# Korea Bioinformation Center(KOBIC)

2018. 8. 30.



# **CONTENTS**

Introduction of KOBIC

Biological Research Resource(BRR) management mechanism in Korea



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## Introduction of KOBIC

## Status of Korea Bioinformation Center(KOBIC)



Mission

Establish good circle of biological research resources(Based on National Act)
 Establish a management and utilization service mechanism for genomic information

### History

2001.10 Establish national genomic information center

### 2006.3

Rename to national biological resource information management center

### 2009.5

Enter into force 'Act on acquisition, management, and distribution of BRR

### 2010.3

Designated as national BRR information center



## Infrastructure of KOBIC



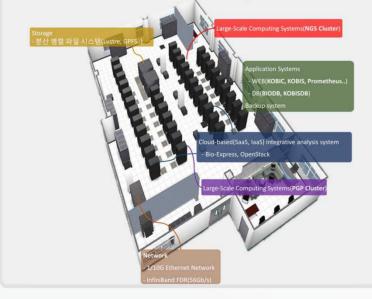
## IT Infra

#### · CPU

- 3,100core
(900core for internal analysis,
1,300core for external H/W services,
900core for Cloud service)

#### · Storage

- 10PB (4.7PB for Backup)



## Building

- New KOBIC building
- -3 floor
- (total 6,206 square meter,
- construction 1,761 square meter)
- Office movement: May, 2019

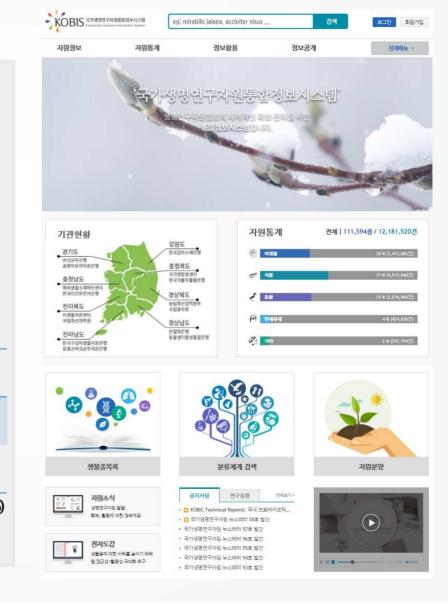




## **Biological resources**

- Korean Bio-resources information system(KOBIS)
- National centralized system for biological research resources(BRR)
- Current status of resources

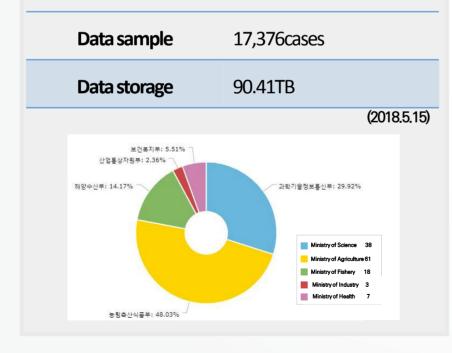
Total	111,594species; 12,181,520samples
Resources	95,684species; 4,837,155samples
Information	27,462species; 7,344,365samples
	(2018.5.15)



### Genomics

#### · Genome InfraNet

 Centralized genomic information which is produced specific Genomic R&D projects



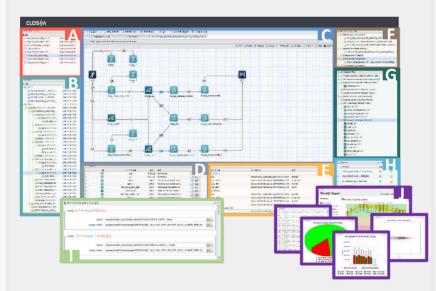


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#### · Bio-Express

- Web-based genome analysis services
- include High speed data transfer system



A. Pipeline project list, B. File browser, C. Workflow design canvas and toolbox D. Details table of the module, E. Parameters table of the module, F. Registered analysis pipeline list G. Usable modular program list, H. Job history and status, I. Parameter setting window, J. Result file



