germany**
Microbiology, Biochemistry



Sebastian Pichler



Kirill Petropavlov



Agency of Science, Technology and Research

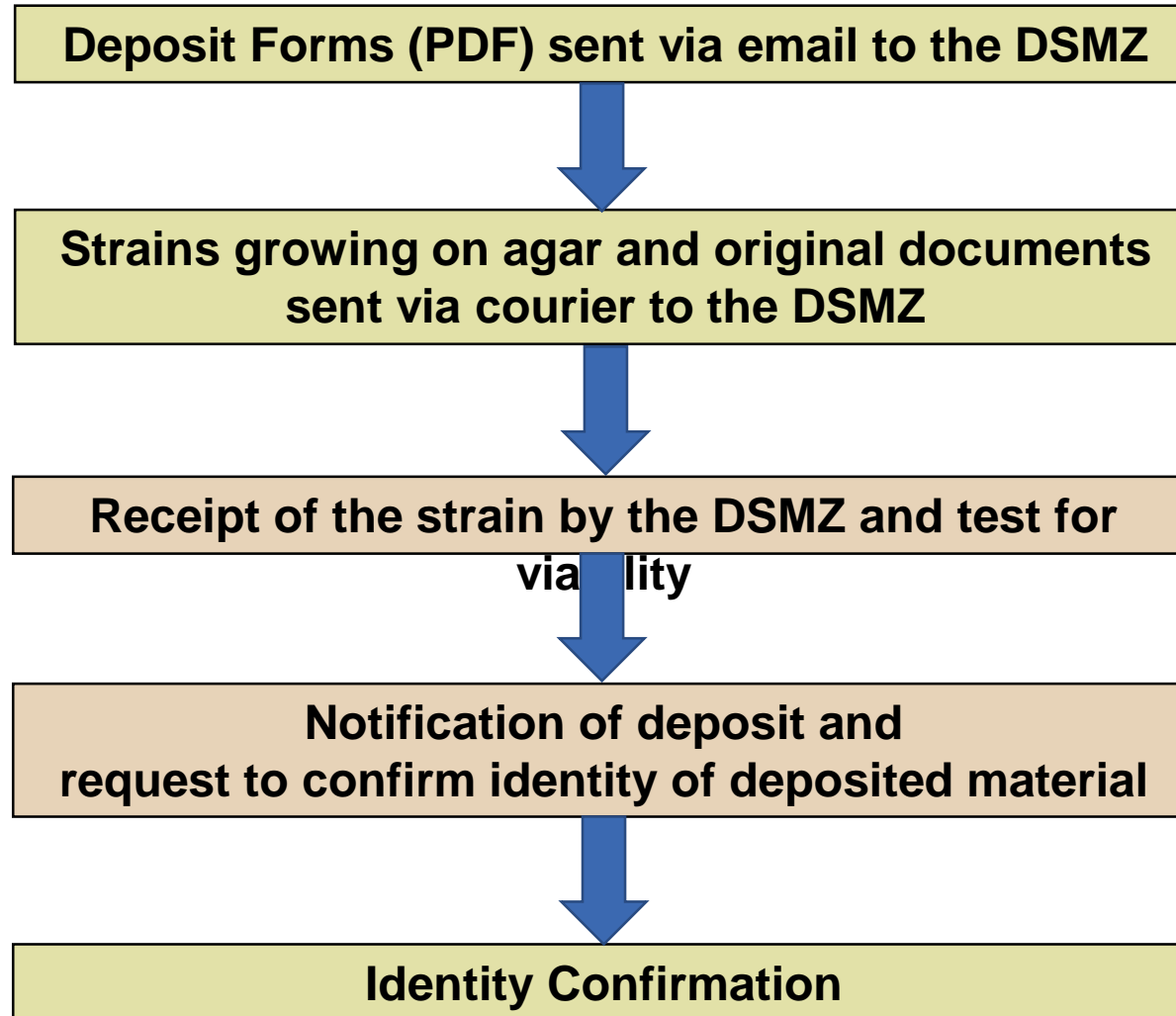


Sergio Sala

Why do I/we submit with the DSMZ

- Internationally recognized institution
- Independent administration of the material and certainty of confidentiality
- Straight forward deposit process
- Ensuring a long-term storage and availability of the material (30 years)
- Availability of the material beyond the “life of a research team”
- Availability to third parties
- Able to file patents for the submitted material
- Attractive as background IP for future projects

