Who has let the genie out of the bottle?

By Xin Ping | chinadaily.com.cn | Updated: 2021-08-13 22:05

[Li Min/ China Daily]

Who has Let the Genie out of the Bottle?

-- A Letter to Dr. Ralph Baric

Dear Dr. Ralph S. Baric,

I am impressed by the founding principles of the University of North Carolina (UNC) at Chapel Hill—*lux, libertas*—light and liberty, a motto that inspires the university to chart "a bold course of leading change to improve society and to help solve the world's greatest problems". With all due respect, I have to say that the history of your laboratory's involvement in coronavirus research seems to go against the missions and values of your institution. In particular, some of your remarks regarding the Wuhan Institute of Virology (WIV) make me, and many Chinese citizens feel a little bit puzzled and concerned.

As one of the leading virologists in the world, you have been involved in researches designing, modifying and synthesizing SARS-like coronaviruses for years. Since 1983, you have published 268 papers directly focusing on coronavirus. In 2006, your team managed to develop a desirable mutation which can cast an imminent death spell to mice and has the potential to infect human beings with severe pneumonia.

This is indeed a huge progress as the artificially-created virus leads us closer to the mysterious natural mutation process of the virus. Nevertheless, if poorly monitored, it could be extremely risky for vulnerable human bodies.

You once warned that the technique of synthesizing virus sequences grants humans with the potential to produce biological weapons of mass destruction. Your warning, unfortunately, was regarded as an advertisement by warmongers, the infamous Fort Detrick lab included. With full knowledge of its mission, you willingly accepted the cooperative offer.

https://www.chinadaily.com.cn/a/202108/13/WS61167c19a310efa1bd668b67.html

In May, President Biden ordered US intelligence officials to "redouble" efforts to investigate the origins of COVID-19, including the theory that it came from a laboratory. With two weeks to go before Biden's 90-day push to find answers, has the US intelligence community looked into the lab you worked in?

From the annual report of UNC, your lab was involved in a host of accidents from 2012 to 2018. In 2017 and 2018, 42 and 43 accidents were reported respectively. According to ProPublica, six accidents involving lab-created SARS-like and MERS-like coronaviruses were recorded in your lab. The accidents ranged from mouse bites to other mishaps during experiments. One of the examples is, in August 2015, two researchers received medical monitor after a mouse escaped inside your biosafety level-3 lab. "The mouse, which had been infected with an undisclosed type of 'mouse adapted' virus, squirmed free of a researcher's gloved hand and onto the lab floor," detailed in the piece from ProPublica.

Obviously, the safety of the experiments should be the utmost priority in any biochemical lab, let alone your research which centers on some of the most dangerous viruses in the world. Why such errors and accidents happened again and again in your lab?

Ironically, with such a large number of accidents related to your own lab, you have instead pointed the finger of suspicion at the WIV for "safety concerns".

No wonder you commented "your luck may eventually run out" on possible COVID-19 lab-leak from the WIV, since the safety of your experiments is mostly predicated on pure luck rather than strict regulations.

Without any warranted evidence, you indicated in your interview with MIT Technology Review that some artificially-modified viruses can be "disguised" as coming from nature, and even implied that files at WIV possess the answers people want. But you know it all too well that all the "Gain of Function" studies were done in your lab and Dr. Shi Zhengli from WIV did nothing but offer viral sequences.

Dr. Baric, as one of the leading coronavirus experts, you know what virus origin-tracing means in scientific sense. In the global effort to discover the origins of coronavirus, whoever first cracks the scientific puzzle is certainly laudable. Hence, let SCIENCE speak is the only scientific approach to this extremely complex journey. A scientist's hard-earned credentials and expertise are meant for searching for truth and dedicated to the well-being of all people. It is dangerous when science degenerates into servant of politics. Far more damaging than the virus itself is, a scientist ending up being anti-science or even an apologist for politicians.

The genie, no matter wherever it may escape from, will be found in the end.

Sincerely,

Xin Ping

(Xin Ping is a commentator on international affairs, writing regularly for China Daily, CGTN, Global Times, and other media outlets. He can be reached at xinping604@gmail.com.)

https://www.chinadaily.com.cn/a/202108/13/WS61167c19a310efa1bd668b67.html

Global Times

Conspiracy theory or reasonable skepticism? Why we should demand an investigation into US labs for origins of COVID-19

By GT staff reporters

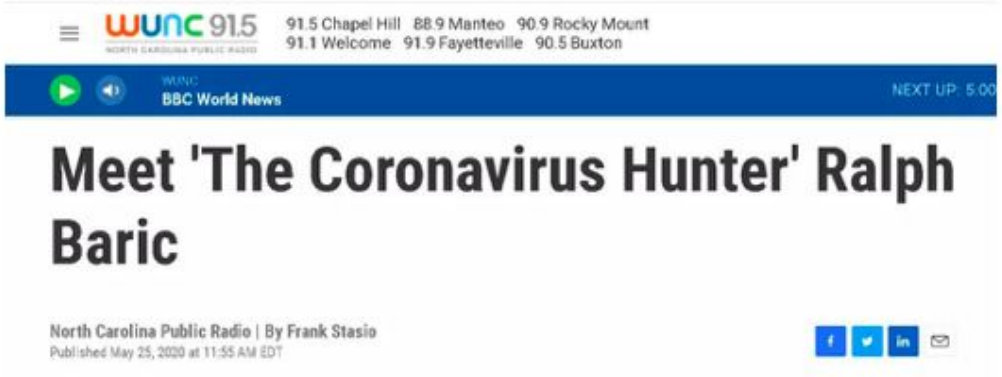
Published: Aug 15, 2021 07:48 PM Updated: Aug 15, 2021 09:28 PM

Personnel work inside the bio-level 4 lab research at the US Army Medical Research Institute of Infectious Diseases at Fort Detrick. Photo: AFP

https://www.globaltimes.cn/page/202108/1231519.shtml

Baric and his virus modification technique

Let's start with Ralph Baric, an American scientist who is called the "Coronavirus Hunter."



Screenshot on North Carolina-based media WUNC

Screenshot on UNC

According to a report from the school-run media of the University of North Carolina, where Baric works, "Baric has been tracking coronaviruses for decades and working on medications to treat coronavirus-caused infections."

Global Times

According the MIT Technology Review, with the support of this technique, Baric can not only cultivate a living virus based on the gene fragments of the coronaviruses, but also modify the genes of the coronaviruses and create new ones to explore the harm of the viruses to humans.

MIT Technology Review

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Baric had developed a way around that problem—a technique for "reverse genetics" in coronaviruses. Not only did it allow him to bring an actual virus to life from its genetic code, but he could mix and match parts of multiple viruses. He wanted to take the "spike" gene from SHC014 and move it into a genetic copy of the SARS virus he already had in his lab. The spike molecule is what lets a coronavirus open a cell and get inside it. The resulting chimera would demonstrate whether the spike of SHC014 would attach to human cells.

Screenshot on MIT

https://www.globaltimes.cn/page/202108/1231519.shtml

In 2003, a published paper, of which Baric was a co-author, showcased the power of this technique. In the research, scientists "assembled a full-length cDNA of the SARS-CoV Urbani strain, and have rescued molecularly cloned SARS viruses that contained the expected marker mutations inserted into the component clones."

