코로나19 백신 중요특허 리스트 (100대 핵심특허)

□ 등록 건으로 피인용도가 높은 특허 132건 선별

○ 2009년 이후의 특허로 인용문헌수(F1)가 최소 5건 이상인 특허를 선별하였음

1. 불활성화 백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	US10555998	15/528549	2015-11-23	Inactivated equine influenza virus vaccines	INTERVET INC.
2	US10086061	15/550433	2016-03-10	Combination purified inactivated vaccine for flaviviruses	USA GOV
3	KR10-1843564	10-2016-0069507	2016-06-03	녹차 추출물에 의해 불활화된 바이러스를 포함하는 백신 및 그의 제조방법	연세대학교

□ US10555998

Inactivated equine influenza virus vaccines			
문헌번호 (문헌일)	US10555998 (2020-02-11)	출원번호 (출원일)	15/528549 (2015-11-23)
출원인	INTERVET INC. (US)	기술분류	Flaviviridae/불활성화 백신
요약	The present invention relates to equine influenza virus (EIV) isolates that when administered in vaccines to equine provide protection against currently emerging EIV strains in the U.S. The present invention also relates to inactivated EIV isolates. In addition, the present invention also relates to safe and efficacious vaccines that comprise the EIV isolates, as well as to corresponding subunit vaccines. The present invention further relates to methods of administering such safe and efficacious vaccines to equine.		
대표청구항	1. An isolated equine influenza virus (EIV) isolate comprising a genome that encodes a hemagglutinin protein (HA) comprising an amino acid sequence that comprises 95% or greater identity with the amino acid sequence of SEQ ID NO: 2; wherein the amino acid sequence of the HA: comprises an amino acid residue at position 222 other than that of a tryptophan or an arginine, and either an amino acid residue at position 223 other than that of a valine, or an amino acid residue at position 188 other than that of an asparagine; orcomprises an amino acid residue at position 222 other than that of a tryptophan or an arginine, an amino acid residue at position 223 other than that of a valine, and an amino acid residue at position 188 other than that of an asparagine;wherein said EIV has been inactivated through being killed in an unnatural manner.		

□ US10086061

Combination purified inactivated vaccine for flaviviruses			
문헌번호 (문헌일)	US10086061 (2018-10-02)	출원번호 (출원일)	15/550433 (2016-03-10)
출원인	USA GOV (US)	기술분류	Flaviviridae/불활성화 백신
요약	Immunogenic compositions comprising one or more inactivated dengue viruses and one or more inactivated non-dengue flaviviruses and methods of making and using thereof are provided.		
대표청구항	1. An immunogenic composition comprising one or more inactivated dengue viruses and one or more inactivated non-dengue flaviviruses, an adjuvant, and a pharmaceutically acceptable vehicle, wherein said non-dengue flaviviruses are selected from the group consisting of yellow fever virus (YFV) group viruses, Japanese encephalitis virus (JEV) group viruses, and Zika virus (ZIKV).		

□ KR10-1843564

녹차 추출물에 의해 불활화된 바이러스를 포함하는 백신 및 그의 제조방법			
문헌번호 (문헌일)	KR10-1843564 (2018-03-23)	출원번호 (출원일)	10-2016-0069507 (2016-06-03)
출원인	연세대학교 (KR)	기술분류	Coronaviridae/불활성화 백신
요약	본 발명은 i) 녹차 추출물에 의해 불활화된 바이러스를 포함하는 백신 조성물 및 ii) 증식력이 있는 바이러스에 녹차 추출물을 첨가하고 혼합하는 단계; 및 상기 바이러스 및 녹차 추출물의 혼합물을 인큐베이션하는 단계:를 포함하는 불활화 바이러스 백신의 제조방법에 관한 것이다. 본 발명에 따르면, 녹차 추출물을 바이러스에 처리하는 경우 바이러스를 불활화 시킴과 동시에 면역원성을 우수하게 유지하는 효과가 있다. 따라서, 본 발명에 따른 녹차 추출물과 증식력이 있는 바이러스를 혼합하여 불활화 백신의 제조가 가능하며, 본 발명의 제조방법에 의해 제조된 백신 조성물을 대상체에 투여할 경우 해당 바이러스에 대한 면역반응이 유발되어 해당 바이러스에 의한 전염성 질환을 효과적으로 예방할 수 있다. 또한, 본 발명의 녹차 추출물은 독성이 없어 안전한 바이러스 백신의 제조가 가능하고, 화학물질 기반 제조과정과는 달리 투석과정이 불필요하여 제조공정에 있어 경제성이 우수하다는 이점이 있다.		
대표청구항	녹차 추출물에 의해 불활화된 바이러스를 포함하는 백신 조성물로서,상기 녹차 추출물은 상기 바이러스의 단백질에 화학 결합된 것인 백신 조성물.		

2. 약독화 백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	JP5933565	2013-533114	2011-10-07	재조합 변경 백시니아 바이러스 Ankara 인플루엔자 백신	BAVARIAN NORDIC
2	US9187730	13/417855	2012-03-12	Equine rhinitis vaccine	BOEHRINGER INGELHEIM
3	US10434166	14/777442	2014-03-15	Methods and compositions for in vivo immune stimulation and antigen production	MARYLAND UNIV
4	US10316294	14/777204	2014-03-15	Attenuated influenza viruses and vaccines	NEW YORK STATE UNIV
5	US10143741	14/251970	2014-04-14	Immunization compositions and methods	SANOFI PASTEUR
6	KR10-1582490	10-2014-0044214	2014-04-14	인플루엔자 바이러스의 다중 아형에 대한 교차 면역반응을 형성하는 신규한 재조합 바이러스 백신	아이디바이오

▌ 코로나19 등 바이러스 감염성 질환 백신 분야

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
7	US9655960	14/267942	2014-05-02	High yield yellow fever virus strain with increased propagation in cells	GE HEALTHCARE BIO-SCIENCES CORP.
8	US10400220	15/508695	2015-09-08	Attenuated virus having multiple hosts	NEW YORK STATE UNIV
9	US10323231	15/568836	2016-04-22	Attenuated influenza vaccines and uses thereof	ROCHESTER UNIV
10	US10463741	15/578124	2016-04-26	Non-gelatin vaccine protectant composition and live attenuated influenza vaccine	CHANGCHUN BCHT BIOTECH
11	JP6298499	2016-147811	2016-07-27	생 약독화 파르보바이러스	INTERVET INT
12	KR10-1835989	10-2016-0111653	2016-08-31	인플루엔자 바이러스의 다중 아형 H3 및 H7 에 대한 다중 교차 면역반응을 형성하는 신규한 재조합 인플루엔자 바이러스 및 이를 포함하는 백신	충북대학교
13	US10086063	15/274491	2016-09-23	Methods of making and using live attenuated viruses	MINNESOTA UNIV

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
14	US10119124	15/292595	2016-10-13	Influenza M2 protein mutant viruses as live influenza attenuated vaccines	WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF)
15	US10655110	15/778368	2016-11-25	Multivalent dengue vaccine composition comprising a mixture of attenuated dengue viruses from different serotypes	KM BIOLOGICS CO., LTD.
16	KR10-1964044	10-2018-0029823	2018-03-14	재조합 아데노바이러스를 이용한 다가형 인플루엔자 생백신 플랫폼	인제대학교
17	US10653769	15/957550	2018-04-19	iDNA vaccines and methods for using the same	MEDIGEN, INC.
18	KR10-2103638	10-2018-0063500	2018-06-01	저온 적응된 약독화 바이러스를 이용한 유니버설 독감 백신	연세대학교
19	US10369212	16/015504	2018-06-22	H3 influenza A virus	WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF)
20	KR10-2119875	10-2019-0031225	2019-03-19	한국형 중동호흡기증후군 코로나바이러스 감염성 변이 유전자 및 이의 용도	한국화학연구원

□ JP5933565

재조합 변경 백시니아 바이러스 Ankara 인플루엔자 백신			
문헌번호 (문헌일)	JP5933565 (2016-05-13)	출원번호 (출원일)	2013-533114 (2011-10-07)
출원인	BAVARIAN NORDIC (DK)	기술분류	Orthomyxoviridae/약독화 백신
요약	【요약】 본 발명은 적어도 2개의 외부 인플루엔자 바이러스 항원 및/또는 상기 적어도 2개의 항원 중의 하나 이상의 에피토프 및 적어도 2개의 내부 인플루엔자 바이러스 항원 및/또는 상기 적어도 2개의 항원 에피토프를 발현하는 재조합 변경 백시니아 바이러스 Ankara(MVA 바이러스)에 관한 것이다. 따라서, 본 발명은 바람직하게는 복수의 인플루엔자 바이러스주로부터의 복수의 외부 및/또는 내부 인플루엔자 바이러스 항원을 코드하는 재조합 MVA 바이러스에 관한 것이다. 본 발명은 또한 인플루엔자 바이러스용 약제 및 백신의 조제의 상기 재조합 MVA의 사용에 관한 것이다. 방법, 조성물 및 키트가 본 발명에 의해 또한 포함된다.		
대표청구항	【청구항1】HA, NA 및 M2로 구성되는 군에서 선택되는 적어도 6개의 외부 인플루엔자 바이러스 항원 및 PB1, NP 및 M1로 구성되는 군에서 선택되는 적어도 3개의 내부 인플루엔자 바이러스 항원을 발현하고 a) 헤마글루티닌 2(H2), 헤마글루티닌 9(H9), 헤마글루티닌 5(H5) 및 헤마글루티닌 7(H7) (으)로 구성되는 HA단백질군 , 혹은 , b) 헤마글루티닌 1(H1), 헤마글루티닌 3(H3) 및 2개의 B형 HA (으)로 구성되는 HA단백질군 중 하나의 HA단백질군 (을)를 발현하는, 변경 백시니아 바이러스 Ankara(MVA)로서, 상기 항원을 코드하는 유전자가 적어도 2개의 MVA 삽입 부위에 삽입되어 있는, 변경 백시니아 바이러스 Ankara.		

□ US9187730

Equine rhinitis vaccine			
문헌번호 (문헌일)	US9187730 (2015-11-17)	출원번호 (출원일)	13/417855 (2012-03-12)
출원인	BOEHRINGER INGELHEIM (DE)	기술분류	Flaviviridae/약독화 백신
요약	The disclosure provides for immunogenic compositions against Equine Rhinitis Virus, particularly Equine Rhinitis A and B Virus, and methods for their use and preparation. The immunogenic compositions, in alternate embodiments, also include other equine pathogens.		

대표청구항	1. An immunogenic composition comprising one or more strains of inactivated or live, attenuated Equine Rhinitis A Virus (ERAV), wherein: (a) said ERAV strain, prior to inactivation or attenuation, causes detectable respiratory disease in at least 50% of seronegative horses exposed to ERAV or ERBV, or grows in a Vero cell culture to 106 TCID50/mL or higher, or, when used as a vaccine in equines at a dose of 106 TCID50 or higher results in a serum titer of at least 1:112; and(b) said ERAV strain comprising a genomic sequence whose reverse transcript has a nucleotide sequence comprising SEQ ID NO: 2 or encodes a polyprotein with an amino acid sequence comprising SEQ ID NO: 3, said ERAV strain, prior to inactivation or attenuation, is active to infect and replicate in host cells.

□ US10434166

Methods and compositions for in vivo immune stimulation and antigen production			
문헌번호 (문헌일)	US10434166 (2019-10-08)	출원번호 (출원일)	14/777442 (2014-03-15)
출원인	MARYLAND UNIV (US)	기술분류	Orthomyxoviridae/약독화 백신
요약	Disclosed are compositions and methods comprising a vector and a reverse genetics competent unit. The vector may comprise baculovirus expression vectors, bacmids, vaccinia virus and synthetic vectors and the reverse genetics competent unit may comprise pathogenic units necessary for producing pathogens de novo from a nucleotide-based vector. In certain embodiments, the reverse genetics competent unit comprises pathogenic units necessary for producing pathogens de novo from a nucleotide-based vector for influenza virus.		
대표청구항	1. A method of in vivo synthesis of a viral vaccine comprising, providing to a mammal one or more vectors comprising one or more exogenous DNA constructs, wherein the one or more exogenous DNA constructs encode the necessary components for the generation of a live influenza virus, wherein the necessary components are expressed in the mammal allowing for the generation of a live influenza virus.		

□ US10316294

Attenuated influenza viruses and vaccines			
문헌번호 (문헌일)	US10316294 (2019-06-11)	출원번호 (출원일)	14/777204 (2014-03-15)
출원인	NEW YORK STATE UNIV (US)	기술분류	Orthomyxoviridae/약독화 백신
요약	This invention provides highly attenuated influenza viruses and vaccines. The attenuated viruses and vaccines proliferate well and have high safety factors. The attenuated viruses providing protective immunity from challenge by virus of the same subtype, as well as cross protection against heterologous viruses.		
대표청구항	1. A modified influenza virus in which expression of hemagglutinin (HA) and neuraminidase (NA) is reduced compared to a parent virus, wherein the reduction in expression is the result of recoding the HA protein-encoding sequence and recoding the NA protein-encoding sequence, and wherein the other influenza proteins are not recoded.		

□ US10143741

Immunization compositions and methods			
문헌번호 (문헌일)	US10143741 (2018-12-04)	출원번호 (출원일)	14/251970 (2014-04-14)
출원인	SANOFI PASTEUR (FR)	기술분류	Togaviridae/약독화 백신
요약	The present invention provides methods and compositions to induce neutralizing antibodies in mammals to serotypes of dengue virus, measles virus, mumps virus, rubella and/or VZV virus.		
대표청구항	1. A method of inducing neutralizing antibodies against serotypes 1, 2, 3, and 4 of dengue virus, mumps virus, measles virus, and rubella virus in a mammal, comprising the administration of a tetravalent immunogenic composition comprising live attenuated dengue viruses of serotypes 1, 2, 3, and 4 and the co-administration of a trivalent live attenuated MMR vaccinal composition to		

	said mammal, wherein the tetravalent immunogenic composition and the trivalent live attenuated MMR vaccinal composition are administered to said mammal within 24 hours of each other, there is compatibility between the different antigens, and each individual antigen is able to induce an immunological response.

□ KR10-1582490

인플루엔자 바이러스의 다중 아형에 대한 교차 면역반응을 형성하는 신규한 재조합 바이러스 백신			
문헌번호 (문헌일)	KR10-1582490 (2015-12-29)	출원번호 (출원일)	10-2014-0044214 (2014-04-14)
출원인	아이디바이오 (KR)	기술분류	Orthomyxoviridae/약독화 백신
요약	본 발명은 각기 다른 아형의 인플루엔자 바이러스에 대한 교차 면역반응에 효과가 있는 신규한 인플루엔자 바이러스, 이를 유효성분으로 함유하는 백신 및 상기 백신을 개체에 투여하여 인플루엔자 바이러스 감염 질환을 예방 또는 치료하는 방법에 관한 것이다. 본 발명의 재조합 인플루엔자 바이러스는 각기 다른 두 가지 아형(subtype)에서 유래된 헤마글루티닌 HA1 영역과 HA2 영역을 융합하여 제조한 키메릭 헤마글루티닌 유전자를 포함함으로써 다양한 종류의 아형(subtype) 및 계통(clade)을 가진 바이러스에 대해 교차 면역반응 효과를 나타냄에 따라, 광범위한 중화 항체 효과를 가진 바이러스 백신의 용도로서 매우 유용하게 사용될 수 있다.		
대표청구항	두 가지 아형(subtype)의 키메릭 헤마글루티닌 유전자를 포함하는 재조합 인플루엔자 바이러스(기탁번호: KCTC12567BP).		

□ US9655960

High yield yellow fever virus strain with increased propagation in cells			
문헌번호 (문헌일)	US9655960 (2017-05-23)	출원번호 (출원일)	14/267942 (2014-05-02)
출원인	GE HEALTHCARE BIO-SCIENCES CORP. (US)	기술분류	Flaviviridae/약독화 백신
요약	The invention provides a an inactive, non-replicating vaccine comprising whole virion, chemically inactivated Yellow Fever virus which is inactivated using a method that ensures preservation of critical, neutralizing epitopes. The Yellow Fever virus has been adapted to propagate in cells to higher yields than the unadapted virus. The invention also provides methods for preventing Yellow Fever viral infection.		
대표청구항	1. A modified Yellow Fever virus strain comprising a nucleic acid sequence having mutations relative to the nucleic acid sequence of unmodified Yellow Fever virus, wherein said mutations comprise: a mutation in the nucleic acid sequence encoding the NS1 protein of the virus in the codon for the amino acid at position 317 wherein the mutation results in a codon change from threonine to isoleucine; a mutation in the nucleic acid sequence encoding the NS2A protein of the virus in the codon for the amino acid position 170 wherein the mutation results in a codon change from phenylalanine to leucine, and optionally a mutation in the nucleic acid sequence encoding the NS4B protein of the virus in the codon for the amino acid at position 113 wherein the mutation results in a codon change from isoleucine to methionine, and said mutations are in further combination with a mutation of the nucleic acid sequence encoding the envelope protein of the virus in the codon for the amino acid at position 160 wherein the mutation results in a codon change from lysine to arginine, wherein said modified Yellow Fever virus strain has increased propagation in Vero cells and a higher yield in the conditioned medium of a Vero cell culture relative to unmodified Yellow Fever virus.		

□ US10400220

Attenuated virus having multiple hosts			
문헌번호 (문헌일)	US10400220 (2019-09-03)	출원번호 (출원일)	15/508695 (2015-09-08)
출원인	NEW YORK STATE UNIV (US)	기술분류	Bunyaviridae/약독화 백신
요약	This invention provides an attenuated virus comprising a modified viral genome engineered to containing multiple nucleotide substitutions that reduce the codon pair bias of a virus protein encoding sequence relative to a first host while the codon pair bias relative to a second host is not substantially reduced. In another embodiment, the invention provides an attenuated virus comprising modified viral genome engineered to containing multiple nucleotide substitutions that reduce the codon pair bias of a virus protein-encoding sequence relative to a first host and a second host. The attenuated virus may be used in a vaccine composition for inducing a protective immune response in a subject. The invention also provides a method of synthesizing the attenuated virus. Further, this invention further provides a method for preventing a subject from becoming afflicted with a virus-associated disease comprising administering to the subject a prophylactically effective dose of a vaccine composition comprising the attenuated virus.		
대표청구항	1. An attenuated virus comprising a viral genome having one or more modified virus protein-encoding sequences comprising a plurality of rearranged synonymous codons wherein the codon pair bias, relative to a first host, of the one or more modified virus protein-encoding sequence is less than the codon pair bias of the parent nucleic acid sequence from which it is derived, and wherein the codon pair bias of the one or more modified virus protein-encoding sequences is not substantially reduced relative to that of a second host, wherein the first host is a vertebrate and the second host is an arthropod, and wherein the virus is attenuated in the first host, but not attenuated in the second host.		

□ US10323231

Attenuated influenza vaccines and uses thereof			
문헌번호 (문헌일)	US10323231 (2019-06-18)	출원번호 (출원일)	15/568836 (2016-04-22)
출원인	ROCHESTER UNIV (US)	기술분류	Orthomyxoviridae/약독화 백신
요약	Provided herein are attenuated influenza viruses and methods of making attenuated influenza viruses.		
대표청구항	1. A modified influenza A virus comprising a PB1 polymerase comprising one or more mutations selected from the group consisting of a leucine to glutamic acid, aspartic acid or asparagine substitution at an amino acid corresponding to position 319 (L319E/D/N) of SEQ ID NO: 1, a threonine to glutamic acid, aspartic acid, glutamine or asparagine substitution at an amino acid corresponding to position 323 (T323E/D/Q/N) of SEQ ID NO: 1; and an isoleucine to glutamic acid, aspartic acid, glutamine or asparagine substitution at an amino acid corresponding to position 342 (I342E/D/Q/N) of SEQ ID NO: 1.		

□ US10463741

Non-gelatin vaccine protectant composition and live attenuated influenza vaccine			
문헌번호 (문헌일)	US10463741 (2019-11-05)	출원번호 (출원일)	15/578124 (2016-04-26)
출원인	CHANGCHUN BCHT BIOTECH (CN)	기술분류	Orthomyxoviridae/약독화 백신
요약	The present invention provides a composition for use as the protectant for a live attenuated influenza virus vaccine, comprising the following components at the following concentrations: human serum albumin: 1.0-15.0 g/L, sugar: 15.0-95.0 g/L, and sodium glutamate: 0.5-15.0 g/L. The present invention also provides a process for preparing a live attenuated influenza vaccine with the composition according to the present invention, comprising the following steps: dissolving the components of the composition according to the present invention sequentially into a pH buffer solution, adjusting the pH to a specified value, performing filtration sterilization, and adding virus stock to give the live attenuated influenza vaccine. The present invention further provides a live attenuated influenza vaccine, which may be used as an injection or nasal spray.		
대표청구항	1. A live influenza attenuated vaccine, comprising a protectant and influenza virus stock, wherein the protectant consists of the following components at the following concentrations: Human serum albumin: 1.0-15.0 g/L, sucrose: 15.0-95.0 g/L, sodium glutamate: 0.5-15.0 g/L, urea at a concentration of 0.5-8.0 g/L, arginine at a concentration of 1.0-10.0 g/L, sorbitol at a concentration of 15.0-70.0 g/L, glycine at a concentration of 3.0-20.0 g/L, and mannitol at a concentration of 10.0-30.0 g/L; wherein the vaccine has a pH of 6.0-8.0; andwherein the human serum albumin is not recombinant human serum albumin.		

□ JP6298499

생 약독화 파르보바이러스			
문헌번호 (문헌일)	JP6298499 (2018-03-02)	출원번호 (출원일)	2016-147811 (2016-07-27)
출원인	INTERVET INT (NL)	기술분류	Flaviviridae/약독화 백신
요약	【요약】 （ 수정유 ） 【과제】생 약독화 파르보바이러스, 그 용도, 그러한 생 약독화 파르보바이러스를 포함한 백신 및 이들 제조 방법의 제공. 【해결수단】캡시드 단백질의 아미노산 219위에 있어서 이소류신 이외의 아미노산을 및/또는 캡시드 단백질의 아미노산 386위에 있어서 글루타민 이외의 아미노산을 코드하는 캡시드 유전자를 포함한 생 약독화 파르보바이러스. 【선택도】없음		

대표청구항	【청구항1】CPV2 혈청형 2 a, 2 b 또는 2 c의 캡시드 단백질을 코딩하는 생 약독화 CPV 2 (으)로서, 상기 CPV2가 캡시드 단백질의 아미노산 219위에 있어서 이소류신 이외의 아미노산을 코딩하고 캡시드 단백질의 아미노산 386위에 있어서 글루타민 이외의 아미노산을 코딩하는 캡시드 유전자를 포함하고 상기 아미노산의 위치가 하기 아미노산 서열에 기초한 상기 생 약독화 CPV2. Met Ser Asp Gly Ala Val Gln Pro Asp Gly Gly Gln Pro Ala Val Arg Asn Glu Arg Ala Thr Gly Ser Gly Asn Gly Ser Gly Gly Gly Gly Gly Gly Gly Ser Gly Gly Val Gly Ile Ser Thr Gly Thr Phe Asn Asn Gln Thr Glu Phe Lys Phe Leu Glu Asn Gly Trp Val Glu Ile Thr Ala Asn Ser Ser Arg Leu Val His Leu Asn Met Pro Glu Ser Glu Asn Tyr Arg Arg Val Val Val Asn Asn Met Asp Lys Thr Ala Val Asn Gly Asn Met Ala Leu Asp Asp Ile His Ala Gln Ile Val Thr Pro Trp Ser Leu Val Asp Ala Asn Ala Trp Gly Val Trp Phe Asn Pro Gly Asp Trp Gln Leu Ile Val Asn Thr Met Ser Glu Leu His Leu Val Ser Phe Glu Gln Glu Ile Phe Asn Val Val Leu Lys Thr Val Ser Glu Ser Ala Thr Gln Pro Pro Thr Lys Val Tyr Asn Asn Asp Leu Thr Ala Ser Leu Met Val Ala Leu Asp Ser Asn Asn Thr Met Pro Phe Thr Pro Ala Ala Met Arg Ser Glu Thr Leu Gly Phe Tyr Pro Trp Lys Pro Thr Ile Pro Thr Pro Trp Arg Tyr Tyr Phe Gln Trp Asp Arg Thr Leu Val Pro Ser His Thr Gly Thr Ser Gly Thr Pro Thr Asn Ile Tyr His Gly Thr Asp Pro Asp Asp Val Gln Phe Tyr Thr Ile Glu Asn Ser Val Pro Val His Leu Leu Arg Thr Gly Asp Glu Phe Ala Thr Gly Thr Phe Phe Phe Asp Cys Lys Pro Cys Arg Leu Thr His Thr Trp Gln Thr Asn Arg Ala Leu Gly Leu Pro Pro Phe Leu Asn Ser Leu Pro Gln Ser Glu Gly Ala Thr Asn Phe Gly Asp Ile Gly Val Gln Gln Asp Lys Arg Arg Gly Val Thr Gln Met Gly Asn Thr Asn Tyr Ile Thr Glu Ala Thr Ile Met Arg Pro Ala Glu Val Gly Tyr Ser Ala Pro Tyr Tyr Ser Phe Glu Thr Ser Thr Gln Gly Pro Phe Lys Thr Pro Ile Ala Ala Gly Arg Gly Gly Ala Gln Thr Asp Glu Asn Gln Ala Ala Asp Gly Asn Pro Arg Tyr Ala Phe Gly Arg Gln His Gly Lys Lys Thr Thr Thr Thr Gly Glu Thr Pro Glu Arg Phe Thr Tyr Ile Ala His Gln Asp Thr Gly Arg Tyr Pro Glu Gly Asp Trp Ile Gln Asn Ile Asn Phe Asn Leu Pro Val Thr Asn Asp Asn Val Leu Leu Pro Thr Asp Pro Ile Gly Gly Lys Thr Gly Ile Asn Tyr Thr Asn Ile Phe Asn Thr Tyr Gly Pro Leu Thr Ala Leu Asn Asn Val Pro Pro Val Tyr Pro Asn Gly Gln Ile Trp Asp Lys Glu Phe Asp Thr Asp Leu Lys Pro Arg Leu His Val Asn Ala Pro Phe Val Cys Gln Asn Asn Cys Pro Gly Gln Leu Phe Val Lys Val Ala Pro Asn Leu Thr Asn Glu Tyr Asp Pro Asp Ala Ser Ala Asn Met Ser Arg Ile Val Thr Tyr Ser Asp Phe Trp Trp Lys Gly Lys Leu Val Phe Lys Ala Lys Leu Arg Ala Ser His Thr Trp Asn Pro Ile Gln Gln Met Ser Ile Asn Val Asp Asn Gln Phe Asn Tyr Val Pro Ser Asn Ile Gly Gly Met Lys Ile Val Tyr Glu Lys Ser Gln Leu Ala Pro Arg Lys Leu Tyr

□ KR10-1835989

인플루엔자 바이러스의 다중 아형 H3 및 H7 에 대한 다중 교차 면역반응을 형성하는 신규한 재조합 인플루엔자 바이러스 및 이를 포함하는 백신			
문헌번호 (문헌일)	KR10-1835989 (2018-02-28)	출원번호 (출원일)	10-2016-0111653 (2016-08-31)
출원인	충북대학교 (KR)	기술분류	Orthomyxoviridae/약독화 백신
요약	본 발명은 각기 H3 및 H7의 다른 아형의 인플루엔자 바이러스에 대한 교차 면역반응에 효과가 있는 신규한 인플루엔자 바이러스, 이를 유효성분으로 함유하는 백신 및 상기 백신을 개체에 투여하여 인플루엔자 바이러스 감염 질환을 예방 또는 치료하는 방법에 관한 것이다. 본 발명의 재조합 인플루엔자 바이러스는 각기 다른 H3 및 H7의 두 가지 아형(subtype)에서 유래된 헤마글루티닌 HA1 영역과 HA2 영역을 융합하여 제조한 키메릭 헤마글루티닌 유전자를 포함함으로써 다양한 종류의 아형(subtype) 및 계통(clade)을 가진 바이러스에 대해 교차 면역반응 효과를 나타냄에 따라, 광범위한 중화 항체 효과를 가진 바이러스 백신의 용도로서 매우 유용하게 사용될 수 있다.		
대표청구항	H3 및 H7의 두 가지 아형(subtype)의 키메릭 헤마글루티닌 유전자를 포함하는 재조합 인플루엔자 바이러스(기탁번호: KCTC 13007BP).		

