



# 식물미생물 특허동향

## 제 1 절 검색식 및 기술분류

### 1. 주요 검색식

- ☐ 식물 미생물 분야와 관련된 미생물 및 마이크로바이옴 특허분석을 위하여 미생물 및 인체 관련 키워드를 선정함

미생물 (A)	((마이크로바이옴* microbiome* micro-biome* ((마이크로* micro*) adj2 (바이옴* 비옴* 비옴* biome*)) 마이크로바이옴* microbiot* 마이크로플로라* microflora* micro-flora* 미생물총* 미생물군* 미생물집단* 미생물군 유전체* 세균총* 미생물무리* 세균무리* ((세균* 미생물* 박테리아* 바이러스* microorganism* microb* bacteria* virus*) near4 (유전* (유전* adj 정보*) 군집* 무리* 집단* genome* gene* community*)))
경제작물 (B)	((농업* 경제작물* 식물* 농작물* 농경* "벼" 고추* 사과* 토마토* plant* agriculture* farm* crop* phyto* veget* (farm* adj industry*) ((economic* cash*) near2 (crop*)) rice* apple* tomato* pepper*)) or (phytobiome* or (agricultural and inoculant) or (agricultural* and microbial* and product*) or biopesticide* or bioherbicide* or biofungicide* or bioinsecticide*))



구분	한국	미국	일본	EP	합계
동향분석 대상	742	1,166	471	510	2,889
심층분석 대상	66	24	16	33	459

### 2. 기술분류

- ☐ 1차 검색된 특허의 검토를 통해 기술분류 기준을 도출하고, 이를 토대로 기술분류를 실시함

구분	기술 내용
생산	▪ 식물 추출물 발효 등을 통한 물질의 생산 및 제조
생육	▪ 식물 생육 촉진
방제	▪ 식물병 예방
변형	▪ 유전자 조작

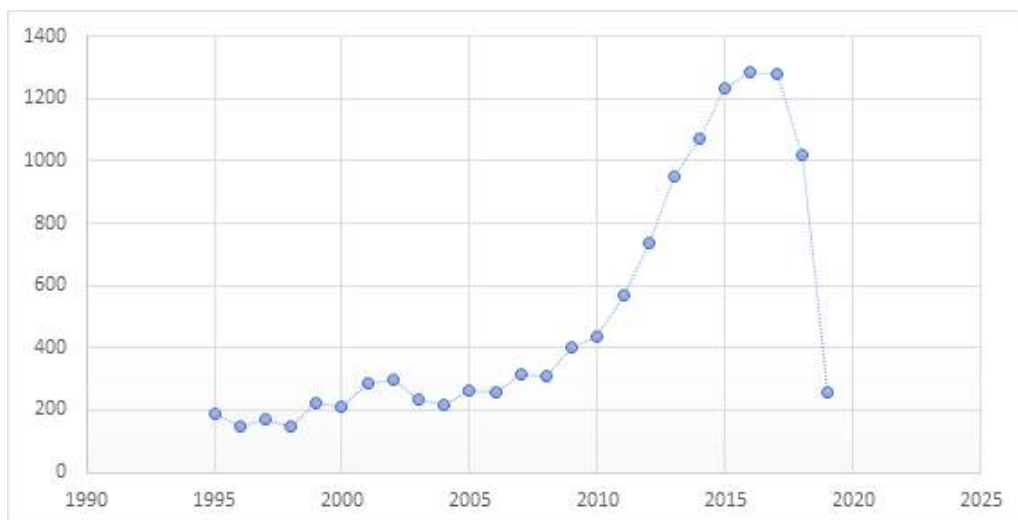
[주요출원인 연도별 특허출원 동향]

[주요 출원인의 특허출원 건수]

No.	출원인	건 수
1	농촌진흥청(REPUBLIC KOREA MAN RURAL DEV)	145
2	UNIV JIANGNAN	122
3	UNIV NANJING AGRICULTURAL	115
4	UNIV SOUTH CHINA AGRICULT	72
5	JIANGSU ACA AGRICULTURAL SCI	66
6	UNIV ZHEJIANG	59
7	LANZHOU VETERINARY RESEARCH INSTITUTE, CHINESE ACADEMY OF AGRICULTURE SCIENCES	59
8	UNIV FUJIAN AGRIC & FOREST	59
9	한국생명공학연구원(KOREA RES INST OF BIOSCIENCE)	55
10	UNIV HUAZHONG AGRICULTURAL	53
11	INST PLANT PROTECTION IPP CAAS	51
12	바스프(DE)(BASF AG)	51
13	UNIV CHINA AGRICULTURAL	49
14	UNIV SHANDONG AGRICULTURE	47
15	UNIV GUANGXI	43
16	UNIV NORTHEAST AGRICULTURAL	43
17	BEIJING ACAD AGRIC & FORES	42
18	UNIV YUNNAN AGRICULTURAL	42
19	INST OF AGRICULTURAL RESOURCES	42
20	UNIV NANJING	41

