

**The American Journal of Human Genetics, Volume 107**

**Supplemental Data**

**The Role of Host Genetic Factors in Coronavirus  
Susceptibility: Review of Animal and Systematic  
Review of Human Literature**

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## Supplemental Materials

### Methods of Article Ascertainment and Categorization

We conducted an initial search of the PubMed database (last queried June 18, 2020) using each of the following phrases: “host genetics”; “genetic resistance”; “genetic susceptibility”; “genetic factors”; “genetics”; “GWAS” along with each of the following terms: “coronavirus”; “SARS”; “MERS”; “COVID-19”; “COVID19”. We also identified additional articles by searching for specific coronaviruses or coronavirus-associated conditions (e.g., “canine coronavirus”; “middle east respiratory syndrome”) along with the term “genetics”. Articles were included in the search regardless of publication date. Articles included electronic, ahead-of-print publications available in the PubMed database. We also identified and categorized relevant articles from the references of initially selected articles. We did not include articles only available on non-peer reviewed preprint servers, though recognize that a substantial number of these manuscripts will be on PubMed soon.

Each abstract was reviewed by a single reviewer. Full articles were reviewed when insufficient data were available in the abstract, or when no abstract was available. Publications were classified into the following categories: 1) Study of human host genetic factors related to coronavirus; 2) Study of non-human (animal) host genetic factors related to coronavirus; 3) Study of non-genetic (including non-DNA-based analyses - see further explanation below) host factors related to coronavirus, including involving immunopathogenesis; 4) Study of other pathogens (not coronavirus); 5) Other studies of coronavirus. Articles containing information in both categories 1 and 2 were identified as such; articles were otherwise categorized according to the lowest numerical category (e.g., an article involving both human host genetic factors to coronavirus as well as immunopathogenesis would be categorized into group 1. Articles that did not involve investigations of specific DNA-based genetic changes (e.g., transcriptomic or proteomic studies) were categorized into group 3, as were studies that only included

analyses of sex without other genetic analyses. Other publications, including: 6) Untranslated studies in another language (not English); 7) Not relevant (unrelated to coronavirus or other pathogens); 8) No data available; were removed from further analysis after categorization into these latter three categories.

Data from category 1 publications were manually extracted for relevant information pertaining to: coronavirus studied; general methods and questions analyzed; gene(s), variant(s), or loci analyzed; size of cohorts studied; geographic or ancestral composition of cohorts; statistical results, including the principal summary measures (where available) of odds ratios, confidence intervals, and p-values.

**Table S1.** List of all articles identified and categorizations.

**Table S2.** Details of association studies pertaining to specific genes/variants. In the “Key genes or alleles studied” column, significant genes with specific alleles are noted; for non-significant alleles, the gene is given. rs IDs (dbSNP) or other identifiers are given when available. In addition to the PMIDs listed in Table S2 (12969506<sup>1</sup>; 15243926<sup>2</sup>; 15331509<sup>3</sup>; 15381116<sup>4</sup>; 15766558<sup>5</sup>; 15819995<sup>6</sup>; 15838797<sup>7</sup>; 15937940<sup>8</sup>; 16170752<sup>9</sup>; 16185324<sup>10</sup>; 16652313<sup>11</sup>; 16824203<sup>12</sup>; 16369534<sup>13</sup>; 16455884<sup>14</sup>; 17534354<sup>15</sup>; 17534355<sup>16</sup>; 17540042<sup>17</sup>; 17570115<sup>18</sup>; 17913858<sup>19</sup>; 18312678<sup>20</sup>; 18478121<sup>21</sup>; 18697825<sup>22</sup>; 18708672<sup>23</sup>; 19405982<sup>24</sup>; 19445991<sup>25</sup>; 19590927<sup>26</sup>; 20359516<sup>27</sup>; 20462354<sup>28</sup>; 20864745<sup>29</sup>; 20864747<sup>30</sup>; 21904596<sup>31</sup>; 21958371<sup>32</sup>; 24643938<sup>33</sup>; 25818534<sup>34</sup>; 26524966<sup>35</sup>; 32348495<sup>36</sup>), several other non-quantitative studies are described in Table 1.<sup>37-39</sup>

**Table S3.** Examples of COVID-19 related guidance for specific genetic conditions or situations.

Additional work has been published on the aspects of the practice of genetics during the COVID-19 pandemic.<sup>40; 41</sup>

| Condition           | PMID                   |
|---------------------|------------------------|
| Charcot-Marie-Tooth | 32317558 <sup>42</sup> |

|  |                        |
|--|------------------------|
| Gaucher                                      | 32471800 <sup>43</sup> |
| Glucose-6-phosphate dehydrogenase deficiency | 32380930 <sup>44</sup> |
| Inborn errors of metabolism                  | 32409735 <sup>45</sup> |
| Inherited arrhythmias                        | 32244059 <sup>46</sup> |

**Supplemental References for PMIDs in Table 2** (18495771<sup>47</sup>; 146 99140<sup>48</sup>; 25653449<sup>49</sup>; 8799201<sup>50</sup>; 10023135<sup>51</sup>; 14599795<sup>52</sup>; 30301856<sup>53</sup>; 24604562<sup>54</sup>; 18158733<sup>55</sup>; 15518805<sup>56</sup>; 11543653<sup>57</sup>; 22615569<sup>58</sup>; 11483763<sup>59</sup>; 15331748<sup>60</sup>; 17142734<sup>61</sup>; 17617609<sup>62</sup>; 18973912<sup>63</sup>; 24574399<sup>64</sup>; 25653445<sup>65</sup>; 29691378<sup>66</sup>; 30142928<sup>67</sup>; 31883094<sup>68</sup>; 23102608<sup>69</sup>; 15070459<sup>70</sup>; 26423942<sup>71</sup>; 18667505<sup>72</sup>; 19215224<sup>73</sup>; 19650917<sup>74</sup>; 20386712<sup>75</sup>; 9973424<sup>76</sup>; 11864749<sup>77</sup>; 8752933<sup>78</sup>; 15039522<sup>79</sup>; 20042510<sup>80</sup>; 15027615<sup>81</sup>; 26367131<sup>82</sup>; 29717007<sup>83</sup>; 19079579<sup>84</sup>; 25428866<sup>85</sup>; 23919993<sup>86</sup>; 15919828<sup>87</sup>; 23142821<sup>88</sup>; 23015710<sup>89</sup>; 28592648<sup>90</sup>; 19740307<sup>91</sup>; 26015500<sup>92</sup>; 26452100<sup>93</sup>; 24648452<sup>94</sup>)

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