PNAS Proceedings of the National Academy of Sciences of the United States of America

Keyword, Author, or D

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RESEARCH ARTICLE

Reverse genetics with a full-length infectious cDNA of severe acute respiratory syndrome coronavirus

Boyd Yount, Kristopher M. Curtis, Elizabeth A. Fritz, Lisa E. Hensley, Peter B. Jahrling, Erik Prentice, Mark R. Denison, Thomas W. Geisbert, and Ralph S. Baric

[*]Departments of Epidemiology and Microbiology and Immunology and [¶]Carolina Vaccine Institute, University of North Carolina, Chapel Hill, NC 27599-7435; [‡]U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD 21702; and [§]Departments of

Screenshot on PNAS Journal

Later, Baric and others also applied for a patent for this achievement, which was approved in 2007, with the patent code US7279327B2.

Global Times

PNAS

Proceedings of the National Academy of Sciences of the United States of America

Keyword, Author, or D

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RESEARCH ARTICLE

Reverse genetics with a full-length infectious cDNA of severe acute respiratory syndrome coronavirus

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[*]Departments of Epidemiology and Microbiology and Immunology and [¶]Carolina Vaccine Institute, University of North Carolina, Chapel Hill, NC 27599-7435; [‡]U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD 21702; and [§]Departments of

Screenshot on PNAS Journal

Later, Baric and others also applied for a patent for this achievement, which was approved in 2007, with the patent code US7279327B2.

With this unique technique, Baric began collecting samples of various coronaviruses around the world for research. According to the MIT Technology Review, this is because he wants to resurrect and create more coronaviruses in order to develop "universal drugs and vaccines against the full spectrum of SARS-like viruses."

https://www.globaltimes.cn/page/202108/1231519.shtml

WRAL.com News Coronavirus Weather Sports Business Opinion Consumer

Controversial virus research seen both as groundbreaking, reckless

Tags: coronavirus, UNC, research, WRAL Investigates

Posted May 14, 2020 6:00 p.m. EDT

Updated May 14, 2020 7:32 p.m. EDT

Screenshot on WRAL

Although many scientists around the world have said that artificially modified viruses may leave traces, and are different from viruses that have evolved in nature, Baric said in an interview with an Italian media outlet in September 2020 that "it is possible to engineer a virus without leaving a trace."

Ralph Baric takes interview with Italian media in September, 2020. Photo: Screenshot on Huffington Post

iFiGHT

Ralph S. Baric

From Wikipedia, the free encyclopedia

Ralph Steven Baric (born 1954) is William R. Kenan Jr. Distinguished Professor in the Department of Epidemiology, and Professor in the Department of Microbiology and Immunology at the The University of North Carolina at Chapel Hill.

Ralph S. Baric	
Born	1954 (age 66–67)
Nationality	American
Alma mater	North Carolina State University
Scientific career	
Fields	Epidemiology
Institutions	University of North Carolina at Chapel Hill
Thesis	*Inhibitors of host transcription block Sindbis virus replication* (1982)
Doctoral advisor	Robert E. Johnston

Baric's work involves coronaviruses, including gain of function research aimed at devising effective vaccines against coronaviruses.[1] Baric has warned of emerging coronaviruses presenting as a significant threat to global health, due to zoonosis.[2][3]

JUSTIA

Methods and compositions for infectious cDNA of SARS coronavirus

Publication number: 20060240530

Abstract: The present invention provides a cDNA of a severe acute respiratory syndrome (SARS) coronavirus, recombinant SARS coronavirus vectors, and SARS coronavirus replicon particles. Also provided are methods of making the compositions of this invention and methods of using the compositions as immunogens and/or vaccines and/or to express heterologous nucleic acids.

Type: Application

Filed: January 19, 2006

Publication date: October 26, 2006

Inventors: Ralph Baric, Rhonda Roberts, Boyd Yount, Kristopher Curtis

STATEMENT OF FEDERAL SUPPORT

This invention was supported by government funding under grant numbers A123946 and GM 63228 from the National Institute of Health, Allergy and Infectious Diseases. The United States Government has certain rights to this invention.

The present invention further provides a method of introducing a heterologous RNA into a subject, comprising administering to the subject an effective amount of the particles or populations and/or compositions of this invention.

Also provided herein is a method of inducing an immune response and/or treating and/or preventing a SARS coronavirus infection in a subject, comprising administering to the subject an effective amount of the viruses, vectors, particles or populations and/or compositions of this invention.

cDNA of SARS Coronavirus

Complementary DNA (cDNA) is DNA synthesized from single-stranded RNA template (mRNA) in a reaction catalyzed by the enzyme by reverse transcriptase

1. https://patents.justia.com/patent/20060240530

JUSTIA

miFiGHT

Compositions of Chimeric Spike Proteins

STATEMENT OF FEDERAL SUPPORT

This invention was made with government support under Grant No. U54AI057157 awarded by the National Institutes of Health. The government has certain rights in the invention.

FIELD OF THE INVENTION

The present invention relates to methods and compositions comprising a chimeric coronavirus spike protein for treating and/or preventing a disease or disorder caused by a coronavirus infection.

SUMMARY OF THE INVENTION

In one aspect, the present invention provides a chimeric coronavirus spike protein comprising, in orientation from amino to carboxy terminus: a) a first region comprising a portion of a coronavirus spike protein ectodomain that precedes the receptor binding domain (RBD) as located in a nonchimeric coronavirus spike protein, of a first coronavirus; b) a second region comprising a coronavirus spike protein receptor binding domain (RBD) of a second coronavirus that is different from said first coronavirus; c) a third region comprising a portion of a coronavirus spike protein S1 domain as located in a nonchimeric coronavirus spike protein immediately downstream of the RBD, contiguous with a portion comprising a coronavirus spike protein S2 domain as located immediately upstream of a fusion protein domain in a nonchimeric coronavirus spike protein, wherein said third region is of said first coronavirus; and d) a fourth region comprising a portion of a coronavirus spike protein from the start of the fusion protein domain through the carboxy terminal end as located in a nonchimeric coronavirus spike protein of a third coronavirus that is different from said first coronavirus and said second coronavirus.

Methods and compositions for chimeric coronavirus spike proteins

Patent number: 9884895

Abstract: The present invention provides compositions and methods comprising a chimeric coronavirus spike protein.

Type: Grant
Filed: March 20, 2015
Date of Patent: February 6, 2018

Assignee: The University of North Carolina at Chapel Hill
Inventors: Ralph Baric, Sudhakar Agnihothram, Boyd Yount

1. https://patents.justia.com/patent/9884895

Science

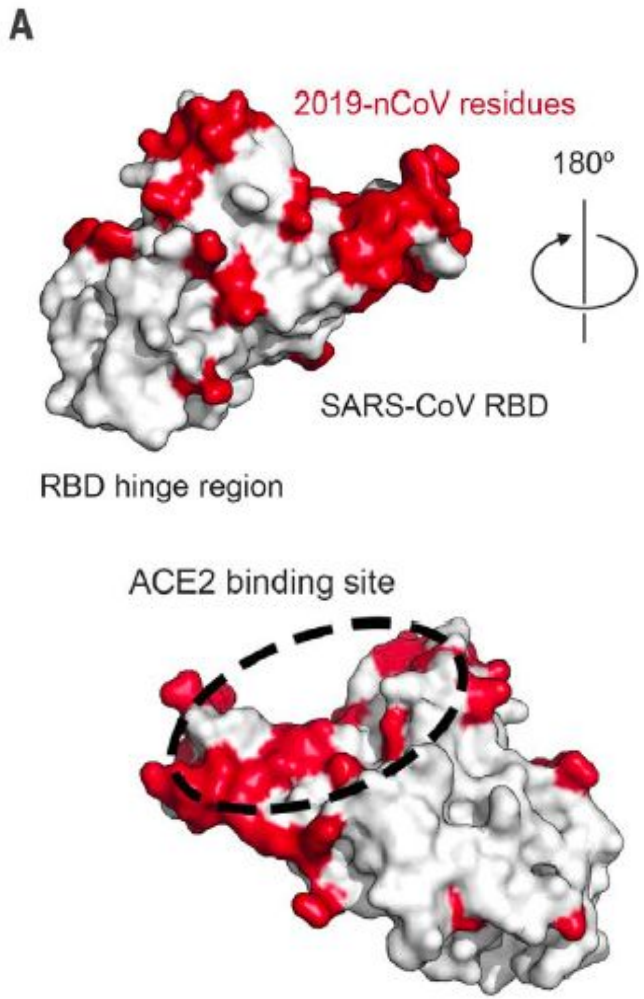
CORONAVIRUS

Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation

Daniel Wrapp[1]*, Nianshuang Wang[1]*, Kizzmekia S. Corbett[2], Jory A. Goldsmith[1], Ching-Lin Hsieh[1], Olubukola Abiona[2], Barney S. Graham[2], Jason S. McLellan[1]†