□ US10086063

Methods of making and using live attenuated viruses			
문헌번호 (문헌일)	US10086063 (2018-10-02)	출원번호 (출원일)	15/274491 (2016-09-23)
출원인	MINNESOTA UNIV (US)	기술분류	Coronaviridae/약독화 백신
요약	This disclosure provides a platform for making live, attenuated viruses. This disclosure also provides methods of using the live, attenuated viruses.		
대표청구항	1. A method of delivering a live, attenuated viral vaccine to a subject, comprising: providing a genetically-engineered virus, wherein the virus has been genetically-engineered to comprise a miRNA-21-recognition nucleic acid sequence to which miRNA-21 binds;culturing the genetically-engineered virus in a cell line that has been genetically-engineered to knock-out expression of the endogenous miRNA-21, thereby producing a live, attenuated viral vaccine; anddelivering the live, attenuated viral vaccine to a subject, wherein the subject comprises cells that endogenously express miRNA-21.		

□ US10119124

Influenza M2 protein mutant viruses as live influenza attenuated vaccines			
문헌번호 (문헌일)	US10119124 (2018-11-06)	출원번호 (출원일)	15/292595 (2016-10-13)
출원인	WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF) (US)	기술분류	Orthomyxoviridae/약독화 백신
요약	A method to prepare recombinant influenza viruses comprising a mutant M2 protein which has a deletion of two or more residues in the cytoplasmic tail and is attenuated in vivo, is provided, as well the resulting virus and vaccines with the virus.		
대표청구항	1. An immunogenic composition comprising an isolated, live, in vivo attenuated recombinant influenza virus comprising a PA viral gene segment, a PB1 viral gene segment, a PB2 viral gene segment, a HA viral gene segment, a NA viral gene segment, a NP viral gene segment, a M viral gene segment having coding sequences for M1 and M2, and a NS viral gene segment having coding sequences for NS1 and NS2, wherein the M gene segment comprises a mutant M2 protein gene for a M2 protein which has a deletion consisting of 2 to 21 residues of the C-terminus of the cytoplasmic tail which M2 protein is encoded by the mutant M2 protein gene, wherein the deletion attenuates the replication of the recombinant virus in vivo relative to the corresponding influenza virus without the deletion, wherein the amount of the virus in the composition is about 0.1 micrograms to 200 micrograms of influenza virus hemagglutinin (HA) per influenza virus isolate or about 103 to 107 PFU per influenza virus isolate.		

□ US10655110

Multivalent dengue vaccine composition comprising a mixture of attenuated dengue viruses from different serotypes			
문헌번호 (문헌일)	US10655110 (2020-05-19)	출원번호 (출원일)	15/778368 (2016-11-25)
출원인	KM BIOLOGICS CO., LTD. (JP)	기술분류	Flaviviridae/약독화 백신
요약	A highly safe dengue vaccine was invented that induced a neutralizing antibody response against all of the four serotypes of dengue virus without developing more than a fixed level of viremia with single administration. A tetravalent dengue virus formulation is provided that is excellent in both efficacy (neutralizing antibody response) and safety (viremia).		
대표청구항	1. An attenuated dengue virus (DENV) vaccine composition comprising one or more non-naturally-occurring attenuated DENVs selected from the group consisting of a mixture of attenuated serotype 1 dengue viruses (DENV1), a mixture of attenuated serotype 2 dengue viruses (DENV2), a mixture of attenuated serotype 3 dengue viruses (DENV3), and a mixture of attenuated serotype 4 dengue viruses (DENV4), wherein said vaccine has the following features: (a) said attenuated DENV1 mixture comprises DENV1 viruses with the following mutations: K482E/K, E483K, K484R/K, K568R, N1663K, I/T2353T, and A2364T/A;wherein said numbering is based upon the DENV1 parent strain 03135 comprising SEQ ID NO:1;(b) said attenuated DENV2 mixture comprises DENV2 viruses with the following mutations: D143N, T400K, D1102N, L1308F, E1654K, P2347P/L and T2828T/M;wherein said numbering is based upon the DENV2 parent strain 99345 comprising SEQ ID NO:2;(c) said attenuated DENV3 mixture comprises DENV3 viruses with the following mutations: I209L, S582G, K/R671K, A687V, T764I/T, F1211L, A1237T, and Q1563K;wherein said numbering is based upon the DENV3 parent strain 16562 comprising SEQ ID NO:3; and,(d) said attenuated DENV4 mixture comprises DENV4 viruses with the following mutations: L2187F and F/L2354S,wherein said numbering is based upon the DENV4 parent strain 1036 comprising SEQ ID NO:4.		

□ KR10-1964044

재조합 아데노바이러스를 이용한 다가형 인플루엔자 생백신 플랫폼			
문헌번호 (문헌일)	KR10-1964044 (2019-03-26)	출원번호 (출원일)	10-2018-0029823 (2018-03-14)
출원인	인제대학교 (KR)	기술분류	Orthomyxoviridae/약독화 백신
요약	본 발명은 재조합 아데노바이러스를 이용한 다가형 인플루엔자 생백신 플랫폼에 대한 것이다. 본 발명은 재조합 바이러스를 이용한 약독화된 생백신(live attenuated vaccine) 플랫폼으로 인플루엔자 바이러스처럼 호흡기로 감염되어 백신작용을 나타내므로 접종이 용이하며, 두 가지 타입을 하나로 융합한 다가형 백신으로, 한 가지 백신을 여러 개 혼합하여 사용하는 백신에 비하여 바이러스를 혼합할 필요가 없는 신규성이 높은 백신이다. 두 가지 인플루엔자 항원 유전자를 하나의 유전자로 융합한 유전자를 재조합 바이러스에 넣은 백신은 최초로서, 인플루엔자의 HA 유전자 전체를 사용하지 않고, 전체 HA 유전자의 절반 정도인 구조적으로 독립된 HA1 유전자를 사용함으로써, 여러 타입의 HA 유전자를 하나로 융합할 수 있었다. 재조합 바이러스를 생쥐에 코 흡입 방법으로 접종하였을 때, 두 번의 접종으로 백신 효과가 유도되는 효과적인 백신임을 확인하였고, 본 발명의 백신 플랫폼은 인간 인플루엔자 감염 백신 개발에도 유용하게 활용될 수 있을 것으로 예상된다.		
대표청구항	인플루엔자 바이러스 H5형 혈구응집원 1(hemagglutinin 1, HA1) 유전자 및 인플루엔자 바이러스 H7형 HA1 유전자를 포함하는 재조합 발현벡터.		

□ US10653769

iDNA vaccines and methods for using the same			
문헌번호 (문헌일)	US10653769 (2020-05-19)	출원번호 (출원일)	15/957550 (2018-04-19)
출원인	MEDIGEN, INC. (US)	기술분류	Flaviviridae/약독화 백신
요약	Described herein are iDNA vectors and vaccines and methods for using the same. The iDNA generates live attenuated vaccines in eukaryotic cells in vitro or in vivo for pathogenic RNA viruses, particularly yellow fever virus and Venezuelan equine encephalitis virus. When iDNA is injected into the vaccine recipient, RNA of live attenuated virus is generated by in vivo transcription in the recipient's tissues. This initiates production of progeny attenuated viruses in the tissues of the vaccine recipient, as well as elicitation of an effective immune response protecting against wild-type, non-attenuated virus.		
대표청구항	1. A homogeneous clonally pure live attenuated virus prepared from cultured cells transfected with a vector comprising DNA encoding: (a) an infectious RNA molecule that encodes a non-pathogenic alphavirus; and (b) two RNA dependent RNA polymerase promoters; wherein the two RNA dependent RNA polymerase promoters are operatively linked to one or more portions of a capsid and a glycoprotein of the infectious RNA molecule.		

□ KR10-2103638

저온 적응된 약독화 바이러스를 이용한 유니버설 독감 백신			
문헌번호 (문헌일)	KR10-2103638 (2020-04-16)	출원번호 (출원일)	10-2018-0063500 (2018-06-01)
출원인	연세대학교 (KR)	기술분류	Orthomyxoviridae/약독화 백신
요약	본 발명은 저온 적응된 약독화 생백신을 이용한 유니버설 독감 백신에 관한 것으로서, 보다 구체적으로 본 발명은 1종 이상의 저온 적응된 약독화 생백신을 포함하는 유니버설 독감 백신 조성물 및 이를 이용한 독감 예방 접종 방법에 관한 것이다. 본 발명은 유니버설 독감 생백신 조성물은 광범위한 종류의 독감 바이러스에 대한 교차 방어 효과를 나타내며, 종래 HA 백신에서 기대할 수 없었던 강력한 방어 효능과 넓은 방어 범위, 및 안전성을 보장할 수 있다. 또한, 본 발명의 이종생백신 접종 방법은 다양한 면역학적 효과를 유도함으로써, 교차면역원성 및 교차방어능력을 현저히 상승시켜 유니버설 독감 예방 방법으로서 유용하게 활용될 수 있을 것으로 기대된다. 또한, 본 발명의 생백신 접종 방법에 따르면, 독감 바이러스의 감염 또는 독감 백신 접종을 통해 기저 면역이 존재하고 있는 사람의 경우 이미 1차 백신 접종 상태인 것으로 볼 수 있기 때문에, 1회의 생백신 접종(추가 접종에 해당)을 통해서 교차 면역 반응의 증강을 유도하여 다양한 바이러스에 대해 광범위한 방어효과를 기대할 수 있다.		
대표청구항	(a) 서열번호 1 내지 6으로 표시되는 6개의 내부 유전자; A/Korea/1/09(H1N1) 독감 바이러스 유래의 서열번호 7로 표시되는 표면 헤마글루티닌(HA) 유전자; 및 A/Korea/1/09(H1N1) 독감 바이러스 유래의 서열번호 8로 표시되는 표면 뉴라미니다아제(NA) 유전자를 포함하는 독감 생백신을 포함하는 1차 접종용 생백신 조성물; 및(b) 서열번호 1 내지 6으로 표시되는 6개의 내부 유전자; A/New Caledonia/20/99(H1N1) 독감 바이러스 유래의 서열번호 9로 표시되는 표면 헤마글루티닌(HA) 유전자; 및 A/New Caledonia/20/99(H1N1) 독감 바이러스 유래의 서열번호 10으로 표시되는 표면 뉴라미니다아제(NA) 유전자를 포함하는 독감 생백신을 포함하는 2차 접종용 생백신 조성물을 포함하고, 상기 1차 접종용 생백신 및 2차 접종용 생백신은 서로 이종(heterologous)이나, 동종아형(homosubtypic)의 HA 유전자 및 NA 유전자를 포함하는 바이러스를 포함하며, H1, H2, H5, H6, H8, H9, H11, H12, H13 및 H16으로 이루어진 군에서 선택되는 하나 이상인 HA 단백질(HA group 1); 및 H3, H4, H7, H10, H14 및 H15로 이루어진 군에서 선택되는 하나 이상인 HA 단백질(HA group 2) 모두에 대해 교차 면역 반응을 형성하는 것을 특징으로 하는 유니버설 독감 생백신 조성물.		

□ US10369212

H3 influenza A virus			
문헌번호 (문헌일)	US10369212 (2019-08-06)	출원번호 (출원일)	16/015504 (2018-06-22)
출원인	WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF) (US)	기술분류	Orthomyxoviridae/약독화 백신
요약	The invention provides an isolated H3 equine influenza A virus, as well as methods of preparing and using the virus, and genes or proteins thereof.		
대표청구항	1. A vaccine comprising an isolated H3 influenza virus comprising HA-1 having a sequence having at least 96% amino acid sequence identity to the HA-1 portion of SEQ ID NO: 1 and having an alanine at position 78 and a serine at position 159, in an amount effective to induce a prophylactic or therapeutic response against influenza infection, wherein the virus is inactivated, the vaccine is in freeze-dried form or the vaccine further comprises an adjuvant.		

□ KR10-2119875

한국형 중동호흡기증후군 코로나바이러스 감염성 변이 유전자 및 이의 용도			
문헌번호 (문헌일)	KR10-2119875 (2020-06-01)	출원번호 (출원일)	10-2019-0031225 (2019-03-19)
출원인	한국화학연구원 (KR)	기술분류	Coronaviridae/약독화 백신
요약	본 발명은 한국형 중동호흡기증후군 코로나바이러스의 감염성 변이 유전자와 이의 용도에 관한 것으로, 보다 상세하게는 돌연변이 방법을 이용한, 한국형 중동호흡기증후군 코로나바이러스의 감염성 변이 유전자와 이의 제조방법, 상기 유전자를 포함하는 재조합 벡터에 관한 것이다. 본 발명의 상기 돌연변이 방법을 이용하여 제작한 한국형 중동호흡기증후군 코로나바이러스의 감염성 변이 유전자 및 이의 제조방법은 바이러스 증식 연구와 약독성 바이러스 개발에 유용하게 사용될 수 있다. 또한 상기 유전자를 포함하는 재조합 벡터는 한국형 중동호흡기증후군 코로나바이러스 백신 및 이의 제조방법 관련 기술로 유용하게 사용될 수 있다.		
대표청구항	한국형 중동호흡기증후군 코로나바이러스(Korean strain Middle East respiratory syndrome Coronavirus, MERS-Cov)의 감염성 변이 유전자로서, 한국형 중동호흡기증후군 코로나바이러스(GeneBank Accession Number: KT029139.1) 유전자에서 11267번째 뉴클레오타이드가 사이토신에서 티민으로 치환되어 제한효소 FspAI를 인식하는 부위가 결실되는 단계; 19198번째 뉴클레오타이드가 아데닌에서 구아닌으로 치환되어 제한효소 MluI를 인식하는 부위가 삽입되는 단계; 및 2849번째 뉴클레오타이드가 아데닌에서 구아닌으로 치환되어 T7 리보뉴클레오타이드 폴리메라아제 (T7 RNA Polymerase) 일시중지 부위가 결실되는 단계;를 포함하여 제조된 서열번호 1인 한국형 중동호흡기증후군 코로나바이러스의 감염성 변이 유전자		

3. DNA백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	US8460680	12/763801	2010-04-20	Polyvalent chimeric rubella virus-based vaccines	NATIONAL HEALTH RESEARCH INSTITUTES
2	US8993744	13/698719	2011-05-23	Universal dengue virus sequences and methods of use	PITTSBURGH UNIV
3	US9505806	14/346664	2012-09-21	DNA vaccine, method of inducing the immune response, method of immunisation, antibodies specifically recognising the H5 haemagglutinin of an influenza virus and use of the DNA vaccine	INSTYTUT BIOCHEMII I BIOFIZYKI
4	JP6132420	2012-229854	2012-10-17	변이 광견병 바이러스 합성 증식 방법 및 광견병 백신 제제	GIFU UNIV
5	JP6499592	2015-561921	2014-02-26	B형 간염 백신	JIANGSU THERAVAC BIO-PHARMACEUTICAL CO., LTD.
6	US10106782	14/906521	2014-07-28	High-titer HCV full-length genotype 2B infectious cell culture systems and applications thereof	HVIDOVRE HOSPITAL

▌ 코로나19 등 바이러스 감염성 질환 백신 분야

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
7	US10398769	14/910136	2014-08-04	Influenza nucleic acid molecules and vaccines made therefrom	PENNSYLVANIA UNIV
8	CN104372023	2014-10643862	2014-11-10	Method for rescuing influenza virus	CHINA AGRICULTURAL UNIV
9	US9492532	14/689957	2015-04-17	Nucleic acids encoding mosaic HIV-1 gag proteins	DUKE UNIV
10	US10428313	15/318334	2015-06-19	Chimeric West Nile/Dengue viruses and methods of use	USA GOV
11	CN105400799	2015-10971436	2015-12-22	Epidemic encephalitis B/yellow fever chimeric virus and preparation method and application thereof	CHENGDU INSTITUTE OF BIOLOGICAL PRODUCTS CO., LTD.
12	US10426830	15/235430	2016-08-12	Altering the immundominance hierarchy using a DNA vaccine expressing conserved regions	USA GOV
13	US9993547	15/596084	2017-05-16	T20 constructs for anti-HIV (human immunodeficiency virus) therapy and/or vaccines	IMMUNOMEDICS, INC.

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
14	US10611801	16/099254	2017-06-09	Compositions and methods for preventing and treating Zika virus infection	BETH ISRAEL DEACONESS MEDICAL CENTER
15	US10500267	15/681613	2017-08-21	Influenza virus vectors and uses therefor	FLUGEN, INC.
16	US10493142	15/945768	2018-04-05	Gene optimized Hantaan virus M segment DNA vaccine for hemorrhagic fever with renal syndrome	USA GOV
17	US10513542	15/957376	2018-04-19	Minicircle DNA vector vaccine platform for foot-and-mouth disease and methods thereof	USA GOV
18	KR10-2077772	10-2018-0150436	2018-11-29	광견병 예방용 백신 조성물 및 이의 제조 방법	바이오앱
19	US10653770	16/579025	2019-09-23	Biochemically stabilized HIV-1 Env trimer vaccine	BETH ISRAEL DEACONESS MEDICAL CENTER

□ US8460680

Polyvalent chimeric rubella virus-based vaccines			
문헌번호 (문헌일)	US8460680 (2013-06-11)	출원번호 (출원일)	12/763801 (2010-04-20)
출원인	NATIONAL HEALTH RESEARCH INSTITUTES (TW)	기술분류	Togaviridae/DNA백신
요약	A chimeric viral particle that comprises a RV fusion gene is disclosed. The RV fusion gene comprises a first nucleotide sequence encoding a RV that is devoid of RV E1 protein, and a second nucleotide sequence that linked in translation frame to the first nucleotide sequence and encodes a humoral immunogenic viral protein. The chimeric viral particle is free of RV E1 protein-encoding gene. A virus packaging cell that generates the chimeric viral particle comprising a RV fusion gene and an isolated expression vector comprising a RV fusion gene linked in translation frame to a promoter are also disclosed.		
대표청구항	1. A chimeric viral particle whose genome comprises: a) a first nucleotide sequence encoding rubella virus (RV) proteins, wherein the proteins encoded by the first nucleotide sequence are devoid of RV E1 protein; andb) a second nucleotide sequence, linked in translation frame to the first nucleotide sequence, encoding respiratory syncytial virus (RSV) F protein;wherein the chimeric viral particle is free of RV E1 protein-encoding gene.		

□ US8993744

Universal dengue virus sequences and methods of use			
문헌번호 (문헌일)	US8993744 (2015-03-31)	출원번호 (출원일)	13/698719 (2011-05-23)
출원인	PITTSBURGH UNIV (US)	기술분류	Flaviviridae/DNA백신
요약	Disclosed herein are computationally optimized broadly reactive dengue virus E polypeptide sequences for DENV-1, DENV-2, DENV-3 and DENV-4. Also disclosed are dengue virus E protein fragments (such as the E protein ectodomain and DIII domain) fused to the molecular adjuvant P28. The disclosed nucleic acid and polypeptide sequences can be used as vaccines for immunization against dengue virus infection. In some cases, the vaccine includes a virus-like particle containing the universal dengue virus E protein, or fragment thereof, or the vaccine is a DNA molecule encoding the VLP.		
대표청구항	1. An isolated nucleic acid molecule comprising a nucleotide sequence encoding a dengue virus E protein or a fragment thereof, wherein: (a) the nucleotide sequence encoding the dengue virus E protein is at least 99% identical to SEQ ID NO: 1 or at least 99% identical to nucleotides 4-1488 of SEQ ID NO: 1;(b) the fragment comprises the E protein ectodomain and the nucleotide sequence encoding the E protein ectodomain is at least 99% identical to nucleotides 1-1194 of SEQ ID NO: 1 or at least 99% identical to nucleotides 4-1194 of SEQ ID NO: 1; or(c) the fragment comprises the DIII domain of the E protein and the nucleotide sequence encoding the DIII domain is at least 99% identical to SEQ ID NO: 13.		

□ US9505806

DNA vaccine, method of inducing the immune response, method of immunisation, antibodies specifically recognising the H5 haemagglutinin of an influenza virus and use of the DNA vaccine			
문헌번호 (문헌일)	US9505806 (2016-11-29)	출원번호 (출원일)	14/346664 (2012-09-21)
출원인	INSTYTUT BIOCHEMII I BIOFIZYKI (PL)	기술분류	Orthomyxoviridae/DNA백신
요약	The object of the invention is a DNA vaccine, method of inducing the immune response, antibodies specifically recognizing the haemagglutinin H5 of an influenza virus and application of the DNA vaccine. According to the invention, one or two-fold immunization of hens with DNA vaccine containing a cDNA encoding the modified H5 haemagglutinin HA protein, i.e. with the deletion of the cleavage site between HA subunits (this provides for greater safety of the vaccines). Moreover, the encoding region of the HA is modified in such a way that protein production in the bird cells should achieve maximal yield. The main modification is codon optimization for the hens and deletion of the site of proteolytic cleavage between subunits HA1 and HA2.		
대표청구항	1. A vaccine comprising, a polynucleotide comprising a modified nucleotide sequence encoding a H5 haemagglutinin of an influenza virus,wherein the nucleotide sequence contains a deletion of a region encoding the amino acids at the proteolytic cleavage site between subunits HA1 and HA2,wherein the nucleotide sequence comprises codons altered for optimization for maximal expression of the H5 haemagglutinin in bird cells, andwherein the nucleotide sequence comprises the sequence defined as SEQ. ID No. 2.		

□ JP6132420

변이 광견병 바이러스 합성 증식 방법 및 광견병 백신 제제			
문헌번호 (문헌일)	JP6132420 (2017-04-28)	출원번호 (출원일)	2012-229854 (2012-10-17)
출원인	GIFU UNIV (JP)	기술분류	Rhabdoviridae/DNA백신
요약	【요약】 (수정유) 【과제】구성 단백질을 결손시킨 변이 광견병 바이러스를 저렴하고 저노력으로 증식하는 수단의 제공. 【해결 수단】광견병 바이러스의 5개의 구성 단백질 중 하나의 구성 단백질을 결손된 변이 광견병 바이러스 또는 그 게놈과 다른 하나의 구성 단백질을 결손된 변이 광견병 바이러스 또는 그 게놈을 세포에 공도입하는 변이 광견병 바이러스 합성 증식 방법을 제공한다. 이 방법에 의해 결손시킨 구성 단백질의 항상 발현 세포를 이용하지 않고, 구성 단백질을 결손시킨 변이 광견병 바이러스를 합성할 수 있기 때문에, 항상 발현 세포의 수립 등의 노력을 경감할 수 있다. 또한 세포로의 감염의 순서와 바이러스의 회수 순서를 반복함으로써, 변이 광견병 바이러스의 스케일 업이 가능하기 때문에, 변이 광견병 바이러스를 저렴하고 저노력으로 대량 증식할 수 있다. 이 방법에 의해 얻어진 변이 광견병 바이러스 혼합액은 면역원성과 안전성을 구비하고 광견병 백신 제제에 적용할 수 있다.		
대표청구항	【청구항1】광견병 바이러스의 구성 단백질인 G단백질, M단백질, N단백질, P단백질, L단백질의 5개의 단백질 중 M단백질을 결손된 변이 광견병 바이러스의 게놈과 N단백질, P단백질, L단백질 중 하나를 결손된 변이 광견병 바이러스의 게놈과 헬퍼 플라스미드로서 상기 N단백질을 발현하는 플라스미드와 상기 P단백질을 발현하는 플라스미드와 상기 L단백질을 발현하는 플라스미드를 배양 세포 내에 공도입하여 2 종류의 변이 광견병 바이러스의 혼합액을 얻는 변이 바이러스 합성 순서와 상기 순서에 의해 얻어진 2 종류의 변이 광견병 바이러스를 배양 세포에 공감염시키는 변이 바이러스 증식 순서를 적어도 포함한 변이 광견병 바이러스 합성 증식 방법.		

□ JP6499592

B형 간염 백신			
문헌번호 (문헌일)	JP6499592 (2019-03-22)	출원번호 (출원일)	2015-561921 (2014-02-26)
출원인	JIANGSU THERAVAC BIO-PHARMACEUTICAL CO., LTD. (CN)	기술분류	Flaviviridae/DNA백신
요약	【요약】 본 발명은 조성물에 관한 것으로 이것은 i) HBsAg, 상기 항원의 프래그먼트, 상기 항원의 변이체, 또는 그것의 적어도 2종의 혼합물, ii) HBcAg1-X, 상기 항원의 프래그먼트, 상기 항원 또는 상기 항원의 프래그먼트 변이체, 또는 그것의 적어도 2종의 혼합물(여기서 X는149~183의 정수이다), iii) CpG-ODN(포스포 티오에이트 올리고뉴클레오타이드로 그 시퀀스에는 2개또는 2개 이상이 복사된 5'-NTCGTT-3'배열 모티프를 포함하고 그 길이가 21의 염기이다)를 포함한다. 본 발명은 또한 상기 조성물의 HBV 감염 및 HBV가 개재하는 병의 치료의 용도 및 HBV 감염 및 HBV가 개재하는 병을 치료하는 방법에 관한 것이다.		
대표청구항	【청구항1】i) B형 간염 표면 항원(HBsAg), ii) B형 간염 코어 항원(HBcAg), iii) 5'-TCG TTC GTT CGT TCG TTC GTT-3'(SEQ ID NO:3), 5'-TCG TTC GTT CGT TCG TTC GTT CGT T-3'(SEQ ID NO:4) 및 5'-TCG TCG TCG TCG TCG TCG TCG-3'(SEQ ID NO:5)인가 들 선택되는 시퀀스를 가지는 CpG 올리고디옥시뉴클레오타이드(CpG-ODN) 및 iv) 필요하면 약학적으로 허용되는 담체를 함 봐, 상기 성분 i), ii) 및 iii)의 사이의 상대 중량 대비 범위가1:0.2~5:1~50이며 사포닌 또는 사포닌 유도체를 포함하지 않는 의약 조성물.		