### 3. 연도별 특허출원 건수

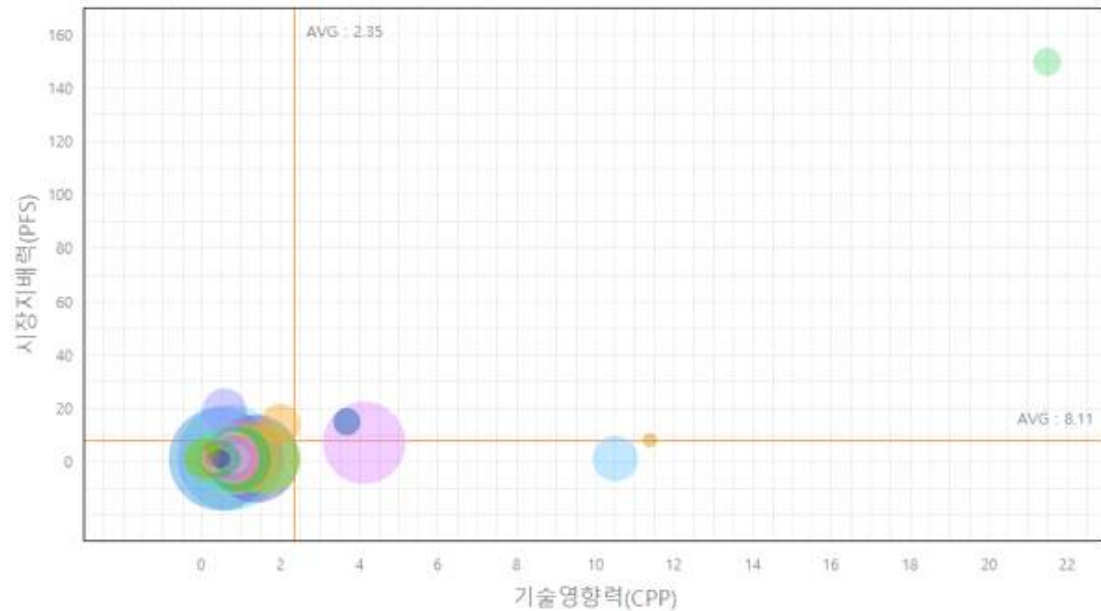
- ☐ 식물 미생물 관련 특허출원은 2005년부터 급속히 증가하기 시작하여 2016년을 정점으로 소폭 감소한 것으로 나타남.



[연도별 특허출원 동향]

#### 4. 출원인별 특허영향력

- 피인용지수 기준 기술영향력은 UNIV KUBANSK이 가장 우수하였고, MARTEK BIOSCIENCES은 시장지배력이 우수한 것으로 조사되었음.



[출원인별 특허영향력]

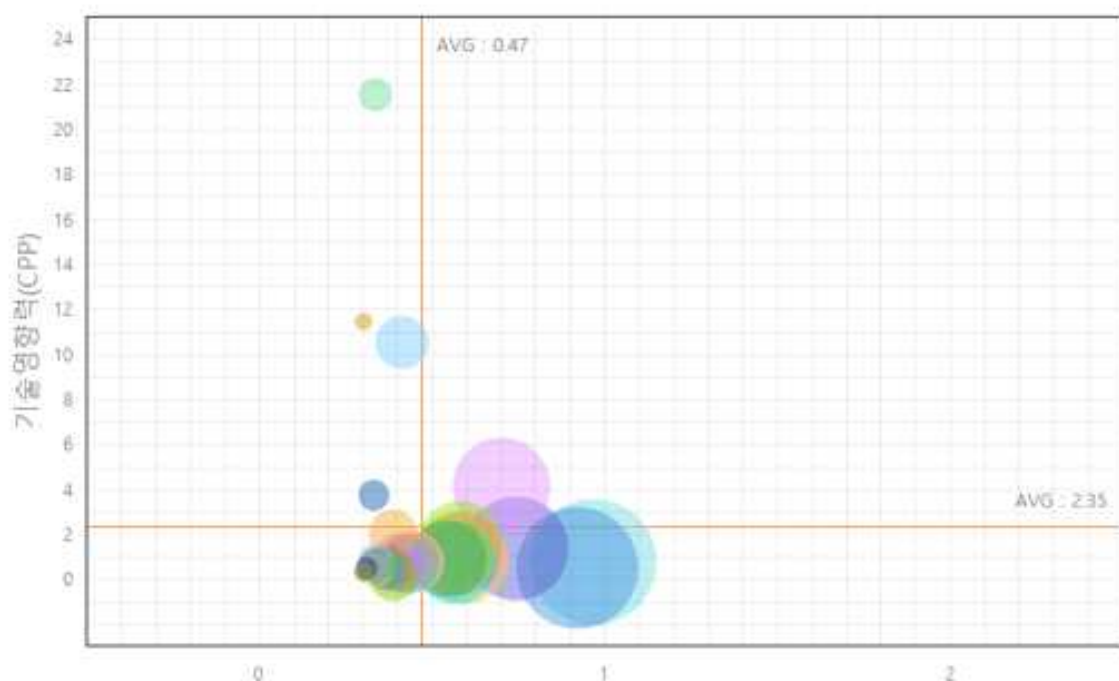
[출원인별 특허영향력 지표현황]

출원인	기술영향력	시장지배력
UNIV NANJING AGRICULTURAL	0.73	1.41
UNIV JIANGNAN	0.48	1.18
대한민국(농림축산식품부 농림축산검역본부장)	1.36	1.12
US AGRICULTURE	4.13	7.05
UNIV SOUTH CHINA AGRICULT	0.77	1.02
농촌진흥청(REPUBLIC KOREA MAN RURAL DEV)	1.62	1.19
한국생명공학연구원(KOREA RES INST OF BIOSCIENCE)	1.16	2.46
UNIV ZHEJIANG	0.71	1
UNIV HUAZHONG AGRICULTURAL	1.11	1.09
JIANGSU ACAD AGRICULTURAL SCI	0.92	1.04
LANZHOU VETERINARY RESEARCH INSTITUTE, CHINESE ACADEMY OF AGRICULTURE SCIENCES	0.79	1.34
INST PLANT PROTECTION IPP CAAS	0.82	1.08
UNIV FUJIAN AGRIC & FOREST	0.63	1.07
UNIV KUBANSK	10.52	1
바스프(DE)(BASF AG)	0.58	19.24
UNIV CHINA AGRICULTURAL	0.89	1.11

출원인	기술영향력	시장지배력
CORNELL RES FOUNDATION INC	2	13.87
VSEROSSIJSKIJ NAUCHNO-ISSLEDOVATEL'SKIJ INSTITUT BIOLOGICHESKOJ ZASHCHITY RASTENIJ	0.08	1
UNIV NORTHEAST AGRICULTURAL	0.47	1.02
UNIV SHANDONG AGRICULTURE	0.51	1.04
UNIV NANJING	0.64	1
MARTEK BIOSCIENCES CORP	21.48	149.65
BEIJING ACAD AGRIC & FORES	0.87	1.07
UNIV YUNNAN AGRICULTURAL	0.35	1.04
UNIV GUANGXI	0.65	1
UNIV FLORIDA	3.69	15.09
INST OF AGRICULTURAL RESOURCES	0.5	1.05
SICHUAN AGRICULTURAL UNIVERSIT	0.29	1
PIONEER HI BRED INT	11.41	8.05
UNIV RICE WILLIAM M	0.29	4.02

## 5. 출원인별 특허경쟁력

- 특허 건수 기준 양적 점유율에 있어서, 대한민국(농촌진흥청)과 중국의 여러 대학이 유사한 점유율 분포를 나타냄.