Deposit Process



Case I: *Bacillus coagulans* strains for lactic acid production

PCT/SG2013/000497


ATCC

BUDAPEST RESTRICTED CERTIFICATE OF DEPOSIT
BUDAPEST TREATY ON THE INTERNATIONAL RECOGNITION OF
THE DEPOSIT OF MICROORGANISMS FOR THE PURPOSES OF PATENT PROCEDURE
INTERNATIONAL FORM
RECEIPT IN THE CASE OF AN ORIGINAL DEPOSIT ISSUED PURSUANT TO RULE 7.3
AND VIABILITY STATEMENT ISSUED PURSUANT TO RULE 10.2

The American Type Culture Collection (ATCC) has received your deposit of seed/strain(s) in connection with the filing of an application for patent. The following information is provided to fulfill Patent Office requirements.

Tan Gouyue
Agency for Science, Technology & Research
Explor Technologies Pte Ltd
30 Biopolis St, #09-02 Matrix
Singapore 138671

Deposited on Behalf of: Agency for Science, Technology & Research

Date of Receipt of seed/strain(s) by the ATCC: September 26, 2012

Identification	Reference by Depositor	ATCC Deposit Designation	Quantity Received
<i>Bacillus coagulans</i> : J12	PTA-13253		25 vials
<i>Bacillus coagulans</i> : C106	PTA-13254		25 vials
<i>Bacillus coagulans</i> : WCP-10-4	PTA-13255		25 vials

The ATCC understands that:

- The deposit of these seed/strain(s) does not grant ATCC a license, either express or implied, to infringe the patent, and our release of these seed/strain(s) to others does not grant them a license, either express or implied, to infringe the patent.
- If the deposit should die or be destroyed during the effective term of the patent, it shall be your responsibility to replace it with viable material. It is also your responsibility to supply a sufficient quantity for distribution for the deposit term. ATCC will distribute and maintain the material for 30 years or 5 years following the most recent request for the deposit, whichever is longer. The United States and many other countries are signatory to the Budapest Treaty.

Prior to the issuance of a U.S. Patent, the ATCC agrees in consideration for a one-time service charge, not to distribute those seed/strain(s) or any information relating thereto or to their deposit except as instructed by the depositor or relevant patent office. After relevant patent issues we are responsible to release the seed/strain(s) and they will be made available for distribution to the public without any restrictions. We will inform you of requests for the seed/strain(s) for 30 years from date of deposit.

PCT/SG2013/000497


ATCC

re, VA, USA

ur 15, 2012

- ATCC
- 15/10/2012
- *Bacillus coagulans* J12
- *Bacillus coagulans* C106
- *Bacillus coagulans* WCP10-4
- Result from screening several hundred isolates
- Production of optically pure L-lactic acid
- Production from glucose/xylose > 200 g/L
- Production from lignocellulose > 80 g/L

Case I: *Bacillus coagulans* strains for lactic acid production

(12) International Application Status Report

Received at International Bureau: 27 February 2013 (27.02.2013)
Information valid as of: 04 September 2014 (04.09.2014)
Report generated on: 14 October 2020 (14.10.2020)

(10) Publication number: WO2013/122549	(43) Publication date: 22 August 2013 (22.08.2013)	(26) Publication language: English (EN)
(21) Application Number: PCT/SG2013/000064	(22) Filing Date: 18 February 2013 (18.02.2013)	(25) Filing language: English (EN)
(31) Priority number(s): 201201135-9 (SG) 201204018-4 (SG)	(31) Priority date(s): 17 February 2012 (17.02.2012) 31 May 2012 (31.05.2012)	(31) Priority status: Priority document received (in compliance with PCT Rule 17.1) Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:
C12P 19/14 (2006.01); *C12P 7/10* (2006.01); *C12P 7/14* (2006.01); *C12P 7/56* (2006.01); *C12P 39/00* (2006.01); *C12P 19/02* (2006.01)

(71) Applicant(s):
AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis Singapore 138632 (SG) (for all designated states)

(72) Inventor(s):
WU, Jinchuan; c/o Institute of Chemical and Engineering Sciences 1 Pesek Road, Jurong Island Singapore 627833 (SG)
LIU, Zhibin; c/o Institute of Chemical and Engineering Sciences 1 Pesek Road, Jurong Island Singapore 627833 (SG)
CHOW, Han Ling; c/o Institute of Chemical and Engineering Sciences 1 Pesek Road, Jurong Island Singapore 627833 (SG)

(12) International Application Status Report

Received at International Bureau: 12 December 2013 (12.12.2013)
Information valid as of: 09 May 2014 (09.05.2014)
Report generated on: 14 October 2020 (14.10.2020)

