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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)



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(b)(1); (b)(3):50 USC 3024(i);  
Sec. 1.4(c); Sec. 1.4(e)

DEFENSE INTELLIGENCE | 12 NOVEMBER 2020

*(U) Origins of SARS-CoV-2*

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)



(b)(3):10 USC 424; (b)(3):50 USC  
3024(i); (b)(6)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

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(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

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(S)

Identified pangolin coronavirus samples have genomic segments that are almost identical to SARS-CoV-2, according to an academic journal article.<sup>58</sup>

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e); (b)(6)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(U) Definitions

~~(S//NF)~~

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

(b)(3):50 USC 3024(i)

*(U) Origin of COVID-19 Outbreak*

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424; (b)(3):50 USC  
3024(i); (b)(6)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e) 3

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

~~TOP SECRET~~ (b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); (b)(6)

(b)(3):50 USC 3024(i)

~~TS~~ The COVID-19 outbreak may have occurred naturally. SARS-CoV-2 is the seventh known coronavirus that can infect humans, and the third to emerge since 2002, according to the U.S. CDC.<sup>123</sup>

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

- > ~~(S//NF)~~ Previous coronavirus outbreaks occurred naturally and were linked to animal reservoirs with zoonotic transmission to humans, and scientists generally agree that bats are the probable original host reservoir for SARS-CoV-2, according to scientific literature.<sup>129</sup>  
<sup>130</sup> The closest overall match to SARS-CoV-2—at 96% similarity—is RaTG13, which the WIV collected from a bat in 2013, according to a 2020 journal article.<sup>131</sup>

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

~~(S//NF)~~ (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e) 4

~~TOP SECRET~~ (b)(3):10 USC 424; (b)(3):50 USC 3024(i)

The following 2 pages are withheld in full citing (b)(1), (b)(3) 10 USC 424 + 50 USC 3024(i), and (b)(6), and are not provided.

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(b)(3):10 USC 424; (b)(3):50 USC

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424; (b)(3):50 USC 3024(i); (b)(6)

(b)(3):50 USC 3024(i)

(U) Source Endnotes

<sup>1</sup> (U) Xie et al.; Cell Host & Microbe Vol. 27 pg. 841-848 | 13 May 2020 | 13 May 2020 | (U) An Infectious cDNA Clone of SARS-CoV-2 | Classification of extracted information is U | Overall classification is U | (U)

(b)(3):10 USC 424

<sup>2</sup> (U) Thao et al.; bioRxiv Preprints | 21 Feb 2020 | 21 Feb 2020 | (U) Rapid reconstruction of SARS-CoV-2 using a synthetic genomics platform | Classification of extracted information is U | Overall classification is U | (U)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(d); Sec. 1.4(e)

(b)(3):10 USC 424

<sup>8</sup> (U) Internet, Andersen, Kristin G. et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | (U)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

10 (U) Journal, David M. Morens, Joel G. Breman, Charles H. Calisher, Peter C. Dohe, Beatrice H. Hahn, Gerald T. Keusch, Laura D. Kramer, James W. LeDuc, Thomas P. Monath, and Jeffery K. Taubenberger | 22 Jul 2020 | 22 Jul 2020 | (U) The Origin of COVID-19 and Why It Matters | (U) Am. J. Trop. Med. Hyg. 103:3 - (b)(3):10 USC 424

11 (U) Zhang et al.; Cell Vol. 181 Commentary | 16 Apr 2020 | 16 Apr 2020 | (U) A Genomic Perspective on the Origin and Emergence of SARS-CoV-2 | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(3):10 USC  
424

12 (U) Grace Niewijk; GENENG News | 21 Sep 2020 | 21 Sep 2020 | (U) Controversy Aside, Why the Source of COVID-19 Matters | Classification of extracted information is U | Overall classification is U | <https://www.genengnews.com/insights/controversy-aside-why-the-source-of-covid-19-matters/>, 03 Nov 2020 | (U) (b)(3):10 USC 424

<sup>13</sup> (U) Journal, Zhan et al. | 01 May 2020 | 01 May 2020 | (U) SARS-CoV-2 is well adapted for humans. What does that mean for re-emergence? | <https://doi.org/10.1101/2020.05.01.073262>, 29 May 2020 | (U) (b)(3):10 USC 424

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424

34 (U) Journal, David M. Morens, Joel G. Breman, Charles H. Calisher, Peter C. Dohe, Beatrice H. Hahn, Gerald T. Keusch, Laura D. Kramer, James W. LeDuc, Thomas P. Monath, and Jeffery K. Taubenberger | 22 Jul 2020 | 22 Jul 2020 | (U) The Origin of COVID-19 and Why It Matters | (U) Am. J. Trop. Med. Hyg. 103:3 [REDACTED]