[출원인별 특허경쟁력]

[출원인별 특허경쟁력 지표현황]

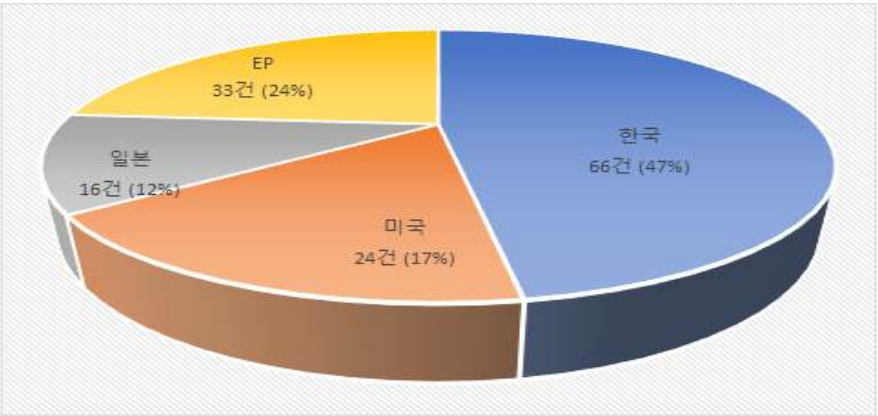
출원인	점유율 (출원,%)	기술영향력 (CPP)
대한민국(농림축산식품부 농림축산검역본부장)	0.79	1.36
UNIV JIANGNAN	0.74	0.89
UNIV ZHEJIANG	0.72	0.75
UNIV KUBANSK	0.62	10.2
차이나페트롤리움엔드케미컬(CHINA PETROLEUM & CHEMICAL)	0.61	0.94
농촌진흥청(REPUBLIC KOREA MAN RURAL DEV)	0.55	0.41
GEVO INC	0.55	4.59
UNIV NANJING AGRICULTURAL	0.48	0.92
UNIV NANJING	0.47	0.7
SINAI SCHOOL MEDICINE	0.45	9.86
UNIV ZHEJIANG TECHNOLOGY	0.44	0.57
UNIV HUAZHONG AGRICULTURAL	0.39	1.6
아지노모토(AJINOMOTO KK)	0.35	6.5
쿠리타워터(KURITA WATER IND LTD)	0.35	0.07
MERIAL SAS	0.34	1.91
로알디에스엠(DSM NV)	0.31	0.63
BAVARIAN NORDIC AS	0.31	1.38
UNIV CHINA AGRICULTURAL	0.3	0.55
HARBIN VETERINARY RES INST CAA	0.3	0.82
한국생명공학연구원(KOREA RES INST OF BIOSCIENCE)	0.29	0.97
화이자(PFIZER LTD)	0.29	5.27
UNIV SOUTH CHINA AGRICULT	0.29	0.41
CLASADO INC	0.29	1.32
PFIZER PROD INC	0.28	2
UNIV YANGZHOU	0.28	0.39
US AGRICULTURE	0.27	4.74
UNIV TIANJIN SCIENCE & TEC	0.27	0.94
바스프(DE)(BASF AG)	0.26	2.27
UNIV DALIAN TECH	0.26	1.36
BOEHRINGER INGELHEIM VETMED	0.25	0.38



### 제 3 절 심층분석 결과(심층분석 대상 기준)

#### 1. 국가별 특허출원 동향

□ 조사대상 주요 4개국 한국, 미국, 유럽 및 일본의 특허출원 건수를 상대적으로 비교한 결과, 한국(66건), EP(33건), 미국(24건) 및 일본(16건) 순으로 조사되었음.



[국가별 특허출원 동향]

#### 2. 국가별 주요 특허출원 기술분야 및 출원인

[국가별 주요 특허출원 기술 분야 및 출원인]

한국		
분야	건 수	주요기업
방제	24	한국생명공학연구원; 대한민국(농촌진흥청장); 건국대학교
변형	2	피벗 바이오, 인크.
생산	9	부경대학교 산학협력단; 한국과학기술연구원
생육	31	충북대학교 산학협력단; 대한민국(농촌진흥청장)
합계	66	
미국		
분야	건 수	주요기업
방제	12	Institut National De La Recherche Scientifique
변형	0	-
생산	0	-
생육	12	Bio AG Corp.; ALPHA BIOPESTICIDES LIMITED; PermaMatrix, Inc.

