Government funding in patents related to COVID-19 technology: CRISPR diagnostics, antibodies, and mRNA vaccines

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Knowledge Ecology International
luis.gil.abinader@keionline.org

KEI webinar on government funding of COVID-19 vaccines and other medical technologies
October 2020
CRISPR diagnostics
## Patents and licensing of CRISPR diagnostics

<table>
<thead>
<tr>
<th>company</th>
<th>COVID-19 test status</th>
<th>public funding</th>
<th>patent status</th>
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<td>yes, via Jennifer Doudna</td>
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## Patents and licensing of CRISPR diagnostics

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<th>patent id</th>
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<th>geographical scope, based on the applications we know of</th>
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COVID-19 antibody treatment
United States Patent

Babb et al.

No. US 10,787,501 B1

Title: Antibodies and Antigen-Binding Fragments

Assignee: Regeneron Pharmaceuticals, Inc., Tarrytown, NY (US)

Inventors: Robert Babb, River Edge, NJ (US); Alla Baum, Pleasantville, NY (US); Guang Chen, Yorktown Heights, NY (US); Cindy Grosen, Irvington, NY (US); Johannes Hamann, Greenwich, CT (US); Timothy Huang, Cross River, NY (US); Christian Kirzsatz, Irvington, NY (US); Wenyi Lou, New Hyde Park, NY (US); Martin Malter, Port Chester, NY (US); Andrew Murphy, Centreville, VA (US); William Olson, Yorktown Heights, NY (US); Neil Wahl, Central, NY (US); George D. Younopoulos, Yorkville, Elmhurst, NY (US)

Priority Date: Dec 15, 2016

Application Date: Jun 26, 2017

Priority Data: Provisional Application No. 62/696,151, filed on Apr 2, 2018, provisional application No. 62/696,147, filed on Apr 2, 2018, provisional application No. 6504,158, filed on Mar 15, 2020, provisional application No. 6504,165, filed on Apr 1, 2020

Publication Date: Oct 10, 2019

Patent Type: Application

Inventors: Robert Babb, River Edge, NJ (US); Alla Baum, Pleasantville, NY (US); Guang Chen, Yorktown Heights, NY (US); Cindy Grosen, Irvington, NY (US); Johannes Hamann, Greenwich, CT (US); Timothy Huang, Cross River, NY (US); Christian Kirzsatz, Irvington, NY (US); Wenyi Lou, New Hyde Park, NY (US); Martin Malter, Port Chester, NY (US); Andrew Murphy, Centreville, VA (US); William Olson, Yorktown Heights, NY (US); Neil Wahl, Central, NY (US); George D. Younopoulos, Yorkville, Elmhurst, NY (US)

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Publication Date: Oct 10, 2019

Patent Type: Application

References Cited

Primary Examiner—Benjamin P. Strand

ABSTRACT

The present disclosure provides antibodies and antigen-binding fragments thereof that bind specifically to a coronaviruse Spike protein and methods of using such antibodies and fragments for treating or preventing viral infections (e.g., COVID-19) (2019-nCoV).

20 Claims, 14 Drawing Sheets

Specification includes a Sequence Listing.
At least two academic papers co-authored by Regeneron scientists acknowledge BARDA funding.
Regeneron failed to disclose BARDA funding in their REGN-COV2 patent

Posted on October 20, 2020 by KEI Staff


A research note by Luis Abinader on this issue is available here: rn-2020-4
mRNA vaccines
None of the published U.S. patents assigned to Moderna acknowledge government support

<table>
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data collection: we used USPTO databases to search for all patents and applications assigned to “Moderna” or “ModernaTx.” A total of sixteen patents and seven applications were dropped from the dataset, and are not reflected above, because they were assigned to companies other than Moderna.
At least two academic papers co-authored by Moderna scientists acknowledge DARPA funding.
KEI asks DOD to investigate failure to disclose DARPA funding in Moderna patents

Posted on August 28, 2020 by James Love

(More on Moderna here: https://www.kelonline.org/moderna)

Luis Gil Abinader has taken a deep dive into Moderna’s surprising practice of never declaring government funding in its 126 patents and 154 patent applications, despite having had funding from multiple federal agencies.