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## **R&D** Products

#### · BioData

 Centralized R&D products in the biological resources information

### - 1.198.937 cases(April, 2018)





## Biological Research Resource(BRR) management mechanism in Korea

## **Circumstance of BRR**



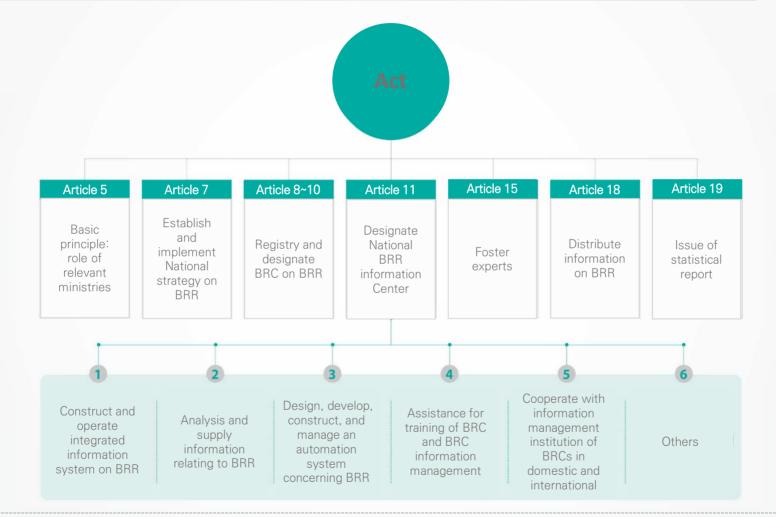
Increased industrial utilization of BRR, Accelerated biotechnology innovation,

- (Tech) Improvement of the united technology induces importance and utilization of high value resources
- (Industry) Increase utilization value in a variety of applications as a essential material, Increased industrial demand for new types of resources
- (Policy) National mechanism for BRR management in international issues such as global pandemic, sovereignty of biological resources



## Act on acquisition, management, and distribution of BRR (Entry into force on May, 2009)

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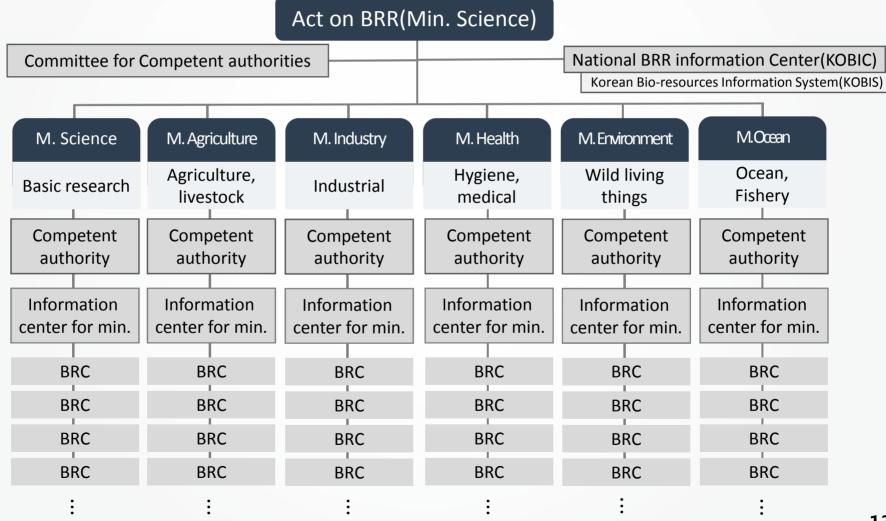
The term "biological research resources" means raw materials which form the basis of biotechnology research, consisting of living organisms for industrial uses, such as animals, plants, microorganisms, and human-derived research materials, and the related information.