□ US10106782

High-titer HCV full-length genotype 2B infectious cell culture systems and applications thereof			
문헌번호 (문헌일)	US10106782 (2018-10-23)	출원번호 (출원일)	14/906521 (2014-07-28)
출원인	HVIDOVRE HOSPITAL (DK)	기술분류	Flaviviridae/DNA백신
요약	The present invention relates to nucleic acid sequences that encode hepatitis C viruses (HCV) of genotype 2b that are useful in the fundamental research of HCV as well as in the search of a vaccine against HCV. In particular the present invention relates to nucleic acid sequences that comprises HCVs, which are capable of expressing said virus when transfected into cells and are capable of infectivity in vivo.		
대표청구항	1. An isolated nucleic acid molecule, which encodes a human hepatitis C virus, wherein the hepatitis C virus is derived from genotype 2b and comprises the mutations F1468L in NS3, A1676S in NS4A, and D3001G in NS5B, and wherein the isolated nucleic acid molecule further comprises adaptive mutations: (i) L758S, A1790T, V1951A, and I2439T; or(ii) L884P, V1951A, I2440T, and L3021F.		

□ US10398769

Influenza nucleic acid molecules and vaccines made therefrom			
문헌번호 (문헌일)	US10398769 (2019-09-03)	출원번호 (출원일)	14/910136 (2014-08-04)
출원인	PENNSYLVANIA UNIV (US)	기술분류	Orthomyxoviridae/DNA백신
요약	Provided herein are nucleic acid sequences that encode novel consensus amino acid sequences of HA Influenza A of serotype H7N9 alone and in combination with HA hemagglutinin and/or influenza B hemagglutinin, as well as genetic constructs/vectors and vaccines expressing the sequences. Also provided herein are methods for generating an immune response against one or more influenza A serotypes and/or influenza B serotypes, or combinations thereof, using the vaccines that are provided.		

대표청구항	1. An isolated nucleic acid comprising a nucleic acid sequence selected from the group consisting of SEQ ID NO: 39, a nucleic acid sequence that is 95% identical over the entire length of the nucleic acid sequence of SEQ ID NO: 39, a fragment of SEQ ID NO: 39 comprising at least 90 nucleotides, and a nucleic acid sequence that is 95% identical to a fragment of SEQ ID NO: 39 comprising at least 90 nucleotides.

□ CN104372023

Method for rescuing influenza virus			
문헌번호 (문헌일)	CN104372023 (2017-02-08)	출원번호 (출원일)	2014-10643862 (2014-11-10)
출원인	CHINA AGRICULTURAL UNIV (CN)	기술분류	Orthomyxoviridae/DNA백신
요약	The invention discloses a method for rescuing influenza virus. The method for rescuing the influenza virus comprises the following steps: 1) respectively inserting each of 15 cDNA molecules, namely cDNA molecules used for coding PB2, PB1, PA, NP, NA, M1, M2, NS1 and NS2 in an influenza virus chick embryo adapted strain and cDNA molecules used for coding PB2, PB1, PA, HA, NP, NA, M1, M2, NS1 and NS2 in a to-be-rescued influenza virus strain, into an eukaryotic expression vector, so that 15 recombinant expression vectors are obtained; and 2) introducing the 15 recombinant expression vectors into packaging cells, so that a recombinant influenza virus is obtained. The recombinant influenza virus vaccine strain obtained in the method for rescuing the recombinant influenza virus has high copying capability in chick embryo, growth titer in the chick embryo is also higher compared with the traditional vaccine, and antigenicity detection carried out on a vaccine seed virus finds that antigen property of the vaccine seed virus is not obviously different from a parent virus.		
대표청구항	1. the method saving influenza virus, comprises the following steps : 1) by the cDNA molecule of PB2 in encoding influenza virus chicken embryo adapted strain, encode PB1 in described influenza virus chicken embryo adapted strain CDNA molecule, encode the cDNA molecule of PA in described influenza virus chicken embryo adapted strain, the described influenza virus chicken embryo of coding adapts to Strain in NP cDNA molecule, encode described influenza virus chicken embryo adapted strain in NA cDNA molecule, encode described influenza virus chicken The cDNA molecule of M1 and M2 and the cDNA molecule encoding NS1 and NS2 in described influenza virus chicken embryo adapted strain in embryo adapted strain, with And encode the cDNA of PB1 in Influenza virus strain to be saved described in the cDNA molecule of PB2		

	in Influenza virus strain to be saved, coding The cDNA molecule of PA in Influenza virus strain save described in molecule, coding, encode described in HA in Influenza virus strain to be saved CDNA molecule, influenza virus to be saved described in the cDNA molecule of NP, coding in Influenza virus strain save described in coding malicious The cDNA molecule of M1 and M2 and wait to save described in encoding in Influenza virus strain save described in the cDNA molecule of NA, coding in strain In Influenza virus strain this 15 cDNA molecules of the cDNA molecule of NS1 and NS2 each be inserted separately into eukaryotic expression vector, obtain To 15 recombinant expression carriers, described 15 recombinant expression carriers are the recombinant expression carrier in following a1-a15 : A1, the recombinant expression carrier containing the cDNA molecule of PB2 in the described influenza virus chicken embryo adapted strain of coding, its entitled chicken Embryo adapted strain PB2 expression vector ; A2, the recombinant expression carrier containing the cDNA molecule of PB1 in the described influenza virus chicken embryo adapted strain of coding, its entitled chicken Embryo adapted strain PB1 expression vector ; A3, the recombinant expression carrier containing the cDNA molecule of PA in the described influenza virus chicken embryo adapted strain of coding, its entitled chicken Embryo adapted strain PA expression vector ; A4, the recombinant expression carrier containing the cDNA molecule of NP in the described influenza virus chicken embryo adapted strain of coding, its entitled chicken Embryo adapted strain NP expression vector ; A5, the recombinant expression carrier containing the cDNA molecule of NA in the described influenza virus chicken embryo adapted strain of coding, its entitled chicken Embryo adapted strain NA expression vector ; A6, the recombinant expression carrier containing the cDNA molecule of M1 and M2 in the described influenza virus chicken embryo adapted strain of coding, its title For chicken embryo adapted strain M expression vector ; A7, the recombinant expression carrier containing the cDNA molecule of NS1 and NS2 in the described influenza virus chicken embryo adapted strain of coding, its name Referred to as chicken embryo adapted strain NS expression vector ; A8, containing described in coding in Influenza virus strain to be saved the cDNA molecule of PB2 recombinant expression carrier, it is entitled to treat Rescue Influenza virus strain PB2 expression vector ; A9, containing described in coding in Influenza virus strain to be saved the cDNA molecule of PB1 recombinant expression carrier, it is entitled to treat Rescue Influenza virus strain PB1 expression vector ; A10, containing described in coding in Influenza virus strain to be saved the cDNA molecule of PA recombinant expression carrier, it is entitled to treat Rescue Influenza virus strain PA expression vector ; A11, containing described in coding in Influenza virus strain to be saved the cDNA molecule of HA recombinant expression carrier, it is entitled to treat Rescue Influenza virus strain HA expression vector ; A12, containing described in coding in Influenza virus strain to be

	saved the cDNA molecule of NP recombinant expression carrier, it is entitled to treat Rescue Influenza virus strain NP expression vector ; A13, containing described in coding in Influenza virus strain to be saved the cDNA molecule of NA recombinant expression carrier, it is entitled to treat Rescue Influenza virus strain NA expression vector ; A14, the recombinant expression carrier containing the cDNA molecule of M1 and M2 in Influenza virus strain to be saved described in coding, its title For Influenza virus strain M expression vector to be saved ; A15, the recombinant expression carrier containing the cDNA molecule of NS1 and NS2 in Influenza virus strain to be saved described in coding, its name Influenza virus strain NS expression vector referred to as to be saved ; 2) described 15 recombinant expression carriers are imported in incasing cells, obtain recombinant influenza ; Described influenza virus chicken embryo adapted strain behaviour H1N1 influenza virus A/PR/8/34...

□ US9492532

Nucleic acids encoding mosaic HIV-1 gag proteins			
문헌번호 (문헌일)	US9492532 (2016-11-15)	출원번호 (출원일)	14/689957 (2015-04-17)
출원인	DUKE UNIV (US)	기술분류	Togaviridae/DNA백신
요약	The disclosure generally relates to an immunogenic composition (e.g., a vaccine) and, in particular, to a polyvalent immunogenic composition, such as a polyvalent HIV vaccine, and to methods of using same.		
대표청구항	1. A nucleic acid comprising nucleotides encoding a polypeptide selected from the group consisting of SEQ ID NO: 72 (Gag M syn3.1), SEQ ID NO: 73 (Gag M syn3.2) and SEQ ID NO: 74 (Gag M syn3.3).		

□ US10428313

Chimeric West Nile/Dengue viruses and methods of use			
문헌번호 (문헌일)	US10428313 (2019-10-01)	출원번호 (출원일)	15/318334 (2015-06-19)
출원인	USA GOV (US)	기술분류	Flaviviridae/DNA백신
요약	Disclosed herein are chimeric flaviviruses including non-coding regions, non-structural proteins, and at least a portion of a C protein from West Nile virus (WNV), and a prM protein and an E protein from Dengue virus (DENV). The DENV may be DEN1 serotype, DEN2 serotype, DEN3 serotype, or DEN4 serotype. Also disclosed herein are compositions and methods for eliciting an immune response in a subject, such as an immune response to one or more DENV serotypes. In particular embodiments, the compositions include one or more inactivated viruses including a WN/DENV chimeric nucleic acid (such as a tetravalent inactivated vaccine including a WN/DEN1 chimera, a WN/DEN2 chimera, a WN/DEN3 chimera, and a WN/DEN4 chimera). The compositions may be administered to a subject to elicit an immune response.		
대표청구항	1. A nucleic acid chimera comprising: a first nucleic acid molecule comprising a 5′ non-coding region, a nucleic acid encoding non-structural proteins and a C protein, and a 3′ non-coding region from a West Nile virus genome, wherein the C protein comprises a signal sequence 18 amino acids long comprising a 5′ portion of a prM signal sequence from the West Nile virus genome and a 3′ portion of a prM signal sequence from a Dengue virus genome; anda second nucleic acid molecule operably linked to the first nucleic acid molecule, encoding at least a portion of a prM protein and E protein from a Dengue virus genome, wherein the second nucleic acid is 3′ to the portion of the prM signal sequence from the Dengue virus genome and 5′ to the non-structural proteins and 3′ non-coding region from the West Nile virus.		

□ CN105400799

Epidemic encephalitis B/yellow fever chimeric virus and preparation method and application thereof			
문헌번호 (문헌일)	CN105400799 (2018-12-28)	출원번호 (출원일)	2015-10971436 (2015-12-22)
출원인	CHENGDU INSTITUTE OF BIOLOGICAL PRODUCTS CO., LTD. (CN)	기술분류	Flaviviridae/DNA백신
요약	The invention discloses cDNA cloning of an epidemic encephalitis B/yellow fever chimeric virus. The nucleotide sequence of the virus is as shown in SEQ ID NO.1. The invention further discloses the epidemic encephalitis B/yellow fever chimeric virus, application thereof and a vaccine preventing yellow fever. The chimeric virus Chimeri-JYF is small in toxicity and good in immune protection function. The vaccine prepared through the virus can effectively prevent yellow fever virus infection, is high in safety, can be used for replacing existing yellow fever live attenuated vaccines (17D strains), effectively improves clinical use safety while the immune protection function is guaranteed, and is good in application prospect.		
대표청구항	1. a kind of cDNA clone of the hot embedded virus of encephalitis/Huang, it is characterised in that: its nucleotide sequence such as SEQ ID NO.1 institute Show.		

□ US10426830

Altering the immundominance hierarchy using a DNA vaccine expressing conserved regions			
문헌번호 (문헌일)	US10426830 (2019-10-01)	출원번호 (출원일)	15/235430 (2016-08-12)
출원인	USA GOV (US)	기술분류	Retroviridae-HIV/DNA백신
요약	The invention provides methods and compositions for eliciting broad immune responses. The methods employ nucleic acid vaccines that encodes highly conserved elements from a virus.		
대표청구항	1. A method of inducing an immune response to an HIV protein, the method comprising administering: a first nucleic acid encoding a first conserved element polypeptide, wherein the conserved elements are from the HIV protein and the polypeptide comprises at least six conserved elements, each less than 50 amino acids in length, where the conserved elements are joined by linkers;a second nucleic acid encoding a second conserved element polypeptide that comprises a variant of each of the at least six conserved elements contained in the first conserved element polypeptide, wherein each variant in the second conserved element polypeptide differs from the corresponding conserved element in the first conserved element polypeptide by at least 1, 2, or 3 amino acids; andafter administration of the first and the second nucleic acids, administering a nucleic acid encoding the full-length HIV protein, or substantially full-length HIV protein, wherein the nucleic acid encoding the full-length HIV protein or substantially full-length HIV protein is administered at least two weeks after the first and second nucleic acids encoding the conserved element polypeptides; and further, wherein the nucleic acid encoding the full-length HIV protein, or substantially full-length HIV protein, is administered as a plasmid that comprises an expression cassette comprising a nucleic acid sequence encoding the full-length HIV protein, or substantially full-length HIV protein, operably linked to a promoter.		

□ US9993547

T20 constructs for anti-HIV (human immunodeficiency virus) therapy and/or vaccines			
문헌번호 (문헌일)	US9993547 (2018-06-12)	출원번호 (출원일)	15/596084 (2017-05-16)
출원인	IMMUNOMEDICS, INC. (US)	기술분류	Retroviridae-HIV/DNA백신
요약	The present invention concerns methods and compositions for treatment of HIV infection using a T20 expression vector, such as that shown in SEQ ID NO:1 or SEQ ID NO:3. The T20 expression vector may be used in a variety of therapeutic applications, such as ex vivo transfection of dendritic cells to induce a host immune response to HIV, localized transfection in vivo in a gene therapy approach to provide longer term delivery of T20, or in vitro production of T20 peptide. The T20 may be secreted into the circulation to act as a fusion inhibitor of HIV infection, or may induce an endogenous immune response to HIV or HIV-infected cells. Alternatively, a DDD peptide may be incorporated in a fusion protein comprising T20 or another antigenic protein or peptide to enhance the immune response to the protein or peptide.		
대표청구항	1. A method of treating human immunodeficiency virus (HIV) infection comprising: a) Obtaining human dendritic cells (DCs);b) transfecting the human DCs with a T20 expression vector comprising the nucleic acid sequence of SEQ ID NO:1 or SEQ ID NO:3; andc) administering the transfected DCs to a human subject with an HIV infection.		

□ US10611801

Compositions and methods for preventing and treating Zika virus infection			
문헌번호 (문헌일)	US10611801 (2020-04-07)	출원번호 (출원일)	16/099254 (2017-06-09)
출원인	BETH ISRAEL DEACONESS MEDICAL CENTER (US)	기술분류	Flaviviridae/DNA백신
요약	The invention relates to immunogenic compositions and vaccines containing a ZIKV protein or a polynucleotide encoding a Zika virus (ZIKV) protein and uses thereof. The invention also provides methods of treating and/or preventing a ZiKV infection by administering an immunogenic composition or vaccine of the invention to a subject (e.g., a human).		
대표청구항	1. An isolated nucleic acid molecule comprising: (i) a nucleotide sequence having at least 85% sequence identity to the sequence of any one of SEQ ID NOs: 1, 3, 5, 7, 9, and 11, or a complementary sequence thereof; and/or(ii) a nucleotide sequence that encodes a polypeptide having at least 85% sequence identity to the amino acid sequence of any one of SEQ ID NOs: 2, 4, 6, 8, 10, and 12.		

□ US10500267

Influenza virus vectors and uses therefor			
문헌번호 (문헌일)	US10500267 (2019-12-10)	출원번호 (출원일)	15/681613 (2017-08-21)
출원인	FLUGEN, INC. (US)	기술분류	Orthomyxoviridae/DNA백신
요약	Disclosed herein are compositions and methods related to mutant viruses, and in particular, mutant influenza viruses. The mutant viruses disclosed herein include a mutant M2 sequence, and are useful in immunogenic compositions, e.g., as vaccines. The mutant viruses disclosed herein including a mutant M2 sequence are also useful to deliver antigens to a subject, e.g., to induce an immune response to the antigen. Also disclosed herein are methods, compositions and cells for propagating the viral mutants, and methods, devices and compositions related to vaccination.		
대표청구항	1. An immunogenic composition comprising the nucleic acid sequence of SEQ ID NO:35, wherein SEQ ID NO:35 further comprises a nucleic acid sequence encoding one or more foreign antigens.		

□ US10493142

Gene optimized Hantaan virus M segment DNA vaccine for hemorrhagic fever with renal syndrome			
문헌번호 (문헌일)	US10493142 (2019-12-03)	출원번호 (출원일)	15/945768 (2018-04-05)
출원인	USA GOV (US)	기술분류	Bunyaviridae/DNA백신
요약	A synthetic, codon-optimized Hantaan virus (HTNV) full-length M gene open reading frame that consists of a unique nucleotide sequence encoding HTNV proteins. This synthetic gene was cloned into a plasmid to form the first optimized HTNV full-length M gene that elicits neutralizing antibodies in animals when delivered in combination with a similarly optimized Puumala virus (PUUV) DNA vaccine. The invention obviates the need for an extraneous gene sequence that was previously required for expression of the non-optimized HTNV gene. The synthetic gene is engineered into a molecular vaccine system to prevent hemorrhagic fever with renal syndrome (HFRS) caused by infection with HTNV, SEOV, or DOBV. Alternatively, it can be		

	combined with the optimized PUUV DNA vaccine to protect against HFRS caused by any hantavirus.
대표청구항	1. A method of inducing an immune response against hantavirus glycoprotein caused by HTNV virus comprising administering a vaccine for HTNV comprising: SEQ ID NO: 1 in or on a carrier.

□ US10513542

Minicircle DNA vector vaccine platform for foot-and-mouth disease and methods thereof			
문헌번호 (문헌일)	US10513542 (2019-12-24)	출원번호 (출원일)	15/957376 (2018-04-19)
출원인	USA GOV (US)	기술분류	Retroviridae-HIV/DNA백신
요약	This application is directed generally to minicircle DNA vectors for the vaccination of foot-and-mouth disease (FMD). The transgene expression cassette in the minicircle DNA vector includes: a eukaryotic translation initiation nucleotide sequence, a mutant nucleotide sequence that encodes a foot-and-mouth disease virus (FMDV) capsid polyprotein precursor that contains at least one mutation to eliminate a restriction enzyme recognition site, a nucleotide sequence that encodes a protease that cleaves the FMDV capsid polyprotein precursor into a plurality of FMDV capsid proteins and a translational regulatory element to regulate the expression of the protease. The minicircle DNA vectors can be transfected directly into the cell of a mammalian host. When transfected into the mammalian host cell, virus-like particles can be produced intrinsically to stimulate the mammalian host's immune system to develop adaptive immunity toward foot-and-mouth disease.		
대표청구항	1. A mutant nucleotide sequence that encodes a foot-and-mouth disease virus (FMDV) capsid polyprotein precursor, wherein the mutant nucleotide sequence comprises one or more silent mutations to a nucleotide sequence encoding a wild-type FMDV capsid polyprotein precursor that removes one or more restriction enzyme recognition sites, wherein all occurrences of said one or more restriction enzyme recognition sites are removed from the nucleotide sequence.		

□ KR10-2077772

광견병 예방용 백신 조성물 및 이의 제조 방법			
문헌번호 (문헌일)	KR10-2077772 (2020-02-10)	출원번호 (출원일)	10-2018-0150436 (2018-11-29)
출원인	바이오앱 (KR)	기술분류	Rhabdoviridae/DNA백신
요약	본 발명은 서열번호 2로 표시되는 아미노산 서열을 포함하는 광견병 바이러스 당단백질, 이를 포함하는 백신 조성물 등에 관한 것이다.		
대표청구항	광견병 바이러스 당단백질 발현용 벡터로서,상기 벡터는 프로모터, BiP(Chaperone binding protein)를 코딩하는 폴리뉴클레오티드, 서열 번호 1로 표시되는 폴리뉴클레오티드, 6개의 연속된 히스티딘을 코딩하는 폴리뉴클레오티드, 및 HDEL(His-Asp-Glu-Leu) 펩타이드를 코딩하는 폴리뉴클레오티드가 순차적으로 연결되어 있으며,상기 벡터는 식물에서 광견병 바이러스 당단백질을 발현시키는 것을 특징으로 하며,상기 광견병 바이러스 당단백질은 용해성이 증가된 것을 특징으로 하는, 광견병 바이러스 당단백질 발현용 벡터.		

□ US10653770

Biochemically stabilized HIV-1 Env trimer vaccine			
문헌번호 (문헌일)	US10653770 (2020-05-19)	출원번호 (출원일)	16/579025 (2019-09-23)
출원인	BETH ISRAEL DEACONESS MEDICAL CENTER (US)	기술분류	Retroviridae-HIV/DNA백신
요약	Stabilized trimers of a clade A strain and a clade C strain of HIV-1 are provided. Broadly neutralizing antisera against HIV-1, methods of making broadly neutralizing antisera against HIV-1, broadly neutralizing vaccines against HIV-1, as well as methods of treating subjects infected with HIV, preventing HIV infection, and inhibiting HIV-mediated activities are also provided.		
대표청구항	1. An isolated nucleic acid molecule encoding at least one gp140 polypeptide, wherein said gp140 polypeptide comprises an amino acid sequence at least 98% identical to residues 1-708 of SEQ ID NO:2.		

4. RNA백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	US8343506	12/798796	2010-04-12	Chimeric chikungunya virus and uses thereof	TEXAS SYSTEM UNIV
2	US10293060	15/048031	2016-02-19	Method for increasing expression of RNA-encoded proteins	CUREVAC
3	US10682426	15/048356	2016-02-19	Rabies vaccine	CUREVAC
4	US10653768	15/566010	2016-04-13	Method for producing RNA compositions	CUREVAC
5	US10449244	16/009811	2018-06-15	Zika RNA vaccines	MODERNATX
6	US10653767	16/131793	2018-09-14	Zika virus MRNA vaccines	MODERNATX

□ US8343506

Chimeric chikungunya virus and uses thereof			
문헌번호 (문헌일)	US8343506 (2013-01-01)	출원번호 (출원일)	12/798796 (2010-04-12)
출원인	TEXAS SYSTEM UNIV (US)	기술분류	Togaviridae/RNA백신
요약	The present invention discloses a chimeric Chikungunya virus comprising a heterologous alphavirus cDNA fragment and a Chikungunya virus cDNA fragment. The heterologous alphavirus may include but is not limited to Sindbis virus, Eastern equine encephalitis virus or Venezuelan equine encephalitis virus. The present invention also discloses the use of this chimeric Chikungunya virus as vaccines and in serological and diagnostic assays.		
대표청구항	1. An RNA encoding a chimeric alphavirus comprising (i) a Venezuelan equine encephalitis virus (VEEV) or an Eastern equine encephalitis virus (EEEV) backbone comprising cis-acting sequences from 5′ and 3′ termini, and nonstructural protein genes of VEEV or EEEV; and(ii) a structural protein-encoding segment comprising Chikungunya structural protein genes.		

□ US10293060

Method for increasing expression of RNA-encoded proteins			
문헌번호 (문헌일)	US10293060 (2019-05-21)	출원번호 (출원일)	15/048031 (2016-02-19)
출원인	CUREVAC (DE)	기술분류	Paramyxoviridae/RNA백신
요약	The invention relates to an RNA comprising at least one open reading frame (ORF) and comprising at least one modification, which increases the expression of the encoded peptide or protein. Furthermore, the invention relates to the medical use of such a modified RNA administered to a subject by jet injection. The invention relates further to a pharmaceutical composition and to a kit of parts comprising said modified RNA for administration by jet injection, preferably for use in the field of gene therapy and/or genetic vaccination. Additionally, the invention relates to a method for enhancing the (localized) expression of RNA-encoded peptides or proteins in the dermis or muscle (of a mammal) comprising administering the modified RNA by jet injection. And finally, the invention relates to a method of treatment comprising administering the modified RNA by jet injection to a subject in need thereof.		
대표청구항	1. A method for enhancing the localized expression of an RNA-encoded polypeptide in the dermis or muscle of a mammal comprising administering by jet injection a modified RNA comprising an increased G/C content of a polypeptide coding region of the modified RNA as compared with the G/C content of the corresponding polypeptide coding region of the native RNA, wherein the polypeptide sequence encoded by the modified RNA is not altered compared with the polypeptide sequence encoded by the native RNA, the increased G/C content resulting in increased expression of the RNA-encoded polypeptide, wherein the RNA comprises at least one histone stem-loop.		

□ US10682426

Rabies vaccine			
문헌번호 (문헌일)	US10682426 (2020-06-16)	출원번호 (출원일)	15/048356 (2016-02-19)
출원인	CUREVAC (DE)	기술분류	Rhabdoviridae/RNA백신
요약	The present invention relates to an mRNA sequence, comprising a coding region, encoding at least one antigenic peptide or protein of Rabies virus or a fragment, variant or derivative thereof. Additionally the present invention relates to a composition comprising a plurality of mRNA sequences comprising a coding region, encoding at least one antigenic peptide or protein of Rabies virus or a fragment, variant or derivative thereof.Furthermore it also discloses the use of the mRNA sequence or the composition comprising a plurality of mRNA sequences for the preparation of a pharmaceutical composition, especially a vaccine, e.g. for use in the prophylaxis or treatment of Rabies virus infections. The present invention further describes a method of treatment or prophylaxis of rabies using the mRNA sequence.		
대표청구항	1. A method of treatment or prophylaxis of rabies virus infections comprising the steps: a) providing an mRNA having a sequence comprising a coding region encoding glycoprotein G (RAV-G) of Rabies virus, wherein the G/C content of the coding region is increased compared with the G/C content of the coding region of the wild type mRNA, and wherein the coded amino acid sequence of said GC-enriched mRNA is not being modified compared with the coded amino acid sequence of the wild type mRNA, and wherein:(i) the mRNA comprises a sequence at least 95% identical to SEQ ID No: 24; or(ii) wherein the mRNA further comprises a 5′-UTR element which comprises a nucleic acid sequence which is derived from the 5′UTR of a TOP gene;b) applying or administering the mRNA to a tissue or an organism;c) optionally administering rabies immune globulin.		