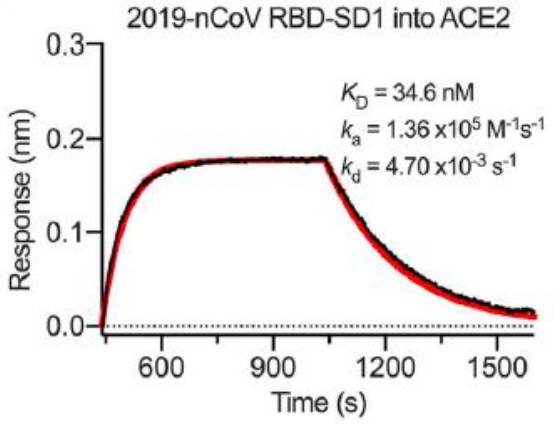
The outbreak of a novel coronavirus (2019-nCoV) represents a pandemic threat that has been declared a public health emergency of international concern. The CoV spike (S) glycoprotein is a key target for vaccines, therapeutic antibodies, and diagnostics. To facilitate medical countermeasure development, we determined a 3.5-angstrom-resolution cryo–electron microscopy structure of the 2019-nCoV S trimer in the prefusion conformation. The predominant state of the trimer has one of the three receptor-binding domains (RBDs) rotated up in a receptor-accessible conformation. We also provide biophysical and structural evidence that the 2019-nCoV S protein binds angiotensin-converting enzyme 2 (ACE2) with higher affinity than does severe acute respiratory syndrome (SARS)-CoV S. Additionally, we tested several published SARS-CoV RBD-specific monoclonal antibodies and found that they do not have appreciable binding to 2019-nCoV S, suggesting that antibody cross-reactivity may be limited between the two RBDs. The structure of 2019-nCoV S should enable the rapid development and evaluation of medical countermeasures to address the ongoing public health crisis.

Fig. 4. Antigenicity of the 2019-nCoV RBD. (**A**) SARS-CoV RBD shown as a white molecular surface (PDB ID: 2AJF), with residues that vary in the 2019-nCoV RBD colored red. The ACE2-binding site is outlined with a black dashed line. (**B**) Biolayer interferometry sensorgram showing binding to ACE2 by the 2019-nCoV RBD-SD1. Binding data are shown as a black



Science **367** (6483), 1260-1263. DOI: 10.1126/science.abb2507originally published online February 19, 2020

B

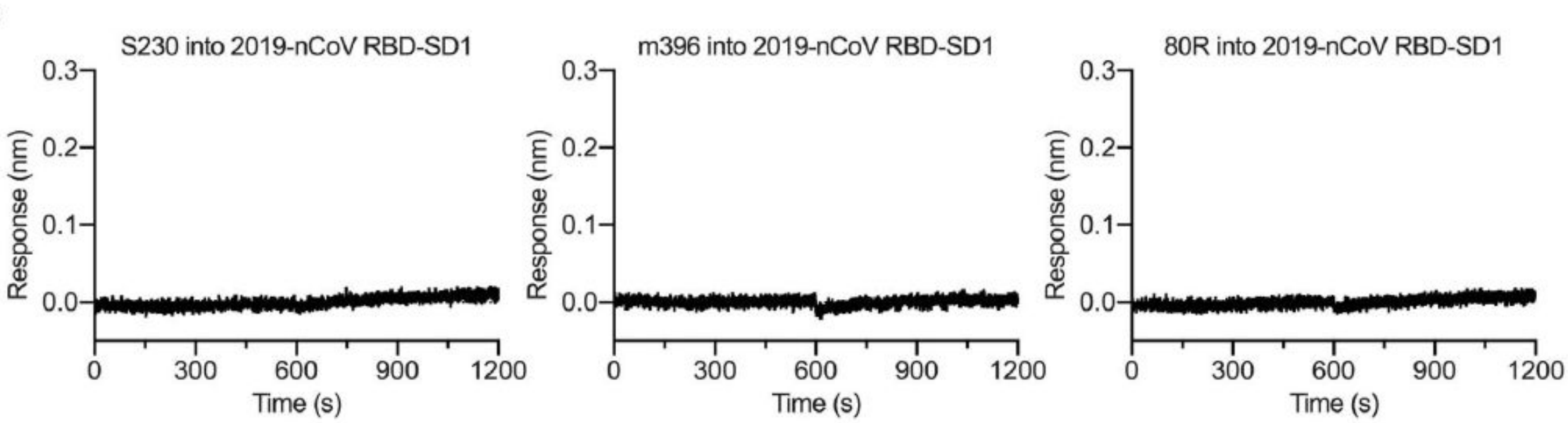


ACE-2 Receptor Binding of 2019 SARS-CoV-2(S) and

line, and the best fit of the data to a 1:1 binding model is shown in red. (**C**) Biolayer interferometry to measure cross-reactivity of the SARS-CoV RBD-directed antibodies S230, m396, and 80R. Sensor tips with immobilized antibodies were dipped into wells containing 2019-nCoV RBD-SD1, and the resulting data are shown as a black line.

MONOCLONAL - ANTIBODIES from the EUA COVID-19 'VACCINE' mRNA RECOMBINANT (S) PROTEIN **DO NOT BIND** TO SARS-CoV-2 PROTEIN

C



Science **367** (6483), 1260-1263. DOI: 10.1126/science.abb2507originally published online February 19, 2020

JUSTIA

miFiGHT

Methods and Compositions for Coronavirus Diagnostics and Therapeutics

STATEMENT OF FEDERAL SUPPORT

This invention was made with government support under Grant Nos. AI085524, AI057157, and U19 AI107810 awarded by the National Institutes of Health. The government has certain rights in the invention.

FIELD OF THE INVENTION

The present invention relates to methods and compositions for detecting and identifying a coronavirus by subgroup as well as treating and/or preventing a disease or disorder caused by a coronavirus infection.

SUMMARY OF THE INVENTION

The present invention provides a method of detecting the presence of a coronavirus in a sample and identifying the subgroup of the coronavirus in the sample, comprising: a) contacting a sample with a panel of proteins comprising: 1) one or more nucleocapsid proteins from a subgroup 2c coronavirus, 2) one or more nucleocapsid proteins from a subgroup 2b coronavirus, 3) one or more nucleocapsid proteins from a subgroup 2a coronavirus, 4) one or more

The present invention also provides a method of identifying a coronavirus spike protein for administration to elicit an immune response to coronavirus in a subject infected by a coronavirus and/or a subject at risk of coronavirus infection and/or to a subject for whom eliciting an immune response to a coronavirus is needed or desired, comprising: a) contacting a sample obtained from a subject infected with a coronavirus with a panel of proteins comprising: 1) one or more spike proteins from a subgroup 2c coronavirus, 2) one or more spike proteins from a subgroup 2b coronavirus, 3) one or more spike proteins from a subgroup 2a coronavirus, 4) one

METHODS AND COMPOSITIONS FOR CORONAVIRUS DIAGNOSTICS AND THERAPEUTICS

Publication number: 20160238601

Abstract: The present invention provides methods and compositions for detecting a coronavirus in a sample and identifying the subgroup of the coronavirus in the sample.

