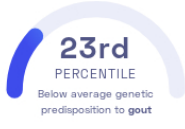




**STUDY SUMMARY**

Identification of 147 novel genetic variants associated with gout development.

**YOUR RESULT**



**STUDY DESCRIPTION**

Uric acid is a waste product that is produced as the body digests some foods. Normally, uric acid travels through the blood until it gets filtered out by the kidneys, ultimately getting excreted in urine. When the body does not efficiently process uric acid, it can accumulate in joints and kidneys causing gout and kidney stones. A person's risk of uric acid accumulation is known to be heritable, yet few genetic loci have been found. This genome-wide association study examined over 450,000 individuals of African American, East Asian, European, Hispanic, and South Asian ancestry. It identified 183 genetic regions, of which 147 are novel, that are correlated with an increased risk of gout. These variants collectively explain an estimated 8% of the heritability in uric acid production. Some of these variants occur in the solute carrier family of genes that are responsible for transporting molecules, including uric acid across cells.

**DID YOU KNOW?**

Foods known to produce high levels of uric acid include liver, fish, sugary drinks, and beer. Avoiding excessive consumption of these may help to prevent attacks of gout.

**YOUR DETAILED RESULTS**

To calculate your genetic predisposition to gout we summed up the effects of genetic variants that were linked to gout in the study that this report is based on. These variants can be found in the table below. The variants highlighted in green have **positive effect sizes** and increase your genetic predisposition to gout. The variants highlighted in blue have **negative effect sizes** and decrease your genetic predisposition to gout. Variants that are not highlighted are not found in your genome and do not affect your genetic predisposition to gout. By adding up the effect sizes of the highlighted variants we **calculated your polygenic score for gout to be -0.67**. To determine whether your score is high or low, we compared it to the scores of 5,000 other Nebula Genomics users. We found that your polygenic score for gout is in the **23rd percentile**. This means that it is higher than the polygenic scores 23% of people. We consider this to be a **below average genetic predisposition to gout**. However, please note that genetic predispositions do not account for important non-genetic factors like lifestyle. Furthermore, the genetics of most traits has not been fully understood yet and many associations between traits and genetic variants remain unknown. For additional explanations, click on the column titles in the table below and visit our [Nebula Library tutorial](#).