□ US10653768

Method for producing RNA compositions			
문헌번호 (문헌일)	US10653768 (2020-05-19)	출원번호 (출원일)	15/566010 (2016-04-13)
출원인	CUREVAC (DE)	기술분류	Retroviridae-HIV/RNA백신
요약	The present invention relates to a method for producing a liquid composition comprising a nanoparticle comprising at least one RNA and at least one cationic or polycationic compound, advantageously on a large scale suitable for pharmaceutical applications. The present invention further concerns the use of the inventive method in the manufacture of a medicament or a vaccine. Furthermore, the invention relates to compositions containing the RNA-comprising nanoparticle, and to pharmaceutical compositions comprising the same.		
대표청구항	1. A method for producing a liquid composition comprising a nanoparticle comprising at least one RNA and at least one cationic or polycationic compound, wherein the method comprises the steps of: (a) providing a first liquid composition comprising at least one RNA,(b) providing a second liquid composition comprising at least one cationic or polycationic compound, wherein the at least one cationic or polycationic compound is a cationic or polycationic peptide or a cationic or polycationic protein,(c) introducing the first liquid composition and the second liquid composition into at least one reactor, wherein the first liquid composition and the second liquid composition are mixed with a blend time of 5 seconds or less, and(d) recovering the product liquid composition comprising the nanoparticle comprising the at least one RNA and the at least one cationic or polycationic compound from the reactor.		

□ US10449244

Zika RNA vaccines			
문헌번호 (문헌일)	US10449244 (2019-10-22)	출원번호 (출원일)	16/009811 (2018-06-15)
출원인	MODERNATX (US)	기술분류	Flaviviridae/RNA백신
요약	Aspects of the disclosure describe compositions that comprise RNA polynucleotides having an open reading frame encoding one or more Zika virus antigens. Methods for preparing and using the compositions are also described.		
대표청구항	1. A Zika virus (ZIKV) immunogenic composition, comprising: a messenger ribonucleic acid (mRNA) polynucleotide having an open reading frame encoding a ZIKV antigenic polypeptide formulated in a lipid nanoparticle.		

□ US10653767

Zika virus MRNA vaccines			
문헌번호 (문헌일)	US10653767 (2020-05-19)	출원번호 (출원일)	16/131793 (2018-09-14)
출원인	MODERNATX (US)	기술분류	Flaviviridae/RNA백신
요약	Provided herein, in some embodiments, are Zika virus RNA vaccines and methods of producing an antigen-specific immune response in a subject.		
대표청구항	1. A method comprising administering to a subject an immunogenic composition comprising a messenger ribonucleic acid (mRNA) that comprises an open reading frame (ORF) encoding a JEV signal peptide fused to a Zika virus (ZIKV) prME protein formulated in a lipid nanoparticle in an effective amount to induce in the subject a ZIKV prME-specific immune response, wherein the ORF comprises the sequence of SEQ ID NO: 1.		

5. 바이러스 벡터 백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	US8513006	13/230291	2011-09-12	Tetravalent influenza vaccine and use thereof	PITTSBURGH UNIV
2	US9580476	14/349735	2012-10-05	Adenoviral vector-based respiratory syncytial virus (RSV) vaccine	GENVEC
3	JP5917626	2014-152739	2014-07-28	기계적 표피 파괴를 통한 폭스바이러스 벡터에 의한 백신 접종	TREM RX
4	KR10-1695517	10-2014-0126841	2014-09-23	헤마글루티닌을 표면에 발현하는 배큘로바이러스 기반의 인플루엔자 바이러스 백신 및 이의 제조방법	이화여자대학교
5	CN104830908	2015-10293955	2015-06-02	Pseudovirus packaging system and application thereof	NATIONAL INSTITUTES FOR FOOD AND DRUG CONTROL
6	US10576141	15/508851	2015-09-03	Recombinant modified vaccinia virus Ankara (MVA) multivalent filovirus immunogenic compositions and methods of use	BAVARIAN NORDIC
7	US10512684	15/512820	2015-09-25	Methods and compositions for intra-nasal immunization with recombinant MVA encoding flagellin	BAVARIAN NORDIC

□ US8513006

Tetravalent influenza vaccine and use thereof			
문헌번호 (문헌일)	US8513006 (2013-08-20)	출원번호 (출원일)	13/230291 (2011-09-12)
출원인	PITTSBURGH UNIV (US)	기술분류	Orthomyxoviridae/바이러스 벡터 백신
요약	Disclosed herein is the finding that baculovirus display of multiple influenza virus hemagglutinin (HA) proteins elicits broadly reactive immune responses against influenza. Thus provided herein are recombinant baculovirus vectors having a first, second, third and fourth nucleic acid sequence, each encoding an influenza hemagglutinin (HA) fusion protein. The first, second, third and fourth nucleic acid sequences each encode an influenza HA with a different amino acid sequence. Also provided are recombinant baculoviruses displaying a first, second, third and fourth influenza virus HA fusion protein in the baculovirus envelope, wherein each HA fusion protein comprises a different HA amino acid sequence. Tetravalent influenza virus vaccines comprising the recombinant baculoviruses disclosed herein are further provided. In addition, methods of immunizing a subject against influenza virus using the tetravalent influenza virus vaccines are provided. In particular examples of the compositions and methods disclosed herein, the HA polypeptides are from H5N1 influenza virus.		
대표청구항	1. A recombinant baculovirus vector, comprising a first, second, third and fourth nucleic acid sequence each encoding an influenza hemagglutinin (HA) fusion protein, wherein the first, second, third and fourth nucleic acid sequences each encode an influenza HA with a different amino acid sequence, and wherein each influenza HA fusion protein comprises: (i) a baculovirus gp64 signal peptide;(ii) an HA ectodomain and transmembrane domain; and(iii) a baculovirus gp64 cytoplasmic tail domain.		

□ US9580476

Adenoviral vector-based respiratory syncytial virus (RSV) vaccine			
문헌번호 (문헌일)	US9580476 (2017-02-28)	출원번호 (출원일)	14/349735 (2012-10-05)
출원인	GENVEC (US)	기술분류	Paramyxoviridae/바이러스 벡터 백신
요약	The invention provides an adenovirus or adenoviral vector characterized by comprising a nucleic acid sequence encoding one or more Respiratory Syncytial Virus (RSV) antigens and one or more particular nucleic acid sequences or one or more particular amino acid sequences, or portions thereof, pertaining to, for example, an adenoviral pIX protein, DNA polymerase protein, penton protein, hexon protein, and/or fiber protein, as well as a method of inducing an immune response against RSV in a mammal by administering the adenovirus or adenoviral vector to the mammal.		
대표청구항	1. An adenovirus or adenoviral vector comprising (1) a nucleic acid sequence encoding one or more Respiratory Syncytial Virus (RSV) antigens and (2) one or more of the nucleic acid sequences selected from the group consisting of: (a) a nucleic acid sequence that is at least 97% identical to SEQ ID NO: 63,(b) a nucleic acid sequence that is at least 97.5% identical to SEQ ID NO: 64,(c) a nucleic acid sequence that is at least 80% identical to SEQ ID NO: 65,(d) a nucleic acid sequence that is at least 96%identical to SEQ ID NO: 66, and(e) a nucleic acid sequence that is at least 96% identical to SEQ ID NO: 67.		

□ JP5917626

기계적 표피 파괴를 통한 폭스바이러스 벡터에 의한 백신 접종			
문헌번호 (문헌일)	JP5917626 (2016-04-15)	출원번호 (출원일)	2014-152739 (2014-07-28)
출원인	TREM RX (US)	기술분류	Coronaviridae/바이러스 벡터 백신
요약	【요약】【과제】면역 응답을 자극하기 위한 방법을 제공하는 것.【해결 수단】본 발명은 피험체에 있어서 항원에 대한 면역 응답을 자극하기 위한 방법을 제공하고 상기 방법은 항원을 포함한 생의 개변된 및/또는 재조합 복제 장애성 또는 비복제성 수두 바이러스를 면역 응답을 자극하는데 충분한 양으로 그것을 필요로 하는 피험체에 투여하는 것을 포함하고 바이러스는 표피의 기계적 파괴에 의해 투여된다. 본 발명은 그러한 바이러스 및 표피 파괴 디바이스를 포함한 키트를 추가로 제공한다. 상기 면역 응답은 체액성 응답 및/또는 세포성 응답이다.【선택도】없음		

대표청구항	【請求項1】 피부, 폐 , 구강 점막, 위장관 및 생식 점막으로 구성되는 군에서 선택되는 표피 조직에 있어서 수두 바이러스에 대해서 외래성 펩타이드 또는 폴리펩타이드 항원에 대한 T세포 메모리 면역 응답을 유도 또는 자극하기 위한 바이러스 조성물 (으)로서, 상기 바이러스 조성물은 상기 면역 응답을 자극하는데 충분한 양으로 상기 항원을 발현된다 생이 개변된 비복제 성 포 크스위르스 (으)로 구성되어 , 상기 바이러스 조성물 하 , 표피 전체에 관입하는 일 없이 기계적으로 파괴되었다 피험체의 표피 조직 에 투여되어 것이며 상기 수두 바이러스는 정상적인 포유동물 세포에 감염되지만, 비복제성으로 , 바이러스 조성물 .

□ KR10-1695517

헤마글루티닌을 표면에 발현하는 배큘로바이러스 기반의 인플루엔자 바이러스 백신 및 이의 제조방법			
문헌번호 (문헌일)	KR10-1695517 (2017-01-05)	출원번호 (출원일)	10-2014-0126841 (2014-09-23)
출원인	이화여자대학교 (KR)	기술분류	Orthomyxoviridae/바이러스 벡터 백신
요약	본 발명은 헤마글루티닌 단백질이 배큘로바이러스의 외피에 포함된 형태로 발현된 재조합 배큘로바이러스 또는 그의 바이러스 입자를 유효성분으로 포함하는, 범용성 인플루엔자 바이러스 백신 조성물 및 상기 백신 조성물의 제조방법에 관한 것으로서, 상기 백신 조성물은 체액성 면역반응 및 스톡 특이적 항체를 유도하여 동형 및 아형의 인플루엔자 바이러스 감염에 대한 보호 효과를 가지므로 범용 백신으로 사용될 수 있다.		
대표청구항	H1N1 바이러스 유래 헤마글루티닌 단백질의 헤드(head) 도메인 및 스톡(stalk) 도메인을 포함하는, H1N1 바이러스 유래 헤마글루티닌 전장(full-length) 단백질이 배큘로바이러스의 외피에 포함된 형태로 발현된 재조합 배큘로바이러스 또는 그의 바이러스 입자를 유효성분으로 포함하는, H5N1 인플루엔자 바이러스 백신 조성물.		

□ CN104830908

Pseudovirus packaging system and application thereof			
문헌번호 (문헌일)	CN104830908 (2018-04-10)	출원번호 (출원일)	2015-10293955 (2015-06-02)
출원인	NATIONAL INSTITUTES FOR FOOD AND DRUG CONTROL (CN)	기술분류	Coronaviridae/바이러스 벡터 백신
요약	The invention relates to the field of genetic engineering and molecular biology, in particular to a pseudovirus packaging carrier, a pseudovirus packaging system, application of the pseudovirus packaging carrier and the pseudovirus packaging system to preparation of pseudovirus and a pseudovirus preparation method. The pseudovirus packaging system can prepare the pseudovirus efficiently and conveniently, and a powerful tool is provided for research of viruses, preparation of vaccines and the like.		
대표청구항	1. a kind of pseudovirus package carrier, it is the upstream of nef genes and the downstream of Δ env genes in carrier pSG3. Δs env Being operably connected has the promoter of luciferase gene and the regulation genetic transcription ; Wherein described promoter starts for CMV Son.		

□ US10576141

Recombinant modified vaccinia virus Ankara (MVA) multivalent filovirus immunogenic compositions and methods of use			
문헌번호 (문헌일)	US10576141 (2020-03-03)	출원번호 (출원일)	15/508851 (2015-09-03)
출원인	BAVARIAN NORDIC (DK)	기술분류	Filoviridae/바이러스 벡터 백신
요약	The present invention relates to an improved filovirus vaccine comprising a recombinant modified vaccinia virus Ankara-based (MVA-based) vaccine against filovirus infection and to related products, methods and uses. Specifically, the present invention relates to genetically engineered (recombinant) MVA and FPV vectors comprising at least one heterologous nucleotide sequence encoding an antigenic determinant of a Marburg virus (MARV) or Ebola virus glycoprotein. Specifically, the invention relates to recombinant MVA comprising Ebola virus glycoprotein and virion protein 40. The invention also relates to products, methods and uses thereof as well as prime/boost regimens of MVA and genetically engineered (recombinant) FPV, e.g., suitable to induce a protective immune response in a subject.		
대표청구항	1. A method of inducing an immune response in a subject comprising administering to a subject a recombinant MVA vector, the recombinant MVA vector comprising a first nucleic acid encoding at least one immunogenic protein of a MARV envelope glycoprotein (GP); a second nucleic acid encoding an immunogenic protein of Zaire Ebola virus (ZEBOV) envelope glycoprotein; a third nucleic acid encoding an immunogenic protein of Sudan Ebola virus (SEBOV) envelope glycoprotein; and a fourth nucleic acid encoding an immunogenic protein of Ebola virus Ivory Coast nucleoprotein.		

□ US10512684

Methods and compositions for intra-nasal immunization with recombinant MVA encoding flagellin			
문헌번호 (문헌일)	US10512684 (2019-12-24)	출원번호 (출원일)	15/512820 (2015-09-25)
출원인	BAVARIAN NORDIC (DK)	기술분류	Flaviviridae/바이러스 벡터 백신
요약	Provided herein are immunogenic compositions comprising a recombinant modified vaccinia virus Ankara (MVA) comprising a nucleic acid sequence encoding a flagellin, and a nucleic acid sequence encoding a heterologous disease-associated antigen, wherein the immunogenic composition induces increased T-cell and antibody mediated immune responses specific for the heterologous disease-associated antigen when administered to a subject, e.g. a human subject, and related methods and uses.		
대표청구항	1. An immunogenic composition comprising a recombinant modified vaccinia virus Ankara (MVA) comprising a nucleic acid sequence encoding a flagellin and further comprising a nucleic acid sequence encoding a heterologous disease-associated antigen, wherein the immunogenic composition induces: a) increased T-cell and/or B-cell immune responses specific for the heterologous disease-associated antigen, and b) increased innate immune responses when administered to a subject as compared to T-cell and/or B-cell immune responses specific for the heterologous disease-associated antigen and innate immune responses induced by administration of a recombinant MVA comprising a nucleic acid sequence encoding a heterologous disease-associated antigen but not a nucleic acid sequence encoding a flagellin; wherein said recombinant modified vaccinia virus Ankara (MVA) is capable of reproductive replication in chicken embryo fibroblasts.		

6. 서브유닛 백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	US8496942	12/823560	2010-06-25	Therapeutic peptides and uses thereof	SUSAVION BIOSCIENCES, INC.
2	US7892555	12/830063	2010-07-02	Prophylactic and therapeutic immunization against protozoan infection and disease	GEORGIA UNIV
3	US8741310	12/869967	2010-08-27	Fusion-intermediate state of HIV-1 gp41 targeted by broadly neutralizing antibodies	CHILDREN'S MEDICAL CENTER
4	US9303070	14/000815	2011-02-22	Multimeric multiepitope polypeptides in improved seasonal and pandemic influenza vaccines	BIONDVAX PHARMACEUTICALS LTD.
5	US8586056	13/039086	2011-03-02	HIV-1 envelope glycoprotein	INTERNATIONAL AIDS VACCINE INITIATIVE
6	US8981057	13/582364	2011-03-07	B-cell stimulating fusion proteins of an antigen with BAFF or APRIL	ACADEMISCH MEDISCH CENTRUM BIJ DE UNIVERSITEIT VAN AMSTERDAM

▌ 코로나19 등 바이러스 감염성 질환 백신 분야

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
7	US10081795	13/069905	2011-03-23	Flavivirus host range mutations and uses thereof	RESEARCH DEV FOUND
8	CN102212133	2011-10078167	2011-03-30	Fab segment of human-source human immunodeficiency virus (HIV) antibody and coded gene and application thereof	INSTITUTE OF PATHOGEN BIOLOGY, CHINESE ACADEMY OF MEDICAL SCIENCES
9	KR10-1316102	10-2011-0040720	2011-04-29	로타바이러스 나노입자를 이용한 재조합 복합 항원의 제조방법	중앙대학교
10	US8652439	13/164411	2011-06-20	Compositions of HSP60 peptides and viral antigens for vaccination and diagnosis	YEDA RES & DEV
11	JP6152944	2013-515635	2011-06-23	속박 면역원성 조성물 및 그 용도	MONASH UNIV
12	US8889148	13/173895	2011-06-30	Flavivirus host-range mutations and uses thereof	RESEARCH DEV FOUND
13	KR10-1281098	10-2011-0064671	2011-06-30	B형 간염 바이러스 표면 항원상의 에피토프 및 이의 용도	녹십자

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
14	US8591915	13/194194	2011-07-29	Plant-derived vaccines against respiratory syncytial virus	DENNIS E. BUETOW
15	JP5930967	2012-533011	2011-09-07	C형 간염 바이러스 리포좀 백신	SAITAMA MEDICAL UNIV
16	EP2630155	2011-778762	2011-10-22	NOVEL HEMAGGLUTININ 5 (H5) PROTEINS FOR THE TREATMENT AND PREVENTION OF INFLUENZA INFECTIONS	BOEHRINGER INGELHEIM
17	EP2646050	2011-802668	2011-12-02	VACCINE AGAINST INFLUENZA H5N1 VIRUSES, MEDICAMENT AND TREATMENT OF H5N1 VIRAL INFECTIONS	MAB-FACTORY
18	CN102600466	2012-10078706	2012-03-23	Anti-influenza A virus and novel universal epitope vaccine and preparing method thereof	HENAN AGRICULTURAL UNIVERSITY
19	US9284356	14/130839	2012-07-11	Identification of a west nile virus CD4 T cell epitope and use thereof	USA GOV
20	US8771706	13/763822	2013-02-11	Anti-RSV immunogens and methods of immunization	USA GOV

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
21	CN103172705	2013-10061479	2013-02-27	Hepatitis C virus B cell epitope peptide PUHI16 and application thereof	PEOPLE'S HOSPITAL OF BEIJING UNIV.
22	US9388217	14/384901	2013-03-12	Polypeptides for treating and/or limiting influenza infection	WASHINGTON UNIV
23	KR10-2103606	10-2013-0036293	2013-04-03	백신 조성물	NITTO DENKO
24	US9884893	14/398084	2013-05-21	Epitope focusing by variable effective antigen surface concentration	DISTRIBUTED BIO, INC.
25	KR10-2077876	10-2014-7036531	2013-05-30	ＣＲＭ１９７ 담체 단백질에 커플링된 ＨＩＶ ＧＰ４１ 펩티드를 포함하는 면역원성 화합물	INNAVIRAVX
26	US9657071	14/408590	2013-06-18	IgE peptide vaccine	NIPPON ZENYAKU KOGYO
27	US9938325	14/426646	2013-09-06	HIV-1 antigens with discrete conformational forms in the V1/V2 domain and methods of use thereof	NEW YORK STATE UNIV

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
28	US9234040	14/045454	2013-10-03	Vaccines based on targeting antigen to DCIR expressed on antigen-presenting cells	BAYLOR RES INST
29	US9738688	14/072209	2013-11-05	HIV-1 envelope glycoprotein	INTERNATIONAL AIDS VACCINE INITIATIVE
30	US9951106	14/649565	2013-12-04	Recombinant fusion protein comprising HIV gp120 linked to an enhancing CD4 binding site mAb	MARYLAND UNIV
31	US8877210	14/156284	2014-01-15	Influenza hemagglutinin and neuraminidase variants	MEDIMMUNE
32	KR10-1476255	10-2014-0014425	2014-02-07	HIV-I 유래 T 세포 항원결정기를 갖는 재조합 펩타이드 및 이를 포함하는 백신 조성물	대한민국
33	JP5844403	2014-047538	2014-03-11	Plasmodiumfalciparum 스포로조이트 및 간단계 항원	USA GOV
34	JP6285469	2015-562115	2014-03-12	호흡기 합포체 바이러스의 열 안정적인 융합 전 F단백질 올리고머 및 면역 조성물에 있어서의 그 사용	MUCOSIS B.V.

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
35	KR10-1605521	10-2014-0063147	2014-05-26	인플루엔자 바이러스에 대해 범용면역성을 갖는, 재조합 헤마글루티닌 HA5 항원 및 이의 용도	대한민국
36	US10286062	14/903611	2014-07-09	Universal influenza vaccine	TEXAS TECH UNIVERSITY SYSTEM
37	US9975925	14/914431	2014-08-26	Influenza antigens and antibodies	GLAXO GROUP
38	US9499590	14/479612	2014-09-08	Antibodies against and methods for producing vaccines for respiratory syncytial virus	MEDIMMUNE
39	KR10-1695518	10-2014-0130984	2014-09-30	호흡기 신시치아 바이러스 범용 백신	이화여자대학교
40	US10058604	14/508369	2014-10-07	Soluble HIV-1 envelope glycoprotein trimers	INTERNATIONAL AIDS VACCINE INITIATIVE
41	CN105709219	2014-10734809	2014-12-04	AIDS vaccine based on symmetrical-conformation immunogen and preparation method of AIDS vaccine	FUDAN UNIV

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
42	US10143737	15/114298	2015-01-27	Method for the vaccination against HIV	BIONOR PHARMA ASA
43	CN104873969	2015-10182668	2015-04-16	Therapeutic hepatitis B vaccine based on HBV PreS-S, C antigen and novel adjuvant CpG	NANJING WEIXIN BIOLOGICAL MEDICINE CO., LTD.
44	US10308689	14/800468	2015-07-15	Dengue virus (DV) polypeptide sequences, T cell epitopes and methods and uses thereof	LA JOLLA INSTITUTE FOR ALLERGY AND IMMUNOLOGY
45	US9963490	14/975918	2015-12-21	Influenza nucleoprotein vaccines	OSIVAX SAS
46	US10675345	15/538133	2015-12-30	Recombinant influenza virus vaccines for influenza	GEORGIA STATE UNIV
47	US9750799	15/056743	2016-02-29	Broad spectrum influenza A neutralizing vaccines and D-peptidic compounds, and methods for making and using the same	REGENERON PHARMA
48	US10174292	15/075329	2016-03-21	Soluble HIV-1 envelope glycoprotein trimers	INTERNATIONAL AIDS VACCINE INITIATIVE

▌ 코로나19 등 바이러스 감염성 질환 백신 분야

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
49	US9931394	15/075348	2016-03-21	Soluble HIV-1 envelope glycoprotein trimers	INTERNATIONAL AIDS VACCINE INITIATIVE
50	JP6622326	2017-555758	2016-05-02	인플루엔자 A/샹하이/2/2013 H7배열의 변경 H7적혈구 응집소당단백질	EPIVAX INC
51	US10500268	15/744551	2016-07-14	Methods and compositions related to increasing the fidelity of influenza A virus for vaccine development	ROCHESTER UNIV
52	US10137190	15/244321	2016-08-23	Nucleic acid molecules encoding ferritin-hemagglutinin fusion proteins	USA GOV
53	US10485864	15/762050	2016-09-21	Characterization of influenza vaccines	OREGON HEALTH & SCIENCE UNIVERSITY
54	US10039820	15/331596	2016-10-21	West nile virus vaccine comprising WN-80E recombinant subunit protein	HAWAII BIOTECH
55	US10087218	15/331513	2016-10-21	Vaccine antigens that direct immunity to conserved epitopes	UTAH UNIV

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
56	JP6430574	2017-078814	2017-04-12	히드라지노 1 H-이미다조퀴놀린-4-아민 및 이것으로 조제된 복합체	3M
57	US10245309	15/588887	2017-05-08	Antigen specific multi epitope-based anti-infective vaccines	LIOR CARMON
58	US10456460	15/795678	2017-10-27	Vaccine compositions for treatment of Zika virus	VARIATION BIOTECH
59	KR10-2039059	10-2017-0157475	2017-11-23	일본 뇌염 바이러스 피막 단백질의 돌출 도메인을 포함하는 단백질, 이의 동형이량체, 및 이의 용도	한국생명공학연구원
60	US10246686	15/865364	2018-01-09	Influenza virus replication for vaccine development	WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF)
61	US10407470	15/908372	2018-02-28	Method of inducing an immune response against human immunodeficiency virus comprising administering immunogenic compositions comprising authentic trimeric HIV-1 envelope glycoproteins containing a long linker and tag	CATHOLIC UNIV

▌ 코로나19 등 바이러스 감염성 질환 백신 분야

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
62	KR10-2091281	10-2018-0083169	2018-07-17	재조합 인플루엔자 A 바이러스 H5N6주 및 이를 포함하는 고병원성 인플루엔자 A 바이러스 백신 조성물	대한민국
63	KR10-2076917	10-2018-0128556	2018-10-25	자가조립 나노 입자를 제조하기 위한 유전자 재조합 발현 벡터 시스템 및 이를 이용하는 방법	연세대학교
64	KR10-2084912	10-2019-0006092	2019-01-17	B형 간염 바이러스 표면 항원의 입체 에피토프 및 이에 특이적으로 결합하는 항체	녹십자
65	US10617645	16/353303	2019-03-14	Nanoparticles carrying immunogenic peptides targeting HIV-1 protease cleavage sites	HER MAJESTY THE QUEEN IN THE RIGHT OF CANADA AS REPRESENTED BY THE MINISTER OF HEALTH
66	US10350284	16/371020	2019-03-31	Antigen specific multi epitope-based anti-infective vaccines	LIOR CARMON

□ US8496942

Therapeutic peptides and uses thereof			
문헌번호 (문헌일)	US8496942 (2013-07-30)	출원번호 (출원일)	12/823560 (2010-06-25)
출원인	SUSAVION BIOSCIENCES, INC. (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present invention is directed to a family of therapeutic peptides capable of modulating cytokine expression and/or stimulating the immune system of subject without producing or sustaining serious side-effects. Methods using the peptides to modulate cytokine expression in a subject, treat a disease, enhance vaccination, and stimulate a subject's immune system response are also disclosed.		
대표청구항	1. A polypeptide comprising multiple copies of a therapeutic peptide consisting of NPSHPLSG (SEQ ID NO: 7).		

