

# Timeline of the Works on the Correlation between COVID-19 and Y-DNA Haplogroup R1b

Sebastiano Schillaci\*

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## Abstract

Soon after the beginning of COVID-19 pandemic, many works have been reporting a yet-to-be-explained correlation of COVID-19 prevalence and severity with Y-DNA haplogroup R1b frequency. Here a chronologically ordered list of such works is provided.

## Introduction

Because of the unusual spreading pattern of COVID-19 in Italy and in the world, at the beginning of April, I started wondering whether there was an underlying genetic reason for that. Watching genetic maps, I quickly noticed an apparent correlation with Y-DNA haplogroup R1b. On April 13th, 2020, I set up a website<sup>[4]</sup> to publicize such discovery, joined a COVID-related Facebook group and posted my theory there<sup>[5]</sup>.

Initially, I shared my idea hoping someone would help me to develop it, but people seemed skeptical about it. After trying for a while to convince them, I decided to go on by myself. Using all the freely available data I could gather, I tried to verify the correlation statistically. As far as I know, my article<sup>[19]</sup> has been the first serious attempt to mathematically ‘prove’ the existence of such a correlation. With further researches I later found out that other people had also noticed the same or similar correlations — most of them, I presume, independently from me.

My initial plan was to assess the correlation between basic reproduction numbers  $R_0$  and haplogroup percentages. Ideally, it would have been better to do it at a local level, so to compare data collected in a more uniform way. Unfortunately, there were not enough data for the haplogroup distributions inside countries or regions, but only for whole countries and populations (and only for the main subclades).

Besides, after searching for a while, I realized it was also difficult to find enough good quality estimates of basic reproduction numbers. So I resolved to use the initial growth rates of contagion (and deaths) for different countries, instead. To prevent possible criticisms, I calculated them using exactly the same approach already employed in another article assessing correlations with different factors; interestingly enough, the estimates chosen for the free parameters (days and cases) tend to be locally optimal for R1b correlations.

While writing my article I have started keeping track of related works, for easier reference. The following table contains an annotated list, in chronological order, of all the mentions to this theory I learned about. The milestones are highlighted and the specified date is the earliest I could find a reference for.

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\*EMAIL ADDRESS: [sebastiano\\_schillaci@yahoo.com](mailto:sebastiano_schillaci@yahoo.com)