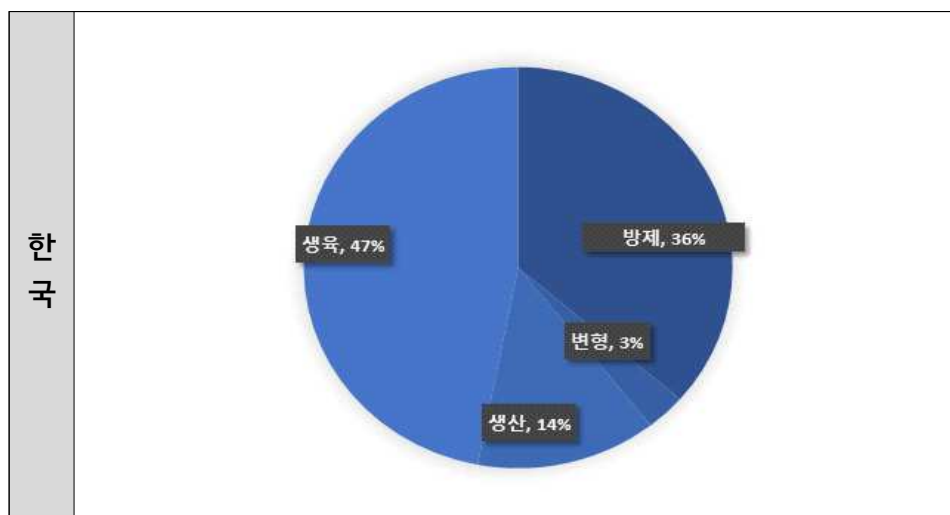


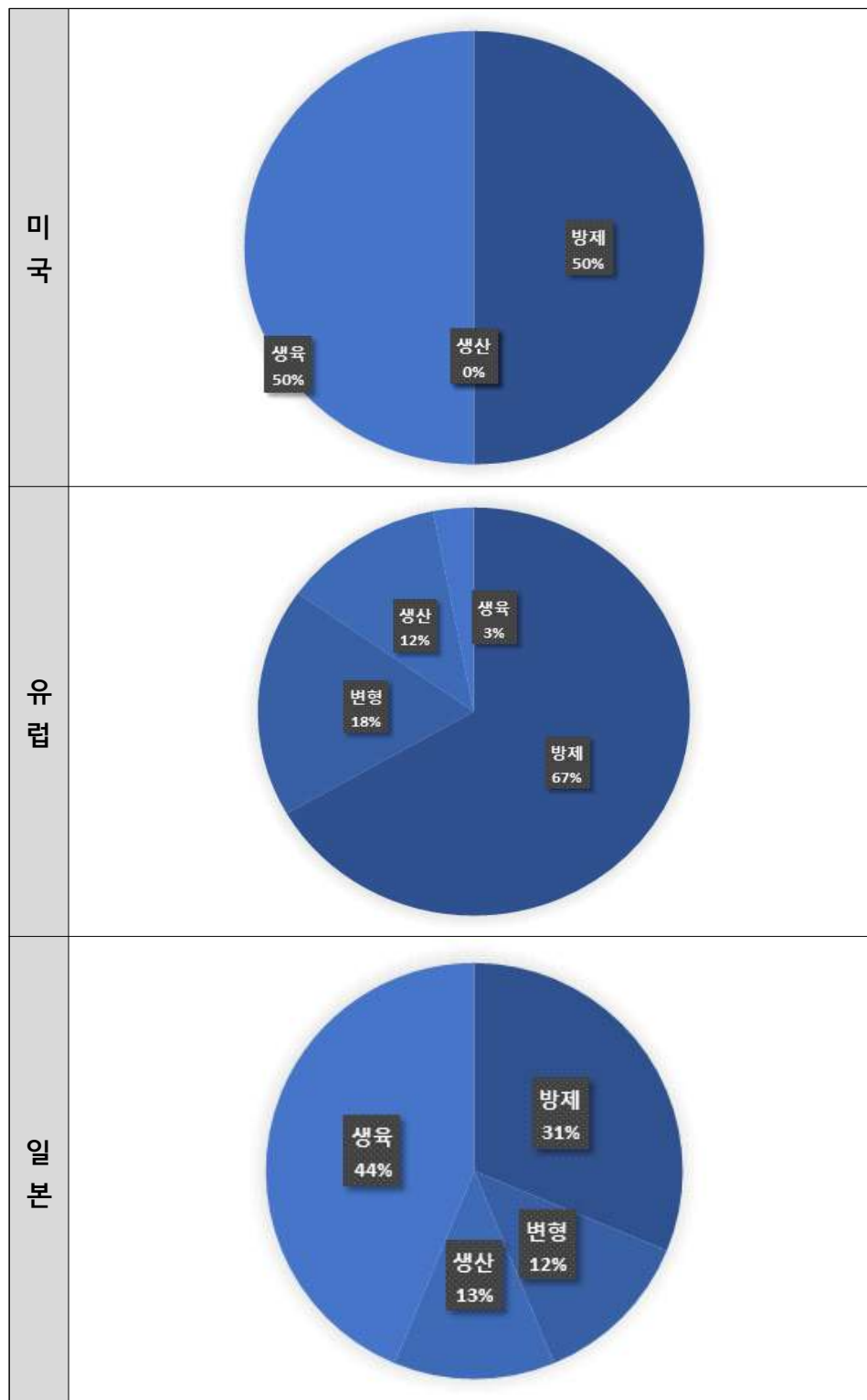
합계	24	
유럽		
분야	건 수	주요기업
방제	22	Chr. Hansen A/S; BASF SE
변형	6	Institut National De La Recherche Agronomique
생산	4	Probiotical S.p.A.; Bioconsortia, Inc.
생육	1	Bioconsortia, Inc.
합계	33	
일본		
분야	건 수	주요기업
방제	5	IMAMIYA TAMOTSU; NATIONAL AGRICULTURE AND FOOD RESEARCH ORGANIZATION
변형	2	JAPAN SCIENCE & TECHNOLOGY CORP
생산	2	MITSUBISHI CHEMICALS CORP
생육	7	YUKIJIRUSHI SHUBYO KK
합계	16	

### 3. 공백영역

- ☐ 주요 국가에서 공통적으로 방제 (항균, 항진균, 및 살충) 및 생육 (토양 개질 또는 비료) 등과 관련된 특허출원이 확인되었으나, 식물과 관련된 미생물 분야에서의 특허활동이 매우 미미한 것으로 조사됨.

※ 식물 추출물 등과 관련한 미생물을 이용한 발효는 식품분야에 포함시킴





[국가별 주요 기술분야]





## 5. 주요기업의 기술흐름 분석

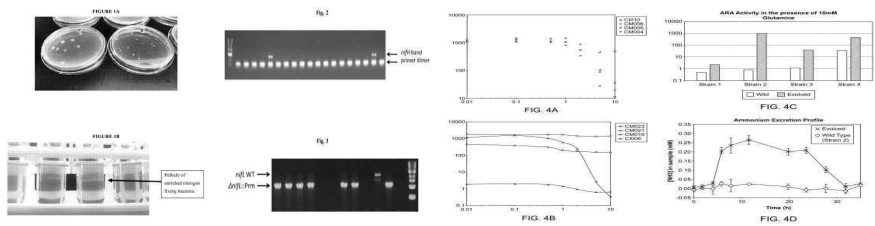
- ☐ 해당 분야의 주요 출원인들의 기술흐름으로써 식물에 대한 미생물의 이용분야는 식물병 방제를 위한 농약 등에서 생육 촉진을 위한 분야로 발전하고 있는 것을 확인 할 수 있음.
- 향후에도 식물병 방제와 생육 촉진과 관련된 마이크로바이옴의 연구가 지속적으로 활발하게 수행될 것으로 예상됨.