□ US7892555

Prophylactic and therapeutic immunization against protozoan infection and disease			
문헌번호 (문헌일)	US7892555 (2011-02-22)	출원번호 (출원일)	12/830063 (2010-07-02)
출원인	GEORGIA UNIV (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	Polypeptide and polynucleotide vaccines effective to treat or prevent infection of a mammal, such as a dog, a cat, or a human, by a protozoan. Methods of treatment and prevention are also provided, including therapeutic administration of the vaccine to an infected mammal to prevent progression of infection to a chronic debilitating disease state. Preferred embodiments of the polynucleotide vaccine contain nucleotide coding regions that encode polypeptides that are surface-associated or secreted by T. cruzi. Optionally the efficacy of the polynucleotide vaccine is increased by inclusion of a nucleotide coding region encoding a cytokine. Preferred embodiments of the polypeptide vaccine include immunogenic peptides that contain membrane transducing sequences that allow the polypeptides to translocate across a mammalian cell membrane.		

대표청구항	1. A multicomponent vaccine comprising a plurality of isolated polypeptides, wherein each polypeptide is a Trypanosoma polypeptide comprising a glycosylphosphatidylinositol anchor attachment site, or an immunogenic fragment of said Trypanosoma polypeptide; wherein administration of the vaccine is effective to treat or prevent Trypanosoma infection in a mammal.

□ US8741310

Fusion-intermediate state of HIV-1 gp41 targeted by broadly neutralizing antibodies			
문헌번호 (문헌일)	US8741310 (2014-06-03)	출원번호 (출원일)	12/869967 (2010-08-27)
출원인	CHILDREN'S MEDICAL CENTER (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	Isolated, antigenic polypeptides including a prehairpin intermediate conformation of gp41 and vectors encoding such polypeptides are provided. Antibodies that bind to a prehairpin intermediate conformation of gp41 and methods of making antibodies a that bind to prehairpin intermediate conformation of gp41 are also provided. Vaccines against a prehairpin intermediate conformation of gp41, as well as methods of treating subjects infected with HIV, preventing HIV infection, and inhibiting HIV-mediated activities are also provided. Methods of screening compounds that bind to an isolated, prehairpin intermediate conformation of gp41 are further provided.		
대표청구항	1. An isolated, antigenic human immunodeficiency virus type 1 (HIV-1) gp41 fusion polypeptide capable of forming a prehairpin intermediate conformation comprising the following structure: NH2-heptad repeat 2 (HR2)-linker-heptad repeat 1 (HR1)-C-C-immunodominant loop region-HR2-membrane proximal external region (MPER)-COOH, wherein said fusion peptide is capable of inducing a broadly anti-HIV-1 neutralizing antibody when injected into a subject.		

□ US9303070

Multimeric multiepitope polypeptides in improved seasonal and pandemic influenza vaccines			
문헌번호 (문헌일)	US9303070 (2016-04-05)	출원번호 (출원일)	14/000815 (2011-02-22)
출원인	BIONDVAX PHARMACEUTICALS LTD. (IL)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The present invention relates to use of multimeric multi-epitope peptide-based compositions for immunizing subjects against influenza by administering the compositions to the subject prior to or together with seasonal or pandemic influenza vaccines. The present invention also relates to compositions that include a multimeric multi-epitope polypeptide and a seasonal or pandemic preparation against influenza.		
대표청구항	1. A method for improving a protective effect or enhancing the efficacy of seasonal or pandemic influenza vaccine comprising administering to a subject an effective amount of a synthetic or recombinant multimeric polypeptide comprising multiple copies of a plurality of influenza virus peptide epitopes, wherein the multimeric polypeptide has three repetitions of nine conserved linear epitopes arranged in the following block copolymer structure [E1E1E1-E2E2E2-E3E3E3-E4E4E4-E5E5E5-E6E6E6-E7E7E7-E8E8E8-E9E9E9], wherein E1 is HA 354-372 (SEQ ID NO: 82), E2 is HA 91-108 (SEQ ID NO: 48), E3 is M1 2-12 (SEQ ID NO: 25), E4 is HA 150-159 (SEQ ID NO: 52), E5 is HA 143-149 (SEQ ID NO: 51), E6 is NP 206-229 (SEQ ID NO: 64), E7 is HA 307-319 (SEQ ID NO: 59 or 89), E8 is NP 335-350 (SEQ ID NO: 69), and E9 is NP 380-393 (SEQ ID NO: 70), and wherein the multimeric polypeptide is administered 1-5 weeks prior to administration of a seasonal or pandemic vaccine.		

□ US8586056

HIV-1 envelope glycoprotein			
문헌번호 (문헌일)	US8586056 (2013-11-19)	출원번호 (출원일)	13/039086 (2011-03-02)
출원인	INTERNATIONAL AIDS VACCINE INITIATIVE (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present application relates to a novel HIV-1 envelope glycoprotein which may be utilized as an HIV-1 vaccine immunogen, antigens for crystallization and for the identification of broad neutralizing antibodies. The present invention encompasses the preparation and purification of immunogenic compositions which are formulated into the vaccines of the present invention.		
대표청구항	1. An isolated or non-naturally occurring soluble HIV-1 envelope glycoprotein having the amino acid sequence of SEQ ID NO. 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108 or 109.		

□ US8981057

B-cell stimulating fusion proteins of an antigen with BAFF or APRIL			
문헌번호 (문헌일)	US8981057 (2015-03-17)	출원번호 (출원일)	13/582364 (2011-03-07)
출원인	ACADEMISCH MEDISCH CENTRUM BIJ DE UNIVERSITEIT VAN AMSTERDAM (NL)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The invention relates to the fields of molecular biology, medicine, virology and vaccine development. Because the different forms of the presently available vaccines all have their specific drawbacks, there is a need for alternative vaccine strategies. The current invention provides means and methods for such alternative vaccine strategies.		

대표청구항	1. A fusion protein comprising an antigen and a compound comprising at least the extracellular domain of a proliferation inducing ligand (APRIL), wherein said antigen is an immunogenic part of a microorganism comprising at least 25 amino acids.

□ US10081795

Flavivirus host range mutations and uses thereof			
문헌번호 (문헌일)	US10081795 (2018-09-25)	출원번호 (출원일)	13/069905 (2011-03-23)
출원인	RESEARCH DEV FOUND (US)	기술분류	Flaviviridae/서브유닛 백신
요약	Methods and compositions concerning mutant flaviviruses with host range mutations. In some embodiments the invention concerns nucleotide sequences that encode mutant flavivirus proteins. Viruses comprising these sequences that display reduced replication in mammalian cells are provided. In further aspects of the invention, flavivirus vaccine compositions are provided. In another embodiment the invention provides methods for vaccination against flavivirus infection.		
대표청구항	1. A modified flavivirus envelope (E) protein comprising a mutated E protein's N-terminal transmembrane domain (E-T1 domain), such a mutation comprising a deletion of amino acids at positions of 0 to +3, 0 to +4, −2 to 0, −3 to 0, or −1 to +1, wherein the unmodified E-T1 domain comprises a central glycine amino acid and the deletion is relative to said central glycine, which is designated as position 0, and wherein the mutation selectively inhibits the replication of a flavivirus comprising the modified flavivirus E protein in mammalian cells relative to insect cells.		

□ CN102212133

Fab segment of human-source human immunodeficiency virus (HIV) antibody and coded gene and application thereof			
문헌번호 (문헌일)	CN102212133 (2013-01-16)	출원번호 (출원일)	2011-10078167 (2011-03-30)
출원인	INSTITUTE OF PATHOGEN BIOLOGY, CHINESE ACADEMY OF MEDICAL SCIENCES (CN)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The invention discloses an Fab segment of a human-source human immunodeficiency virus (HIV) antibody, a coded gene thereof and application thereof. The Fab segment of the antibody consists of a variable region (VH) and a constant region subunit CH1 of a heavy chain of the antibody and a light chain of the antibody, wherein the light chain consists of a light chain variable region (VL) and a light chain constant region (CL); both of the VH and the VL consist of complementary determining regions (CDRs) and framework regions (Framework Region, FRs); the complementary determining region consists of a CDR1, a CDR2 and a CDR3; the amino acid sequences of the CDR1, the CDR2 and the CDR3 of the VL are respectively shown as the 27th to the 32nd positions of the sequence 2, the 50th to the 52nd positions of the sequence 2 and the 89th to 98th positions of the sequence 2; and the amino acid sequences of the CDR1, the CDR2 and the CDR3 of the VH are respectively shown as the 26th to the 33rd positions of the sequence 3, the 51st to the 58th positions of the sequence 3 and the 97th to 116th positions of the sequence 3. The Fab segment and the coded gene thereof are used for preparing genetic engineering antibodies in different forms and medicaments, vaccines and diagnostic reagents for treating, preventing and diagnosing HIV infection and acquired immune deficiency syndrome.		
대표청구항	1. the Fab fragment of antibody, it is comprised of the Fd fragment of the heavy chain of antibody and the light chain of antibody, and described light chain is by variable region V LWith constant region C LForm, described heavy chain Fd fragment is by variable region V HWith the C of constant region subunit H1 forms described V HAnd V LForm by the complementary district of determinant and framework region, the complementary district of described determinant is comprised of CDR1, CDR2 and CDR3; It is characterized in that: described V LCDR1, CDR2 and the aminoacid sequence of CDR3 respectively shown in the 27-32 position of SEQ ID NO:3, shown in the 50-52 position of SEQ ID NO:3, shown in the 89-98 position of SEQ ID NO:3; Described V HCDR1, CDR2 and the aminoacid sequence of CDR3 respectively shown in the 26-33 position of SEQ ID NO:4, shown in the 51-58 position of SEQ ID NO:4, shown in the 97-116 position of SEQ ID NO:4.		

□ KR10-1316102

로타바이러스 나노입자를 이용한 재조합 복합 항원의 제조방법			
문헌번호 (문헌일)	KR10-1316102 (2013-10-01)	출원번호 (출원일)	10-2011-0040720 (2011-04-29)
출원인	중앙대학교 (KR)	기술분류	Flaviviridae/서브유닛 백신
요약	본 발명은 이종 바이러스 항원 에피톱이 탑재된 로타바이러스 복합 항원 발현용 컨스트럭트, 상기 로타바이러스 복합 항원을 포함하는 백신 조성물, 로타바이러스 복합항원을 포함하는 로타바이러스 바이러스 유사입자, 및 로타바이러스 유사입자를 포함하는 백신 조성물에 관한 것이다. 본 발명에 의하면 로타바이러스의 항원과 함께 로타바이러스와 다른 이종 바이러스의 에피톱을 동시에 함유하는 복합항원과 이 복합항원을 포함하는 로타바이러스의 바이러스 유사입자를 저비용으로 대량생산 할 수 있으며, 로타바이러스 및 이종 바이러스에 대한 신규 복합 백신의 연구 및 개발에 응용될 수 있다.		
대표청구항	이종 바이러스 항원 및 로타바이러스 항원이 펩티드 결합에 의해 연결된 재조합 로타바이러스 복합 항원 단백질로서, 상기 로타바이러스 항원은 서열목록 제1서열의 아미노산 서열을 포함하는 VP7 단백질 부위이고, 상기 이종 바이러스 항원은 A형 간염바이러스 항원으로서 서열목록 제2서열의 아미노산 서열을 포함하는 A형 간염바이러스 도메인 2(D2) 부위 또는 서열목록 제3서열의 아미노산 서열을 포함하는 A형 간염바이러스 도메인 3(D3) 부위인 것을 특징으로 하는 복합 항원 단백질.		

□ US8652439

Compositions of HSP60 peptides and viral antigens for vaccination and diagnosis			
문헌번호 (문헌일)	US8652439 (2014-02-18)	출원번호 (출원일)	13/164411 (2011-06-20)
출원인	YEDA RES & DEV (IL)	기술분류	Flaviviridae/서브유닛 백신
요약	The present invention provides improved vaccines comprising an isolated viral antigenic peptide and a synthetic peptide derived from a T cell epitope of HSP60. The invention includes mixtures where the peptide serves as an adjuvant as well as conjugates where the peptide is covalently linked to the viral antigen. The known synthetic peptide carrier, p458, provides significantly improved immunogenicity for synthetic viral epitopes and analogs. Ec27 is a novel peptide derived from HSP60 which increases the immunogenicity substantially of the viral antigen both as a mixture or a covalent conjugate. Some of the isolated viral epitopes are novel and are claimed for diagnostic as well as therapeutic or prophylactic uses.		
대표청구항	1. A vaccine composition comprising an antigen and a synthetic peptide adjuvant comprising a T cell epitope of HSP60 in which the synthetic peptide adjuvant has an amino acid sequence selected from the group consisting of KKARVEDALHATRAAVEEGV (Ec27; SEQ ID NO:76) and KKDRVTDALNATRAAVEEGI (Ec27h; SEQ ID NO:86) and analogs, homologs, derivatives and salts thereof having at least 80% amino acid identity to SEQ ID NO:76 and maintaining electric and hydrophobic properties of SEQ ID NOs: 76 and 86.		

□ JP6152944

속박 면역원성 조성물 및 그 용도			
문헌번호 (문헌일)	JP6152944 (2017-06-09)	출원번호 (출원일)	2013-515635 (2011-06-23)
출원인	MONASH UNIV (AU)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	【요약】【과제】다양한 성질과 사이즈의 항원을 제시하여 완강한 체액성 및 세포성 응답을 유도할 수 있는, 용도가 넓은 플랫폼 기술을 제공하는 것. 【해결수단】사람 또는 비인간 동물 대상에 있어서 그에 대한 면역 응답이 요구되는 병원체 항원 또는 기타 항원과 세포질 다각체병 바이러스(CPV)에서 유래하는 폴리로 드린탄파크질을 포함하여 구성되는 복합체 또는 동 복합체를 포함하여 구성되는 다면체를 포함하여 구성되는, 안정된 면역원성 또는 백신 조성물. 실질적으로 다면체형에서의 복합체의 대상으로의 전달은 그에 대한 면역 응답을 유도한다. 면역 응답을 일으키기 위한 동 복합체를 사용하는 방법. 【선택도】없음		

대표청구항	【청구항1】 약학적 또는 생리학적으로 허용 가능한 캐리어 및/또는 희석제 중에 복합체를 포함하여 구성되는, 안정된 면역원성 또는 백신 조성물로서, 당해 조성물은 약학적 조성물로서, 대상 중에서 면역 응답을 유도하는 양으로 상기 복합체를 포함한 약학적 조성물이며 상기 복합체는 사람 또는 비인간 동물 대상 중에서 그에 대한 면역 응답이 요구되는 병원체 항원 또한 기타 항원과 세포질 다각체병 바이러스(CPV)에서 유래하는 폴리로 드린탄파크질을 포함해서 말이야 , 또한 상기 항원이 CPV 폴리로 드린탄파크질 유래의 폴리로 드린 표적화 펩타이드에 융합되어 있고 실질적으로 미립자 다면체형에서의 상기 복합체의 상기 대상으로의 전달이 그에 대한 면역 응답을 유도하는, 조성물.

□ US8889148

Flavivirus host-range mutations and uses thereof			
문헌번호 (문헌일)	US8889148 (2014-11-18)	출원번호 (출원일)	13/173895 (2011-06-30)
출원인	RESEARCH DEV FOUND (US)	기술분류	Flaviviridae/서브유닛 백신
요약	Methods and compositions concerning mutant flaviviruses with host-range phenotypes are provided. Nucleotide sequences that encode mutant flavivirus proteins are also provided. In certain aspects, viruses comprising these sequences display reduced replication in mammalian cells. In further aspects of the invention, flavivirus vaccine compositions and methods for vaccination against flavivirus infection are provided.		
대표청구항	1. A modified flavivirus envelope protein (E) comprising a E protein N-terminal transmembrane domain (E-T1 domain) having at least one mutation relative to wild type E-T1, such a mutation consisting of a proline substituted for the central glycine, which is designated as position 0 wherein a flavivirus comprising the modified flavivirus E protein has an ability to infect mammalian cells but a reduced ability to replicate therein relative to the wild-type flavivirus.		

□ KR10-1281098

B형 간염 바이러스 표면 항원상의 에피토프 및 이의 용도			
문헌번호 (문헌일)	KR10-1281098 (2013-06-26)	출원번호 (출원일)	10-2011-0064671 (2011-06-30)
출원인	녹십자 (KR)	기술분류	Flaviviridae/서브유닛 백신
요약	본 발명은 B형 간염 바이러스(HBV)에 특이적인 에피토프 및 이의 용도에 대한 것으로, 본 발명에서 제공되는 에피토프는 돌연변이에 의한 변형이 일어나지 않는 보존적 부위이기 때문에, 상기 에피토프에 대한 항체를 포함하는 조성물 또는 상기 에피토프를 포함하는 백신 조성물은 HBV의 돌연변이에 의한 치료효과 저하가 일어날 가능성이 낮아 HBV 치료에 매우 유용하게 이용가능하다.		
대표청구항	RFLWE(서열번호 4), KFLWE(서열번호 5), FARFLWEWASVRFSW(서열번호 6) 및 FGKFLWEWASARFSW(서열번호 7) 중 어느 하나에 따른 B형 간염 바이러스(HBV) 특이적 에피토프.		

□ US8591915

Plant-derived vaccines against respiratory syncytial virus			
문헌번호 (문헌일)	US8591915 (2013-11-26)	출원번호 (출원일)	13/194194 (2011-07-29)
출원인	DENNIS E. BUETOW (US)	기술분류	Paramyxoviridae/서브유닛 백신
요약	A plant-derived vaccine against respiratory syncytial virus (RSV) is disclosed. The vaccine includes an immunogenic complex that includes plant cells transformed with a chimeric gene containing a nucleotide sequence adapted for protein expression in plants and an RSV coding sequence that encodes an antigenic protein of RSV. Also disclosed are methods of making the plant-derived vaccine of the invention, as well as transgenic plants, transgenic plant cells, and nucleic acid constructs useful in immunizing a mammal against RSV.		

대표청구항	1. A method for eliciting a Th1 immune response in a subject comprising orally administering to a subject in need thereof an edible portion of a plant comprising a chimeric nucleic acid construct comprising a nucleic acid molecule encoding an antigenic respiratory syncytial virus (RSV)-F protein or antigenic peptide of the RSV-F protein in an amount that induces RSV-F-specific serum IgG and IgA and RSV-F-specific mucosal IgA, wherein said antigenic RSV-F protein or antigenic peptide of the RSV-F protein is expressed in the edible portion of the plant and elicits a Th1 immune response in the subject.

□ JP5930967

C형 간염 바이러스 리포좀 백신			
문헌번호 (문헌일)	JP5930967 (2016-05-13)	출원번호 (출원일)	2012-533011 (2011-09-07)
출원인	SAITAMA MEDICAL UNIV (JP)	기술분류	Flaviviridae/서브유닛 백신
요약	【요약】 본 발명은 펩타이드가 결합한 리포좀으로서, 상기 펩타이드가 C형 간염 바이러스 NS3 단백질의 아미노산 배열 중 9 아미노산 이상의 길이의 부분 아미노산 서열을 포함하고9~11아미노산의 길이를 가지며, 세포 상해성 T림프구를 유도할 수 있는 것이어;상기 리포좀이 불포화 결합을 하나 가지는 탄소수14~24의 아실기 또는 불포화 결합을 하나 가지는 탄소수14~24의 탄화수소기를 가지는 인지질 및 리포좀 안정화제를 함유해;또한 상기 리포좀의 표면에 상기 펩타이드가 결합되어 있는, 펩타이드 결합 리포좀, 상기 펩타이드 결합 리포좀을 포함한 세포 상해성 T림프구 활성화제 및 C형 간염 바이러스 백신을 제공한다.		
대표청구항	【請求項1】펩타이드가 결합한 리포좀으로서, 상기 펩타이드가 C형 간염 바이러스 NS3 단백질의 아미노산 배열 중 9 아미노산 이상의 길이의 부분 아미노산 서열을 포함하고9~11아미노산의 길이를 가지며, 세포 상해성 T림프구를 유도할 수 있는 것이어; 상기 리포좀이 불포화 결합을 하나 가지는 탄소수14~24의 아실기 또는 불포화 결합을 하나 가지는 탄소수14~24의 탄화수소기를 가지는 인지질 및 리포좀 안정화제를 함유해;또한 상기 리포좀의 표면에 상기 펩타이드가 결합되어 있는, 펩타이드 결합 리포좀 (으)로서, 부분 아미노산 서열이 서열번호1~3, 5 및 6 중 하나로 표시되는 아미노산 서열인 청구항 1에 기재된 펩타이드 결합 리포좀 .		

□ EP2630155

NOVEL HEMAGGLUTININ 5 (H5) PROTEINS FOR THE TREATMENT AND PREVENTION OF INFLUENZA INFECTIONS			
문헌번호 (문헌일)	EP2630155 (2020-04-15)	출원번호 (출원일)	2011-778762 (2011-10-22)
출원인	BOEHRINGER INGELHEIM (DE)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The present invention relates to novel hemagglutinin H5 proteins, nucleic acids and vectors encoding for those as well as vaccines comprising any of such H5 proteins, nucleic acids or vectors encoding for those H5 proteins. Moreover, the present invention also relates to the medicinal use of any of such compositions in humans and animals, in particular for the treatment and prevention of influenza infections with H5N1 of North African origin.		
대표청구항	A vaccine comprising a) H5 protein of influenza virus, wherein the H5 protein consists of or comprises any one of the sequences as set forth in SEQ ID NOs: 2 to 12, or 35 or 36 or 40; b) a pharmaceutical acceptable carrier and/or excipient.		

□ EP2646050

VACCINE AGAINST INFLUENZA H5N1 VIRUSES, MEDICAMENT AND TREATMENT OF H5N1 VIRAL INFECTIONS			
문헌번호 (문헌일)	EP2646050 (2016-09-07)	출원번호 (출원일)	2011-802668 (2011-12-02)
출원인	MAB-FACTORY (DE)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The invention relates to an antigenic determinant (H5 epitope) of influenza hemagglutinin (H5N1) which is conserved over distant H5N1 lineages but not found in related hemagglutinins H1, H2 or H6; antibodies, antibody fragments and receptors against said conserved antigenic determinant of HA which have influenza A neutralizing activity as well as H5N1 specific vaccines on basis of said antigenic determinant. Methods for passive and active vaccinations are also disclosed, i.e. by administering a vaccine having said conserved H5 epitope as antigenic determinant or by administering an effective amount of antibodies against said antigenic determinant.		
대표청구항	A receptor molecule or antibody or antibody fragment against an antigenic determinant which comprises the following amino acid sequence SEQ ID NO: 3 RNVVW		

□ CN102600466

Anti-influenza A virus and novel universal epitope vaccine and preparing method thereof			
문헌번호 (문헌일)	CN102600466 (2014-06-11)	출원번호 (출원일)	2012-10078706 (2012-03-23)
출원인	HENAN AGRICULTURAL UNIVERSITY (CN)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The invention discloses a method for preparing anti-influenza A virus and novel universal epitope vaccine. The method comprises the following steps: combining a network server and related software to predict functional epitopes of NP, M1 and HA that are related with influenza protection antigen via a bioinformatics method, obtaining a total of 8 epitopes from H1N1, H3N1, H3N2, H5N1, H5N2 subtype CTL epitope and a B-cell epitope, and adding a flexible segment GPGPG between every two of the epitopes to act as linker and naming the linked product as HMN; linking a nucleotide sequence that corresponds to the epitope polypeptide to a plasmid carrier, performing prokaryotic expression, and adding an adjuvant to the purified expressed protein to prepare the vaccine, wherein the vaccine is used to perform immunization in mice. Western blot test proves that the recombinant polypeptide is effective in gene expression and has antigenicity. The T-lymphocyte subset index of the test group is higher than that of the control group in the mice immunization test, and the result indicates that the polypeptide can induce BALC/c mice to generate specific humoral and cellular immune responses specific to the selected epitopes and proves that the polypeptide has strong immunogenicity.		
대표청구항	1. an influenza virus multi-epitope tandem polypeptide, is characterized in that, the nucleotides sequence of coding said polypeptide is classified as: SEQ ID N0:9.		

□ US9284356

Identification of a west nile virus CD4 T cell epitope and use thereof			
문헌번호 (문헌일)	US9284356 (2016-03-15)	출원번호 (출원일)	14/130839 (2012-07-11)
출원인	USA GOV (US)	기술분류	Flaviviridae/서브유닛 백신
요약	Described herein is the identification and of a potent West Nile virus (WNV) CD4 positive T cell epitope and its use for increasing the immunogenicity of heterologous flavivirus vaccines, such as dengue virus type 2 (DENV-2) DNA and virus-like particle (VLP) vaccines. Also described are methods for the identification of potent T cell epitopes to enhance immunogenicity of multivalent vaccines.		
대표청구항	1. An isolated mutant flavivirus E-glycoprotein polypeptide, wherein the polypeptide comprises an isoleucine at position 474, a threonine at position 484, a valine at position 488 and a leucine at position 493, each numbered with reference to the West Nile virus E-glycoprotein polypeptide sequence of SEQ ID NO: 38, wherein the amino acid sequence of the polypeptide comprises SEQ ID NO: 12, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28, SEQ ID NO: 29, SEQ ID NO: 30 or SEQ ID NO: 31.		

□ US8771706

Anti-RSV immunogens and methods of immunization			
문헌번호 (문헌일)	US8771706 (2014-07-08)	출원번호 (출원일)	13/763822 (2013-02-11)
출원인	USA GOV (US)	기술분류	Paramyxoviridae/서브유닛 백신
요약	Immunogenic polypeptides corresponding to one or more RSV G glycoproteins, or analogs thereof, are provided as components of vaccines. The inventive compositions are useful as both a prophylactic and therapeutic for the prevention and treatment of RSV infections and associated pulmonary or other diseases. The inventive immunogens include regions of the RSV G protein, specifically, amino acid residues 164-176 of RSV G A2 protein or analogs thereof. This inventive immunogen is operable alone or in combination with other polypeptides such as the RSV G protein amino acid residues 155-206, or other vaccines such as live RSV vaccines, or inactivated RSV vaccines or immunogenic analogs thereof.		
대표청구항	1. A respiratory syncytial virus vaccine comprising an isolated immunogen that elicits a protective immune response that protects against an RSV vaccine enhanced RSV immune response said immunogen consisting of an amino acid sequence, said amino acid sequence consisting of the amino acids of: (i) amino acid position 163 to amino acid position 190 of SEQ ID NO: 8, amino acid position 163 to amino acid position 190 of SEQ ID NO. 7, or amino acid position 163 to amino acid position 190 of SEQ ID NO. 1;(ii) amino acid position 155 to amino acid position 206 of SEQ ID NO: 7, amino acid position 155 to amino acid position 206 of SEQ ID NO: 1, or amino acid position 155 to amino acid position 206 of SEQ ID NO: 8; ora combination thereof.		