(10) Publication number: WO2014/081395	(43) Publication date: 30 May 2014 (30.05.2014)	(26) Publication language: English (EN)
(21) Application Number: PCT/SG2013/000497	(22) Filing Date: 22 November 2013 (22.11.2013)	(25) Filing language: English (EN)
(31) Priority number(s): 201208653-4 (SG)	(31) Priority date(s): 23 November 2012 (23.11.2012)	(31) Priority status: Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:
C12N 1/20 (2006.01); *C12N 1/22* (2006.01)

(71) Applicant(s):
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(72) Inventor(s):
WU, Jinchuan; c/o Institute of Chemical and Engineering Sciences, 1 Pesek Road, Jurong Island Singapore 627833 (SG)
YE, Lidan; c/o Institute of Chemical and Engineering Sciences 1 Pesek Road, Jurong Island Singapore 627833 (SG)
ZHOU, Xingding; c/o Institute of Chemical and Engineering Sciences 1 Pesek Road, Jurong Island Singapore 627833 (SG)

Case II: *Aspergillus niger* strains for endoxylanase production

DSMZ

INTERNATIONALES FORMBLATT

Institute of Chemical and Engineering Sci.
Industrial Biotechnology
1 Petek Road, Jerong Island
Singapore 627833

EMPFANGSBESTÄTIGUNG BEI ERSTHINTERLEGUNG
eingestellt gemäß Regel 7.1 von der unten angegebenen
INTERNATIONALEN HINTERLEGUNGSSTELLE

I. KENNZEICHNUNG DES MIKROORGANISMUS	
Von HINTERLAGER registriertes Belegnummer: BBTP-FS01	Von der INTERNATIONALEN HINTERLEGUNGSSTELLE registriertes EINGANGSNUMMER: DSM 26641
II. WISSENSCHAFTLICHE BESCHREIBUNG UND/ODER VORGESCHLAGENE TAKSONOMISCHE BEZEICHNUNG	
Mit dem unter I. beschriebenen Mikroorganismus wurde <input type="checkbox"/> eine wissenschaftliche Beschreibung <input checked="" type="checkbox"/> eine vorgeschlagene taxonomische Beschreibung abgegeben. (Zustimmung abwarten)	
III. BEFRAGUNG UND ANNAHME	
Diese internationale Hinterlegungsstelle nimmt den unter I. beschriebenen Mikroorganismus an, der bei Nr. 2012-11-16 (Datum der Ein- reichung) eingegangen ist.	
IV. ERGANG DES ANTRAGS AUF UMWANDLUNG	
Der unter I. beschriebene Mikroorganismus ist bei dieser internationalen Hinterlegungsstelle als <input type="checkbox"/> eingegangen (Datum der Ein- reichung) und als Antrag auf Umwandlung dieser Hinterlegung in eine Hinterlegung gemäß Budapest-Vertrag ist ein- gegangen (Datum des Eingangs des Antrags auf Umwandlung).	
V. INTERNATIONALE HINTERLEGUNGSSTELLE	
Name: Leibniz-Institut DSMZ-Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH	Datum/Ort der zur Veranlassung der internationalen Hinterlegungsstelle befugten Person(en) oder des (der) von der entsprechenden Institutionen: <i>V. Wels</i>
Anschrift: Inhoffenstr. 7 B D-38124 Braunschweig	Datum: 2012-11-26