(b)(3):10 USC 424

35 (U) Journal, Talha Burki | 01 Aug 2020 | 01 Aug 2020 | (U) The Origin of SARS-CoV-2 | (U) [REDACTED]

Burki et al — the origin of SARS-CoV-2

36 (U) Grace Niewijk; GENENG News | 21 Sep 2020 | 21 Sep 2020 | (U) Controversy Aside, Why the Source of COVID-19 Matters | Classification of extracted information is U | Overall classification is U | <https://www.genengnews.com/insights/controversy-aside-why-the-source-of-covid-19-matters/>, 03 Nov 2020 | (U) (b)(3):10 USC 424

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)



~~TOP SECRET~~ (b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

46 (U) Ren et al.; Journal of Virology Vol. 82 Iss. 4 | 01 Feb 2008 | 12 Dec 2007 | (U) Difference in Receptor Usage between Severe Acute Respiratory Syndrome (SARS) Coronavirus and SARS-Like Coronavirus of Bat Origin | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

48 (U) Zeng et al.; Journal of Virology Vol. 90 Iss. 14 | 11 May 2016 | 11 May 2016 | (U) Bat Severe Acute Respiratory Syndrome-Like Coronavirus WIV1 Encodes an Extra Accessory Protein, ORFX, Involved in Modulation of the Host Immune Response | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

49 (U) Hu et al.; PLOS Pathogens Vol. 13 Iss. 11 | 30 Nov 2017 | 30 Nov 2017 | (U) Discovery of a rich gene pool of bat SARS-related coronaviruses provides new insights into the origin of SARS coronavirus | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

52 (U) Zeng et al.; Journal of Virology Vol. 90 Iss. 14 | 11 May 2016 | 11 May 2016 | (U) Bat Severe Acute Respiratory Syndrome-Like Coronavirus WIV1 Encodes an Extra Accessory Protein, ORFX, Involved in Modulation of the Host Immune Response | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

53 (U) Ren et al.; Journal of Virology Vol. 82 Iss. 4 | 01 Feb 2008 | 12 Dec 2007 | (U) Difference in Receptor Usage between Severe Acute Respiratory Syndrome (SARS) Coronavirus and SARS-Like Coronavirus of Bat Origin | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

54 (U) Ge et al.; Nature Vol. 503 Pg. 535-538 | 18 Sep 2013 | 18 Sep 2013 | (U) Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(3):10 USC 424

55 (U) Yang et al.; Journal of Virology Vol. 90 Iss. 6 | 30 Dec 2015 | 30 Dec 2015 | (U) Isolation and Characterization of a Novel Bat Coronavirus Closely Related to the Direct Progenitor of Severe Acute Respiratory Syndrome Coronavirus | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

~~TOP SECRET~~ (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

56 (U) Wang et al.; Viruses Vol. 11 Iss. 22 | 24 Apr 2019 | 24 Apr 2019 | (U) Characterization of a New Member of Alphacoronavirus with Unique Genomic Features in Rhinolophus Bats | Classification of extracted information is U | Overall classification is U | (U)

(b)(3):10 USC 424

57 (U) (b)(3):10 USC 424; (b)(3):50 USC 3024(i)

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58 (U) Journal, Alice Latinne, Ben Hu, Kevin J. Olival, Guangjian Zhu, Libiao Zhang, Hongying Li, Aleksei A. Chmura, Hume E. Field, Carlos Zambrana Torrelío, Jonathan H. Epstein, Bei Li, Wei Zhang, Lin Fa Wang, Zheng Li Shi & Peter Daszak | 01 Nov 2020 | 01 Jul 2020 | (U) Origina and cross-species transmission of bat coronaviruses in China | cnh-nqf.0/-0/27.r30356 /1/ 06576 2, 10 Nov 2020 | (U) Nature Communications | (b)(3):10 USC 424

59 (U) (b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

60 (U) Internet, Andersen, Kristin G. et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | (U)

(b)(3):10 USC  
424

61 (U) Journal, Alice Latinne, Ben Hu, Kevin J. Olival, Guangjian Zhu, Libiao Zhang, Hongying Li, Aleksei A. Chmura, Hume E. Field, Carlos Zambrana Torrelío, Jonathan H. Epstein, Bei Li, Wei Zhang, Lin Fa Wang, Zheng Li Shi & Peter Daszak | 01 Nov 2020 | 01 Jul 2020 | (U) Origina and cross-species transmission of bat coronaviruses in China | cnh-nqf.0/-0/27.r30356 /1/ 06576 2, 10 Nov 2020 | (U) Nature Communications | (b)(3):10 USC 424