[illegible]





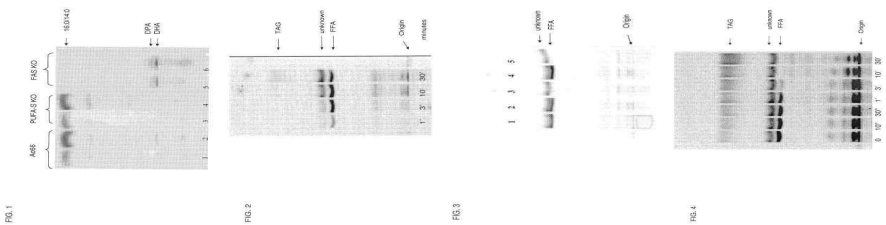
## 제 4 절 요지리스트

P-1. Methods and compositions for improving plant traits			
출원인	Pivot Bio, Inc.	출원번호	<a href="#">15/636595</a> (2017.06.28)
Current IPC(Main)	C05G-003/90	Current CPC(Main)	C05F-0011/08
우선권번호			
요약	Disclosed herein are methods of increasing nitrogen fixation in a non-leguminous plant. The methods can comprise exposing the plant to a plurality of bacteria. Each member of the plurality comprises one or more genetic variations introduced into one or more genes or non-coding polynucleotides of the bacteria's nitrogen fixation or assimilation genetic regulatory network, such that the bacteria are capable of fixing atmospheric nitrogen in the presence of exogenous nitrogen. The bacteria are not intergeneric microorganisms. Additionally, the bacteria, in planta, produce 1% or more of the fixed nitrogen in the plant.		
대표도면	대표도면이 없습니다.		
개별도면			
WIPS패밀리	AU2016294506B2   AU2020203002B2   AU2022203325A1   BR112018000729A2   CA2991776A1   CN108602729B   CN115418357A   EP3322679A1   IN201817001025   IN202118026935   JP2021-045141A   JP6796126B2   KR10-2022-0150999A   KR10-2197507B1   KR10-2461443B1   MX2018000615A   PH12018500103A1   RU0002769873C2   RU2021115266A   US10384983B2   US10556839B2   US10919814B2   US10934226B2   US2021-0214282A1   US62/192009   US62/213567   US9975817B2   WOWO2017-011602A1   ZA201800769B   ZA202100808B		

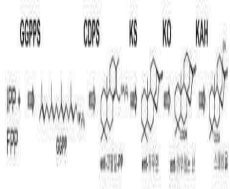
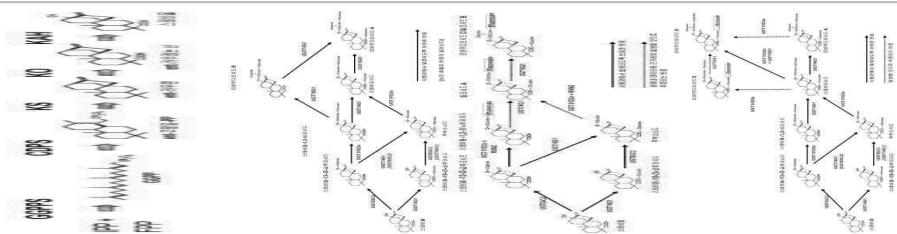


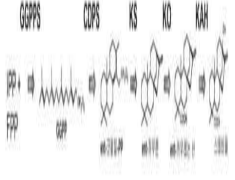
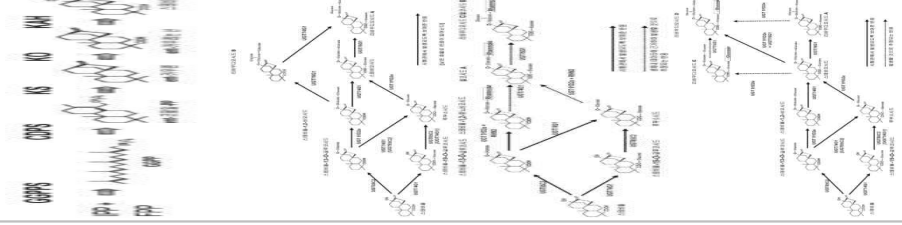
P-2. Genetically engineered swine influenza virus and uses thereof			
출원인	Icahn School of Medicine at Mount Sinai   St. Jude Children's Research Hospital   The United States of America, as Represented by the Secretary of Agriculture	출원번호	<a href="#">14/636651</a> (2015.03.03)
Current IPC(Main)	A61K-039/145	Current CPC(Main)	A61P-0031/12
우선권번호			
요약	<p>The present invention relates, in general, to attenuated swine influenza viruses having an impaired ability to antagonize the cellular interferon (IFN) response, and the use of such attenuated viruses in vaccine and pharmaceutical formulations. In particular, the invention relates to attenuated swine influenza viruses having modifications to a swine NS1 gene that diminish or eliminate the ability of the NS1 gene product to antagonize the cellular IFN response. These viruses replicate in vivo, but demonstrate decreased replication, virulence and increased attenuation, and therefore are well suited for use in live virus vaccines, and pharmaceutical formulations.</p>		
대표도면	대표도면이 없습니다.		
개별도면	<p>The figure block contains several sub-figures: FIG. 1A and FIG. 1B show sequence alignments of the NS1 gene across various swine influenza virus strains. FIG. 2A and FIG. 2B are line graphs showing the growth of different virus strains in PKC-15 cells, with FIG. 2A representing a low multiplicity of infection (MOI) and FIG. 2B representing a high MOI. FIG. 3A is a schematic diagram illustrating the life cycle of the virus, from entry into the cell to replication and release.</p>		
WIPS패밀리	BR122015032743B1   BRPI0511776B1   CA2610632A1   CN001993140A   CN102727880A   DK1773384T3   DK2497492T3   EP1773384B1   EP2497492B1   EP3332803B1   ES2552774T3   ES2694123T3   US10098945B2   US10543268B2   US60/576418   US8124101B2   US8999352B2   US9549975B2   WOWO2006-083286A2		