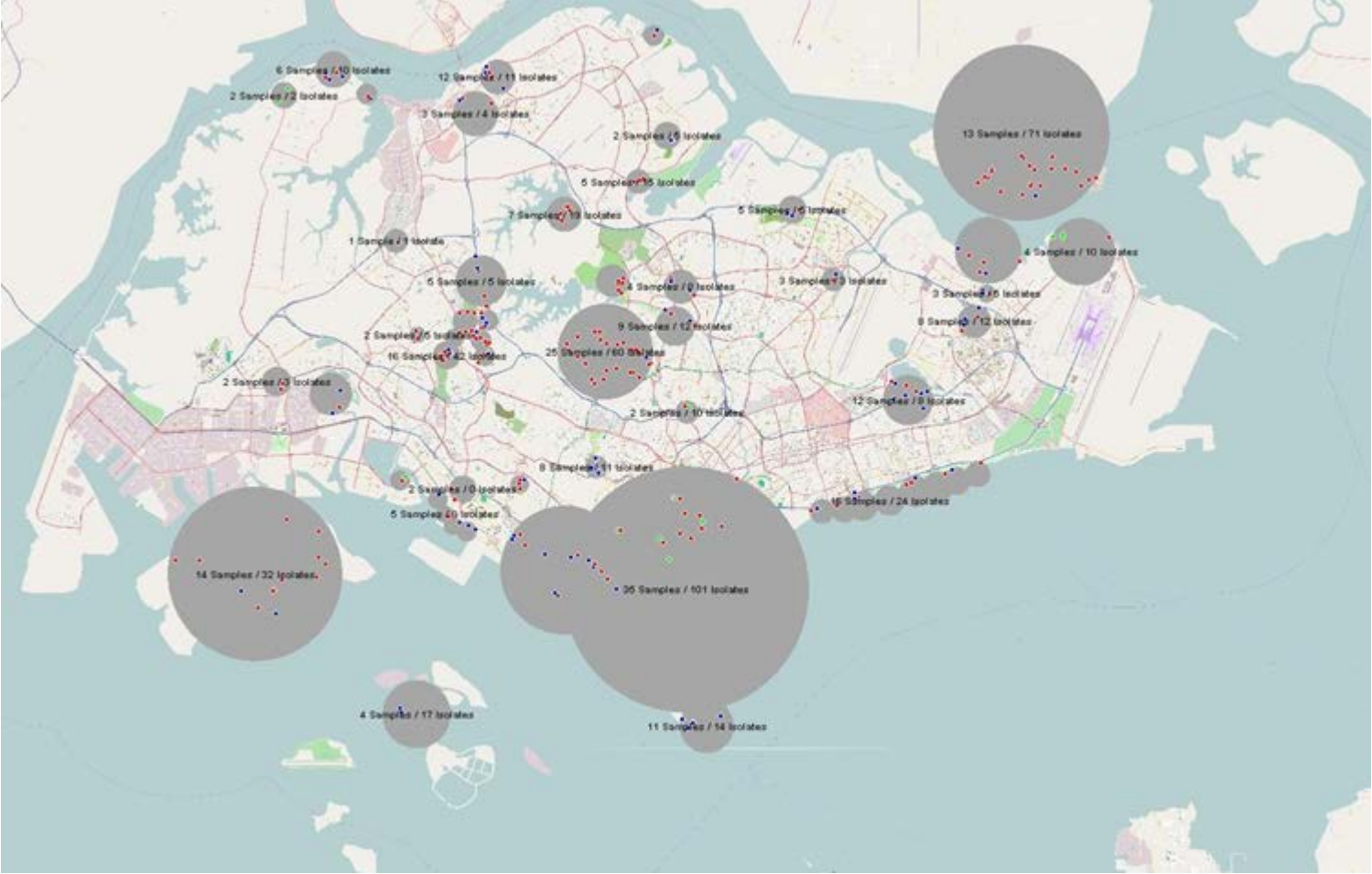
1. Falls Regel 6.4 Buchstabe c) zutrifft, ist dies der Zeitpunkt, zu dem der Dienst einer internationalen Hinterlegungsstelle erbracht werden ist.

Formblatt DSMZ-IP4 (ursprüngl. Nr.) 01/11

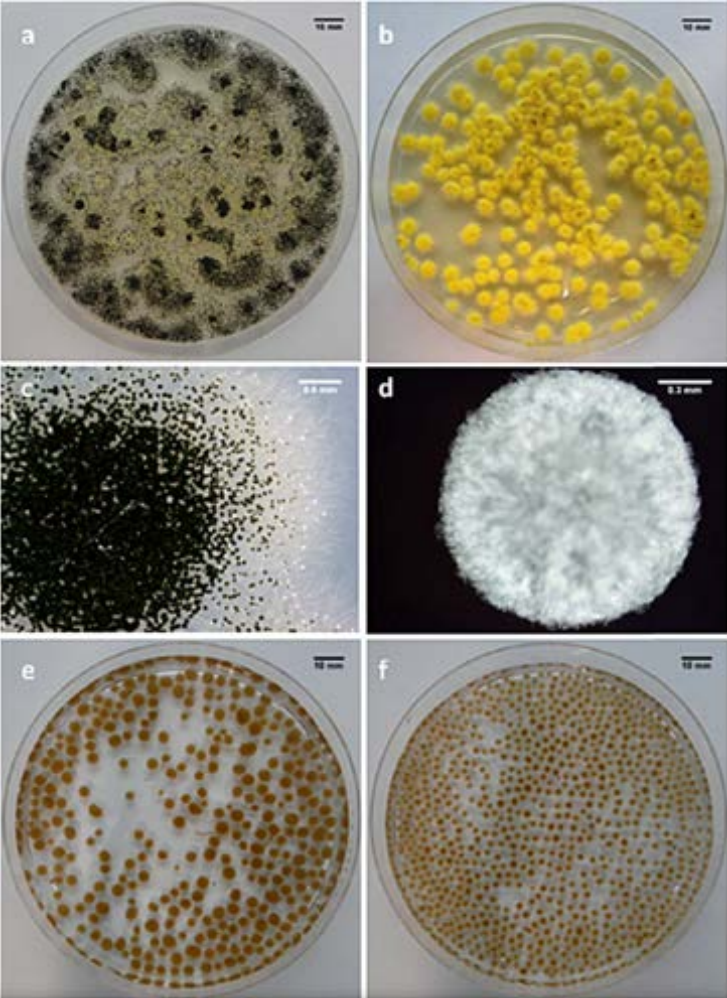
- DSMZ
- 16/11/2012
- Screening of > 300 environmental samples
- *Aspergillus niger* BBTP-FS01 (DSM 26641)
- Screening of several thousand colonies
- Mutant of BBTP-FS01 (DSM 28712)