(Act on acquisition, management, and utilization of biological research resources)

## National management mechanism of BRR

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Based on the Act on acquisition, management, and distribution of BRR



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## Introduction of KOBIS(Korean Bioresources information system)

## History of KOBIS





<sup>©</sup>Act on acquisition, management, and distribution of biological research resources enter into force (Nov., 2009)



KOBIC is designated as national biological research resource(BRR) information center



Initiate R&D project for establishing the biological research resource information system(Sept. 2010)



KOBIS v1.0 open(March, 2011) and subsequently upgrade



KOBIS v4.0 open(May, 2017)

## Strategic goals of KOBIS

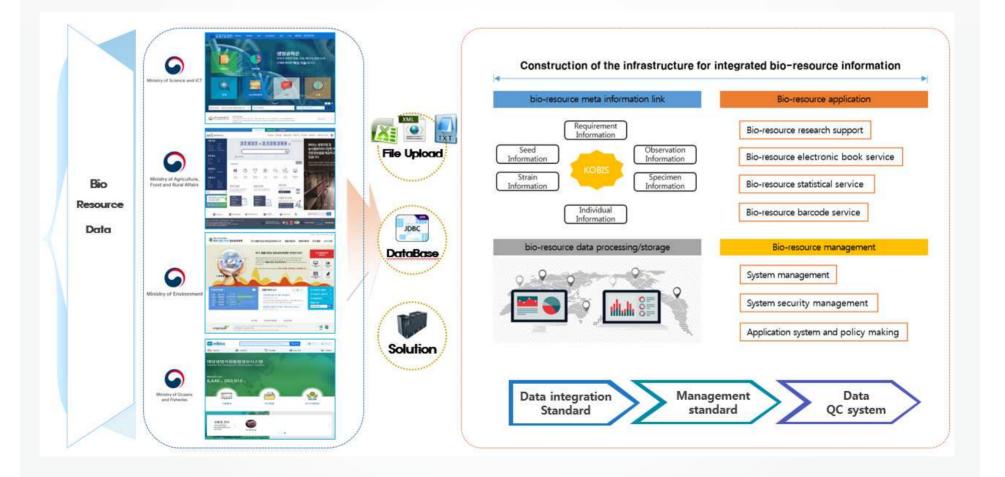
01	Establish information liaison mechanism	<ul> <li>Liaison of responsible institutions of several ministries</li> <li>Integrate data between several ministries</li> </ul>
02	Establish Integrated information system	<ul> <li>Establish and maintain KOBIS</li> <li>Analyze and provide the information regarding the BRR</li> </ul>
03	Publish national statistical report	<ul> <li>Establish statistic system</li> <li>Publish and distribute national statistical report for BRR</li> </ul>
04	Establish utilization mechanism	<ul> <li>Workshop for institutions</li> <li>Newsletter and advertisement</li> <li>Collect international contents</li> </ul>
05	Establish implementation plan	<ul> <li>Establish implementation plan of BRR management</li> </ul>

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## 1. Information liaison mechanism