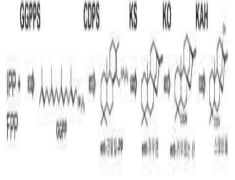
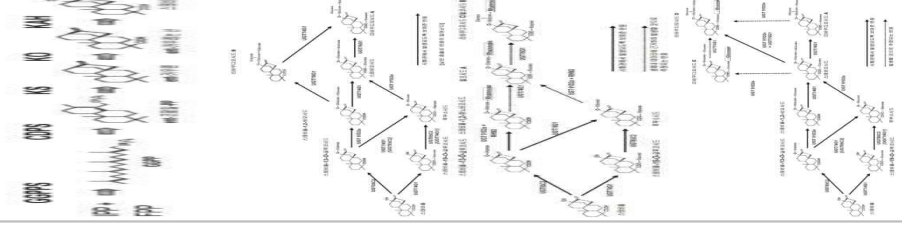
P-3. Genetically engineered swine influenza virus and uses thereof			
출원인	Icahn School of Medicine at Mount Sinai   St. Jude Children's Research Hospital   The United States of America, as represented by the Secretary of Agriculture	출원번호	<a href="#">13/304175</a> (2011.11.23)
Current IPC(Main)	A61K-039/145	Current CPC(Main)	A61P-0031/12
우선권번호			
요약	<p>The present invention relates, in general, to attenuated swine influenza viruses having an impaired ability to antagonize the cellular interferon (IFN) response, and the use of such attenuated viruses in vaccine and pharmaceutical formulations. In particular, the invention relates to attenuated swine influenza viruses having modifications to a swine NS1 gene that diminish or eliminate the ability of the NS1 gene product to antagonize the cellular IFN response. These viruses replicate in vivo, but demonstrate decreased replication, virulence and increased attenuation, and therefore are well suited for use in live virus vaccines, and pharmaceutical formulations.</p>		
대표도면	대표도면이 없습니다.		
개별도면			
WIPS패밀리	BR122015032743B1   BRPI0511776B1   CA2610632A1   CN001993140A   CN102727880A   DK1773384T3   DK2497492T3   EP1773384B1   EP2497492B1   EP3332803B1   ES2552774T3   ES2694123T3   US10098945B2   US10543268B2   US60/576418   US8124101B2   US8999352B2   US9549975B2   WOWO2006-083286A2		

P-4. Polyunsaturated fatty acid production in heterologous organisms using PUFA polyketide synthase systems			
출원인	DSM IP Assets B.V.	출원번호	<a href="#">12/796100</a> (2010.06.08)
Current IPC(Main)	A23L-005/40	Current CPC(Main)	A61P-0001/04
우선권번호			
요약	<p>Disclosed are novel acyl-CoA synthetases and novel acyltransferases, nucleic acid molecules encoding the same, recombinant nucleic acid molecules and recombinant host cells comprising such nucleic acid molecules, genetically modified organisms (microorganisms and plants) comprising the same, and methods of making and using the same. Also disclosed are genetically modified organisms (e.g., plants, microorganisms) that have been genetically modified to express a PKS-like system for the production of PUFAs (a PUFA PKS system or PUFA synthase), wherein the organisms have been modified to express an acyl-CoA synthetase, to express an acyl transferase, to delete or inactivate a fatty acid synthase (FAS) expressed by the organism, to reduce competition for malonyl CoA with the PUFA synthase or to increase the level of malonyl CoA in the organism, and in one aspect, to inhibit KASII or KASIII. Additional modifications, and methods to make and use such organisms, in addition to PUFAs and oils obtained from such organisms, are disclosed, alone with various products including such PUFAs and oils.</p>		
대표도면	대표도면이 없습니다.		
개별도면			
WIPS패밀리	<p>AR040622A1   AU2002303394B2   AU2004225485B2    AU2005295598A1   AU2007226510B2   AU2007226511A1    AU2008249168B2   AU2008249169B2   AU2008254837B2    AU2012203480A1   AU2012227225A1   AU2013251201A1    BR0008760A   BR9809946A   BRPI0409046A   BRPI0516327A    BRPI0709317A2   BRPI0810302A2   CA2283422A1   CA2359629C    CA2444164C   CA2520396C   CA2584004A1   CA2646317A1    CA2647150A1   CA2687523C   CN001535312A   CN001807637A    CN101389213B   CN101437950A   CN101473038B   CN101573451B    CN101849014B   CN101892249A   CN104073505A   EP1003869A1    EP1147197A2   EP1385934B1   EP1623008B1   EP1805315A2    EP2001277B9   EP2004835A2   EP2160470B1   EP2333071A1    EP2333072B1   EP2333073A1   EP2366771A2   EP2366772B1    EP2366773B1   EP2366774A2   EP2653557A1   ES2427017T3    ES2467918T3   ES2516641T3   ES2527875T3   ES2562766T3    ES2567305T3   ES2628553T3   HK1041292A1   HK1060900A1    HK1088632A1   HK1126253A1   HK1143403A1   HK1159166A1  </p>		