Case II: *Aspergillus niger* strains for endoxylanase production



Case II: *Aspergillus niger* strains for endoxylanase production



Case III: *Pantoea spec.* for the heterologous production of rhamnolipids

- DSMZ
- 17/8/2018
- *Pantoea spec.* P37 (DSM 32899)
- Production of mono-rhamnolipids ~ 0.4 g/L

Leibniz-Institut
DSMZ-Deutsche Sammlung von
Mikroorganismen und Zellkulturen GmbH

DSMZ

Leibnizstraße 10
38124 Braunschweig
Germany

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1 Pesek Road, Jurong Island
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SINGAPORE

Info: +49 (0)531 26 14-0
Fax: +49 (0)531 26 14-214
E-mail: contact@dsMZ.de
www.dsmz.de

Dr. Zschaler/Your ref: _____
Unter-Zschaler/Your ref: _____
+49 (0)531 26 14-0
Datum/Date: _____

P24418 171 2018-09-12
K3o13@dsMZ.de

Deposit of microorganisms according to the Budapest Treaty

Dear Sir or Madam,

enclosed please find our Statements of Receipt and Viability for the strain

Pantoea sp P37 – DSM 32899

Sincerely yours,

K. Felsch

Dr. Kathrin Felsch

Leibniz-Institut DSMZ-Deutsche Sammlung
von Mikroorganismen und Zellkulturen GmbH

Further notes: After preservation of the strain samples will be sent to your attention for identity
checking.

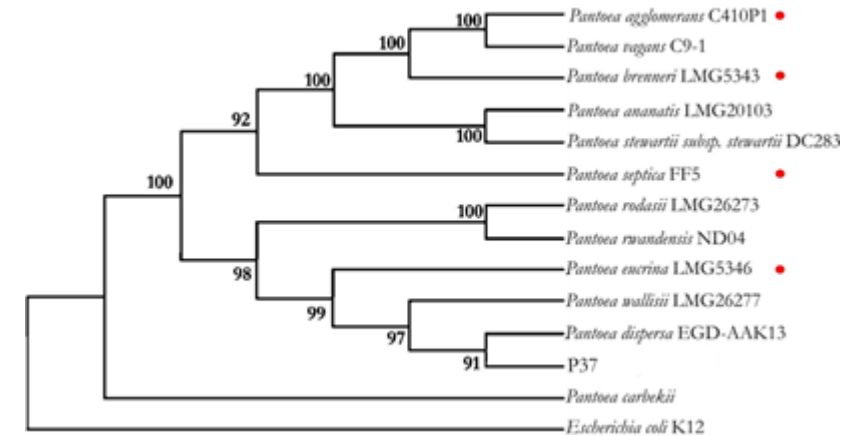
P.S.: Please guard against loss of the cultures at your institution to be prepared to submit replacement cultures to the DSMZ if
necessary.