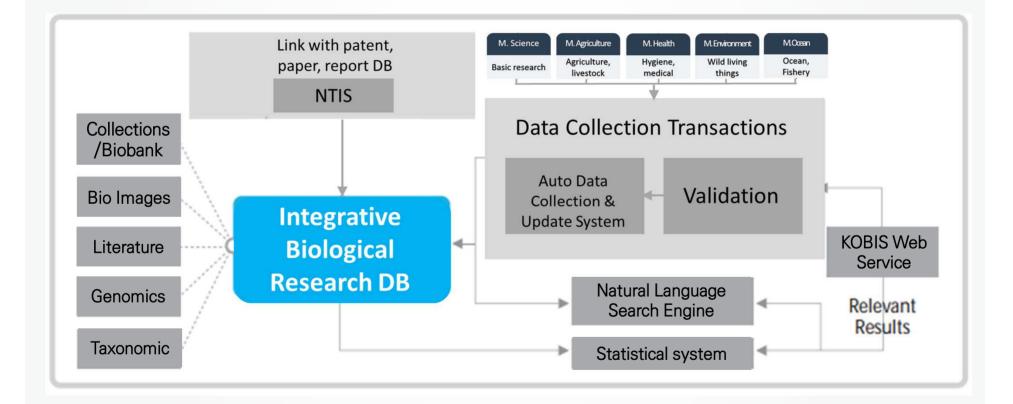


### Construction of the infrastructure for integrated bio-resource information





### Data collection and integration







• 국가생명연구자원 뉴스레터 56호 발간

국가생명연구자원 뉴스레터 55호 발간
 책임기관협의회 시행계획 특

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통계자료집

이용방법

자원등록

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연구성과물

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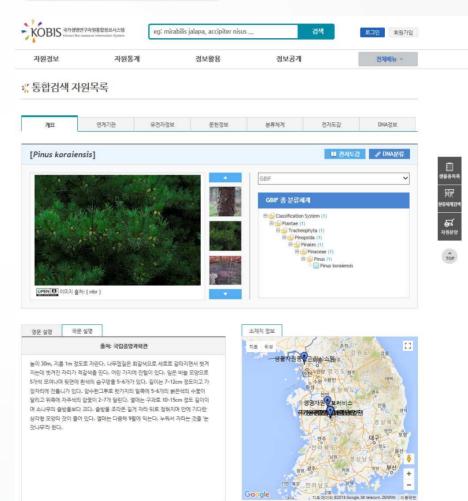
생물증에 대한 이해를 높이기 위해

웹 접근성/활용성 극대화 추구

DNA 분류

DNA 서열을 이용한 생물증 동정 기반 구축

#### Information page





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생	물이야기	통계기사	분석도구	뉴스				
		10	국내 자원	발굴 국내 지놈시컨상	상 자원활용	<u>,,</u>	N	10
번호	구분		학명		논문	등록일	조회수	바로가7
1	Draft Genome: NZ_PPEH01000001.1 Chryseobacterium lactis NCTC11390T Chryseobacterium lactis NCTC11390T Chryseobacterium lactis NCTC11390T Chryseobacterium lactis NCTC11390T Isolated from Milk, Chryseobacterium lactis NCTC11390T Isolated from Milk, Chryseobacterium oncorhynchi 701B-08T from Rainbow Trout, and Chryseobacterium viscerum 687B-08T from Diseased Fish		from Milk, Chryseobacterium from Rainbow Trout, and	2018-07	0	В		
2	Draft Genome: PPED00000000	Chryseoba	cterium sp. Strain ISE14	Draft Genome Sequence of Phosphate-Solubilizing Chryseobacterium sp. Strain ISE14, a Biocontrol and Plant Growth-Promoting Rhizobacterium Isolated from Cucumber		2018-07	0	ъ
3	Complete genome: MG663512		ia of carp virus (SVC DC-SVC2016-5)	analysis of spring vire	uence and phylogenetic mia of carp virus isolated from s carpio nudus) in Korea in 2016	2018-07	0	ъ
4	Complete chloroplast genome: NC_036991	Tetragoni	ia tetragonioides		genome of Tetragonia ular phy <mark>lo</mark> genetic relationships ophyllales	2018-07	0	ъ
5	Complete Genome: CP025258	Bacillus sp. 9	SJ-10 (KCCM 90078)		quence of Bacillus sp. SJ-10 ng 400-kDa Poly-γ-glutamic	2018-07	0	в
6	Complete Genome: NZ_CP022891.1		s subtilis Strain (U_NT_03	Strain DKU_NT_03, Isc	quence of Bacillus subtilis olated from a Traditional ybean (Chung-gook-jang) for ase Activity	2018-07	0	ъ
7	Complete Genome: NZ_CP022890.1		s subtilis Strain (U_NT_02	Strain DKU_NT_02, Isc	quence of Bacillus subtilis Jated from Traditional Korean Chung-gook-jang) for High-	2018-07	0	ъ

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### Category of species



생물종목록은 공공정보의 관리, 공유 및 활용 촉진을 위해 KOBIS와 정보연계 생명연구자원 목록입니다.생명연구자원정보에 대한 이해도와 활용성 을 높여주기 위한 시각화 방식을 적용하였으며 KOBIS에서 보유한 생명연구자원정보를 확인할 수 있습니다.