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IN01219/CHE/1998	IN03525/DELNP/2007	IN08546/DELNP/2008	IN08583/DELNP/2008	IN219477
IN269242	IN296691	JP2002-510205A	JP2002-534123A	JP2005-510203A
JP2007-524377A	JP2008-099697A	JP2008-515461A	JP2009-529891A	JP2010-252811A
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KR10-1539470B1	KR10-2007-0084187A	MX2007004502A	MX2008011784A	MX2009012395A
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US2007-0245431A1	US2008-0005811A1	US2008-0038378A1	US2008-0038379A1	US2011-0167508A1
US2011-0250342A1	US2014-0053299A1	US60/048650	US60/284066	US60/298796
US60/323269	US60/457979	US60/689167	US60/783205	US60/784616
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US7611875B2	US7611876B2	US7608753B2	US7611874B2	US7611875B2
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US9382521B2	US8829274B2	US8859855B2	US9382521B2	WOWO1998-055625A1
WOWO2000-042195A2	WOWO2002-083870A2	WOWO2004-087879A2	WOWO2006-044646A2	WOWO2006-135866A2
WOWO2007-106903A2	WOWO2007-106904A2	WOWO2007-106905A2	WOWO2008-144473A2	

P-5. 스테비올 글리코시드의 재조합 생산			
출원인	에볼바, 인크.	출원번호	<a href="#">10-2013-7000003</a> (2011.06.02)
Current IPC(Main)	C12Q-001/6895	Current CPC(Main)	C12Q-0001/6895
우선권번호	US 61/350553 (2010.06.02)   US 61/434582 (2011.01.20)   US 61/471622 (2011.04.04)		
요약	스테비올 생합성 효소들과 UDP-글리코실전이효소 (UGTs)을 인코딩하는 신규한 재조합 유전자를 발현시키도록 조작된 재조합 미생물, 식물들, 그리고 식물 세포들을 설명한다. 이러한 미생물, 식물들, 또는 식물 세포들은 스테비올 또는 스테비올 글리코시드, 가령, 루부소시드 또는 리바우디오시드 A를 생산할 수 있고, 이는 식품 산물들 및 식이 보충제에서 천연 감미료들로 이용할 수 있다.		
대표도면			
개별도면			
WIPS패밀리	AU2011261394C1   AU2015261617C1   AU2018200459B2   BR112012030836A2   BR122021005283B1   BR122021005287B1   BR122021005297B1   BR122021005304B1   CA2802627A1   CA3176307A1   CL2012003373A1   CN103179850B   CN105671108A   EP2575432B1   EP3593633A1   IN04081/KOLNP/2012   JP2021-151238A   JP6110551B2   JP6177127B2   JP6509188B2   JP6947772B2   KR10-1802547B1   KR10-1971818B1   KR10-2181638B1   MX2020007169A   MX349121B   MY167872A   MY180803A   MY185668A   NZ604915A   NZ700097A   NZ708078A   SG10201709458QA   SG186127A1   US10392644B2   US2020-0140912A1   US2022-0073960A1   US61/350553   US61/434582   US61/471622   US9562251B2   WOWO2011-153378A1		

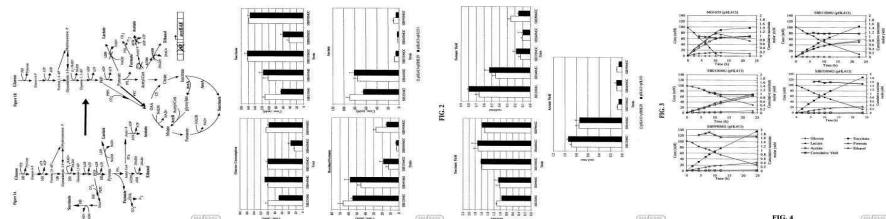
P-6. 스테비올 글리코시드의 재조합 생산			
출원인	에볼바, 인크.	출원번호	<a href="#">10-2017-7033599</a> (2011.06.02)
Current IPC(Main)	C12Q-001/6827	Current CPC(Main)	C12Q-0001/6827
우선권번호	US 61/350553 (2010.06.02)   US 61/434582 (2011.01.20)   US 61/471622 (2011.04.04)		
요약	스테비올 생합성 효소들과 UDP-글리코실전이효소 (UGTs)를 인코딩하는 신규한 재조합 유전자를 발현시키도록 조작된 재조합 미생물, 식물들, 그리고 식물 세포들을 설명한다. 이러한 미생물, 식물들, 또는 식물 세포들은 스테비올 또는 스테비올 글리코시드, 가령, 루부소시드 또는 리바우디오시드 A를 생산할 수 있고, 이는 식품 산물들 및 식이 보충제에서 천연 감미료들로 이용할 수 있다.		
대표도면			
개별도면			
WIPS패밀리	AU2011261394C1   AU2015261617C1   AU2018200459B2   BR112012030836A2   BR122021005283B1   BR122021005287B1   BR122021005297B1   BR122021005304B1   CA2802627A1   CA3176307A1   CL2012003373A1   CN103179850B   CN105671108A   EP2575432B1   EP3593633A1   IN04081/KOLNP/2012   JP2021-151238A   JP6110551B2   JP6177127B2   JP6509188B2   JP6947772B2   KR10-1802547B1   KR10-1971818B1   KR10-2181638B1   MX2020007169A   MX349121B   MY167872A   MY180803A   MY185668A   NZ604915A   NZ700097A   NZ708078A   SG10201709458QA   SG186127A1   US10392644B2   US2020-0140912A1   US2022-0073960A1   US61/350553   US61/434582   US61/471622   US9562251B2   WOWO2011-153378A1		

P-7. 스테비올 글리코시드의 재조합 생산			
출원인	에볼바, 인크.	출원번호	<a href="#">10-2019-7010945</a> (2011.06.02)
Current IPC(Main)	A01H-005/00	Current CPC(Main)	A01H-0005/00
우선권번호	US 61/350553 (2010.06.02)   US 61/434582 (2011.01.20)   US 61/471622 (2011.04.04)		
요약	스테비올 생합성 효소들과 UDP-글리코실전이효소 (UGTs)를 인코딩하는 신규한 재조합 유전자를 발현시키도록 조작된 재조합 미생물, 식물들, 그리고 식물 세포들을 설명한다. 이러한 미생물, 식물들, 또는 식물 세포들은 스테비올 또는 스테비올 글리코시드, 가령, 루부소시드 또는 리바우디오시드 A를 생산할 수 있고, 이는 식품 산물들 및 식이 보충제에서 천연 감미료들로 이용할 수 있다.		
대표도면			
개별도면			
WIPS패밀리	AU2011261394C1   AU2015261617C1   AU2018200459B2   BR112012030836A2   BR122021005283B1   BR122021005287B1   BR122021005297B1   BR122021005304B1   CA2802627A1   CA3176307A1   CL2012003373A1   CN103179850B   CN105671108A   EP2575432B1   EP3593633A1   IN04081/KOLNP/2012   JP2021-151238A   JP6110551B2   JP6177127B2   JP6509188B2   JP6947772B2   KR10-1802547B1   KR10-1971818B1   KR10-2181638B1   MX2020007169A   MX349121B   MY167872A   MY180803A   MY185668A   NZ604915A   NZ700097A   NZ708078A   SG10201709458QA   SG186127A1   US10392644B2   US2020-0140912A1   US2022-0073960A1   US61/350553   US61/434582   US61/471622   US9562251B2   WOWO2011-153378A1		