DSMZ/DSMZ
Managing Director:
Prof. Dr. Jörg Overmann
Aufsichtsratsvorsitzende/Chair of
Managing Board: MSc Dr. Cord Schobert

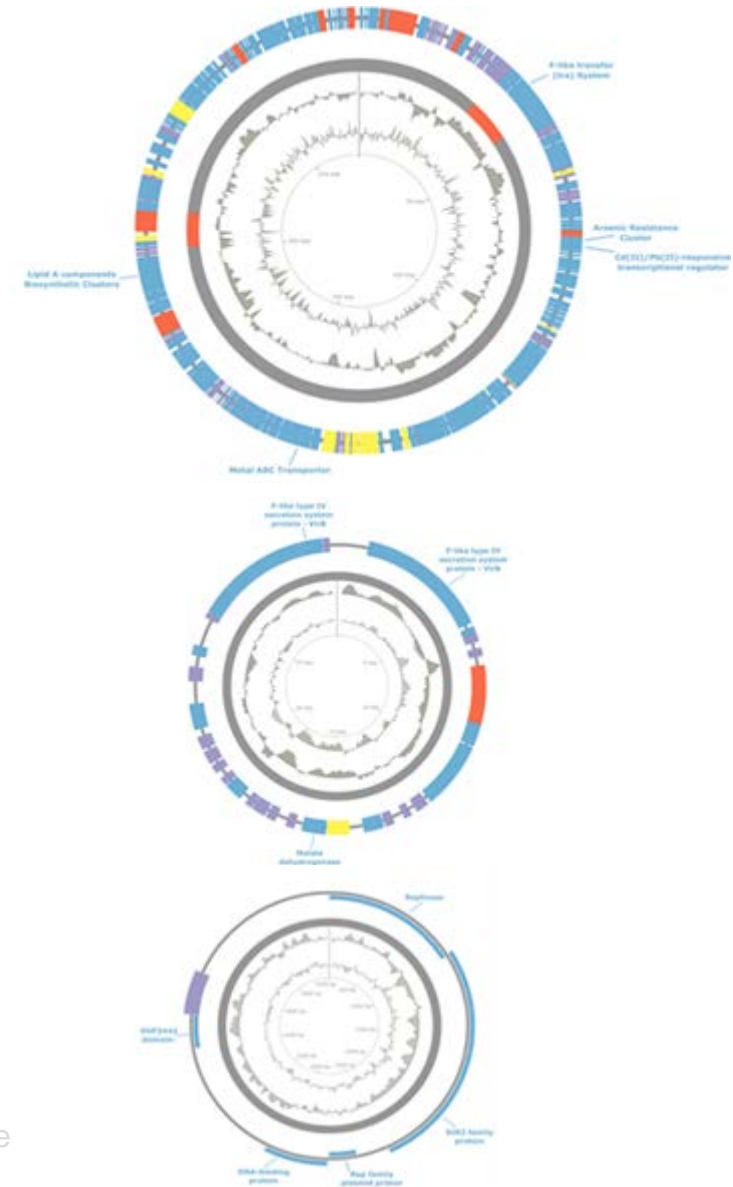
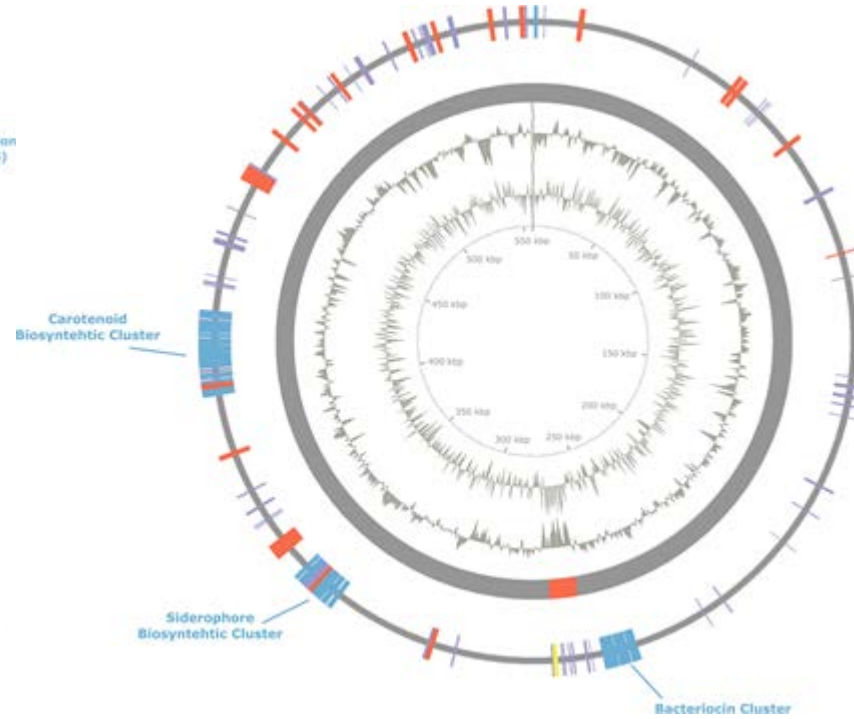
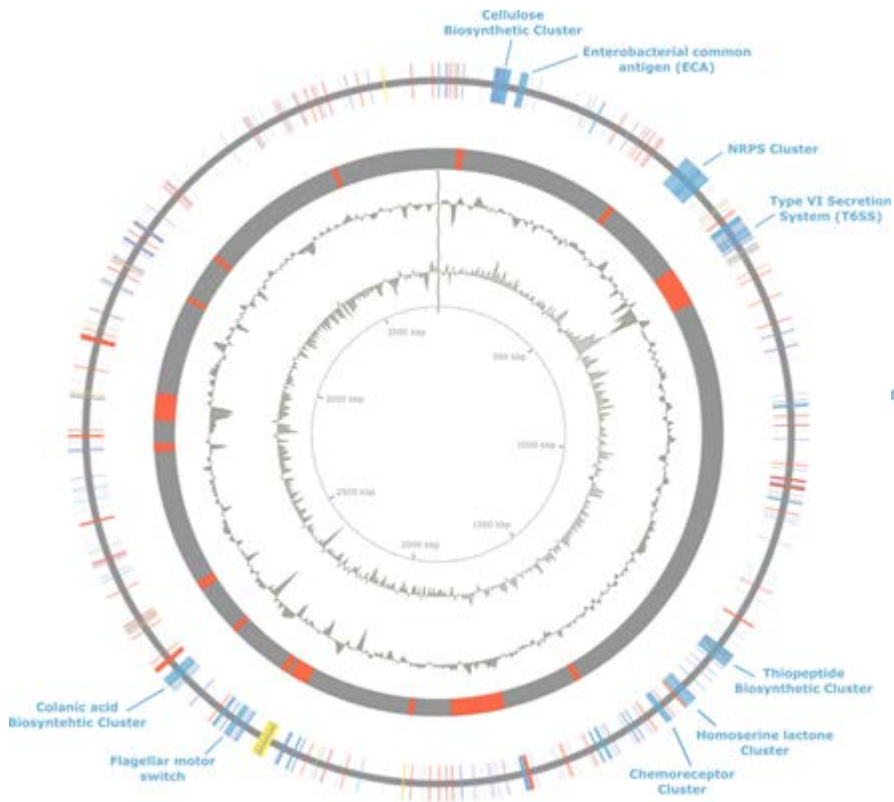
Staatsregister/Landregister
DSMZ/DSMZ
ALZ/Bank Code: 250 101 00
Bank: 2512 050 000 010 010 01
SWIFT: DSMZ3333