VARIANT <sup>Ⓞ</sup>	YOUR GENOTYPE <sup>Ⓞ</sup>	EFFECT SIZE <sup>Ⓞ</sup>	VARIANT FREQUENCY <sup>Ⓞ</sup>	SIGNIFICANCE <sup>Ⓞ</sup>
rs531763_A	A / G	-0.15 (↓)	56%	1.58 x 10 <sup>-248</sup>
rs1359232_A	C / A	-0.16 (↓)	40%	5.59 x 10 <sup>-159</sup>
rs12504795_T <span>NEW</span>	T / C	0.14 (↑)	74%	4.25 x 10 <sup>-101</sup>
rs1260326_T	T / C	0.19 (↑)	44%	2.97 x 10 <sup>-85</sup>
rs1171617_T	T / T	0.14 (↑)	77%	2.14 x 10 <sup>-77</sup>
rs143825439_T <span>NEW</span>	G / G	0.02 (-)	5%	1.23 x 10 <sup>-76</sup>
rs10910845_A	T / G	0.11 (-)	54%	1.10 x 10 <sup>-69</sup>
rs73119306_A	A / G	0.16 (↑)	79%	7.45 x 10 <sup>-65</sup>
rs2070803_A	G / G	0.08 (-)	50%	2.12 x 10 <sup>-60</sup>
rs4014195_C	C / C	-0.12 (↓)	69%	6.87 x 10 <sup>-52</sup>
rs3904600_C	G / G	0.08 (-)	40%	5.23 x 10 <sup>-51</sup>
rs12908437_T	T / C	0.05 (↑)	43%	3.77 x 10 <sup>-46</sup>
rs9895661_T	T / T	0.09 (↑)	67%	7.63 x 10 <sup>-45</sup>
rs2941487_T	T / C	-0.05 (↓)	53%	5.68 x 10 <sup>-44</sup>
rs2244552_A	G / G	-0.09 (-)	55%	1.06 x 10 <sup>-43</sup>
rs10994860_T	C / C	0.10 (-)	17%	7.44 x 10 <sup>-42</sup>
rs1006207_T	C / T	-0.01 (↓)	56%	3.54 x 10 <sup>-41</sup>
rs11072567_A	A / G	-0.07 (↓)	50%	2.52 x 10 <sup>-39</sup>
rs1649078_A <span>NEW</span>	A / C	-0.06 (↓)	51%	2.68 x 10 <sup>-39</sup>
rs1051921_A	G / G	-0.12 (-)	17%	2.86 x 10 <sup>-34</sup>
rs10223666_C	G / C	0.05 (↑)	73%	1.27 x 10 <sup>-32</sup>
rs10942549_C	G / G	-0.08 (-)	30%	1.09 x 10 <sup>-30</sup>
rs56401710_A <span>NEW</span>	C / A	-0.02 (↓)	59%	5.00 x 10 <sup>-30</sup>
rs4073582_A	G / A	-0.03 (↓)	31%	5.41 x 10 <sup>-28</sup>
rs57652769_T	C / C	-0.04 (-)	30%	2.32 x 10 <sup>-27</sup>
rs2075251_A	T / A	-0.08 (↓)	66%	7.01 x 10 <sup>-27</sup>
rs62052820_A	G / A	0.08 (↑)	19%	1.17 x 10 <sup>-26</sup>
rs62435145_T <span>NEW</span>	T / T	0.06 (↑)	53%	3.80 x 10 <sup>-26</sup>
rs34861762_T	C / T	0.02 (↑)	37%	1.62 x 10 <sup>-26</sup>
rs963837_T <span>NEW</span>	T / T	0.05 (↑)	59%	4.75 x 10 <sup>-25</sup>
rs34888828_A <span>NEW</span>	G / G	0.02 (-)	11%	1.45 x 10 <sup>-23</sup>
rs3794748_A	A / G	0.05 (↑)	35%	8.68 x 10 <sup>-23</sup>
rs148015593_T	T / G	0.06 (↑)	50%	3.42 x 10 <sup>-21</sup>
rs6820627_A	G / G	-0.12 (-)	7%	4.66 x 10 <sup>-21</sup>
rs9420446_T <span>NEW</span>	C / C	-0.04 (-)	31%	1.37 x 10 <sup>-20</sup>
rs12484809_T <span>NEW</span>	C / C	-0.09 (-)	28%	1.73 x 10 <sup>-20</sup>
rs7868781_A <span>NEW</span>	A / G	0.05 (↑)	61%	5.34 x 10 <sup>-20</sup>
rs12134456_C <span>NEW</span>	C / C	-0.06 (↓)	63%	6.33 x 10 <sup>-20</sup>
rs1018528_A	A / A	-0.17 (↓)	21%	1.10 x 10 <sup>-19</sup>