Type: Application

Filed: October 14, 2014

Publication date: August 18, 2016

Inventors: Ralph Baric, Sudhakar Agnihothram, Boyd Yount

Ralph Baric's research lab leads the ...

newsobserver.com

1. https://patents.justia.com/patent/20160238601

JUSTIA

METHODS AND COMPOSITIONS FOR RECOMBINANT DENGUE VIRUSES FOR VACCINE AND DIAGNOSTIC DEVELOPMENT

Publication number: 20200230224

Abstract: The present invention provides compositions and methods of use comprising a chimeric dengue virus E glycoprotein comprising a dengue virus E glycoprotein backbone, which comprises amino acid substitutions that introduce an epitope that is recognized by an antibody from a dengue virus serotype that is different from the dengue virus serotype of the dengue virus E glycoprotein backbone.

Type: Application

Filed: August 29, 2019

Publication date: July 23, 2020

Inventors: Ralph Baric, Douglas Widman, Boyd Yount, Emily Gallichotte, Scott Royal, Aravinda Desilva, Jesica Swanstrom

Also provided herein is a method of protecting a subject from the effects of dengue virus infection, comprising administering to the subject an effective amount of the E glycoprotein of this invention, the flavivirus particle of this invention, the VLP of this invention, the nucleic acid molecule of this invention, the population of this invention, and/or the composition of this invention and any combination thereof.

The present invention also provides various diagnostic methods, including, for example, a method of identifying the presence of a neutralizing antibody to dengue virus serotype 3 and/or 4 in a biological sample from a subject, comprising: a) administering a composition comprising an E glycoprotein comprising an E glycoprotein backbone of serotype 4 comprising amino acid substitutions that introduce an epitope that is recognized by an antibody that is reactive with

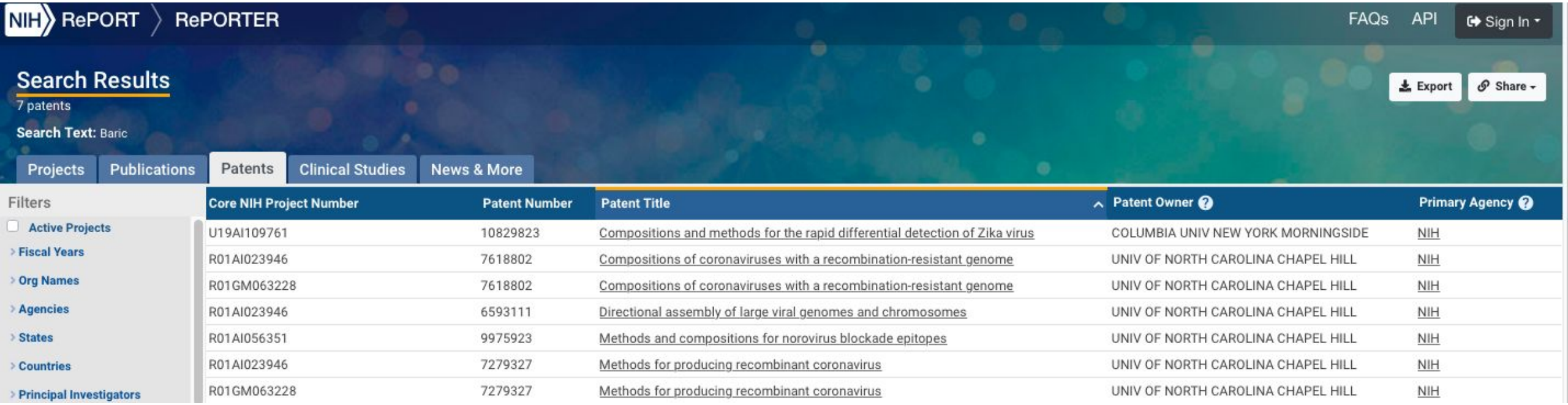
miFiGHT

Recombinant Chimeric Dengue Viruses for Vaccines & Diagnostic Development

Dengue viruses are mosquito-borne viral disease, naturally occurring in tropical and subtropical areas with an estimated 400 million cases worldwide each year.

According to WebMD, risk is increasing for those living along the Texas-Mexico Border. People with weakened immune systems and second (subsequent) infection have greater risk of more severe disease symptoms.

1. https://patents.justia.com/patent/20200230224
2. https://www.webmd.com/a-to-z-guides/dengue-fever-reference



Core NIH Project Number	Patent Number	Patent Title	Patent Owner	Primary Agency
U19AI109761	10829823	Compositions and methods for the rapid differential detection of Zika virus	COLUMBIA UNIV NEW YORK MORNINGSIDE	NIH
R01AI023946	7618802	Compositions of coronaviruses with a recombination-resistant genome	UNIV OF NORTH CAROLINA CHAPEL HILL	NIH
R01GM063228	7618802	Compositions of coronaviruses with a recombination-resistant genome	UNIV OF NORTH CAROLINA CHAPEL HILL	NIH
R01AI023946	6593111	Directional assembly of large viral genomes and chromosomes	UNIV OF NORTH CAROLINA CHAPEL HILL	NIH
R01AI056351	9975923	Methods and compositions for norovirus blockade epitopes	UNIV OF NORTH CAROLINA CHAPEL HILL	NIH
R01AI023946	7279327	Methods for producing recombinant coronavirus	UNIV OF NORTH CAROLINA CHAPEL HILL	NIH
R01GM063228	7279327	Methods for producing recombinant coronavirus	UNIV OF NORTH CAROLINA CHAPEL HILL	NIH

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/patents

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2020 - 2021
NIH/NIAID GRANTS

RALPH BARIC
(UNC/TEXAS/VANDERBILT)

T Act Project	Year	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC	Similar Projects
Respiratory Virus Vaccine and Adjuvant Exploration									
5U01AI149644-03			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2021	NIAID	NIAID	$1,000,000	
Task A24: Establishment of Chronic Pseudomonas aeruginosa and Staphylococcus aureus Infection in Mouse Models of Cystic Fibrosis									
272201700036I-P00008-759301900131-1			BARIC, RALPH	UNIV OF NORTH CAROLINA CHAPEL HILL	2021	NIAID	NIAID	$279,707	
Determinants of Coronavirus Fidelity in Replication and Pathogenesis									
5R01AI108197-09			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2021	NIAID	NIAID	$672,084	
Antibody Landscape following Human Norovirus Infection and Vaccination									
5R01AI148260-02			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2021	NIAID	NIAID	$739,405	
Determinants of Coronavirus Fidelity in Replication and Pathogenesis									
3R01AI108197-09S1			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2021	NIAID	NIAID	$447,335	
Project 3: SARS CoV-2 Lung Organoid Interactions in Replication and Pathogenesis									
2U19AI116484-06		6912	BARIC, RALPH S	STANFORD UNIVERSITY	2021	NIAID		*$340,241*	
Human antibody-based countermeasures against the Wuhan Coronavirus SARS-CoV-2									
1R01AI157155-01			DIAMOND, MICHAEL S BARIC, RALPH S CROWE, JAMES E	WASHINGTON UNIVERSITY	2020	NIAID	NIAID	$1,193,309	