## P-8. Compositions and methods for producing fermentation products and residuals

출원인	AmbroZea, Inc.	출원번호	11/383748 (2006.05.16)
Current IPC(Main)	C12N-001/19	Current CPC(Main)	C12P-0007/06
우선권번호			
요약	<p>The present invention provides compositions and methods designed to increase value output of a fermentation reaction. In particular, the present invention provides a business method of increasing value output of a fermentation plant. The present invention also provides a modified fermentation residual of higher commercial value. Also provided in the present invention are complete animal feeds, nutritional supplements comprising the subject ferment residuals. Further provided by the present invention is a method of performing fermentation, a modified fermentative microorganism and a genetic vehicle for modifying such microorganism.</p>		
대표도면	<p>대표도면이 없습니다.</p>		
개별도면	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><b>Biofuels: Ethanol</b></p> <p>Figure 1</p> </div> <div style="text-align: center;"> <p><b>Vector for expressing exogenous sequence in yeast</b></p> <p>Figure 2</p> </div> </div>		
WIPS패밀리	<p>AR060447A1   AU2007238228A1   BRPI0709946A2   CA2648934A1   CN101454013A   DOP2007000075A   EP2018174A2   GB002439310A   PE20081193A1   TW200815596A   US12/795659   US2007-0243235A1   US2007-0244719A1   US2007-0275438A1   US2009-0006280A1   US2009-0239270A1   US2009-0274659A1   US2009-0291469A1   US2011-0223284A1   US2011-0269185A1   US60/744833   US60/797431   US60/863556   US7309602B2   UY30286A1   WOWO2007-121100A2</p>		

P-9. Mutant E. coli strain with increased succinic acid production			
출원인	Rice University	출원번호	<a href="#">11/214309</a> (2005.08.29)
Current IPC(Main)	C12P-001/00	Current CPC(Main)	C12N-0001/20
우선권번호			
요약	The invention relates to a mutant strain of bacteria, which either lacks or contains mutant genes for several key metabolic enzymes, and which produces high amounts of succinic acid under anaerobic conditions.		
대표도면	대표도면이 없습니다.		
개별도면			
WIPS패밀리	BRPI0514734B1   CN101044245B   EP1781797B1   EP3130676A1   JP4771437B2   KR10-1245428B1   US60/604922   US7223567B2   US7790416B2   WOWO2006-031424A2		

P-10. Genetically engineered swine influenza virus and uses thereof			
출원인	Mount Sinai School of Medicine   St. Jude Children's Research Hospital   The United States of America as represented by The Secretary of Agriculture	출원번호	<a href="#">11/628292</a> (2005.06.01)
Current IPC(Main)	A61K-039/145	Current CPC(Main)	A61P-0031/12
우선권번호			
요약	<p>The present invention relates, in general, to attenuated swine influenza viruses having an impaired ability to antagonize the cellular interferon (IFN) response, and the use of such attenuated viruses in vaccine and pharmaceutical formulations. In particular, the invention relates to attenuated swine influenza viruses having modifications to a swine NS1 gene that diminish or eliminate the ability of the NS1 gene product to antagonize the cellular IFN response. These viruses replicate in vivo, but demonstrate decreased replication, virulence and increased attenuation, and therefore are well suited for use in live virus vaccines, and pharmaceutical formulations.</p>		
대표도면	<p>대표도면이 없습니다.</p>		
개별도면			
WIPS패밀리	BR122015032743B1   BRPI0511776B1   CA2610632A1   CN001993140A   CN102727880A   DK1773384T3   DK2497492T3   EP1773384B1   EP2497492B1   EP3332803B1   ES2552774T3   ES2694123T3   US10098945B2   US10543268B2   US60/576418   US8124101B2   US8999352B2   US9549975B2   WOWO2006-083286A2		

P-11. GENETICALLY ENGINEERED SWINE INFLUENZA VIRUS AND USES THEREOF			
출원인	Icahn School of Medicine at Mount Sinai   ST. JUDE CHILDREN'S RESEARCH HOSPITAL   The United States of America as represented by the Secretary of Agriculture	출원번호	<a href="#">2005-856778</a> (2005.06.01)
Current IPC(Main)	A61K-039/00	Current CPC(Main)	A61P-0031/12
우선권번호	US 60/576418 (2004.06.01)		
요약	<p>The present invention relates, in general, to attenuated swine influenza viruses having an impaired ability to antagonize the cellular interferon (IFN) response, and the use of such attenuated viruses in vaccine and pharmaceutical formulations. In particular, the invention relates to attenuated swine influenza viruses having modifications to a swine NS1 gene that diminish or eliminate the ability of the NS1 gene product to antagonize the cellular IFN response. These viruses replicate in vivo, but demonstrate decreased replication, virulence and increased attenuation, and therefore are well suited for use in live virus vaccines, and pharmaceutical formulations.</p>		
대표도면			
개별도면			
WIPS패밀리	BR122015032743B1   BRPI0511776B1   CA2610632A1   CN001993140A   CN102727880A   DK1773384T3   DK2497492T3   EP1773384B1   EP2497492B1   EP3332803B1   ES2552774T3   ES2694123T3   US10098945B2   US10543268B2   US60/576418   US8124101B2   US8999352B2   US9549975B2   WOWO2006-083286A2		