rs35942669_A	A / A	-0.15 (↓)	91%	1.19 x 10 <sup>-18</sup>
rs10405423_A	C / A	0.06 (↑)	70%	1.11 x 10 <sup>-18</sup>
rs11169926_A	C / A	0.05 (↑)	34%	4.43 x 10 <sup>-18</sup>
rs17050272_A	G / A	0.02 (↑)	43%	1.01 x 10 <sup>-17</sup>
rs10774625_A	A / G	0.07 (↑)	47%	1.29 x 10 <sup>-17</sup>
rs11070231_A	A / A	-0.03 (↓)	57%	2.07 x 10 <sup>-17</sup>
rs148838714_A	G / G	-0.02 (-)	7%	2.14 x 10 <sup>-16</sup>
rs12987661_T	T / T	0.05 (↑)	88%	4.32 x 10 <sup>-16</sup>
rs6746275_A	A / A	0.04 (↑)	85%	5.50 x 10 <sup>-16</sup>
rs79598313_T	NA	0.33 (-)	3%	1.16 x 10 <sup>-15</sup>
rs1440411_T	T / T	-0.02 (↓)	61%	1.18 x 10 <sup>-15</sup>
rs10857147_A	T / T	0.04 (-)	71%	1.67 x 10 <sup>-15</sup>
rs62128132_T	T / T	-0.25 (↓)	97%	1.99 x 10 <sup>-15</sup>
rs11217257_A	G / A	-0.04 (↓)	67%	2.81 x 10 <sup>-15</sup>
rs10418164_T	G / G	0.04 (-)	45%	3.14 x 10 <sup>-15</sup>
rs62585312_C	C / C	0.07 (↑)	93%	4.11 x 10 <sup>-15</sup>
rs57440165_A	A / A	-0.12 (↓)	92%	4.25 x 10 <sup>-15</sup>
rs7752448_A	A / A	-0.09 (↓)	88%	7.44 x 10 <sup>-15</sup>
rs62140395_C	G / G	0.10 (-)	12%	8.68 x 10 <sup>-15</sup>
rs73728279_T	G / G	0.08 (-)	27%	1.15 x 10 <sup>-14</sup>
rs74397112_T	C / T	0.07 (↑)	15%	1.34 x 10 <sup>-14</sup>
rs4897160_A	G / G	0.03 (-)	47%	2.04 x 10 <sup>-14</sup>
rs1800574_T	NA	-0.08 (-)	3%	2.57 x 10 <sup>-14</sup>
rs35501037_A	T / T	0.10 (-)	9%	3.36 x 10 <sup>-14</sup>
rs626277_A	C / C	0.02 (-)	50%	3.78 x 10 <sup>-14</sup>
rs1407040_T	C / C	-0.02 (-)	69%	5.70 x 10 <sup>-14</sup>
rs11204682_T	G / G	0.03 (-)	19%	6.00 x 10 <sup>-14</sup>
rs10198459_T	C / C	0.06 (-)	25%	1.27 x 10 <sup>-13</sup>
rs17696736_A	A / G	-0.05 (↓)	58%	2.43 x 10 <sup>-13</sup>
rs4788815_A	T / T	-0.02 (-)	34%	2.93 x 10 <sup>-13</sup>
rs12548367_T	T / T	0.03 (↑)	68%	4.39 x 10 <sup>-13</sup>
rs699465_A	G / G	0.08 (-)	15%	4.60 x 10 <sup>-13</sup>
rs11663816_T	T / C	-0.07 (↓)	75%	1.25 x 10 <sup>-12</sup>
rs6031598_T	T / T	-0.05 (↓)	54%	1.73 x 10 <sup>-12</sup>
rs429479_A	A / A	-0.11 (↓)	90%	2.02 x 10 <sup>-12</sup>
rs455213_T	T / T	-0.04 (↓)	60%	2.07 x 10 <sup>-12</sup>
rs10886117_A	G / A	0.03 (↑)	26%	2.42 x 10 <sup>-12</sup>
rs73436803_T	C / C	-0.04 (-)	24%	2.58 x 10 <sup>-12</sup>
rs77951490_A	G / G	0.08 (-)	5%	2.59 x 10 <sup>-12</sup>
rs7572603_C	C / C	-0.05 (↓)	64%	3.62 x 10 <sup>-12</sup>
rs116183010_A	NA	0.25 (-)	2%	3.66 x 10 <sup>-12</sup>
rs3118365_A	G / G	0.10 (-)	9%	5.81 x 10 <sup>-12</sup>
rs9271585_A	C / C	-0.02 (-)	33%	6.94 x 10 <sup>-12</sup>
rs2760215_T	T / T	-0.03 (↓)	45%	7.55 x 10 <sup>-12</sup>
rs4807003_A	G / A	-0.03 (↓)	32%	8.85 x 10 <sup>-12</sup>
rs113704612_T	NA	-0.09 (-)	4%	1.14 x 10 <sup>-11</sup>
rs77924615_A	G / G	-0.02 (-)	20%	1.27 x 10 <sup>-11</sup>
rs12368865_A	A / A	0.13 (↑)	91%	1.31 x 10 <sup>-11</sup>
rs1047891_A	C / A	-0.03 (↓)	29%	1.91 x 10 <sup>-11</sup>
rs7757144_A	A / G	-0.04 (↓)	63%	2.31 x 10 <sup>-11</sup>
rs1949651_T	T / T	0.04 (↑)	52%	2.64 x 10 <sup>-11</sup>
rs11066390_A	A / G	0.05 (↑)	27%	2.97 x 10 <sup>-11</sup>
rs60388273_A	G / G	0.03 (-)	23%	3.15 x 10 <sup>-11</sup>
rs2957740_A	G / G	-0.02 (-)	41%	3.38 x 10 <sup>-11</sup>
rs17550549_T	C / C	0.05 (-)	14%	5.18 x 10 <sup>-11</sup>
rs7039_C	C / C	-0.03 (↓)	45%	5.24 x 10 <sup>-11</sup>
rs74440730_A	A / A	-0.08 (↓)	89%	5.50 x 10 <sup>-11</sup>
rs62294340_A	G / G	-0.04 (-)	35%	7.62 x 10 <sup>-11</sup>
rs742493_T	T / C	0.03 (↑)	89%	8.26 x 10 <sup>-11</sup>
rs705500_T	C / C	0.07 (-)	20%	9.50 x 10 <sup>-11</sup>