Handelsregister/
Commercial Register:
Aufsichtsrat/Braunschweig
HRB 2570
Steuer-Nr.: 13/100/04636

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Case III: *Pantoea spec.* for the heterologous production of rhamnolipids



Nawrath, M. M., Ottenheim, C., Wu, J. C., & Zimmermann, W. (2020). *Pantoea* sp. P37 as a novel nonpathogenic host for the heterologous production of rhamnolipids. *MicrobiologyOpen*, 9(5). <https://doi.org/10.1002/mbo3.1019>

Case IV: *Candida glabrata*, *Pediococcus* sp., *Enterobacter cloacae* and *Enterobacter* sp. as a consortium for the effective digestion of organic waste

BUDAPESTER VERTRAG ÜBER DIE INTERNATIONALE
ANERKENNUNG DER HINTERLEGUNG VON MIKROORGANISMEN
FÜR DIE ZWECHE VON PATENTVERFAHREN

INTERNATIONALES FORMBLATT

Western Solutions Private Ltd.
30 Kallang Paddang Road
#03-03 Valiant Industrial Building
Singapore 349312
Republic of Singapore

DSMZ

EMPFANGBESTÄTIGUNG DER ERSTHINTERLEGUNG
gemäß Regel 7.1 von der ersten angehängten
INTERNATIONALEN HINTERLEGUNGSTELLE