One outcome of his research is a 25 page report (RN-2020-3) on Moderna’s failure to report funding from DARPA, and a request by KEI to DOD and DARPA to remedy this, including by taking title to patents where disclosures should have been made. (Text of letter below, and PDF version here).

KEI will also send a letter to BARDA. The letter below was addressed to DOD and DARPA, and focuses on their funding.
September 18, 2020

Via Electronic Mail

James Love
Knowledge Ecology International
1621 Connecticut Avenue, NW, Suite 500
Washington, D.C. 20009

Dear Mr. Love:

I am responding to your letter of August 27, 2020, to Dr. Amy Jenkins at the Defense Advanced Research Projects Agency (DARPA) requesting the Department of Defense investigate Moderna Therapeutics’ (Moderna) alleged failure to disclose DARPA funding support in its patented inventions. DARPA is reviewing agreements it has awarded to Moderna and U.S. patents and published patent applications for Moderna and ModernaTx, since March 2013.

Thank you for bringing this matter to our attention. Should you have any questions, please contact DARPA Deputy General Counsel, Geraldine Chanel, at 571-218-4609 or geraldine.chanel@darpa.mil.

Sincerely,

D. Peter Donahue
Contracting Officer-Division Director
Contracts Management Office
Statement by Moderna on Intellectual Property Matters during the COVID-19 Pandemic

October 8, 2020

Moderna is a pioneer in the development of messenger RNA (mRNA) vaccines and therapeutics. From its inception in 2010, Moderna saw the potential of this new class of medicines to make a significant difference in patients’ lives. With the support of our investors we have invested billions of dollars into research and development to make mRNA medicines a reality. One of the exciting discoveries advanced by Moderna was the combination of mRNA and lipid nanoparticles (LNPs) to make vaccines, and the demonstration of this potential in human clinical trials for eleven different infectious disease vaccines since 2015. Those discoveries and the expertise we developed have uniquely positioned Moderna to respond to the COVID-19 pandemic quickly. Information on our work toward a COVID-19 vaccine can be found here.

As a company committed to innovation, Moderna recognizes that intellectual property rights play an important role in encouraging investment in research. Our portfolio of intellectual property is an important asset that will protect and enhance our ability to continue to invest in innovative medicines. A summary of our intellectual property can be found here. A selection of representative issued US patents relevant to our mRNA-1273 vaccine against COVID-19 is available here.

Beyond Moderna’s vaccine, there are other COVID-19 vaccines in development that may use Moderna-patented technologies. We feel a special obligation under the current circumstances to use our resources to bring this pandemic to an end as quickly as possible. Accordingly, while the pandemic continues, Moderna will not enforce our COVID-19 related patents against those making vaccines intended to combat the pandemic. Further, to eliminate any perceived IP barriers to vaccine development during the pandemic period, upon request we are also willing to license our intellectual property for COVID-19 vaccines to others for the post pandemic period.

Moderna is proud that its mRNA technology is poised to be used to help end the current pandemic.

Forward-Looking Statements

This statement contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including regarding Moderna’s stance with respect to enforcement and licensing of its intellectual property rights during and following the COVID-19 pandemic. In some cases, forward-looking statements can be identified by terminology such as “will,” “may,” “should,” “could,” “expects,” “intends,” “plans,” “aims,” “anticipates,” “believes,” “estimates,” “predicts,” “potential,” “continues,” or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. The forward-looking statements in this statement are neither promises nor guarantees, and you should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, which could cause actual results to differ materially from those expressed or implied by these forward-looking statements. These risks, uncertainties, and other factors include those risks and uncertainties described under the heading “Risk Factors” in Moderna’s most recent Quarterly Report on Form 10-Q filed with the U.S. Securities and Exchange Commission (SEC) and in subsequent filings made by Moderna with the SEC, which are available on the SEC’s website at www.sec.gov. Except as required by law, Moderna disclaims any intention or responsibility for updating or revising any forward-looking statements contained in this statement in the event of new information, future developments or otherwise. These forward-looking statements are based on Moderna’s current expectations and speak only as of the date hereof.