rs7006806_T	G / G	-0.03 (-)	60%	9.86 x 10 <sup>-10</sup>
rs164011_A	G / G	-0.04 (-)	41%	1.05 x 10 <sup>-10</sup>
rs584425_A	G / G	-0.02 (-)	33%	1.36 x 10 <sup>-10</sup>
rs219781_T	G / T	-0.05 (↓)	25%	2.22 x 10 <sup>-10</sup>
rs2436962_A	G / G	0.03 (-)	18%	2.51 x 10 <sup>-10</sup>
rs72804857_C	G / C	0.06 (↑)	15%	2.53 x 10 <sup>-10</sup>
rs7417952_C	G / G	-0.05 (-)	40%	2.75 x 10 <sup>-10</sup>
rs2453580_T	T / C	0.04 (↑)	64%	3.49 x 10 <sup>-10</sup>
rs73611258_A	A / A	0.01 (↑)	65%	4.03 x 10 <sup>-10</sup>
rs9859616_A	G / A	-0.02 (↓)	22%	4.17 x 10 <sup>-10</sup>
rs12496412_A	A / A	0.01 (↑)	67%	5.30 x 10 <sup>-10</sup>
rs10803394_C	G / G	-0.04 (-)	37%	5.83 x 10 <sup>-10</sup>
rs11781985_T	T / T	-0.01 (↓)	80%	7.38 x 10 <sup>-10</sup>
rs11097693_A	A / A	-0.04 (↓)	58%	9.03 x 10 <sup>-10</sup>
rs72782806_A	G / A	0.02 (↑)	23%	1.02 x 10 <sup>-9</sup>
rs2304667_A	A / A	0.02 (↑)	42%	1.02 x 10 <sup>-9</sup>
rs2307394_T	T / T	-0.03 (↓)	63%	1.05 x 10 <sup>-9</sup>
rs28362590_T	G / T	0.05 (↑)	66%	1.05 x 10 <sup>-9</sup>
rs753725_T	C / C	0.02 (-)	41%	1.05 x 10 <sup>-9</sup>
rs78946096_A	A / A	-0.09 (↓)	95%	1.48 x 10 <sup>-9</sup>
rs2356864_A	G / A	0.02 (↑)	57%	1.69 x 10 <sup>-9</sup>
rs12625256_A	A / T	0.03 (↑)	59%	1.93 x 10 <sup>-9</sup>
rs11551890_A	G / A	0.03 (↑)	49%	2.05 x 10 <sup>-9</sup>
rs9302635_T	T / T	-0.03 (↓)	76%	2.24 x 10 <sup>-9</sup>
rs6138584_A	T / A	0.02 (↑)	24%	2.50 x 10 <sup>-9</sup>
rs3769810_A	A / G	0.05 (↑)	76%	2.81 x 10 <sup>-9</sup>
rs861536_A	A / G	0.05 (↑)	67%	2.81 x 10 <sup>-9</sup>
rs62517932_A	G / A	0.01 (↑)	8%	3.04 x 10 <sup>-9</sup>
rs62033406_A	A / G	-0.04 (↓)	55%	3.23 x 10 <sup>-9</sup>
rs3174352_A	A / A	-0.02 (↓)	46%	3.41 x 10 <sup>-9</sup>
rs7259484_A	A / A	0.01 (↑)	65%	3.60 x 10 <sup>-9</sup>
rs2970581_A	NA	0.11 (-)	4%	3.78 x 10 <sup>-9</sup>
rs494268_T	T / T	0.09 (↑)	91%	3.96 x 10 <sup>-9</sup>
rs56338130_T	C / C	0.03 (-)	22%	4.15 x 10 <sup>-9</sup>
rs9415676_A	A / G	-0.04 (↓)	65%	4.53 x 10 <sup>-9</sup>
rs836968_T	C / C	-0.01 (-)	37%	4.56 x 10 <sup>-9</sup>
rs7209801_A	A / A	0.03 (↑)	40%	5.19 x 10 <sup>-9</sup>
rs2219647_A	G / G	0.04 (-)	27%	5.38 x 10 <sup>-9</sup>
rs35229181_A	A / A	0.02 (↑)	79%	5.56 x 10 <sup>-9</sup>
rs2058787_A	G / G	-0.03 (-)	32%	5.75 x 10 <sup>-9</sup>
rs11644696_A	G / A	0.01 (↑)	41%	6.42 x 10 <sup>-9</sup>
rs11718633_T	C / C	-0.04 (-)	19%	7.64 x 10 <sup>-9</sup>
rs2645477_A	A / C	0.02 (↑)	52%	7.66 x 10 <sup>-9</sup>
rs1800977_A	G / G	-0.03 (-)	32%	7.95 x 10 <sup>-9</sup>
rs12644329_A	A / A	-0.02 (↓)	64%	8.47 x 10 <sup>-9</sup>
rs2472297_T	C / C	-0.04 (-)	24%	8.49 x 10 <sup>-9</sup>
rs11227805_T	C / C	0.03 (-)	18%	8.72 x 10 <sup>-9</sup>
rs2834319_T	T / T	-0.02 (↓)	85%	8.90 x 10 <sup>-9</sup>
rs9373896_A	T / T	0.01 (-)	15%	9.09 x 10 <sup>-9</sup>
rs759219_T	C / T	-0.01 (↓)	41%	9.23 x 10 <sup>-9</sup>
rs142874192_C	C / C	-0.06 (↓)	96%	1.08 x 10 <sup>-8</sup>
rs6805417_T	C / C	0.03 (-)	34%	0.00 x 10 <sup>0</sup>
rs3741210_A	A / G	0.01 (↑)	66%	1.17 x 10 <sup>-8</sup>
rs12669187_A	G / G	0.08 (-)	14%	1.25 x 10 <sup>-8</sup>
rs141990161_T	T / T	0.17 (↑)	98%	1.59 x 10 <sup>-8</sup>
rs4962699_A	G / G	0.06 (-)	25%	1.65 x 10 <sup>-8</sup>
rs3850445_A	A / G	0.03 (↑)	38%	1.69 x 10 <sup>-8</sup>
rs7212936_A	A / A	-0.03 (↓)	45%	1.75 x 10 <sup>-8</sup>
rs8022225_A	A / A	-0.03 (↓)	56%	1.81 x 10 <sup>-8</sup>