I. KENNZEICHNUNG DES MIKROORGANISMUS	
Von HINTERLEGER angegeben Besprochen: C3	Von der INTERNATIONALEN HINTERLEGUNGSTELLE angewiesen EMPFANGNUMMER: DSMZ 32729
II. WISSENSCHAFTLICHE BESCHREIBUNG UND/ODER VORGESCHLAGENE TAKSONOMISCHE BEZEICHNUNG	
Mit dem unter I. bezeichneten Mikroorganismus wurde () eine wissenschaftliche Beschreibung (x) eine vorgeschlagene taxonomische Beschreibung eingereicht. (Zusätzlich ankreuzen)	
III. EINGANG UND ANNAHME	
Diese internationale Hinterlegungstelle stimmt mit dem unter I. bezeichneten Mikroorganismus ab, der bei der am 2018-02-01 (Datum der Ein- reichung) ¹ eingegangen ist.	
IV. EINGANG DES ANTRAGS AUF UMWANDLUNG	
Der unter I. bezeichnete Mikroorganismus ist bei dieser internationalen Hinterlegungstelle am Hinterlegung und eine Antrag auf Umwandlung dieser Hinterlegung in eine Hinterlegung gemäß Budapestes Vertrag ist am eingegangen (Datum des Eingangs des Antrags auf Umwandlung).	
V. INTERNATIONALE HINTERLEGUNGSTELLE	
Name: Leibniz-Institut DSMZ-Deutsche Sammlung von Mikroorganismen und Zellkulturen GmbH Anschrift: Inhoffenstr. 7 B D-10114 Berlin-Wedding	Unterschrift(en) der auf Veranlassung der internationalen Hinterlegungstelle befugten Person(en) oder der/die/r von ihr ermächtigten Bediensteten: K. Felber Datum: 2018-04-03

¹ Falls Regel 6.4 Buchstabe d) erfüllt, ist dies der Zeitpunkt, zu dem der Stammeiner internationalen Hinterlegungstelle erworben worden ist.

Formblatt DSMZ-IP-4 (private Seite) 03/2012

- DSMZ
- 2/2018
- *Candida glabrata* C1 (DSMZ 32770)
- *Pediococcus* sp. C3 (DSMZ 32729)
- *Enterobacter cloacae* C4 (DSMZ 32739)
- *Enterobacter* sp. C5 (DSMZ 32730)
- Fast and efficient organic waste reduction

Case IV: *Candida glabrata*, *Pediococcus sp.*, *Enterobacter cloacae* and *Enterobacter sp.* as a consortium for the effective digestion of organic waste

(12) International Application Status Report

Received at International Bureau: 07 June 2018 (07.06.2018)

Information valid as of: 18 November 2019 (18.11.2019)

Report generated on: 14 October 2020 (14.10.2020)

(10) Publication number:

WO2019/112515

(43) Publication date:

13 June 2019 (13.06.2019)

(26) Publication language:

English (EN)

(21) Application Number:

PCT/SG2018/050259

(22) Filing Date:

25 May 2018 (25.05.2018)

(25) Filing language:

English (EN)

(31) Priority number(s):

10201710123W (SG)

(31) Priority date(s):

06 December 2017 (06.12.2017)

(31) Priority status:

Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:

C12M 1/12 (2006.01); C12P 39/00 (2006.01); C12N 1/14 (2006.01); C12N 1/20 (2006.01); C12N 11/02 (2006.01); C12R 1/00 (2006.01)

(71) Applicant(s):

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(72) Inventor(s):

VEERESH, Juturu; ICES (A*STAR) 1, Pesek Road Jurong Island, Singapore 627833 (SG)

WU, Jinchuan; ICES (A*STAR) 1, Pesek Road Jurong Island, Singapore 627833 (SG)

TAN, David; 30 Kallang Pudding Road #03-03 Valiant Industrial Building, Singapore 349312 (SG)

FANG, Ruby; 30 Kallang Pudding Road #03-03 Valiant Industrial Building, Singapore 349312 (SG)

Case IV: *Candida glabrata*, *Pediococcus sp.*, *Enterobacter cloacae* and *Enterobacter sp.* as a consortium for the effective digestion of organic waste

Digester turns Singaporeans' food waste into fertiliser in just 24 hours



A*Star, Singapore firm develop system that turns food waste into odourless fertiliser in 24 hours

By NAVENE ELANGOYAN



Nana Lee TODAY



Case IV: Additional Support by the DSMZ

- Flexible payment options of fees (Transfer/Credit card)
- Very timely email reply including out of office autoreply
- Very personal interaction, always going the extra mile
- Identification of microorganism required (Forwarding to other departments)

Summary

- Using the Budapest treaty deposit leaves us confident that our strains are well taken care of, handled confidentially and are available for patent submission
- It gives us solid background IP for future projects with industrial partners
- The submission process is straight forward and easy to understand
- Added services increase this trust even further
- Repeated past submission of our strains have proven the trust in this system

- Next deposits in 2021/22