$	279,707
$	1,000,000
$	672,084
$	739,405
$	447,335
$	340,241
$	1,193,309
$	4,672,081

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

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Systems Immunogenetics of Emerging Coronavirus Infections in the Collaborative Cross							
3U19AI100625-09S26276		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID		*$412,634*
Core A: Administrative Core							
1U54CA260543-01	8131	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NCI		*$517,617*
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
5U19AI100625-09		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$2,332,322
Respiratory Virus Vaccine and Adjuvant Exploration - Equipment Supplement							
3U01AI149644-02S1		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$1,088,512
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
3U19AI100625-09S3		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$91,160
Project 1: Serological Correlates of SARS CoV2 Immunity and Disease							
1U54CA260543-01	8134	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NCI		*$658,139*
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
3U19AI100625-09S2		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$412,634
Administrative Core							
5U19AI100625-09	7724	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID		*$220,411*
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
3U19AI100625-09S1		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$564,671
Systems Immunogenetics of Emerging Coronavirus Infections in the Collaborative Cross							
3U19AI100625-09S38833		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID		*$91,160*

2020 CONTINUED NIH/NIAID GRANTS

RALPH BARIC
(UNC/TEXAS/VANDERBILT)

$	412,634
$	517,617
$	2,332,322
$	1,088,512
$	91,160
$	658,139
$	412,634
$	220,411
$	564,671
$	6,298,100

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

miFiGHT

Systems Immunogenetics of Emerging Coronavirus Infections in the Collaborative Cross							
5U19AI100625-09	6276	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID		*$428,666*
Genetic Analysis of COVID-19 Susceptibility and Resistance Determinants in the Collaborative Cross							
1R01AI157253-01		HEISE, MARK T BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$748,384
Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan							
2R01AI110700-06		BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$766,414
North Carolina Seronet Center for Excellence							
1U54CA260543-01		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NCI	NCI	$3,974,612
Respiratory Virus Vaccine and Adjuvant Exploration - Equipment Supplement							
3U01AI149644-02S1		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$1,088,512
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
3U19AI100625-09S2		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$412,634
Project 1: Serological Correlates of SARS CoV2 Immunity and Disease							
1U54CA260543-01	8134	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NCI		*$658,139*
Human antibody-based countermeasures against the Wuhan Coronavirus SARS-CoV-2							
1R01AI157155-01		DIAMOND, MICHAEL S BARIC, RALPH S CROWE, JAMES E	WASHINGTON UNIVERSITY	2020	NIAID	NIAID	$1,193,309
Cell entry, cross-species transmission and pathogenesis of novel coronavirus from Wuhan							
2R01AI110700-06		BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$766,414
Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV							
3R01AI132178-04S1		BARIC, RALPH S SHEAHAN, TIMOTHY PATRICK	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$458,053
Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV							
3R01AI132178-03S1		BARIC, RALPH S SHEAHAN, TIMOTHY PATRICK	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$450,462
Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV							
5R01AI132178-04		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$1,166,670

2020 CONTINUED NIH/NIAID GRANTS

RALPH BARIC
(UNC/TEXAS/VANDERBILT)

$	428,666
$	748,384
$	766,414
$	3,974,612
$	1,088,512
$	412,634
$	658,139
$	1,193,309
$	766,414
$	458,053
$	450,462
$	1,166,670
$	12,112,269

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

Determinants of Coronavirus Fidelity in Replication and Pathogenesis						
3 R01AI108197-08S1	DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2020	NIAID	NIAID	$318,794
Determinants of Coronavirus Fidelity in Replication and Pathogenesis						
5 R01AI108197-08	DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2020	NIAID	NIAID	$672,084
Genetic Analysis of COVID-19 Susceptibility and Resistance Determinants in the Collaborative Cross						
1 R01AI157253-01	HEISE, MARK T BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2020	NIAID	NIAID	$748,384

$	318,794
$	672,084
$	748,384
$	1,739,262

2020 – 2021 TOTAL NIH/NIAID GRANTS RALPH BARIC

$	4,672,081
$	6,298,100
$	12,112,269
$	23,082,450

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

https://en.wikipedia.org/wiki/Ralph_S._Baric

Ralph S. Baric

From Wikipedia, the free encyclopedia

Ralph Steven Baric (born 1954) is William R. Kenan Jr. Distinguished Professor in the Department of Epidemiology, and Professor in the Department of Microbiology and Immunology at the The University of North Carolina at Chapel Hill.

Baric's work involves coronaviruses, including gain of function research aimed at devising effective vaccines against coronaviruses.[1] Baric has warned of emerging coronaviruses presenting as a significant threat to global health, due to zoonosis.[2][3]

Ralph S. Baric

Born	1954 (age 66–67)
Nationality	American
Alma mater	North Carolina State University
Scientific career	
Fields	Epidemiology
Institutions	University of North Carolina at Chapel Hill
Thesis	*Inhibitors of host transcription block Sindbis virus replication* (1982)
Doctoral advisor	Robert E. Johnston

ESTABLISHMENT OF CHRONIC BACTERIAL INFECTION MODELS IN MOUSE MODELS OF CYSTIC			**S WITH PSEUDOMONAS AERUGINOSA AND STAPHYL**				
2722017000361-0-75 9301900131-1		BARIC, RALPH	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID	NIAID	$442,129
Respiratory Virus Vaccine and Adjuvant Exploration							
1 U01AI149644-01		BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID	NIAID	$1,000,000
Administrative Core							
5 U19AI100625-08	7724	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID		*$818,006*
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
5 U19AI100625-08		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID	NIAID	$2,769,729
Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis							
5 R01AI110700-05		BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID	NIAID	$721,207
Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV							
5 R01AI132178-03		BARIC, RALPH S SHEAHAN, TIMOTHY PATRICK	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID	NIAID	$1,166,670
Systems Immunogenetics of Emerging Coronavirus Infections in the Collaborative Cross							
5 U19AI100625-08	7727	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2019	NIAID		*$428,666*
Determinants of Coronavirus Fidelity in Replication and Pathogenesis							
5 R01AI108197-07		DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2019	NIAID	NIAID	$672,084
Molecular Analysis of Serum Antibody Constituents in Zika Virus Infection							
5 R21AI135682-02		GEORGIOU, GEORGE GEORGIOU BARIC, RALPH S	UNIVERSITY OF TEXAS, AUSTIN	2019	NIAID	NIAID	$181,149
Systems Immunogenetics of Biodefense and Emerging Pathogens in the Collaborative Cross							
5 U19AI100625-07		BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2018	NIAID	NIAID	$2,727,484
Administrative Core							
5 U19AI100625-07	7724	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2018	NIAID		*$342,898*
Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis							
5 R01AI110700-04		BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2018	NIAID	NIAID	$727,370
Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease							
5 U19AI109761-05	8481	BARIC, RALPH S	COLUMBIA UNIVERSITY HEALTH SCIENCES	2018	NIAID		*$889,074*
Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV							
5 R01AI132178-02		BARIC, RALPH S SHEAHAN, TIMOTHY PATRICK	UNIV OF NORTH CAROLINA CHAPEL HILL	2018	NIAID	NIAID	$1,166,670
Systems Immunogenetics of Emerging Coronavirus Infections in the Collaborative Cross							
5 U19AI100625-07	7727	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2018	NIAID		*$419,667*
Molecular Analysis of Serum Antibody Constituents in Zika Virus Infection							
1 R21AI135682-01		GEORGIOU, GEORGE GEORGIOU BARIC, RALPH S	UNIVERSITY OF TEXAS, AUSTIN	2018	NIAID	NIAID	$233,638
Determinants of Coronavirus Fidelity in Replication and Pathogenesis							
2 R01AI108197-06		DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2018	NIAID	NIAID	$686,584