□ CN103172705

Hepatitis C virus B cell epitope peptide PUHI16 and application thereof			
문헌번호 (문헌일)	CN103172705 (2014-08-20)	출원번호 (출원일)	2013-10061479 (2013-02-27)
출원인	PEOPLE'S HOSPITAL OF BEIJING UNIV. (CN)	기술분류	Flaviviridae/서브유닛 백신
요약	The invention provides a kind of novel hepatitis C virus B cell epitope peptide PUHI16; adopt the method for overlapping peptide; find the linear protection B cell epitope peptide that hepatitis C virus envelope protein is new; and obtained can in and the protection antibody of hepatitis C virus 1b gene hypotype HCVpp; the epitope peptide of these antibody recognition; its amino acid consists of GTYVTGGAQAHTTRGFASLF; position is that 384-403(be take hepatitis C virus H77 as reference standard, Accession No.NC – 004102).Determining of this protectiveness B cell epitope peptide, for the research and development of HCV therapeutic antibodies and the research and development of HCV preventative vaccine provide new solution.		
대표청구항	1. hepatitis C virus B cell epitope peptide PUHI16, is characterized in that, its amino acid consists of GTYVTGGAQAHTTRGFASLF.		

□ US9388217

Polypeptides for treating and/or limiting influenza infection			
문헌번호 (문헌일)	US9388217 (2016-07-12)	출원번호 (출원일)	14/384901 (2013-03-12)
출원인	WASHINGTON UNIV (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Polypeptides that recognize and are strong binders to Influenza A hemagglutinin and can be used, for example, to treat and/or limit development of an influenza infection are disclosed. Isolated nucleic acids encoding the polypeptides of the invention, recombinant expression vectors comprising the nucleic acids encoding the polypeptides of the invention operatively linked to a suitable control sequence, and recombinant host cells comprising the recombinant expression vectors of the invention are disclosed. Antibodies that selectively bind to the polypeptides of the invention, and		

	pharmaceutical compositions comprising one or more polypeptides according to the invention and a pharmaceutically acceptable carrier are disclosed. Additionally, methods for treating and/or limiting an influenza infection, methods for diagnosing an influenza infection, or monitoring progression of an influenza infection, methods for identifying candidate influenza vaccines, and methods for identifying candidate compounds for treating, limiting, and/or diagnosing influenza infection are disclosed.
대표청구항	1. A polypeptide comprising the amino acid sequence according to general formula I R1-R2-Phe-R3-R4-R5-R6-R7-R8-R9-R10-R11-R12-R13-R14-R15-R16-X1-R17 (SEQ ID NO: 2), whereinR1 is selected from the group consisting of Ser, Ala, Phe, His, Lys, Met, Asn, Gln, Thr, Val, Tyr, and Asp;R2 can be any amino acid;R3 is selected from the group consisting of Asp, Ala, Glu, Gly, Asn, Pro, Ser, and Tyr;R4 is selected from the group consisting of Leu and Phe;R5 can be any amino acid;R6 is selected from the group consisting of Met, Phe, His, Ile, Leu, Gln, and Thr;R7 is selected from the group consisting of Arg, Gly, Lys, Gln, and Thr;R8 is selected from the group consisting of Ile, Asn, Gln, Val, and Trp;R9 is selected from the group consisting of Met, Gly, Ile, Lys, Leu, Asn, Arg, Ser, Thr, Val, His, and Tyr;R10 is selected from the group consisting of Trp and Phe;R11 is selected from the group consisting of Ile, Phe, Ser, Thr, and Val;R12 is selected from the group consisting of Tyr, Cys, Asp, Phe, His, Asn, and Ser;R13 is selected from the group consisting of Val, Ala, Phe, Ile, Leu, Asn, Gln, Thr, and Tyr;R14 is selected from the group consisting of Phe, Glu, and Leu;R15 is selected from the group consisting of Ala, Gly, Lys, Arg, and Ser;R16 is selected from the group consisting of Phe, Cys, His, Lys, Leu, Met, Asn, Gln, Arg, Thr, Val, Trp, and Tyr;X1 is the amino acid sequence Z1-Arg-Z2-Ile-Pro (SEQ ID NO: 3), wherein Z1 is Lys or Asn, and Z2 is selected from the group consisting of Lys, Pro, Gln, and Thr; andR17 is Phe or Tyr.

□ KR10-2103606

백신 조성물			
문헌번호 (문헌일)	KR10-2103606 (2020-04-16)	출원번호 (출원일)	10-2013-0036293 (2013-04-03)
출원인	NITTO DENKO (JP)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	본 발명은, 감염증의 예방 또는 치료제로서 유용하고, 효과적으로 전신성 면역 응답 및 점막 면역 응답을 유도시킬 수 있는 설하 투여 가능한 백신 조성물을 제공한다. 인간 또는 동물의 구강 내에 투여되는 백신 조성물이며, 적어도 1종류의 감염증 유래 항원과, 톨 유사 수용체 4(TLR4) 아고니스트, 톨 유사 수용체 2/6(TLR2/6) 아고니스트 및 환상 비스디뉴클레오티드 또는 그의 유도체 혹은 염으로 이루어지는 군에서 선택되는 적어도 1종류를 포함하는 것을 특징으로 하는 백신 조성물이다.		
대표청구항	인간 또는 동물의 구강 내에 투여되는 백신 조성물이며,적어도 1종류의 감염증 유래 항원과톨 유사 수용체 4(TLR4) 아고니스트를 포함하고,상기 톨 유사 수용체 4(TLR4) 아고니스트는 판토에아(Pantoea)속 유래, 아세토박터(Acetobacter)속 유래, 자이모모나스(Zymomonas)속 유래, 크산토모나스(Xanthomonas)속 유래 또는 엔테로박터(Enterobacter)속 유래의 리포폴리사카라이드 및 그의 염으로 이루어지는 군에서 선택되는 적어도 1종인 것을 특징으로 하는 백신 조성물.		

□ US9884893

Epitope focusing by variable effective antigen surface concentration			
문헌번호 (문헌일)	US9884893 (2018-02-06)	출원번호 (출원일)	14/398084 (2013-05-21)
출원인	DISTRIBUTED BIO, INC. (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The present disclosure provides compositions and methods for the generation of an antibody or immunogenic composition, such as a vaccine, through epitope focusing by variable effective antigen surface concentration. Generally, the composition and methods of the disclosure comprise three steps: a "design process" comprising one or more in silico bioinformatics steps to select and generate a library of potential antigens for use in the immunogenic composition; a "formulation process", comprising in vitro testing of potential antigens, using various biochemical assays, and further combining two or more antigens to generate one or more immunogenic compositions; and an "administering" step, whereby the immunogenic composition is administered to a host animal, immune cell, subject or patient. Further steps may also be included, such as the isolation and production of antibodies raised by host immune response to the immunogenic composition.		
대표청구항	1. An immunogenic composition for eliciting an immune response in a subject comprising at least six antigen proteins,wherein each of the at least six antigen proteins comprises a common target epitope of surface exposed residues adjacent in tertiary space, the common target epitope having an effective concentration that is greater than the individual concentrations of the at least six antigen proteins, andwherein the individual concentrations of each of the at least six antigen proteins is insufficient to be immunogenic in the subject on its own, while the immunogenic composition has an effective concentration of the common target epitope to elicit an immune response to the common target epitope in the subject.		

□ KR10-2077876

CRM197 담체 단백질에 커플링된 HIV GP41 펩티드를 포함하는 면역원성 화합물			
문헌번호 (문헌일)	KR10-2077876 (2020-02-10)	출원번호 (출원일)	10-2014-7036531 (2013-05-30)
출원인	INNAVIRAVX (FR)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	본 발명은 HIV 패밀리의 바이러스에 대항하는 백신 분야에 관한 것이다. 더욱 특히, 본 발명은 하기 화학식 (I) 의 펩티드를 포함하는 면역원성 화합물에 관한 것이다: NH2- [Nt]y-P-W-N-X1-S- X2-S-N-X3-X4-X5-X6-X7-I-W-[Ct]z-COOH (I), 화학식 (I) 의 펩티드는 CRM197 단백질로 이루어지는 담체 단백질에 공유적으로 연결되어 있음. 본 발명은 또한 이러한 면역원성 화합물을 함유하는 조성물 및 HIV 바이러스에 의한 개체의 감염에 의해 야기되는 상태를 예방 및/또는 치료하기 위한 이들 면역원성 화합물 및 조성물의 용도에 관한 것이다.		
대표청구항	하기 화학식 (VIa) 및 (VIb) 로 이루어지는 군으로부터 선택되는 펩티드를 포함하는 면역원성 화합물:NH2-(A1)m-SEQ IDN°2-(A2)n-COOH (VIa),NH2-(A1)m-SEQ IDN°6-(A2)n-COOH (VIb),식 중 :- m 은 0 또는 1 을 의미하는 정수이고,- n 은 0 또는 1 을 의미하는 정수이고,- A1 은 아미노산 잔기이고, - A2 는 아미노산 잔기이고,화학식 (VIa) 또는 (VIb) 의 펩티드는 CRM197 단백질로 이루어지는 담체 단백질에 접합에 의해 공유적으로 연결되어 있음.		

□ US9657071

IgE peptide vaccine			
문헌번호 (문헌일)	US9657071 (2017-05-23)	출원번호 (출원일)	14/408590 (2013-06-18)
출원인	NIPPON ZENYAKU KOGYO (JP)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	It is intended to provide an IgE peptide vaccine that can be used in the prevention or treatment of allergic diseases in animals other than mice, such as humans or dogs. The present invention provides a peptide consisting of (i) the amino acid sequence represented by SEQ ID NO: 28, or (ii) an amino acid sequence consisting of at least 10 consecutive amino acids in the amino acid sequence represented by SEQ ID NO: 28, wherein the peptide, when administered to an animal, is capable of specifically binding to a CH3 region in an IgE antibody of the animal and thereby blocking the binding of the IgE antibody to an IgE receptor.		

대표청구항	1. A vaccine or therapeutic agent for an IgE-mediated disease in a human or dog comprising: A) an adjuvant; andB) a peptide consisting of the amino acid sequence represented by SEQ ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, SEQ ID NO: 25, SEQ ID NO: 26, SEQ ID NO: 27, SEQ ID NO: 28, SEQ ID NO: 29, SEQ ID NO: 30, SEQ ID NO: 38, SEQ ID NO: 42, SEQ ID NO: 45, or SEQ ID NO: 55.

□ US9938325

HIV-1 antigens with discrete conformational forms in the V1/V2 domain and methods of use thereof			
문헌번호 (문헌일)	US9938325 (2018-04-10)	출원번호 (출원일)	14/426646 (2013-09-06)
출원인	NEW YORK STATE UNIV (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present invention relates to a novel composition of HIV-1 Env proteins that contain structurally and immunologically distinct VI/V2 domains. Methods of isolating such proteins, and methods of using such proteins as immunogens, therapeutic agents, vaccines, and test compounds for use in identifying a HIV antiviral are also provided.		
대표청구항	1. An isolated and purified fusion polypeptide comprising an amino-terminal sequence directly linked to a V1/V2 domain of a HIV envelope protein having a structural configuration of a "C" form, a "B" form, or a "B"/"A" combined form and comprising amino acid residues 304-401 of SEQ ID NO:2.		

□ US9234040

Vaccines based on targeting antigen to DCIR expressed on antigen-presenting cells			
문헌번호 (문헌일)	US9234040 (2016-01-12)	출원번호 (출원일)	14/045454 (2013-10-03)
출원인	BAYLOR RES INST (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present invention includes compositions and methods for increasing the effectiveness of antigen presentation using a DCIR-specific antibody or fragment thereof to which an antigen is attached that forms an antibody-antigen complex, wherein the antigen is processed and presented by a dendritic cell that has been contacted with the antibody-antigen complex.		
대표청구항	1. A method for increasing the effectiveness of antigen presentation by a dendritic cell comprising targeting a composition comprising a Dendritic Cell Immunoreceptor (DCIR)-specific antibody or a DCIR-binding fragment thereof to the dendritic cell, wherein an antigen is attached to the antibody or the fragment thereof in the form of a fusion protein.		

□ US9738688

HIV-1 envelope glycoprotein			
문헌번호 (문헌일)	US9738688 (2017-08-22)	출원번호 (출원일)	14/072209 (2013-11-05)
출원인	INTERNATIONAL AIDS VACCINE INITIATIVE (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present application relates to novel HIV-1 envelope glycoproteins, which may be utilized as HIV-1 vaccine immunogens, and antigens for crystallization, electron microscopy and other biophysical, biochemical and immunological studies for the identification of broad neutralizing antibodies. The present invention encompasses the preparation and purification of immunogenic compositions, which are formulated into the vaccines of the present invention.		
대표청구항	1. An engineered or non-naturally occurring HIV-1 envelope glycoprotein isolated from a BG505 virus and having a SOSIP mutation wherein the glycoprotein is a BG505 SOSIP.664 gp140 trimerandwherein the SOSIP mutation comprises one or more mutations of the wild type amino acid alanine (A) or by wild type amino acid threonine (T) substitution with cysteine (C) (SOS mutation) and/or a mutation of the wild type amino acid isoleucine (I) by substitution with proline (P) (IP mutation);wherein the BG505 SOSIP.664 gp140 trimer is more compact than a KNH1144 SOSIP.664G trimer isolated from with respect to envelope volume; andwherein the BG505 SOSIP.664 gp140 trimer has a thermal denaturation midpoint (TM) of about 68 C.		

□ US9951106

Recombinant fusion protein comprising HIV gp120 linked to an enhancing CD4 binding site mAb			
문헌번호 (문헌일)	US9951106 (2018-04-24)	출원번호 (출원일)	14/649565 (2013-12-04)
출원인	MARYLAND UNIV (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	Fusion proteins comprising a portion of the HIV-1 Env protein (gp120 and gp140) and single-chain fragment V regions (ScFv) of an enhancing antibody that exhibits binding specificity for HIV-1 Env protein are disclosed that may serve in immunogenic formulations for vaccination against HIV-1 infection, as well as methods of generating an immune response using the fusion proteins.		
대표청구항	1. A polypeptide comprising the amino acid sequence set forth in SEQ ID NO:8, termed gp120-b12-ScFV.		

□ US8877210

Influenza hemagglutinin and neuraminidase variants			
문헌번호 (문헌일)	US8877210 (2014-11-04)	출원번호 (출원일)	14/156284 (2014-01-15)
출원인	MEDIMMUNE (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Polypeptides, polynucleotides, methods, compositions, and vaccines comprising influenza hemagglutinin and neuraminidase variants are provided.		
대표청구항	1. A reassortant influenza A virus comprising six internal genome segments from one or more donor viruses and a surface antigen genome segment encoding a hemagglutinin (HA) polypeptide comprising the amino acid sequence of SEQ ID NO: 45, wherein the six internal genome segments and the HA encoding genome segment are from different influenza A viruses.		

□ KR10-1476255

HIV-I 유래 T 세포 항원결정기를 갖는 재조합 펩타이드 및 이를 포함하는 백신 조성물			
문헌번호 (문헌일)	KR10-1476255 (2014-12-18)	출원번호 (출원일)	10-2014-0014425 (2014-02-07)
출원인	대한민국 (KR)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	본 발명은 한국인 HIV-I 감염 환자로부터 유래한 T 세포 항원결정기를 포함하는 재조합 펩타이드를 포함하는 백신 조성물에 관한 것이다. 또한 본 발명은 상기 펩타이드 또는 단백질을 포함하는 백신 조성물 및 이를 이용하여 HIV-1 감염증을 예방, 진단 및 치료하는 방법을 제공한다. 상기 본 발명을 이용하여 한국인 HIV-1 감염 환자들로부터 세포성 면역 반응 유도 활성을 확인하였다.		
대표청구항	서열번호: 1 또는 서열번호: 2의 아미노산 서열로 이루어진 재조합 펩타이드를 포함하는, HIV 감염증을 치료 또는 예방하기 위한 백신 조성물.		

□ JP5844403

Plasmodiumfalciparum 스포로조이트 및 간단계 항원			
문헌번호 (문헌일)	JP5844403 (2015-11-27)	출원번호 (출원일)	2014-047538 (2014-03-11)
출원인	USA GOV (US)	기술분류	Togaviridae/서브유닛 백신
요약	【요약】 （ 수정유 ） 【과제】항말라리아 백신 성분으로서 이용하기 위한 면역원성 단백질, DNA 서열을 가지는 펩타이드 및 이들의 항원에 대한 면역 응답을 유도하는 방법의 제공. 【해결 수단】Plasmodium falciparum 유래 DNA 서열 특정 아미노산 서열을 구비하는 것을 특징으로 하는 면역원성 조성물 및 특정 핵산 서열에 의해 코드되어 있는 면역원성 조성물. 또한 특정 핵산 서열에 의해 코드되는 특정 아미노산 서열을 구비하는 폴리펩타이드를 추가로 포함하는 것이 바람직하다. 상기 항원을 포함한 백신 제제를 투여하는 것, 또는 상기 항원을 DNA 또는 기타 핵산 발현계로 백신 제제로서 옮겨지도록 발현됨으로써, 포유류에 있어서 말라리아에 대한 면역 응답을 유도하기 위해 이용할 수 있다. 【선택도】없음		
대표청구항	【請求項1】단리 폴리펩타이드 및 약리학적으로 허용 가능한 담체를 포함하고 상기 단리 폴리펩타이드는 서열번호 6 및 10의 아미노산 서열을 구비한다 폴리펩타이드를 포함한다 일을 특징으로 하는 면역원성 조성물.		

□ JP6285469

호흡기 합포체 바이러스의 열 안정적인 융합 전 F단백질 올리고머 및 면역 조성물에 있어서의 그 사용			
문헌번호 (문헌일)	JP6285469 (2018-02-09)	출원번호 (출원일)	2015-562115 (2014-03-12)
출원인	MUCOSIS B.V. (NL)	기술분류	Paramyxoviridae/서브유닛 백신
요약	【요약】 융합 전의 호흡기 합포체 바이러스(RSV) F단백질 중 적어도 하나의 항원 에피토프를 제시하는 열 안정적인 올리고머 재조합 폴리펩타이드로서, HRB 영역에 기능적 결실이 있고, 막 관통 도메인 및 세포질 도메인이 이종의 삼량체 형성 도메인에 의해 치환되어 있고 2개의 기능적 다염기성 퓨린 절단 부위가 빠져 있는, RSV F단백질 Ectodomain를 포함한 열 안정적인 올리고머 재조합 폴리펩타이드는 면역 응답을 유도하는 방법에 유용한 면역원성 조성물 중의 항원 성분으로서 유용하고 RSV 감염에 대한 백신이 된다(vaccinate against).		
대표청구항	【請求項1】융합 전의 호흡기 합포체 바이러스 F단백질 중 적어도 하나의 항원 에피토프를 제시하는 열 안정적인 재조합 폴리펩타이드로서, 상기 폴리펩타이드는 , 호 흡기 합포체 바이러스 F단백질 Ectodomain를 포함하고 상기 호흡기 합포체 바이러스 F단백질 Ectodomain 내의 2개의 다염기성 퓨린 절단 부위가 , 상기 부위 내의 전체 아르기닌 잔기를 라이신 잔기에 의해 치환함으로써 변이 도입되고 이것에 의해 상기 퓨린 절단 부위가 불완전하게 되어 있는 열 안정 조 대체 폴리펩타이드.		

□ KR10-1605521

인플루엔자 바이러스에 대해 범용면역성을 갖는, 재조합 헤마글루티닌 HA5 항원 및 이의 용도			
문헌번호 (문헌일)	KR10-1605521 (2016-03-16)	출원번호 (출원일)	10-2014-0063147 (2014-05-26)
출원인	대한민국 (KR)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	본 발명은 H1N1, H1N2, H2N2, H9N2, H5N1, H3N2 또는 H7N7형 인플루엔자 바이러스에 의한 감염 질환을 치료 또는 예방하기 위한, 서열번호 4의 아미노산 서열로 구성된 재조합 인플루엔자 헤마글루티닌(hemagglutinin, HA) 및 상기 재조합 인플루엔자 헤마글루티닌의 N-말단에 서열번호 7의 아미노산 서열로 구성된 저온 유도 단백질(cold shock protein, CSP)을 포함하는 융합단백질을 포함하는 면역원성 조성물에 관한 것으로서, 본 발명에 따른 조성물은 다양한 아변종 인플루엔자 바이러스 주에 대한 범용면역성을 갖는 범용백신으로 활용될 수 있다.		

대표청구항	H1N1, H1N2, H2N2, H9N2, H5N1, H3N2 또는 H7N7형 인플루엔자 바이러스에 의한 감염 질환을 치료 또는 예방하기 위한, 서열번호 4의 아미노산 서열로 구성된 재조합 인플루엔자 헤마글루티닌(hemagglutinin, HA) 및 상기 재조합 인플루엔자 헤마글루티닌의 N-말단에 서열번호 7의 아미노산 서열로 구성된 저온 유도 단백질(cold shock protein, CSP)을 포함하는 융합 단백질을 포함하는 면역원성 조성물.

□ US10286062

Universal influenza vaccine			
문헌번호 (문헌일)	US10286062 (2019-05-14)	출원번호 (출원일)	14/903611 (2014-07-09)
출원인	TEXAS TECH UNIVERSITY SYSTEM (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The present invention includes an isolated antigen against influenza A and a method of making the same that includes an ectodomain of influenza A Matrix Protein 2 (M2e) and a stem region of an influenza A hemagglutinin 2 (HA2) protein and an adjuvant. The invention further includes formulating the antigen into an isolated immune response stimulating fusion protein and/or a vaccine.		
대표청구항	1. An isolated antigen against influenza A comprising: one or more ectodomains of influenza A Matrix Protein 2 (M2e) in a fusion protein with one or more stem regions of an influenza A hemagglutinin 2 (HA2) protein and a protein adjuvant of SEQ ID NO: 4.		

□ US9975925

Influenza antigens and antibodies			
문헌번호 (문헌일)	US9975925 (2018-05-22)	출원번호 (출원일)	14/914431 (2014-08-26)
출원인	GLAXO GROUP (GB)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Novel influenza antigens, novel immunogenic or vaccine compositions, as well as uses of and methods for producing said antigens and compositions, are described.		
대표청구항	1. A modified influenza haemagglutinin (HA) antigen comprising additional Asn-linked glycosylation on at least two surface patches selected from the group of surface patches consisting of: Site A, Site B, Site C, Site D and Site E; wherein the coding sequence of the HA has been recombinantly modified to introduce at least two acceptor sites for Asn-linked glycosylation at positions other than at position 11, 23, 154, 165, 286 or 484 of HA of an H5 strain of influenza, or the residues corresponding to these residues in HA from a different strain of influenza;wherein the acceptor site for Asn-linked glycosylation has the consensus sequence Asn-X-Ser/Thr, wherein X is not Pro.		

□ US9499590

Antibodies against and methods for producing vaccines for respiratory syncytial virus			
문헌번호 (문헌일)	US9499590 (2016-11-22)	출원번호 (출원일)	14/479612 (2014-09-08)
출원인	MEDIMMUNE (US)	기술분류	Paramyxoviridae/서브유닛 백신
요약	The present invention relates to novel respiratory syncytial virus (RSV) F peptides and compositions comprising them. The present invention also relates to methods of evaluating anti-RSV antibody binding to F peptides. The present invention also relates to antibodies that immunospecifically bind to an F peptide of the present invention. The invention further provides methods and protocols for the administration of F peptides and/or antibodies that immunospecifically bind to F peptides for the prevention, neutralization, treatment of RSV infection. Additionally, the methods of the invention may be useful for the treatment, prevention and the amelioration of symptoms associated with RSV infection.		

대표청구항	1. A respiratory syncytial virus (RSV) F peptide comprising an amino acid sequence at least 90% identical to the amino acid sequence of LSLINDMPITNDQKILMSS (SEQ ID NO:40) and wherein said peptide comprises an N, I, or Q at amino acid position 15 of SEQ ID NO:40 and/or an L at amino acid position 11 of SEQ ID NO:40.

□ KR10-1695518

호흡기 신시치아 바이러스 범용 백신			
문헌번호 (문헌일)	KR10-1695518 (2017-01-05)	출원번호 (출원일)	10-2014-0130984 (2014-09-30)
출원인	이화여자대학교 (KR)	기술분류	Paramyxoviridae/서브유닛 백신
요약	본 발명은 호흡기 신시치아 바이러스(RSV) A 아형의 Gcf 단백질(RSV G protein core fragment) 및 호흡기 신시치아 B 아형의 Gcf 단백질의 융합 단백질, 상기 융합 단백질을 코딩하는 폴리뉴클레오티드, 상기 폴리뉴클레오티드를 포함하는 발현 벡터 및 상기 발현 벡터를 포함하는, 인간을 제외한 형질전환체, 상기 융합 단백질을 유효성분으로 포함하는, 호흡기 신시치아 바이러스 백신 조성물, 상기 백신 조성물을 제조 방법, 상기 백신 조성물을 호흡기 신시치아 바이러스에 대한 면역이 필요한 개체에 투여하는 단계를 포함하는, 호흡기 신시치아 바이러스에 대한 보호 면역을 증가시키는 방법 및 상기 백신 조성물을 호흡기 신시치아 바이러스에 대한 면역이 필요한 개체에 투여하는 단계를 포함하는, 호흡기 신시치아 바이러스에 의한 호흡기 감염 질환의 예방 또는 치료 방법에 관한 것이다.		
대표청구항	호흡기 신시치아 바이러스(RSV) A2 아형의 Gcf 단백질(RSV G protein core fragment) 및 호흡기 신시치아 B1 아형의 Gcf 단백질의 융합 단백질을 유효성분으로 포함하는, RSV A 및 B 아형 모두에 대해 보호 면역 효과를 나타내는 호흡기 신시치아 바이러스 백신 조성물.		