rs10438961_T	T / T	-0.03 (↓)	73%	2.01 × 10 <sup>-8</sup>
rs9579574_A	G / G	-0.07 (-)	29%	2.03 × 10 <sup>-8</sup>
rs8024386_A	A / A	-0.08 (↓)	77%	2.12 × 10 <sup>-8</sup>
rs4149056_T	T / T	0.03 (↑)	85%	2.22 × 10 <sup>-8</sup>
rs11940694_A	G / G	-0.05 (-)	46%	2.37 × 10 <sup>-8</sup>
rs8039418_T	T / C	-0.03 (↓)	47%	2.39 × 10 <sup>-8</sup>
rs6730326_A	G / A	-0.03 (↓)	67%	2.58 × 10 <sup>-8</sup>
rs56129505_T	C / T	0.03 (↑)	29%	2.61 × 10 <sup>-8</sup>
rs10901057_C	G / G	-0.08 (-)	26%	2.71 × 10 <sup>-8</sup>
rs10177191_T	T / T	-0.02 (↓)	40%	3.05 × 10 <sup>-8</sup>
rs56230350_A	A / A	0.02 (↑)	87%	3.08 × 10 <sup>-8</sup>
rs116379131_A	NA	0.01 (-)	3%	3.15 × 10 <sup>-8</sup>
rs1533096_C	C / C	-0.01 (↓)	59%	3.16 × 10 <sup>-8</sup>
rs1457231_T	C / T	0.02 (↑)	70%	3.17 × 10 <sup>-8</sup>
rs662026_A	A / G	0.04 (↑)	80%	3.26 × 10 <sup>-8</sup>
rs36232147_T	T / C	0.05 (↑)	37%	3.37 × 10 <sup>-8</sup>
rs6707386_A	G / A	0.02 (↑)	35%	3.93 × 10 <sup>-8</sup>
rs7110302_T	C / C	-0.03 (-)	38%	4.56 × 10 <sup>-8</sup>
rs10890263_T	T / T	-0.01 (↓)	74%	4.83 × 10 <sup>-8</sup>
rs174594_A	C / A	-0.03 (↓)	61%	4.88 × 10 <sup>-8</sup>

N/A indicates variants that could not be imputed using the 1000 genomes project datasets and variants that have a frequency of < 5%. Your genome was sequenced at 30x/100x coverage and is not imputed. However, to calculate percentiles, we need to compare your data with other users imputed data. To make the data comparable, we need to exclude some of the variants from your data.