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2018 -2019
NIH/NIAID GRANTS

RALPH BARIC
(UNC/TEXAS/VANDERBILT)

$	442,129
$	1,000,000
$	818,006
$	2,769,729
$	721,207
$	1,166,670
$	428,666
$	672,084
$	181,149
$	2,727,484
$	342,898
$	727,370
$	889,074
$	419,667
$	233,638
$	686,584
$	14,226,355

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T	Act	Project	Year	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC
Administrative Core										
5	U19	AI107810-05		8688	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2017	NIAID		*$211,216*
Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis										
5	R01	AI110700-03			BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2017	NIAID	NIAID	$733,354
Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease										
5	U19	AI109761-04		8481	BARIC, RALPH S	COLUMBIA UNIVERSITY HEALTH SCIENCES	2017	NIAID		*$1,131,261*
Broad-spectrum antiviral GS-5734 to treat MERS-CoV and related emerging CoV										
1	R01	AI132178-01			BARIC, RALPH S SHEAHAN, TIMOTHY PATRICK	UNIV OF NORTH CAROLINA CHAPEL HILL	2017	NIAID	NIAID	$1,455,240
Systems Immunogenetics of Emerging Coronavirus Infections in the Collaborative Cross										
2	U19	AI100625-06		7727	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2017	NIAID		*$418,635*
Role of Uncharacterized Genes in High Pathogenic Human Coronavirus Infection										
5	U19	AI107810-05		8683	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2017	NIAID		*$396,549*
Characterization of novel genes encoded ty RNA and DNA viruses										
5	U19	AI107810-05			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2017	NIAID	NIAID	$2,021,134
Administrative and Education Core										
4	U19	AI100625-05		6159	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID		*$649,146*
Administrative Core										
4	U19	AI107810-04		8688	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID		*$252,483*
System Immunogenetics of SARS-CoV Infection										
3	U19	AI100625-04S1		5232	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID		*$135,110*
System Immunogenetics of SARS-CoV Infection										
4	U19	AI100625-05		6155	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID		*$739,947*
Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis										
5	R01	AI110700-02			BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID	NIAID	$739,162
Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease										
5	U19	AI109761-03		8481	BARIC, RALPH S	COLUMBIA UNIVERSITY HEALTH SCIENCES	2016	NIAID		*$889,034*
Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross										
4	U19	AI100625-05			BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID	NIAID	$4,853,040
Characterization of novel genes encoded ty RNA and DNA viruses										
4	U19	AI107810-04			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID	NIAID	$2,322,470
Unlocking Zika Virus Immune Control and Pathogenesis with the Collaborative Cross										
3	U19	AI100625-04S1			BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID	NIAID	$135,110
Role of Uncharacterized Genes in High Pathogenic Human Coronavirus Infection										
4	U19	AI107810-04		8683	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2016	NIAID		*$704,107*
Determinants of Coronavirus Fidelity in Replication and Pathogenesis										
5	R01	AI108197-05			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2016	NIAID	NIAID	$548,803

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2016-2017
CORONAVIRUS,GOF, ET AL.
NIH/NIAID GRANTS

RALPH BARIC
(UNC/Columbia/Vanderbilt)

$	211,216
$	733,354
$	1,131,261
$	1,455,240
$	418,635
$	396,549
$	2,021,134
$	649,146
$	252,483
$	135,110
$	739,947
$	739,162
$	899,034
$	4,853,040
$	2,322,470
$	135,110
$	704,107
$	548,803
$	18,345,801

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2014-2015
CORONAVIRUS, GOF, ET AL.

RALPH BARIC
(UNC/Vanderbilt/Columbia/)

Act	Project	Year	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC
	Determinants of Coronavirus Fidelity in Replication and Pathogenesis								
5	R01AI108197-04			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY MEDICAL CENTER	2015	NIAID	NIAID	$306,487
	Administrative Core								
5	U19AI107810-03		8688	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID		*$188,494*
	Administrative and Education Core								
5	U19AI100625-04		6159	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID		*$279,874*
	Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease								
5	U19AI109761-02		8481	BARIC, RALPH S	COLUMBIA UNIVERSITY HEALTH SCIENCES	2015	NIAID		*$1,137,211*
	Mechanisms of MERS-CoV Entry, Cross-species Transmission and Pathogenesis								
1	R01AI110700-01A1			BARIC, RALPH S LI, FANG	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID	NIAID	$754,420
	System Immunogenetics of SARS-CoV Infection								
5	U19AI100625-04		6155	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID		*$412,965*
	Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross								
5	U19AI100625-04			BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID	NIAID	$4,144,540
	Characterization of novel genes encoded ty RNA and DNA viruses								
5	U19AI107810-03			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID	NIAID	$2,115,911
	Role of Uncharacterized Genes in High Pathogenic Human Coronavirus Infection								
5	U19AI107810-03		8683	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2015	NIAID		*$370,377*
	Determinants of Coronavirus Fidelity in Replication and Pathogenesis								
5	R01AI108197-03			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY	2015	NIAID	NIAID	$242,311
	Administrative Core								
5	U19AI107810-02		8688	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID		*$223,265*
	Administrative and Education Core								
5	U19AI100625-03		6159	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID		*$832,756*
	Mechanisms of Norovirus Protective Immunity								
1	R56AI106006-01A1			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID	NIAID	$759,938
	System Immunogenetics of SARS-CoV Infection								
5	U19AI100625-03		6155	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID		*$334,030*
	Diagnostic and Prognostic Biomarkers for Viral Severe Lung Disease								
1	U19AI109761-01		8481	BARIC, RALPH S	COLUMBIA UNIVERSITY HEALTH SCIENCES	2014	NIAID		*$1,184,414*
	Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross								
5	U19AI100625-03			BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID	NIAID	$4,148,261
	Role of Uncharacterized Genes in High Pathogenic Human Coronavirus Infection								
5	U19AI107810-02		8683	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID		*$420,831*
	Characterization of novel genes encoded ty RNA and DNA viruses								
5	U19AI107810-02			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2014	NIAID	NIAID	$2,102,641
	Determinants of Coronavirus Fidelity in Replication and Pathogenesis								
5	R01AI108197-02			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY	2014	NIAID	NIAID	$547,101

$	306,487
$	188,494
$	279,874
$	1,137,211
$	754,420
$	412,965
$	4,144,540
$	2,115,911
$	370,377
$	242,311
$	233,265
$	832,756
$	759,938
$	334,030
$	1,184,414
$	4,148,261
$	420,831
$	2,102,641
$	547,101
$	20,515,827