□ US10058604

Soluble HIV-1 envelope glycoprotein trimers			
문헌번호 (문헌일)	US10058604 (2018-08-28)	출원번호 (출원일)	14/508369 (2014-10-07)
출원인	INTERNATIONAL AIDS VACCINE INITIATIVE (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present application relates to novel HIV-1 envelope glycoproteins which may be utilized as an HIV-1 vaccine immunogens, antigens for crystallization and for the identification of broad neutralizing antibodies. The present invention encompasses the preparation and purification of immunogenic compositions which are formulated into the vaccines of the present invention.		
대표청구항	1. An engineered or non-naturally occurring JRFL SOSIP trimer that mimics the native HIV spike conformation and is stable at 55° C. to 63° C., wherein the trimer comprises (a) the amino acid sequence of SEQ ID NO: 8, or(b) the amino acid sequence of SEQ ID NO: 9 or SEQ ID NO: 9 further comprising cysteine mutations V135C, N136C, A137C, T138C, F159C, N160C, I161C, T162C, T163C, S164C, I165C, S306C, 1307C, H308C, R315C, A316C, F317C, Y318C, T319C, or T320C thereof, or(c) the amino acid sequence of SEQ ID NO: 10 or(d) the amino acid sequence of SEQ ID NO: 11, SEQ ID NO: 12, or SEQ ID NO: 13, or wherein VQSEKS in any of the three sequences is replaced with SEQ ID NO: 1.		

□ CN105709219

AIDS vaccine based on symmetrical-conformation immunogen and preparation method of AIDS vaccine			
문헌번호 (문헌일)	CN105709219 (2019-12-20)	출원번호 (출원일)	2014-10734809 (2014-12-04)
출원인	FUDAN UNIV (CN)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The invention belongs to the field of a vaccine, and relates to an AIDS vaccine based on a symmetrical-conformation immunogen and a preparation method of the IDS vaccine. On the basis of the immunogen characteristics of conserved epitope in a membrane proximal external region (MPER) of HIV-1 transmembrane protein gp41, the novel symmetrical-conformation immunogen, which contains a long sequence, is designed by virtue of a protein structure simulation technology; experimental results display that a stable helical structure, which is formed by the MPER epitope in the immunogen, has a bonding capacity, which is significantly higher than that the un-designed MPER immunogen, with a humanized broad-spectrum neutralizing antibody 10E8 identifying the epitope; serum and an antibody generated by an immunized animal can be bonded to the native conformation of HIV-1 envelope protein Env more strongly; the antibody generated from immunization can effectively inhibit inflection of HIV-1 viruses on target cells, and meanwhile, the inducible antibody can mediate an obvious antibody-dependent cell-mediated cytotoxicity; and the symmetrical-conformation immunogen 4sMPER disclosed by the invention, as the AIDS vaccine, can overcome membrane proximal conformation shortcomings of the original epitope, and the symmetrical-conformation immunogen is significant in advantage.		
대표청구항	1. An HIV immunogen of an HIV virus, which is characterized by comprising an amino acid sequence derived from an HIV gp41 MPER region, wherein the amino acid sequence comprises a 10E8 epitope of 4 times of tandem repeats, the 10E8 epitope of the 4 times of tandem repeats is in homodromous tandem, and the key structural feature of the immunogen is a symmetrical conformation, wherein the amino acid sequence of the 10E8 epitope of the 4 times of homodromous repeats is Ac-ASLWNWFDITNWLWYIKSLWNWFDITNW LWYIKSLWNWFDITNWLWYIKSLWNWFDITNWLWYIKG-NH2。		

□ US10143737

Method for the vaccination against HIV			
문헌번호 (문헌일)	US10143737 (2018-12-04)	출원번호 (출원일)	15/114298 (2015-01-27)
출원인	BIONOR PHARMA ASA (NO)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present invention relates to novel compositions of active agents and methods for the treatment of HIV infection and AIDS. In particular, the present invention relates to novel methods to select HIV infected patients with improved responses to HIV-specific vaccine peptides.		
대표청구항	1. A method for reducing and/or delaying one or more pathological effects of human immunodeficiency virus I (HIV) or for reducing the risk of developing acquired immunodeficiency syndrome (AIDS) in a human infected with HIV, the method comprising the steps of: a) measuring in a biological sample, from a human infected with HIV the amount of antibodies against one or more epitope of HIV envelope glycoproteins gp120 and/or gp41 in a suitable assay;b) selecting a subgroup of humans from a), wherein the amount of said measured antibodies corresponds to an amount of above background level of uninfected humans;c) treating said humans infected with HIV selected under b) with one or more peptide(s) comprising an amino acid sequence selected from SEQ ID NO:49, SEQ ID NO:52, SEQ ID NO:57 and SEQ ID NO:64 to stimulate a cell-mediated immune response and/or a peptide dimer with the structure (H-Gly-Ala-Lys-Arg-Arg-Val-Val-Gly-Gly-Cys(2-oxo-ethyl)-Gly-Gly-Ala-Lys-Arg-Arg-Val-Val-Gln-Arg-Glu-Lys-Arg-Ala-Gly-Glu-Arg-Glu-Lys-Arg-Ala-NH2) (H-Gly-Lys-Gly-Gly-Ile-Glu-Glu-Glu-Gly-Gly-Arg-Asp-Arg-Asp-Arg-Gly-Gly-Gln-Asp-Arg-Asp-Arg-NH2), acetate salt (amide bond between Cys(2-oxo-ethyl)10 (A-chain) and Lys2 (B-chain)) to stimulate a humoral response in said human.		

□ CN104873969

Therapeutic hepatitis B vaccine based on HBV PreS-S, C antigen and novel adjuvant CpG			
문헌번호 (문헌일)	CN104873969 (2018-06-19)	출원번호 (출원일)	2015-10182668 (2015-04-16)
출원인	NANJING WEIXIN BIOLOGICAL MEDICINE CO., LTD. (CN)	기술분류	Flaviviridae/서브유닛 백신
요약	The invention relates to a composition. The composition comprises (i) HBsAg and a precursor thereof (PreS-S), a fragment of the antigen, a variant of the antigen or a mixture of at least two of the HBsAg and the precursor thereof (PreS-S), the fragment and the variant; (ii) HBcAg1-X, a fragment of the antigen, a variant of the antigen or the fragment, or a mixture of at least two of HBcAg1-X, the fragment and the variant, wherein X is an integral number from 149-183; (iii) CpG-ODN, the oligonucleotide is full sulpho-modified, the sequence has two or more copies of 5'-NTCGTT-3' motifs and the length is 21 basic groups. The invention also relates to an application of the composition for treating the HBV infected and HBV mediated diseases, and a method for treating the HBV infected and HBV mediated diseases.		
대표청구항	1. a kind of pharmaceutical composition, it includes : I) hepatitis B PreS2-S anti-genic fragments,Ii) hepatitis B core antigen,Iii) CpG oligodeoxynucleotide andIv) pharmaceutical acceptable carrier ; Wherein, the hepatitis B PreS2-S anti-genic fragments sequence is SEQ ID NO:Sequence shown in 1.		

□ US10308689

Dengue virus (DV) polypeptide sequences, T cell epitopes and methods and uses thereof			
문헌번호 (문헌일)	US10308689 (2019-06-04)	출원번호 (출원일)	14/800468 (2015-07-15)
출원인	LA JOLLA INSTITUTE FOR ALLERGY AND IMMUNOLOGY (US)	기술분류	Flaviviridae/서브유닛 백신
요약	Dengue virus (DV) peptides, including T cell epitopes, structural and non-structural (NS) polypeptide sequences, subsequences and modifications thereof, nucleotide sequences encoding such peptides, and compositions including such peptides and encoding nucleotide sequences, and cells expressing such peptides, are provided. Such DV peptides, nucleotide sequences and compositions, can be used to elicit, stimulate, induce, promote, increase, enhance or activate an anti-DV CD8+ T cell response or an anti-DV CD4+ T cell response. Such peptides, nucleotide sequences and compositions can also be used for and in methods of vaccination/immunization of a subject against Dengue virus (DV) (e.g., to provide protection against DV infection and/or pathology), and for treatment of a subject in need thereof, for example, treatment of the subject for a Dengue virus (DV) infection or pathology.		
대표청구항	1. A pharmaceutical composition comprising a pharmaceutically acceptable carrier or excipient, an adjuvant and a peptide consisting of a sequence 9-25 amino acids in length wherein 9 contiguous amino acids are identical to VATTFVTPM (SEQ ID NO:134), wherein the peptide elicits, stimulates, induces, promotes, increases, or enhances an anti-DV CD8+ T cell response or an anti-DV CD4+ T cell response, wherein the adjuvant is present in an amount that increases immunogenicity of the peptide.		

□ US9963490

Influenza nucleoprotein vaccines			
문헌번호 (문헌일)	US9963490 (2018-05-08)	출원번호 (출원일)	14/975918 (2015-12-21)
출원인	OSIVAX SAS (FR)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The present invention is related to a fusion protein comprising a variant of a nucleoprotein antigen from Influenza strain A, B or C, and a variant of a C4bp oligomerization domain for increasing the cellular immunogenicity of the nucleoprotein antigen from Influenza. The invention is also related to nucleic acids, vectors, fusion proteins and immunogenic compositions, for their use as a vaccine or immunotherapy for the prevention and treatment of influenza disease.		
대표청구항	1. An immunogenic composition comprising: a fusion protein comprising at least one variant of an influenza nucleoprotein antigen (NP) and a variant of the carrier protein of sequence SEQ ID NO: 1 comprising a C-terminal substitution of at least one positively-charged peptide having the sequence ZXBBBBZ SEQ ID NO: 3 wherein (i) Z is any amino acid or is absent, (ii) X is any amino acid and (iii) B is an arginine (R) or a lysine (K), wherein the composition does not have an adjuvant.		

□ US10675345

Recombinant influenza virus vaccines for influenza			
문헌번호 (문헌일)	US10675345 (2020-06-09)	출원번호 (출원일)	15/538133 (2015-12-30)
출원인	GEORGIA STATE UNIV (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Disclosed are recombinant chimeric influenza virus vaccines and live attenuated influenza virus (LAIV) vaccines expressing foreign (RSV) neutralizing epitopes or conserved M2e epitopes that are capable of providing broader cross-protection against influenza virus and/or protecting against respiratory syncytial virus (RSV) without vaccine-enhanced RSV disease (ERD).		

대표청구항	1. A recombinant influenza virus comprising a chimeric hemagglutinin (HA) fusion protein, wherein the HA fusion protein comprises an influenza A hemagglutinin (HA) protein or fragment thereof comprising at least the HA head domain, and one or more repeats of three or more influenza virus matrix protein 2 extracellular (M2e) domains.

□ US9750799

Broad spectrum influenza A neutralizing vaccines and D-peptidic compounds, and methods for making and using the same			
문헌번호 (문헌일)	US9750799 (2017-09-05)	출원번호 (출원일)	15/056743 (2016-02-29)
출원인	REGENERON PHARMA (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	GB1 peptidic compounds that specifically bind to a hemagglutinin target protein, and libraries that include the same, as well as methods of making and using the same, are provided. Also provided are methods and compositions for making and using the compounds. Also provided are hemagglutinin mimics and fragments and methods of using the same, including methods of screening for GB1 peptidic compounds and methods of using conjugates the mimics as influenza A vaccines. Aspects of the invention include methods of screening libraries of L-peptidic compounds for specific binding to a D-peptidic hemagglutinin target protein. Once a L-peptidic compound has been identified that specifically binds to the D-peptidic hemagglutinin target protein, the D-enantiomer of the selected L-peptidic compound may be produced. In some embodiments, the D-enantiomer of the selected L-peptidic compound binds to, and in some instances, neutralizes influenza virus particles.		
대표청구항	1. A conjugate comprising: an L-peptidic coiled coil hemagglutinin mimic comprising two covalently linked strands that each independently comprise a peptidic sequence having one of SEQ ID NOs:87-102; anda carrier protein conjugated to the L-peptidic coiled coil hemagglutinin mimic.		

□ US10174292

Soluble HIV-1 envelope glycoprotein trimers			
문헌번호 (문헌일)	US10174292 (2019-01-08)	출원번호 (출원일)	15/075329 (2016-03-21)
출원인	INTERNATIONAL AIDS VACCINE INITIATIVE (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present application relates to novel HIV-1 envelope glycoproteins which may be utilized as an HIV-1 vaccine immunogens, antigens for crystallization and for the identification of broad neutralizing antibodies. The present invention encompasses the preparation and purification of immunogenic compositions which are formulated into the vaccines of the present invention.		
대표청구항	1. An engineered or non-naturally occurring HIV envelope glycoprotein trimer, wherein the trimer comprises one or more subtype A BG505 Env trimer-derived mutations ("TD mutations"), wherein said TD mutations comprise one or more mutations at residues 47, 49, 65, 106, 164, 165, 172, 302, 308, 429, 432, 500, 519, 520, 543, 553, 567, 588 and/or 662 wherein a numerical position of an amino acid residue of the glycoprotein trimer corresponds with a numerical position of an amino acid residue of JRFL upon direct alignment of the numerical positions of the amino acid residues of the glycoprotein trimer with the numerical positions of the amino acid residues of JRFL, whose sequence as defined in SEQ ID NO: 5 is based on the BG505 numbering system.		

□ US9931394

Soluble HIV-1 envelope glycoprotein trimers			
문헌번호 (문헌일)	US9931394 (2018-04-03)	출원번호 (출원일)	15/075348 (2016-03-21)
출원인	INTERNATIONAL AIDS VACCINE INITIATIVE (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	The present application relates to novel HIV-1 envelope glycoproteins which may be utilized as an HIV-1 vaccine immunogens, antigens for crystallization and for the identification of broad neutralizing antibodies. The present invention encompasses the preparation and purification of immunogenic compositions which are formulated into the vaccines of the present invention.		
대표청구항	1. An engineered or non-naturally occurring Clade A BG505-NFL2 Env trimer comprising one or more proline mutations, wherein the mutation is S553P, N554P, E560P, Q562P, Q563P, or any combination thereof.		

□ JP6622326

인플루엔자 A/샹하이/2/2013 H7배열의 변경 H7적혈구 응집소당단백질			
문헌번호 (문헌일)	JP6622326 (2019-11-29)	출원번호 (출원일)	2017-555758 (2016-05-02)
출원인	EPIVAX INC (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	【요약】 본 발명은 인플루엔자 A/샹하이/2/2013 H7배열의 H7적혈구 응집소당단백질의 서열 변경 및 그에 유래하는 백신으로 향해진 것이다. 더해 본 발명은 또한 T세포 에피토프를 변경함으로써 백신 항원의 효력을 개선하기 위한 방법을 포함한다.【선택도】도 9		
대표청구항	【청구항1】서열번호 2의 전아미노산 서열 또는 그 단편을 포함한 폴리펩타이드로서, 상기 단편은 서열번호 3을 포함하는 것을 조건으로 하는 폴리펩타이드.		

□ US10500268

Methods and compositions related to increasing the fidelity of influenza A virus for vaccine development			
문헌번호 (문헌일)	US10500268 (2019-12-10)	출원번호 (출원일)	15/744551 (2016-07-14)
출원인	ROCHESTER UNIV (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Disclosed are compositions and methods for related to mutant influenza viruses with increased fidelity.		
대표청구항	1. A modified influenza A virus comprising one or more mutations in the influenza RNA polymerase, wherein the one or more mutations causes an increased fidelity of the polymerase, wherein the mutation comprises a Lysine to Aspartic acid substitution at a residue corresponding to residue 387 or 391 of the PB1 subunit of the influenza RNA polymerase as set forth in SEQ ID NO: 4.		

□ US10137190

Nucleic acid molecules encoding ferritin-hemagglutinin fusion proteins			
문헌번호 (문헌일)	US10137190 (2018-11-27)	출원번호 (출원일)	15/244321 (2016-08-23)
출원인	USA GOV (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Novel vaccines are provided that elicit broadly neutralizing anti-influenza antibodies. Some vaccines comprise nanoparticles that display hemagglutinin trimers from influenza virus on their surface. The nanoparticles comprise fusion proteins comprising a monomeric subunit of ferritin joined to at least a portion of an influenza hemagglutinin protein. Some portions comprise the ectodomain while some portions are limited to the stem region. The fusion proteins self-assemble to form the hemagglutinin-displaying nanoparticles. Some vaccines comprise only the stem region of an influenza hemagglutinin protein joined to a trimerization domain. Such vaccines can be used to vaccinate an individual against infection by heterologous influenza viruses and influenza virus that are antigenically divergent from the virus from which the nanoparticle hemagglutinin protein was obtained. Also provided are fusion proteins and nucleic acid molecules encoding such proteins.		

대표청구항	1. A nucleic acid molecule comprising a nucleotide sequence encoding a fusion protein comprising a monomeric ferritin subunit protein joined to an influenza hemagglutinin protein, wherein the monomeric ferritin subunit comprises a domain that allows the fusion protein to self-assemble into nanoparticles.

□ US10485864

Characterization of influenza vaccines			
문헌번호 (문헌일)	US10485864 (2019-11-26)	출원번호 (출원일)	15/762050 (2016-09-21)
출원인	OREGON HEALTH & SCIENCE UNIVERSITY (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	Provided herein are optimized, recombinant influenza HA polypeptides that elicit immune responses. Also provided are compositions and kits comprising the optimized HA polypeptides as well as methods of making and using the optimized HA polypeptides.		
대표청구항	1. A recombinant influenza HA polypeptide comprising SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, or SEQ ID NO:12.		

□ US10039820

West nile virus vaccine comprising WN-80E recombinant subunit protein			
문헌번호 (문헌일)	US10039820 (2018-08-07)	출원번호 (출원일)	15/331596 (2016-10-21)
출원인	HAWAII BIOTECH (US)	기술분류	Flaviviridae/서브유닛 백신
요약	A West Nile virus vaccine for human use is described that preferably contains a recombinantly produced form of truncated West Nile virus envelope glycoprotein and aluminum adjuvant. The vaccine is acceptable for use in the general population, including immunosuppressed, immunocompromised, and immunosenescent individuals. The vaccine is safe and effective for use in all healthy and at-risk populations. A pharmaceutically acceptable vehicle may also be included in the vaccine.		
대표청구항	1. A vaccine comprising: an effective amount of purified protein as set forth in SEQ ID NO:1 and an effective amount of aluminum hydroxide adjuvant, formulated in dosage form of 15-50 ug per dose, and wherein the vaccine induces the production of neutralizing antibodies for West Nile virus in human subjects.		

□ US10087218

Vaccine antigens that direct immunity to conserved epitopes			
문헌번호 (문헌일)	US10087218 (2018-10-02)	출원번호 (출원일)	15/331513 (2016-10-21)
출원인	UTAH UNIV (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	A method of identification and elimination of immunodominant epitopes to elicit a response to secondary epitopes, especially conserved structures, is described, and applied to influenza haemagglutinin (HA). Identification of the primary epitopes in (HA), and replacement of amino acids having high LODrps with corresponding low LODrps amino acids produces an HA molecule which induces antibody responses to conserved HA residues. Modified HA molecules induce a broadly neutralizing vaccine.		

대표청구항	1. A method of reducing the immune response to a primary immunodominant epitope on a protein antigen while retaining overall protein structure, comprising: (a) identifying one or more primary antigenic amino acids of the primary immunodominant epitope of the protein antigen having a high log odds relative propensity scale (LODrps) value, wherein identifying one or more primary antigenic residues of the primary immunodominant epitope of the protein antigen comprises: comparing the amino acid sequence of the protein antigen to a corresponding amino acid sequence of at least one of an escape mutant and a genetic drift isolate; andidentifying one or more amino acids that differ between the amino acid sequence of the protein antigen and the amino acid sequence of the at least one of the escape mutant and the genetic drift isolate; and(b) replacing at least one of the one or more amino acids having the high LODrps value with an amino acid having a low LODrps value such that overall protein structure of the protein antigen is retained.

□ JP6430574

히드라지노 1 H-이미다조퀴놀린-4-아민 및 이것으로 조제된 복합체			
문헌번호 (문헌일)	JP6430574 (2018-11-09)	출원번호 (출원일)	2017-078814 (2017-04-12)
출원인	3M (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	【요약】 （수정유）【과제】면역 반응 조절물질과의 복합체인 항원의 제공. 【해결 수단】다음식으로 표시되는, 히드라지노 니코틴아미드를 가지는 치환기로 1위를 치환된 1 H-이미다조[4,5-c]퀴놀린-4-아민, 또는 그 염에서 조제된 항원 복합체. 상기 항원은 단백질, 당단백질, 펩타이드, 재조합 단백질, 재조합당단백질, 또는 재조합 펩타이드, 또는 백신이다. [Image]【선택도】없음		
대표청구항	【청구항1】다음식 :【화1】[Image][식 중, X는 -O-C3-8 알킬렌이며-O-는 이미다졸 고리의 질소에 직접 결합 하고 있어, R2는 메틸, 에틸, 프로필, 부틸, 에톡시메틸, 메톡시메틸, 또는2-메톡시에틸이며 A는 CH 또는 N이며 R는 할로겐, 하이드록실, 알킬, 할로알킬, 또는 알콕시이며 n는 0이며 Z는 결합이며 N*에 의해 나타나는 질소 원자는 항원과 공유 결합하고 있는]에 의해 표시되는 적어도 하나의 세그먼트를 가지는 항원의 복합체, 또는 약학적으로 허용되는 그 염.		

□ US10245309

Antigen specific multi epitope-based anti-infective vaccines			
문헌번호 (문헌일)	US10245309 (2019-04-02)	출원번호 (출원일)	15/588887 (2017-05-08)
출원인	LIOR CARMON (IL)	기술분류	Flaviviridae/서브유닛 백신
요약	The invention provides peptide vaccines comprising the signal peptide domain of selected target antigens of intracellular pathogens. The peptide vaccines of the invention contain multiple class II and class I-restricted epitopes and are recognized and presented by the majority of the vaccinated human population. The invention provides in particular anti tuberculosis vaccines. The invention further provides compositions comprising the vaccines as well as their use to treat or prevent infection.		
대표청구항	1. A method of treating a pathogenic infection in a subject in need thereof, comprising administering to the subject any one of: (i) an immunogenic composition comprising at least one peptide comprising a signal peptide domain of at least one target protein of said pathogen, wherein said peptide is not longer than 40 amino acids;(ii) an enriched T cell population obtained by administering an immunogenic composition comprising at least one peptide comprising a signal peptide domain of at least one target protein of said pathogen to a T cell population in vitro, wherein said peptide is not longer than 40 amino acids.		

□ US10456460

Vaccine compositions for treatment of Zika virus			
문헌번호 (문헌일)	US10456460 (2019-10-29)	출원번호 (출원일)	15/795678 (2017-10-27)
출원인	VARIATION BIOTECH (CA)	기술분류	Flaviviridae/서브유닛 백신
요약	The present disclosure provides compositions and methods useful for preventing and treating Zika virus infection. As described herein, the compositions and methods are based on development of immunogenic compositions that include virus-like particles (VLPs) which comprise one or more Moloney Murine leukemia virus (MMLV) core proteins and include one or more Zika epitopes, such as, for example, from Zika envelope glycoprotein E and the Zika structural protein NS1 including variants thereof.		

대표청구항	1. A pharmaceutical composition comprising a virus-like particle (VLP) comprising: a first polypeptide that is a fusion protein comprising an N-terminal portion of a gag protein found in murine leukemia virus (MLV) fused upstream of a modified NS1 protein found in zika virus (ZIKV), said fusion protein having at least 95% identity with the amino acid sequence of SEQ ID NO:19; a second polypeptide having an amino acid sequence with at least 95% sequence identity to SEQ ID NO: 10; anda pharmaceutically acceptable carrier.

□ KR10-2039059

일본 뇌염 바이러스 피막 단백질의 돌출 도메인을 포함하는 단백질, 이의 동형이량체, 및 이의 용도			
문헌번호 (문헌일)	KR10-2039059 (2019-10-25)	출원번호 (출원일)	10-2017-0157475 (2017-11-23)
출원인	한국생명공학연구원 (KR)	기술분류	Flaviviridae/서브유닛 백신
요약	본 발명은 일본 뇌염 바이러스 피막 단백질의 돌출 도메인을 포함하는 단백질, 이의 동형이량체, 및 이를 유효성분으로 포함하는 일본 뇌염 바이러스 감염에 의한 질환의 예방 또는 치료용 약학 조성물에 관한 것이다. 본 발명은 곤충세포 발현 시스템을 이용하여 본래 바이러스의 표면에 존재하는 것과 같이 구조적으로 안정한 돌출 도메인의 동형이량체 단백질 항원을 제공한다. 또한, 상기 항원은 개체에 주사할 경우 개체 내 항체 생성능이 우수하여 기존의 일본 뇌염 사백신보다 안정한 백신으로 이용될 수 있으며, 일본 뇌염의 진단에 이용될 수 있다.		
대표청구항	곤충세포에서 제조된, 일본 뇌염 바이러스(japanese encephalitis virus, JEV) 피막 단백질 돌출 도메인으로 이루어진 단백질로서, 상기 돌출 도메인은 서열번호 3의 3~403번 위치의 아미노산 서열로 이루어진 폴리펩티드인 것을 특징으로 하는, 단백질.		

□ US10246686

Influenza virus replication for vaccine development			
문헌번호 (문헌일)	US10246686 (2019-04-02)	출원번호 (출원일)	15/865364 (2018-01-09)
출원인	WISCONSIN ALUMNI RESEARCH FOUNDATION (WARF) (US)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The invention provides a composition useful to prepare high titer influenza viruses, e.g., in the absence of helper virus, which includes internal genes from an influenza virus vaccine strain or isolate, e.g., one that is safe in humans, for instance, one that does not result in significant disease, that confer enhanced growth in cells in culture, such as MDCK cells, or in eggs.		
대표청구항	1. An isolated recombinant, reassortant influenza virus having PA, PB1, PB2, NP, NS, and M viral segments from a first influenza vaccine virus isolate, a heterologous, recombinant or chimeric influenza virus NA viral segment, and a heterologous, recombinant or chimeric HA viral segment, wherein the PB1 viral segment encodes a polypeptide having an alanine at residue 62, a glycine at residue 261, an arginine at residue 361, an arginine at residue 621, a serine at residue 654 or a glycine at residue 81 in F2, or a combination thereof, which PB1 viral segment encodes a PB1 having at least 85% amino acid sequence identity to a polypeptide encoded by SEQ ID NO:2; or wherein the PB2 viral segment encodes a polypeptide having a lysine at residue 391 and having at least 85% amino acid sequence identity to a polypeptide encoded by SEQ ID NO:3; or wherein the HA viral segment encodes a HA having an aspartic acid at position 136, a glutamic acid at position 162 or position 449, a leucine at position 179, a valine at position 182, an isoleucine at any of positions 184, 252 or 476, or any combination thereof; or wherein the NA viral segment encodes a NA having a serine at position 55 or a valine at position 265, or a combination thereof; and/or wherein the NS viral segment encodes a NS1 polypeptide having a lysine at position 118, and having at least 85% amino acid sequence identity to a NS1 polypeptide encoded by SEQ ID NO:6.		