[검색방법] 대구분 선택 후 중구분 선택

■ 동물	$\sim$	■ 식물	🍠 🗷 미생물	00	■ 인체유래		<mark>표</mark> 기타	
◎ 관찰	🗊 조직	☑ 균주	🔲 핵산서열정보	◎ 표본	(i) HROF	🗊 체액	□ 발현정보	
🐵 개체	🔲 종자	□ 유래물	🗐 단백질서열정보	🗉 기관	🗊 세포,세포주	· 추출물	□ 구조정보	
🔲 영양체	🔲 기타							

중구분

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검색결과 저장 土

조회

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연계기관

한국생명공학연구원(1)

연구소재중앙센터 (18)

생명자원정보서비스 (4)

한국생명공학연구원 (29)

한국생명공학연구원(2)

Arthrobacter citreus	미생물	균주	

대구분

미생물

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번호

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학명

Cupriavidus necator

Cupriavidus necator

Cupriavidus necator

Acetobacter aceti

## 3. National statistic report on BRR



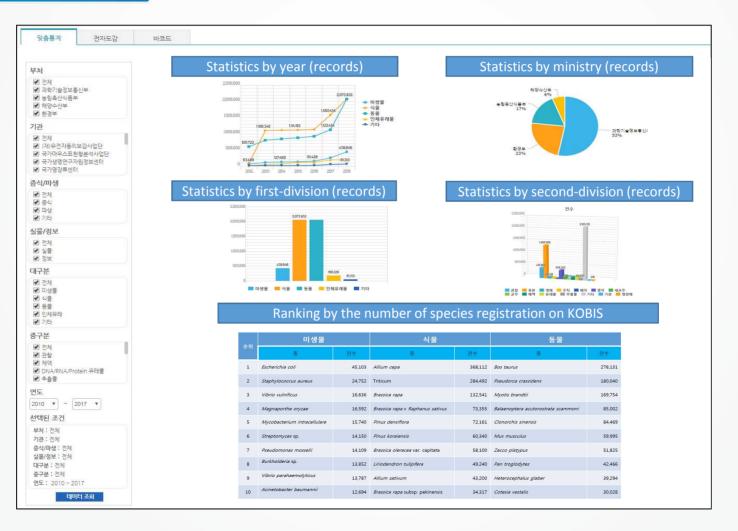
### National statistical report of BRR is represented in the KOBIS

	Science	Agriculture	Environment	Ocean/Fishery	Sum
Microbe	13,741species/	5,478species/	8,777species/	2,766species/	23,309species/
	182,085samples	43,468samples	186,152samples	28,241samples	439,946samples
Plant	18,314species/	13,986species/	15,242species/	841species/	37,355species/
	141,784samples	1,420,253samples	491,498samples	20,397samples	2,073,932samples
Animal	6,044species/	6,576species/	21,805species/	2,741species/	29,670species/
	797,243samples	285,445samples	948,284samples	40,766samples	2,071,738samples
Human derived	1species/ 190,226samples	_	_	-	1species/ 190,226samples
Sum	44,021species/	25,638species/	47,172species/	6,349species/	95,684species/
	1,345,305samples	1,755,281samples	1,638,106samples	89,463samples	4,837,155samples

## 3. National statistic report on BRR



#### **Statistics**



## 4. Establish utilization mechanism



The 13rd committee for competent authorities(2018.1.31)



2218 1: 31(수) 1400~1800 역학수간의역학회 생명·공격과 3층 세미나실
제13차 생명연구자원 책임기관협의회 안건
9
2018. 1. 31(수)
생명연구자원 책임기관협의회

### The 4<sup>th</sup> Information integration workshop for BRR(2018.1.30~1.31)





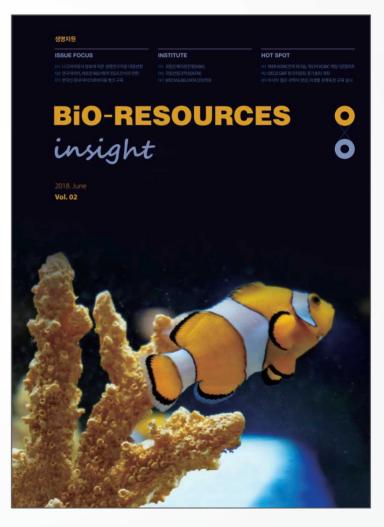
## 3, 4. Statistical report and utilization mechanism



### National Strategy for BRR

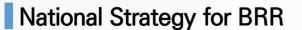


National BRR statistical report



### Policy publication

## 5. Establish implementation plan





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## Thank you.

ありがとうございます.

谢谢.

## 감사합니다.