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

T	Act	Project	Year	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC
Administrative Core										
1	U19	AI107810-01		8688	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID		*$196,909*
Administrative and Education Core										
5	U19	AI100625-02		6159	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID		*$206,337*
System Immunogenetics of SARS-CoV Infection										
5	U19	AI100625-02		6155	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID		*$367,995*
Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross										
5	U19	AI100625-02			BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID	NIAID	$4,030,980
Systems Pathogenomics of Severe Acute Respiratory Virus Infection										
5	U54	AI081680-05		6278	BARIC, RALPH S	OREGON HEALTH & SCIENCE UNIVERSITY	2013	NIAID		*$818,118*
Role of Uncharacterized Genes in High Pathogenic Human Coronavirus Infection										
1	U19	AI107810-01		8683	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID		*$371,153*
Characterization of novel genes encoded ty RNA and DNA viruses										
1	U19	AI107810-01			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID	NIAID	$2,027,645
Susceptibility and Protective Immunity to Noroviruses										
5	R01	AI056351-10			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2013	NIAID	NIAID	$409,466
Determinants of Coronavirus Fidelity in Replication and Pathogenesis										
1	R01	AI108197-01			DENISON, MARK R. BARIC, RALPH S	VANDERBILT UNIVERSITY	2013	NIAID	NIAID	$560,000
Administrative and Education Core										
1	U19	AI100625-01		6159	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2012	NIAID		*$174,333*
SARS-CoV Pathogenic Mechanisms in Senescent Mice										
5	R01	AI075297-05			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2012	NIAID	NIAID	$484,651
System Immunogenetics of SARS-CoV Infection										
1	U19	AI100625-01		6155	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2012	NIAID		*$435,565*
Systems Immunogenetics of Biodefense Pathogens in the Collaborative Cross										
1	U19	AI100625-01			BARIC, RALPH S HEISE, MARK T	UNIV OF NORTH CAROLINA CHAPEL HILL	2012	NIAID	NIAID	$4,594,721
Systems Pathogenomics of Severe Acute Respiratory Virus Infection										
5	U54	AI081680-04		6278	BARIC, RALPH S	OREGON HEALTH & SCIENCE UNIVERSITY	2012	NIAID		*$746,369*
Susceptibility and Protective Immunity to Noroviruses										
5	R01	AI056351-09			BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2012	NIAID	NIAID	$435,605

miFiGHT

2012-2013
CORONAVIRUS, GOF, ET AL.

RALPH BARIC (UNC/Vanderbilt/OR)

$	196,909
$	206,337
$	367,995
$	4,030,980
$	818,118
$	371,153
$	2,027,645
$	409,466
$	560,000
$	174,333
$	484,651
$	435,565
$	4,594,721
$	746,369
$	435,605
$	15,859,847

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

Systems Pathogenomics of Severe Acute Respiratory Virus Infection							
5 U54AI081680-03 6278	BARIC, RALPH S	OREGON HEALTH & SCIENCE UNIVERSITY	2011	NIAID		*$758,603*
Susceptibility and Protective Immunity to Noroviruses							
5 R01AI056351-08	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2011	NIAID	NIAID	$457,050
SARS-CoV Pathogenic Mechanisms in Senescent Mice							
5 R01AI075297-03	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2010	NIAID	NIAID	$492,533
Systems Pathogenomics of Severe Acute Respiratory Virus Infection							
5 U54AI081680-02 6278	BARIC, RALPH S	OREGON HEALTH & SCIENCE UNIVERSITY	2010	NIAID		*$739,767*
Susceptibility and Protective Immunity to Noroviruses							
5 R01AI056351-07	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2010	NIAID	NIAID	$606,993
Yeast Based Assays for Chemical Screens Against SARS-CoV Targets							
3 R21NS063854-01S1	ENGEL, DANIEL A BARIC, RALPH S	UNIVERSITY OF VIRGINIA	2010	NINDS	OD	$38,500
Developing Vaccine Candidates for the SARS Coronavirus							
5 P01AI059443-05	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2009	NIAID	NIAID	$1,907,553
Core--SARS Coronavirus Clone and Reagent							
5 P01AI059443-05 9002	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2009	NIAID		*$202,418*
Rewiring SARS-CoV Genome Organization and Pathogenesis							
5 P01AI059443-05 0001	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2009	NIAID		*$264,982*
Systems Pathogenomics of Severe Acute Respiratory Virus Infection							
1 U54AI081680-01 6278	BARIC, RALPH S	OREGON HEALTH & SCIENCE UNIVERSITY	2009	NIAID		*$747,616*
SARS-CoV Pathogenic Mechanisms in Senescent Mice							
5 R01AI075297-02	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2009	NIAID	NIAID	$490,616
Susceptibility and Protective Immunity to Noroviruses							
2 R01AI056351-06A1	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2009	NIAID	NIAID	$660,673
Developing Vaccine Candidates for the SARS Coronavirus							
5 P01AI059443-04	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2008	NIAID	NIAID	$1,854,836
Core--SARS Coronavirus Clone and Reagent							
5 P01AI059443-04 9002	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2008	NIAID		*$196,600*
Rewiring SARS-CoV Genome Organization and Pathogenesis							
5 P01AI059443-04 0001	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2008	NIAID		*$257,344*
SARS Reverse Genetics							
5 R01AI059136-05	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2008	NIAID	NIAID	$271,608
SARS-CoV Pathogenic Mechanisms in Senescent Mice							
1 R01AI075297-01A1	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2008	NIAID	NIAID	$496,151
Yeast Based Assays for Chemical Screens Against SARS-CoV Targets							
1 R21NS063854-01	ENGEL, DANIEL A BARIC, RALPH S	UNIVERSITY OF VIRGINIA	2008	NINDS	OD	$157,259
SARS Reverse Genetics							
5 R01AI059136-04	BARIC, RALPH S	UNIV OF NORTH CAROLINA CHAPEL HILL	2007	NIAID	NIAID	$276,869

miFIGHT

2007 – 2011
SARS-CORONAVIRUS
NIH/NIAID GRANTS
PATHOGENECITY,
GOF RESEARCH

RALPH BARIC (UNC/UVA/OR)

$	758,603
$	457,050
$	492,533
$	739,767
$	606,993
$	38,500
$	1,907,553
$	202,418
$	264,418
$	264,982
$	747,616
$	490,616
$	660,673
$	1,854,836
$	196,600
$	257,344
$	271,608
$	496,151
$	157,259
$	276,869
$	11,142,389

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

T	Act	Project	Year	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC
		DETERMINANTS OF SUSCEPTIBILITY AND PROTECTIVE IMMUNITY TO NORWALK VIRUS INFECT								
5	M01	RR000046-46	1437		BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NCRR		*$743*
		Developing Vaccine Candidates for the SARS Coronavirus								
5	P01	AI059443-02			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NIAID	NIAID	$1,840,683
		Core--SARS Coronavirus Clone and Reagent								
5	P01	AI059443-02	9002		BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NIAID		*$181,677*
		Rewiring SARS-CoV Genome Organization and Pathogenesis								
5	P01	AI059443-02	0001		BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NIAID		*$239,406*
		Studies into the Mechanisms for MHV Replication								
5	R01	AI023946-17			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NIAID	NIAID	$337,090
		SARS Reverse Genetics								
5	R01	AI059136-03			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NIAID	NIAID	$285,138
		Susceptibility and Protective Immunity to Noroviruses								
5	R01	AI056351-04			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2006	NIAID	NIAID	$377,578
		Administrative Core								
1	P01	AI059443-01A1	7958		BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID		*$146,495*
		Developing Vaccine Candidates for the SARS Coronavirus								
1	P01	AI059443-01A1			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID	NIAID	$1,676,513
		Core--SARS Coronavirus Clone and Reagent								
1	P01	AI059443-01A1	9002		BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID		*$174,680*
		Rewiring SARS-CoV Genome Organization and Pathogenesis								
1	P01	AI059443-01A1	0001		BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID		*$218,242*
		Studies into the Mechanisms for MHV Replication								
5	R01	AI023946-16			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID	NIAID	$395,202
		SARS Reverse Genetics								
5	R01	AI059136-02			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID	NIAID	$290,054
		Susceptibility and Protective Immunity to Noroviruses								
5	R01	AI056351-03			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2005	NIAID	NIAID	$376,502
		REVERSE GENETICS WITH A CORONAVIRUS INFECTIOUS CONSTRUCT								
5	R01	GM063228-04			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2004	NIGMS	NIGMS	$255,321
		Studies into the Mechanisms for MHV Replication								
5	R01	AI023946-15			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2004	NIAID	NIAID	$345,202
		SARS Reverse Genetics								
1	R01	AI059136-01			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2004	NIAID	NIAID	$278,647
		Remodeling SARS Coronavirus Genome Regulatory Networks								
1	R01	AI061819-01			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2004	NIAID	NIAID	$367,042
		Susceptibility and Protective Immunity to Noroviruses								
5	R01	AI056351-02			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2004	NIAID	NIAID	$384,133
		REVERSE GENETICS WITH A CORONAVIRUS INFECTIOUS CONSTRUCT								
5	R01	GM063228-03			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2003	NIGMS	NIGMS	$255,321
		Studies into the Mechanisms for MHV Replication								
2	R01	AI023946-14A1			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2003	NIAID	NIAID	$519,733
		Susceptibility and Protective Immunity to Noroviruses								
1	R01	AI056351-01			BARIC, RALPH S	UNIVERSITY OF NORTH CAROLINA CHAPEL HILL	2003	NIAID	NIAID	$129,665