62 (U) Zhang et al.; Cell Vol. 181 Commentary | 16 Apr 2020 | 16 Apr 2020 | (U) A Genomic Perspective on the Origin and Emergence of SARS-CoV-2 | Classification of extracted information is U | Overall classification is U | (U)

63 (U) Journal, Coutard et al. | 10 Feb 2020 | 03 Feb 2020 | (U) The spike glycoprotein of the new coronavirus 2019-nCoV contains a furin-like cleavage site absent in CoV of the same clade | (U) (b)(3):10 USC 424

(b)(3):10 USC  
424

64 (U) Journal, Anderson, KG, Rambaut, A, Lipkin, WI, et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | doi.org/10.1035/s41591.020.0820.9, 19 Mar 2020 | (U) (b)(3):10 USC 424

65 (U) (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

66 (U) Internet, Andersen, Kristin G. et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | (U)

(b)(3):10 USC  
424

67 (U) Journal, David M. Morens, Joel G. Breman, Charles H. Calisher, Peter C. Dohe, Beatrice H. Hahn, Gerald T. Keusch, Laura D. Kramer, James W. LeDuc, Thomas P. Monath, and Jeffery K. Taubenberger | 22 Jul 2020 | 22 Jul 2020 | (U) The Origin of COVID-19 and Why It Matters | (U) Am. J. Trop. Med. Hyg. 103:3- | (b)(3):10 USC 424

68 (U) Gu et al.; bioRxiv Preprints | 25 Feb 2020 | 25 Feb 2020 | (U) Multivariate Analyses of Codon Usage of SARS-CoV-2 and other betacoronaviruses | Classification of extracted information is U | Overall classification is U | (U)

(b)(3):10 USC  
424

69 (U) Ren et al.; Journal of Virology Vol. 82 Iss. 4 | 01 Feb 2008 | 12 Dec 2007 | (U) Difference in Receptor Usage between Severe Acute Respiratory Syndrome (SARS) Coronavirus and SARS-Like Coronavirus of Bat Origin | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

70 (U) Journal, Xiao et al. | 07 May 2020 | 28 Apr 2020 | (U) Isolation of SARS-CoV-2 related coronavirus from Malayan pangolins | (b)(3):10 USC 424

71 (U) Gu et al.; bioRxiv Preprints | 25 Feb 2020 | 25 Feb 2020 | (U) Multivariate Analyses of Codon Usage of SARS-CoV-2 and other betacoronaviruses | Classification of extracted information is U | Overall classification is U | (U)

(b)(3):10 USC  
424

72 (U) Chen et al.; Emerging Microbes & Infections Vol. 9 | 30 Jan 2020 | 30 Jan 2020 | (U) RNA based mNGS approach identifies a novel human coronavirus from two individual pneumonia cases in 2019 Wuhan outbreak | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

73 (U) Kandeel et al.; Journal of Medical Virology Vol. 1 Iss. 7 | 09 Mar 2020 | 09 Mar 2020 | (U) From SARS and MERS CoVs to SARS-CoV-2: Moving toward more biased codon usage in viral structural and nonstructural genes | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

74 (U) Journal, Coutard et al. | 10 Feb 2020 | 03 Feb 2020 | (U) The spike glycoprotein of the new coronavirus 2019-nCoV contains a furin-like cleavage site absent in CoV of the same clade | (U) (b)(3):10 USC 424

(b)(1); (b)(3):50 USC 3024(i); Sec.  
1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

~~TOP SECRET~~

(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

75 (U) Journal, Cheng et al. | 22 Oct 2019 | 22 Oct 2019 | (U) The S2 Subunit of QX-type Infectious Bronchitis Coronavirus Spike Protein Is an Essential Determinant of Neurotropism | (U) (b)(3):10 USC 424

76 (U) Yang et al.; Journal of Virology Vol. 90 Iss. 6 | 30 Dec 2015 | 30 Dec 2015 | (U) Isolation and Characterization of a Novel Bat Coronavirus Closely Related to the Direct Progenitor of Severe Acute Respiratory Syndrome Coronavirus | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

77 (U) Wang et al.; Viruses Vol. 11 Iss. 22 | 24 Apr 2019 | 24 Apr 2019 | (U) Characterization of a New Member of Alphacoronavirus with Unique Genomic Features in Rhinolophus Bats | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c)