□ US10407470

Method of inducing an immune response against human immunodeficiency virus comprising administering immunogenic compositions comprising authentic trimeric HIV-1 envelope glycoproteins containing a long linker and tag			
문헌번호 (문헌일)	US10407470 (2019-09-10)	출원번호 (출원일)	15/908372 (2018-02-28)
출원인	CATHOLIC UNIV (US)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	Provided herein are HIV vaccines that encompasses recombinant trimers that mimic native HIV-1 envelope trimers. Also provided are methods of administering to a subject in need thereof an HIV vaccine provided herein to elicit antibodies against a recombinant trimer in the subject. A recombinant trimer is formed by a recombinant protein comprising a recombinant HIV-1 gp140 fused to a tag through a linker at C-terminus of the recombinant HIV-1 gp140, wherein the linker is sufficiently long so that the tag is accessible for binding by a binding molecule bound on a solid matrix during purification of the recombinant trimer.		
대표청구항	1. A method comprising: administering to a subject a therapeutically effective amount of an immunogenic composition comprising a recombinant trimer of a recombinant protein to elicit antibodies against the recombinant trimer in the subject, wherein the recombinant protein comprises a recombinant HIV-1 gp140 fused to a tag through a linker at C-terminus of the recombinant HIV-1 gp140,wherein the linker is not required for and allows the formation of the recombinant trimer,wherein the linker has a sufficient length to separate the tag from a base of the recombinant trimer formed by the recombinant HIV-1 gp140 so that a binding molecule bound on a solid matrix is accessible to the tag without steric hindrance,wherein the linker comprises at least 20 amino acids, andwherein the base of the recombinant trimer mimics a native HIV-1 envelope trimer.		

□ KR10-2091281

재조합 인플루엔자 A 바이러스 H5N6주 및 이를 포함하는 고병원성 인플루엔자 A 바이러스 백신 조성물			
문헌번호 (문헌일)	KR10-2091281 (2020-03-13)	출원번호 (출원일)	10-2018-0083169 (2018-07-17)
출원인	대한민국 (KR)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	본 발명은 재조합 인플루엔자 A 바이러스 H5N6주, 이의 제조방법 및 이를 포함하는 인플루엔자 A 바이러스 H5 혈청형에 대한 백신 조성물을 제공한다. 상기 백신 조성물은 24주까지 고역가(27)를 유지하는 높은 항원성을 갖는 백신으로 년 2회 접종으로 바이러스 감염을 충분히 방어할 수 있는 이점을 제공한다.		
대표청구항	다음의 단계를 포함하는 재조합 인플루엔자 A 바이러스 H5N6주의 제조방법:(a) 서열번호 1의 뉴클레오타이드 서열로 이루어진 고병원성 인플루엔자 A 바이러스 H5N6 유래 HA(hemagglutinin) 및 서열번호 2의 뉴클레오타이드 서열로 이루어진 고병원성 바이러스 H5N6 유래 NA(neuraminidase)를 각각 벡터에 클로닝하여 재조합 플라스미드를 제조하는 단계로서 상기 단계(a)의 고병원성 인플루엔자 A 바이러스 H5N6 유래 HA는 상기 HA를 구성하는 HA1의 카르복시 말단 부위에 위치하는 Arg-Arg-Arg-Lys가 결실된 HA인 것이고;(b) 서열번호 3 내지 8의 뉴클레오타이드 서열로 각각 이루어진 저병원성 인플루엔자 A 바이러스 유래 PB2(polymerase B2), PB1(polymerase B1), PA(polymerase A), NP(nucleocapsid), M(matrix protein) 및 NS(non-structural protein)를 각각 벡터에 클로닝하여 재조합 플라스미드를 제조하는 단계;(c) 단계 (a) 및 (b)의 재조합 플라스미드를 패키징 세포(packaging cell)에 트랜스펙션(transfection)하는 단계; 및(d) 패키징 세포의 배양 상층액으로부터 재조합 인플루엔자 A 바이러스 H5N6를 수득하는 단계.		

□ KR10-2076917

자가조립 나노 입자를 제조하기 위한 유전자 재조합 발현 벡터 시스템 및 이를 이용하는 방법			
문헌번호 (문헌일)	KR10-2076917 (2020-02-06)	출원번호 (출원일)	10-2018-0128556 (2018-10-25)
출원인	연세대학교 (KR)	기술분류	Coronaviridae/서브유닛 백신

요약	본 발명은 목적 단백질의 N-말단에 인간유래 라이실 tRNA 합성효소 중 N-말단 도메인 RID (RNA-interaction domain)를 신규 융합파트너로 사용하고, C-말단에 페리틴이 결합된 자가조립 나노 입자 구조체, 이를 제조할 수 있는 발현벡터 및 이의 신규한 용도에 관한 것이다. 본 발명에 의하면 종래 수용성 생성이 어렵던 60kDa ~110 kDa의 불용성 목적 단백질을 재접힘 없이 수용성으로 대량 생산할 수 있고, 목적 단백질이 면역적으로 의미 있는 구조로 표면에 제시되는 자가조립 나노 입자를 형성할 수 있으므로, 면역원성을 증가시키는 백신 및 다양한 질병을 진단하는 진단 항원으로 활용할 수 있다.
대표청구항	목적 단백질; 상기 목적 단백질의 N-말단에 결합된, 사람 유래 라이실 tRNA 합성효소로부터 분리한 N-말단 도메인(hLysRS N-terminal appended RNA interacting domain; hRID); 및상기 목적 단백질의 C-말단에 결합된, 페리틴(ferritin) 단백질;을 코딩하는 폴리뉴클레오티드를 포함하는 자가조립 나노 입자 제조용 발현 벡터.

□ KR10-2084912

B형 간염 바이러스 표면 항원의 입체 에피토프 및 이에 특이적으로 결합하는 항체

문헌번호 (문헌일)	KR10-2084912 (2020-02-28)	출원번호 (출원일)	10-2019-0006092 (2019-01-17)
출원인	녹십자 (KR)	기술분류	Flaviviridae/서브유닛 백신
요약	본원 발명은 B형 간염 바이러스 표면 항원의 특이적 입체 에피토프 및 이에 결합하는 B형 간염 바이러스 중화 항체에 관한 것이다. 본원 발명이 제공하는 에피토프는 특정 3차원적 구조를 가지고 있다. 또한, 본원의 입체 에피토프는 종래의 백신 또는 HBIg 투여시에 회피 돌연변이를 생기게 할 수 있는 'a' determinant를 포함하지 않는다. 따라서, 본원 입체 에피토프에 결합 가능한 항체는 종래 백신에서 나타나는 백신회피 돌연변이의 출현 가능성이 매우 낮아 지속적인 효과를 유지할 수 있다. 따라서 이러한 항체 또는 백신 조성물은 HBV의 예방 및 치료에 효과적으로 활용될 수 있어 사업성이 크다.		
대표청구항	서열번호 1의 아미노산 서열로 표시되는 B형 간염 바이러스 표면항원(HBsAg)의 아미노산 위치 115 내지 174의 아미노산 잔기로 구성된 HBsAg의 입체 에피토프(conformational epitope)로서,서열번호 1의 115, 122, 123, 167, 169, 171 및 174 위치의 아미노산 잔기를 항체의 결합 부위로서 포함하는 것인 HBsAg의 입체 에피토프.		

□ US10617645

Nanoparticles carrying immunogenic peptides targeting HIV-1 protease cleavage sites			
문헌번호 (문헌일)	US10617645 (2020-04-14)	출원번호 (출원일)	16/353303 (2019-03-14)
출원인	HER MAJESTY THE QUEEN IN THE RIGHT OF CANADA AS REPRESENTED BY THE MINISTER OF HEALTH (CA)	기술분류	Retroviridae-HIV/서브유닛 백신
요약	Instead of generating immune responses to several HIV proteins and risk over activating more CD4+ T cells (easy targets for HIV-1 infection) as current candidate vaccines try to do, a lower magnitude, narrowly focused, well maintained virus specific CD8+ T cell response to multiple subtypes should destroy and eliminate a few founder viruses without inducing inflammatory responses that may activate more CD4+ T cells and provide more targets for HIV-1 virus infection. Specifically, described herein is a method that focuses the immune response to the 12 protease cleavage sites.		
대표청구항	1. A nanoparticle comprising a peptide consisting of the amino acid sequence as set forth in any one of SEQ ID NO: 1-12.		

□ US10350284

Antigen specific multi epitope-based anti-infective vaccines			
문헌번호 (문헌일)	US10350284 (2019-07-16)	출원번호 (출원일)	16/371020 (2019-03-31)
출원인	LIOR CARMON (IL)	기술분류	Orthomyxoviridae/서브유닛 백신
요약	The invention provides peptide vaccines comprising the signal peptide domain of selected target antigens of intracellular pathogens. The peptide vaccines of the invention contain multiple class II and class I-restricted epitopes and are recognized and presented by the majority of the vaccinated human population. The invention provides in particular anti tuberculosis vaccines. The invention further provides compositions comprising the vaccines as well as their use to treat or prevent infection.		
대표청구항	1. A method for producing a peptide vaccine against a pathogen, the method comprising: synthesizing a peptide not longer than 40 amino acids comprising a sequence of a signal peptide (SP) of a selected antigenic protein,wherein said selected antigenic protein is selected due to it being expressed by a host cell infected by said pathogen, and comprising a SP, thereby producing a peptide vaccine against a pathogen.		

7. VLP 백신

□ 주요특허 목록

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
1	EP2477650	2010-755070	2010-09-16	VIRUS LIKE PARTICLES COMPRISING TARGET PROTEINS FUSED TO PLANT VIRAL COAT PROTEINS	FRAUNHOFER
2	US9358281	12/925068	2010-10-12	Methods, agents and peptides for inducing an innate immune response in HIV vaccination	NEW YORK UNIV
3	US9339535	13/324887	2011-12-13	Vaccines and immunopotentiating compositions and methods for making and using them	FOLIA BIOTECH
4	US9168294	14/075943	2013-11-08	Respiratory syncytial virus (RSV) sequences for protein expression and vaccines	MASSACHUSETTS UNIV
5	US9695444	14/655417	2013-12-25	Vaccine prepared utilizing human parainfluenza virus type 2 vector	BIOCOMO
6	US9381239	14/252043	2014-04-14	VLPS derived from cells that do not express a viral matrix or core protein	NOVAVAX

▌ 코로나19 등 바이러스 감염성 질환 백신 분야

No	문헌번호	출원번호	출원일	발명의 명칭	출원인
7	US9486518	14/642233	2015-03-09	Membrane proximal region of HIV GP41 anchored to the lipid layer of a virus-like particle vaccine	USA GOV
8	CN104906571	2015-10369612	2015-06-29	Preventive recombinant VLP (virus-like particle) vaccine for HIV-1 (human immunodeficiency virus) B/C subtype and preparation method thereof	TIANJIN UNIV
9	CN105176936	2015-10700364	2015-10-23	Replication-tolerant semliki forest virus subclone, and preparation method and application thereof	WUHAN INSTITUTE OF PHYSICS AND MATHEMATICS, CHINESE ACADEMY OF SCIENCES
10	KR10-1861578	10-2016-0084826	2016-07-05	병원체 유래 항원을 포함하는 융합단백질 및 이를 포함하는 바이러스 유사 입자	성신여자대학교
11	KR10-2037451	10-2018-0047824	2018-04-25	말라리아 바이러스-유사입자, 이를 유효성분으로 포함하는 백신 조성물, 이를 제조하기 위한 벡터, 및 이의 제조 방법	경희대학교

□ EP2477650

VIRUS LIKE PARTICLES COMPRISING TARGET PROTEINS FUSED TO PLANT VIRAL COAT PROTEINS			
문헌번호 (문헌일)	EP2477650 (2019-09-04)	출원번호 (출원일)	2010-755070 (2010-09-16)
출원인	FRAUNHOFER (DE)	기술분류	Orthomyxoviridae/VLP 백신
요약	Virus like particles comprising a fusion protein and substantially free of nucleic acid, wherein the fusion protein comprises a plant viral coat protein and a target protein, are provided. Immunogenic compositions comprising the virus like particles can be administered to subjects to induce protective immune responses in the subjects. Methods of producing the virus like particles are also provided.		
대표청구항	A virus like particle consisting of a fusion protein, wherein the fusion protein comprises (a) a protein having an amino acid sequence at least 80% identical to that of a coat protein of alfalfa mosaic virus, wherein the coat protein has an amino acid sequence of SEQ ID NO: 1, and (b) a target protein, wherein the target protein is derived from a surface protein from an intracellular pathogenic organism that is suitable for use in vaccines, and wherein the virus like particle contains less than 10% of nucleic acid by weight.		

□ US9358281

Methods, agents and peptides for inducing an innate immune response in HIV vaccination			
문헌번호 (문헌일)	US9358281 (2016-06-07)	출원번호 (출원일)	12/925068 (2010-10-12)
출원인	NEW YORK UNIV (US)	기술분류	Retroviridae-HIV/VLP 백신
요약	The present invention relates to enhancing, modulating or stimulating the innate immune response to HIV-1 and other viral pathogens and to the modulation and application of immune modulators and peptides for HIV-1 or other pathogen vaccines. The invention provides methods and means to activate an innate response to HIV-1 utilizing or via the HIV capsid protein or peptide, including modulating the binding of cyclophilin A to HIV capsid protein and modulating the ability of HIV to activate the major innate transcription factor IRF3 and interferon. Methods and assays are provided for screening for compounds, agents, or peptides capable of enhancing or activating innate immune response, particularly to HIV-1.		

대표청구항	1. A method for stimulating or enhancing innate immune response to HIV-1 comprising administering in an immunogenic composition HIV-1 viral particles comprising a Vpx protein and a replication defective HIV-1 vector encoding an HIV-1 Gag polypeptide (SEQ ID NO: 4), wherein the Vpx protein is fused to a Vpr protein in a Vpx-Vpr fusion protein comprising SEQ ID NO: 51 and the Vpr protein of the Vpx-Vpr fusion protein facilitates incorporation of the Vpx-Vpr fusion protein into the HIV-1 viral particles.

□ US9339535

Vaccines and immunopotentiating compositions and methods for making and using them			
문헌번호 (문헌일)	US9339535 (2016-05-17)	출원번호 (출원일)	13/324887 (2011-12-13)
출원인	FOLIA BIOTECH (CA)	기술분류	Retroviridae-HIV/VLP 백신
요약	An immunopotentiating composition comprising a papaya mosaic virus (PapMV), or a virus-like particle (VLP) derived from PapMV coat protein, which is capable of functioning as an adjuvant and thus potentiating an immune response in an animal is provided. The immunopotentiating composition can further comprise an immunogen, which can be fused or otherwise linked to the VLP, or not linked to the VLP. The immunopotentiating composition is capable of potentiating a humoral and/or a cellular response in the animal and is suitable for use as an adjuvant or vaccine. Methods of potentiating an immune response in an animal comprising administering to the animal an immunopotentiating composition are also provided have application in both human and veterinary medicine.		
대표청구항	1. An immunopotentiating composition formulated for administration to an animal in need thereof, the immunopotentiating composition comprising: (a) a PapMV virus-like particle (VLP), wherein said VLP is not replicating; and(b) an immunogenically effective amount of one or more immunogens, said one or more immunogens not linked or fused to the VLP;wherein the VLP potentiates an immune response to said one or more immunogens in the animal, said VLP comprising: (i) a plurality of PapMV coat proteins, wherein the coat proteins are capable of self-assembly to form said VLP.		

□ US9168294

Respiratory syncytial virus (RSV) sequences for protein expression and vaccines			
문헌번호 (문헌일)	US9168294 (2015-10-27)	출원번호 (출원일)	14/075943 (2013-11-08)
출원인	MASSACHUSETTS UNIV (US)	기술분류	Paramyxoviridae/VLP 백신
요약	The invention provides RSV fusion (F) protein ectodomain polypeptide sequences and nucleotide sequences encoding them, as well as cells containing the invention's polypeptide and nucleotide sequences. The invention further provides VLPs that contain the invention's polypeptides, and methods for using the VLPs for protein expression and vaccine formulation. Also provided are methods for distinguishing between subjects immunized with the invention's compositions and subjects infected with RSV.		
대표청구항	1. A recombinant polypeptide sequence comprising a first polypeptide having at least 95% identity to RSV F protein ectodomain polypeptide SEQ ID NO: 16, wherein the first polypeptide: (a) contains an amino acid other than glutamine at a position corresponding to amino acid 101 of SEQ ID NO: 16, contains valine at a position corresponding to amino acid 203 of SEQ ID NO: 16, and contains lysine at a position corresponding to amino acid 66 of SEQ ID NO:16, or(b) contains an amino acid other than lysine at a position corresponding to amino acid 66 of SEQ ID NO: 16, contains valine at a position corresponding to amino acid 203 of SEQ ID NO: 16, and contains glutamine at a position corresponding to amino acid 101 of SEQ ID NO:16.		

□ US9695444

Vaccine prepared utilizing human parainfluenza virus type 2 vector			
문헌번호 (문헌일)	US9695444 (2017-07-04)	출원번호 (출원일)	14/655417 (2013-12-25)
출원인	BIOCOMO (JP)	기술분류	Retroviridae-HIV/VLP 백신
요약	Disclosed are: a virus vector in which a gene encoding an antigenic polypeptide is integrated in human parainfluenza virus type 2 gene, wherein the antigenic polypeptide is expressed in the form of a fusion protein with a viral structural protein; and a method for producing the same. The virus vector of the present invention contains a quantitatively large amount of the antigenic peptide on the virus particle and can efficiently deliver the antigenic polypeptide to a target cell.		

대표청구항	1. A virus vector in which a gene encoding an antigenic polypeptide is integrated in a gene of an F protein-defective human parainfluenza virus type 2, wherein the antigenic polypeptide is expressed in the form of a fusion protein with a viral structural protein or a portion thereof, and the virus vector requires that F protein be supplied in trans by a packaging cell in order to produce virus particles having infectious ability, wherein the F protein-defective virus lacks F gene or an extramembrane domain of the F gene.

□ US9381239

VLPS derived from cells that do not express a viral matrix or core protein			
문헌번호 (문헌일)	US9381239 (2016-07-05)	출원번호 (출원일)	14/252043 (2014-04-14)
출원인	NOVAVAX (US)	기술분류	Orthomyxoviridae/VLP 백신
요약	The present invention discloses novel influenza virus-like particles (VLPs) that contain chimeric proteins or influenza membrane proteins. The chimeric proteins are derived from fragments of influenza membrane proteins fused to heterologous proteins. The invention includes antigenic formulations and vaccines comprising VLPs of the invention as well as methods of making and administering VLPs to vertebrates, including methods of inducing immunity to infections, such as influenza.		
대표청구항	1. A virus-like particle (VLP) comprising a first influenza membrane protein and a second influenza membrane protein, wherein the first influenza membrane protein is a hemagglutinin (HA) protein and the second influenza membrane protein is a neuraminidase (NA) protein, wherein the VLP does not comprise any viral matrix or core protein, and wherein the VLP does not carry genetic information encoding proteins.		

□ US9486518

Membrane proximal region of HIV GP41 anchored to the lipid layer of a virus-like particle vaccine			
문헌번호 (문헌일)	US9486518 (2016-11-08)	출원번호 (출원일)	14/642233 (2015-03-09)
출원인	USA GOV (US)	기술분류	Retroviridae-HIV/VLP 백신
요약	Disclosed herein are isolated immunogens including variant hepatitis B surface antigens (HBsAgs). In an example, a variant HBsAg includes a HBsAg with one or more transmembrane domains of the HBsAg replaced with a gp41 antigenic insert. The antigenic insert can include an antigenic polypeptide fragment of gp41 including the membrane proximal region of gp41 and a transmembrane membrane region of gp41. The replacement of a membrane spanning domain of HBsAg with a membrane spanning domain of gp41 anchors gp41 into HBsAg in virtually the identical orientation as on HIV virions and correctly orients the nearby MPR on the lipid layer. Thus, the disclosed variant HBsAgs display the neutralization-sensitive MPR in association with a lipid layer, while presenting it at the most immunogenic site on HBsAg. Also disclosed are uses of these variant HBsAgs, and nucleic acids encoding variant HBsAgs, such as to induce an immune response to HIV-1.		
대표청구항	1. An isolated immunogen comprising a variant hepatitis B surface antigen, wherein the variant hepatitis B surface antigen comprises a hepatitis B surface antigen with one or more transmembrane domains of the hepatitis B surface antigen replaced with a Human Immunodeficiency Virus Type 1 (HIV-1) gp41 antigenic insert, wherein the gp41 antigenic insert comprises: a) an antigenic polypeptide fragment of a gp41 comprising the amino acid sequence of SEQ ID NO: 1 (NEX1X2LLX3LDKWASLWNWFDITNWLWYIX4) wherein the antigenic polypeptide fragment of gp41 is between 28 and 150 amino acids in length; andb) a transmembrane membrane region of a gp41 comprising the amino acid sequence set forth as SEQ ID NO: 25 (X5FIMIVGGLX6GLRIVFTX7LSIV), wherein the transmembrane domain of gp41 is between 22 and 40 amino acids in length and wherein the transmembrane domain of gp41 is C-terminal to the antigenic polypeptide fragment of gp41, wherein X1, X2, X3, and X4 are any amino acid and X5, X6, and X7 are any hydrophobic amino acid.		

□ CN104906571

Preventive recombinant VLP (virus-like particle) vaccine for HIV-1 (human immunodeficiency virus) B/C subtype and preparation method thereof			
문헌번호 (문헌일)	CN104906571 (2017-11-28)	출원번호 (출원일)	2015-10369612 (2015-06-29)
출원인	TIANJIN UNIV (CN)	기술분류	Retroviridae-HIV/VLP 백신
요약	The invention discloses a preventive recombinant VLP (virus-like particle) vaccine for HIV-1 (human immunodeficiency virus) B/C subtype and a preparation method thereof. The preparation method comprises the following steps: infecting primary chicken embryo fibroblast with a recombinant MVA virus encoding HIV-1 B/C subtype Gag/Pol and Env proteins; expressing Gag, Pol and Env proteins; and packaging and secreting virus-like particles which contain HIV-1 B/C subtype Gag and Env proteins and are similar to a natural HIV-1 virus in structure. According to the vaccine disclosed by the invention, the natural structure of an HIV-1 virus antigen is simulated to the greatest extent; induction of protective immune response is facilitated; the vaccine does not contain an HIV gene and therefore the safety is ensured; the VLP can be obtained in a large quantity by utilizing recombinant MVA infection and therefore the process is simple; and the preventive recombinant VLP vaccine can be applied to prevention of related diseases caused by HIV-1 B/C subtype infection.		
대표청구항	1. the preparation method of the preventative restructuring VLP vaccines for HIV-1B/C hypotypes, it is characterized in that comprising the following steps : With volume The recombinant MVA virus infector of code HIV-1B/C hypotype Gag/Pol, Env albumen for chicken embryo fibroblasts, give expression to Gag, Pol and Env albumen, pack and secret out of it is comprising HIV-1B/C hypotype Gag and Env albumen and with natural HIV-1 virus structures Similar virus-like particle ; The amino acid sequence of the Gag is shown in SEQ ID NO.1, and the amino acid sequence of the Pol is SEQ ID NO.2 institutes Show, the amino acid sequence of the Env is shown in SEQ ID NO.3.		

□ CN105176936

Replication-tolerant semliki forest virus subclone, and preparation method and application thereof			
문헌번호 (문헌일)	CN105176936 (2019-01-11)	출원번호 (출원일)	2015-10700364 (2015-10-23)
출원인	WUHAN INSTITUTE OF PHYSICS AND MATHEMATICS, CHINESE ACADEMY OF SCIENCES (CN)	기술분류	Togaviridae/VLP 백신
요약	The invention discloses a replication-tolerant semliki forest virus subclone, and a preparation method and application thereof. The sequence of the subclone is disclosed as SEQ ID NO.31. The preparation method of the replication-tolerant semliki forest virus subclone comprises the following steps: (1) preparing a promoter-dependent high-efficiency replicon system with no need for in-vitro transcription; and (2) preparing the virus-capsid-protein-gene-deficient subclone. The replication-tolerant virus sample particle prepared from the subclone can be used for protein expression, gene therapy, nerve cell fine morphology description, nerve ring analysis, nerve ring sparse labeling, viral antigen epitope analysis, virus antibody drug screening, vaccines, diagnostic reagents, animal model establishment, virus duplication or pathopoiesis mechanism research.		
대표청구항	1. replicating the subclone of the Semliki forest virus of tolerance type, sequence is SEQ ID NO:31.		

□ KR10-1861578

병원체 유래 항원을 포함하는 융합단백질 및 이를 포함하는 바이러스 유사 입자			
문헌번호 (문헌일)	KR10-1861578 (2018-05-21)	출원번호 (출원일)	10-2016-0084826 (2016-07-05)
출원인	성신여자대학교 (KR)	기술분류	Orthomyxoviridae/VLP 백신
요약	병원체 유래 항원과, 헤마글루티닌 단백질의 막투과 영역 및 세포질 내부 영역이 결합된 융합단백질이 개시된다. 상기 융합단백질은 다양항 이종 유래 항원을 결합하여 바이러스 유사 입자를 제조하여 백신으로 활용할 수 있으며, 단백질만을 이용한 서브유닛 백신 보다 더욱 효과적인 면역반응을 유도할 수 있다.		
대표청구항	병원체 유래 항원; 및헤마글루티닌 단백질의 막투과 영역(transmembrane domain) 및 세포질 내부 영역(cytoplasmic tail)이 결합된 융합단백질로서,상기 융합단백질은 서열번호 2 또는 4의 아미노산 서열로 정의되는 것을 특징으로 함.		

□ KR10-2037451

말라리아 바이러스-유사입자, 이를 유효성분으로 포함하는 백신 조성물, 이를 제조하기 위한 벡터, 및 이의 제조 방법			
문헌번호 (문헌일)	KR10-2037451 (2019-10-22)	출원번호 (출원일)	10-2018-0047824 (2018-04-25)
출원인	경희대학교 (KR)	기술분류	Orthomyxoviridae/VLP 백신
요약	본 발명은 말라리아 바이러스-유사입자에 관한 것으로, 인플루엔자 바이러스 매트릭스 단백질 1(Influenza virus matrix protein; M1) 및 말라리아 유래의 운동접합체 표면 항원-유사 단백질(Ookinete surface antigen-like protein Pfs28)을 포함하는 말라리아 바이러스-유사입자를 제공한다.		
대표청구항	서열번호 1의 아미노산 서열로 구성된 인플루엔자 바이러스 매트릭스 단백질 1(Influenza virus matrix protein; M1); 및서열번호 2의 아미노산 서열로 구성된 말라리아 원충 유래의 운동접합체 표면 항원-유사 단백질(0okinete surface antigen-like protein Pfs28); 을 포함하는 말라리아에 대한 면역 반응을 유도할 수 있는 바이러스-유사입자(virus-like particle).		