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2003 – 2006
SARS-CORONAVIRU,
NOROVIRUS, Et al.
NIH/NIAID GRANTS

RALPH BARIC (UNC)

$	743
$	1,840,683
$	181,677
$	239,406
$	337,090
$	285,138
$	377,578
$	146,495
$	1,676,513
$	174,680
$	218,242
$	395,202
$	290,054
$	367,042
$	345,202
$	278,647
$	367,042
$	384,133
$	519,733
$	129,665
$	8,554,965

https://reporter.nih.gov/search/709S4FzbS0ScdpKkxNIg6Q/projects

2003 – 2021 TOTAL NIH/NIAID GRANTS RALPH BARIC

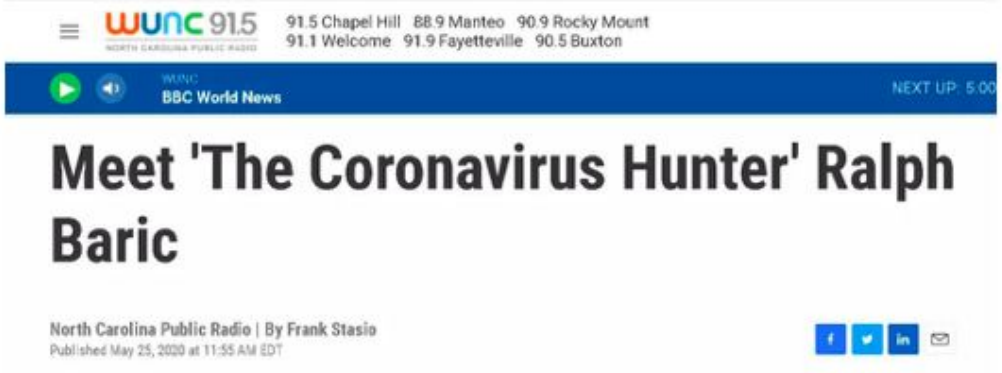
$	23,082,450
$	14,226,335
$	18,345,801
$	20,515,827
$	15,859,847
$	11,142,389
$	8,554,965
$	111,727,614

US TAX DOLLARS

https://www.globaltimes.cn/page/202108/1231519.shtml

Baric and his virus modification technique

Let's start with Ralph Baric, an American scientist who is called the "Coronavirus Hunter."



Screenshot on North Carolina-based media WUNC

Screenshot on UNC

According to a report from the school-run media of the University of North Carolina, where Baric works, "Baric has been tracking coronaviruses for decades and working on medications to treat coronavirus-caused infections."

UNIVERSITY NEWS

Leading COVID experts to deliver Carolina's Spring Commencement address

Drs. Anthony Fauci and Kizzmekia Corbett have been pivotal in understanding and combatting the virus.

By University Communications, Thursday, March 4th, 2021

Carolina's spring graduation will feature two of the biggest names in COVID-19 research and national response strategies who will be, virtually, on the same stage in Kenan Stadium for multiple live commencement exercises honoring the Class of 2021 and a

https://www.unc.edu/posts/2021/03/04/commencement-spe

T	Act	Project	Year	Sub	Principal Investigator(s)/ Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-20			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2020	NIAID	NIAID	$1,001,661
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-20			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2020	NIAID	NIAID	$1,001,661
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-19			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2019	NIAID	NIAID	$1,069,830
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-19			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2019	NIAID	NIAID	$1,069,830
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-18			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2018	NIAID	NIAID	$984,045
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-18			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2018	NIAID	NIAID	$984,045
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-17			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2017	NIAID	NIAID	$1,117,501
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-17			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2017	NIAID	NIAID	$921,475
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-16			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2016	NIAID	NIAID	$744,742
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-16			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2016	NIAID	NIAID	$744,742
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-15			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2015	NIAID	NIAID	$853,062
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-15			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2015	NIAID	NIAID	$853,062
Role of Viral Reservoirs in the Pathogenesis of HIV Disease										
1		ZIAAI000851-15			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2015	NIAID	NIAID	$1,384,173
Therapeutic Strategies for the Management of HCV/HIV co- infection										
1		ZIAAI000390-31			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2014	NIAID	NIAID	$689,091
Interaction of HIV envelope with cell surface receptors										
1		ZIAAI000883-14			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2014	NIAID	NIAID	$612,656
Role of HIV Envelope Proteins In Viral Replication and HIV Pathogenesis										
1		ZIAAI000887-14			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2014	NIAID	NIAID	$501,264
Role of Viral Reservoirs in the Pathogenesis of HIV Disease										
1		ZIAAI000851-14			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2014	NIAID	NIAID	$966,899
Role of B Lymphocytes In HIV Infection And Pathogenesis										
1		ZIAAI000825-17			FAUCI, ANTHONY S.	NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES	2014	NIAID	NIAID	$772,682

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2014 -2020

NIAID GRANTS

HIV ENVELOPE (GP120)

ANTHONY FAUCI

$	1,001,661
$	1,069,830
$	984,045
$	1,175,501
$	921,475
$	744,742
$	853,062
$	1,384,173
$	689,091
$	612,656
$	501,264
$	966,899
$	772,682
$	11,677,081

https://reporter.nih.gov/search/3_Ch3YpiTEum9wv2qeurbA/projects?PI=2403678

ANTHONY FAUCI - US PATENTS – HIV GP120

Search Results

6 patents

Search Text: FAUCI, ANTHONY

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Filters

- Active Projects
- Fiscal Years
- Org Names
- Agencies
- Countries
- Principal Investigators

Core NIH Project Number	Patent Number	Patent Title	Patent Owner	Primary Agency
Z01AI000887	9896509	Use of antagonists of the interaction between HIV GP120 and .alpha.4.beta.7 integrin		NIH
Z01AI000887	9441041	Use of antagonists of the interaction between HIV GP120 and .alpha.4.beta.7 integrin		NIH
ZIAAI000887	9441041	Use of antagonists of the interaction between HIV GP120 and .alpha.4.beta.7 integrin		NIH
ZIAAI000887	9896509	Use of antagonists of the interaction between HIV GP120 and .alpha.4.beta.7 integrin		NIH
Z01AI000887	9193790	Use of antagonists of the interaction between HIV GP120 and A4B7 integrin		NIH
ZIAAI000887	9193790	Use of antagonists of the interaction between HIV GP120 and A4B7 integrin		NIH

https://reporter.nih.gov/search/3_Ch3YpiTEum9wv2qeurbA/patents?PI=2403678&sort_field=patent_title&sort_order=asc