83 (U) Ren et al.; Journal of Virology Vol. 82 Iss. 4 | 01 Feb 2008 | 12 Dec 2007 | (U) Difference in Receptor Usage between Severe Acute Respiratory Syndrome (SARS) Coronavirus and SARS-Like Coronavirus of Bat Origin | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

84 Xiao et al., 2020

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c)

89 (U) Borucki et al.; PLOS One Vol. 8 Iss. 1 | 07 Jan 2013 | 21 Nov 2012 | (U) The Role of Viral Population Diversity in Adaptation of Bovine Coronavirus to New Host Environments | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec.  
1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC  
3024(i)

(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

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(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

95 (U) Luo et al.; Virologica Sinica Vol. 33 Pg. 87-95 | 02 Mar 2018 | 02 Mar 2018 | (U) Longitudinal Surveillance of Betacoronaviruses in Fruit Bats in Yunnan Province, China During 2009–2016 | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

96 (U) Ge et al.; Virology Journal Vol. 14 Iss. 98 | 26 May 2017 | 26 May 2017 | (U) Detection of alpha- and betacoronaviruses in rodents from Yunnan, China | Classification of extracted information is U | Overall classification is U | (U)

(b)(3):10 USC 424

97 (U) Ge et al.; Nature Vol. 503 Pg. 535-538 | 18 Sep 2013 | 18 Sep 2013 | (U) Isolation and characterization of a bat SARS-like coronavirus that uses the ACE2 receptor | Classification of extracted information is U | Overall classification is U | (U)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424

99 (U) Grace Niewijk; GENENG News | 21 Sep 2020 | 21 Sep 2020 | (U) Controversy Aside, Why the Source of COVID-19 Matters | Classification of extracted information is U | Overall classification is U | <https://www.genengnews.com/insights/controversy-aside-why-the-source-of-covid-19-matters/>, 03 Nov 2020 | (U)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

106 13 (U) Internet, Botao Xiao and Lei Xiao | 19 Feb 2020 | 19 Feb 2020 | (U) The possible origins of 2019-nCoV coronavirus | ResearchGate.net, 19 Feb 2020 | Classification of extracted information is U | Overall classification is U | (U)

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

109 (U) Journal, Lei-Ping Zeng, et al. | 31 Jul 2016 | 31 Jul 2016 | (U) Bat Severe Acute Respiratory Syndrome-Like Coronavirus W1V1 Encodes an Extra Accessory Protein, ORFX, Involved in Modulation of the Host Immune Response | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)



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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

117 (U) Internet, Science Magazine | 31 Jan 2020 | 31 Jan 2020 | (U) Mining Coronavirus Genomes for Clues to the Outbreak's Origins | <https://www.sciencemag.org/news/2020/01/mining-coronavirus-genomes-clues-outbreak-s-origins>, 07 Feb 2020 | (U)

(b)(3):10 USC 424

(b)(3):10 USC 424

118 (U) Internet, Botao Xiao and Lei Xiao | 19 Feb 2020 | 19 Feb 2020 | (U) The possible origins of 2019-nCoV coronavirus | ResearchGate.net, 19 Feb 2020 | Classification of extracted information is U | Overall classification is U | (U)

(b)(1); (b)(3):10 USC 424;  
(b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(3):10 USC 424

123 (U) Internet, Centers for Disease Control and Prevention | 11 Feb 2020 | 11 Feb 2020 | (U) Human Coronavirus Types | Classification of extracted information is U | Overall classification is U | (U)

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(d)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

~~TOP SECRET~~

(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

127 (U) Journal, The Lancet | Hiang, Chaolin | 24 Jan 2020 | 24 Jan 2020 | (U) Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China | (U) (b)(3):10 USC 424

128 (U) (b)(3):10 USC 424; (b)(3):50 USC 3024(i) ~~SECRET~~ (b)(3):50 USC 3024(i)

129 (U) Journal, Respiriology | 17 Sep 2017 | 17 Sep 2017 | (U) MERS, SARS and other coronaviruses as causes of pneumonia | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

130 (U) Journal, David M. Morens, Joel G. Breman, Charles H. Calisher, Peter C. Dohe, Beatrice H. Hahn, Gerald T. Keusch, Laura D. Kramer, James W. LeDuc, Thomas P. Monath, and Jeffery K. Taubenberger | 22 Jul 2020 | 22 Jul 2020 | (U) The Origin of COVID-19 and Why It Matters | (U) Am. J. Trop. Med. Hyg. 103:3 (b)(3):10 USC 424

131 (U) Journal, Anderson, KG, Rambaut A, Lipkin, WI, et. al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | doi.org/10.1035/s41591 020 0820 9, 19 Mar 2020 | (U) (b)(3):10 USC 424