DATE	AUTHOR	TYPE	NOTES
22 March 2020	Maria del Pilar Corena-McLeod	Thread <sup>[1]</sup>	Incorrectly refers to the <i>mitochondrial</i> haplogroup R1b
30 March 2020	Gigi Tevzadze	Article <sup>[2]</sup>	Marginal reference, mainly on haplogroup G
31 March 2020	Paolo Sizzi	Thread <sup>[3]</sup>	Refers to Italy
13 April 2020	Sebastiano Schillaci	Webpage <sup>[4]</sup>	Main points of the theory and visual comparison (10+ countries)
14 April 2020 (submitted on 13 April 2020)	Sebastiano Schillaci	Thread <sup>[5]</sup>	Shared webpage on Facebook Group <i>physicists against sars-cov-2</i>
17 April 2020	Sebastiano Schillaci	Thread <sup>[6]</sup>	Consulted Mauricio Lucioni Maristany (Maulucioni), main contributor to the world R1b map <sup>[7]</sup>
19 April 2020	Ángel Gómez Moreno	Article <sup>[8]</sup>	Refers to Europe and Africa with main focus on Spain (1/3)
19 April 2020	Alberto Pérez de Vargas	News <sup>[9]</sup>	
24 April 2020	Frédéric Boyer	Blog Post <sup>[10]</sup>	Refers to Europe
25 April 2020	Mohammed Hassai Awli	Article <sup>[11]</sup>	Mostly diagrams
25 April 2020	Miquel Hernandis	News <sup>[12]</sup>	
26 April 2020	Johann Strauss	Blog Post <sup>[13]</sup>	Relationship with BCG vaccine
27 April 2020	Arsenio Escolar	News <sup>[14]</sup>	
29 April 2020	Anonymous (user4682)	Thread <sup>[15]</sup>	Graphical correlation with deaths per capita (20 countries)
5 May 2020	Ángel Gómez Moreno	Article <sup>[16]</sup>	Adds further European and African countries (2/3)
19 May 2020	Antonio Caselles Moncho	Article <sup>[17]</sup>	Multiple linear regression (?) (10 countries)
21 May 2020	Frank Wallace Bentrem	Article <sup>[18]</sup>	Graphical correlation with deaths per capita (57 countries)
22 May 2020	Sebastiano Schillaci	Article <sup>[19]</sup>	Quantitative evaluation of the correlation in Italy and in the world (84 countries)
23 May 2020	Sebastiano Schillaci	Article <sup>[19]</sup>	Submitted to <i>bioRxiv</i> , but refused because it ‘ <i>does not accept preprints of articles reporting epidemiological studies</i> ’
25 May 2020	Juan-Ramón Lacadena	Blog Post <sup>[20]</sup>	Refers to previous works
26 May 2020	Sebastiano Schillaci	Article <sup>[19]</sup>	Submitted to <i>Open Science Framework (OSF)</i>
27 May 2020	Sebastiano Schillaci	Thread <sup>[21]</sup>	Shared article on Facebook Group <i>physicists against sars-cov-2</i>
5 June 2020	Ángel Gómez Moreno	Article <sup>[22]</sup>	Adds United States, Brazil and Japan (3/3)
8 June 2020	John Allen	Article <sup>[23]</sup>	Attempt at finding the involved genes
19 June 2020 (submitted on 10 June 2020)	Mariya V. Ragulskaya	Article <sup>[24]</sup>	Refers to haplogroup R1a and R1b (peer-reviewed)
27 June 2020	Sebastiano Schillaci	Article <sup>[19]</sup>	2nd version
17 July 2020 (submitted on 20 June 2020)	O. Abu Hammad et al.	Article <sup>[25]</sup>	Marginal reference to previous works (peer-reviewed)
20 July 2020	Spyros Anagnostou	Article <sup>[26]</sup>	Graphical correlation with deaths per capita (38 countries)
20 July 2020	Ángel Gómez Moreno	Article <sup>[27]</sup>	Compares Western European and non-European countries
29 July 2020	Sebastiano Schillaci	Article <sup>[19]</sup>	3rd version
30 July 2020	Sebastiano Schillaci	Thread <sup>[28]</sup>	Shared article on Facebook Group <i>Statistiche Coronavirus Italia</i>
10 August 2020	Dave Dalton	Article <sup>[29]</sup>	Marginal reference, mainly on haplogroup R1a
21 August 2020 (submitted on 27 May 2020)	J.R. Delanghe et al.	Article <sup>[30]</sup>	Quantitative evaluation of the correlation in the Netherlands, Belgium and in the world (28 countries) (peer-reviewed)
13 October 2020	G. Fazio et al.	Article <sup>[31]</sup>	Refers to Italy
15 October 2020 (submitted on 28 June 2020)	L. Janda et al.	Article <sup>[32]</sup>	Marginal reference to previous works (peer-reviewed)
20 October 2020	Aleš Žužek	News <sup>[33]</sup>	
23 October 2020	M. Montopoli et al.	Article <sup>[34]</sup>	Response to J.R. Delanghe et al.’s article (peer-reviewed)
26 October 2020	Nacho de Blas	Blog Post <sup>[35]</sup>	Marginal reference to previous works
9 November 2020	Sandro Modeo	News <sup>[36]</sup>	
12 November 2020	Nacho de Blas	TV News <sup>[37]</sup>	
13 November 2020	Ole Bernt Lenning	Seminar <sup>[38]</sup>	Refers to the world
14 November 2020	Luis Ordóñez	News <sup>[39]</sup>	
23 November 2020	Nacho de Blas	Blog Post <sup>[40]</sup>	Refers to previous works
10 December 2020	Vasilis S. Gavalas	Article <sup>[41]</sup>	Assessment of NPIs efficacy on the basis of previous works
23 December 2020	Sandro Modeo	News <sup>[42]</sup>	
27 December 2020	José Manuel Etxaniz Makazaga	News <sup>[43]</sup>	
8 January 2021	Peter Mühlbauer	News <sup>[44]</sup>	
14 January 2021	Peter Mühlbauer	News <sup>[45]</sup>	
3 February 2021	Sandro Modeo	News <sup>[46]</sup>	

Table: Timeline of the works on COVID-19 and Y-DNA haplogroup R1b.

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