132 (U) Journal, Guan et al. | 10 Oct 2003 | 10 Oct 2003 | (U) Isolation and Characterization of Viruses Related to the SARS Coronavirus from Animals in Southern China | (U) (b)(3):10 USC 424

Guan et al 2003  
133 (U) Journal, Chu et al. | 06 Jun 2014 | 06 Jun 2014 | (U) MERS Coronaviruses in Dromedary Camels, Egypt | (U)

Chu et al 2014

(b)(3):10 USC 424; (b)(1);  
(b)(3):50 USC 3024(i);  
Sec. 1.4(c); Sec. 1.4(e)

136 (U) Internet, Andersen, Kristin G. et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | (U)

137 (U) Journal, David M. Morens, Joel G. Breman, Charles H. Calisher, Peter C. Dohe, Beatrice H. Hahn, Gerald T. Keusch, Laura D. Kramer, James W. LeDuc, Thomas P. Monath, and Jeffery K. Taubenberger | 22 Jul 2020 | 22 Jul 2020 | (U) The Origin of COVID-19 and Why It Matters | (U) Am. J. Trop. Med. Hyg. 103:3 (b)(3):10 USC 424

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC  
3024(i); Sec. 1.4(c); Sec. 1.4(e)

139 (U) Internet, Andersen, Kristin G. et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | (U)

140 (U) Journal, David M. Morens, Joel G. Breman, Charles H. Calisher, Peter C. Dohe, Beatrice H. Hahn, Gerald T. Keusch, Laura D. Kramer, James W. LeDuc, Thomas P. Monath, and Jeffery K. Taubenberger | 22 Jul 2020 | 22 Jul 2020 | (U) The Origin of COVID-19 and Why It Matters | (U) Am. J. Trop. Med. Hyg. 103:3 (b)(3):10 USC 424

141 (U) Internet, Andersen, Kristin G. et al. | 17 Mar 2020 | 17 Mar 2020 | (U) The Proximal Origin of SARS-CoV-2 | (U)

142 (U) Journal, Alice Latrine, Ben Hu, Kevin J. Olival, Guangjian Zhu, Libiao Zhang, Hongying Li, Aleksei A. Chmura, Hume E. Field, Carlos Zambrana Torrelío, Jonathan H. Epstein, Bei Li, Wei Zhang, Lin Fa Wang, Zheng Li Shi & Peter Daszak | 01 Nov 2020 | 01 Jul 2020 | (U) Origina and cross-species transmission of bat coronaviruses in China | enh.nsf.01-0/27-r30356-1/1-06576-2, 10 Nov 2020 | (U) Nature Communications (b)(3):10 USC 424

143 (U) Zhang et al.; Cell Vol. 181 Commentary | 16 Apr 2020 | 16 Apr 2020 | (U) A Genomic Perspective on the Origin and Emergence of SARS-CoV-2 | Classification of extracted information is U | Overall classification is U | (U)

144 Coutard et al., 2020

(b)(3):10 USC 424; (b)(1); (b)(3):50 USC  
3024(i); Sec. 1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

~~TOP SECRET~~

(b)(3):10 USC 424

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c)

147 (U) Journal, Shi Zhengli | 24 Jul 2020 | 24 Jul 2020 | (U) Reply to Science Magazine | (U)

Shi Science Interview

(b)(1); (b)(3):10 USC 424; (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

150 (U) Yang et al.; Journal of Virology Vol. 90 Iss. 6 | 30 Dec 2015 | 30 Dec 2015 | (U) Isolation and Characterization of a Novel Bat Coronavirus Closely Related to the Direct Progenitor of Severe Acute Respiratory Syndrome Coronavirus | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

151 (U) Zeng et al.; Journal of Virology Vol. 90 Iss. 14 | 11 May 2016 | 11 May 2016 | (U) Bat Severe Acute Respiratory Syndrome-Like Coronavirus WIV1 Encodes an Extra Accessory Protein, ORFX, Involved in Modulation of the Host Immune Response | Classification of extracted information is U | Overall classification is U | (U) (b)(3):10 USC 424

(b)(1); (b)(3):10 USC 424;  
(b)(3):50 USC 3024(i); Sec.  
1.4(c); Sec. 1.4(e)

(b)(1); (b)(3):50 USC 3024(i); Sec. 1.4(c); Sec. 1.4(e)

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(b)(3):10 USC 424; (b)(3):50 USC 3024(i)

The final page is withheld in full citing (b)(1), (b)(3) 10 USC 424 + 50 USC 3024(i), and (b)(6), and is not provided.