

## SUPPLEMENTARY DATA

**Supplementary table 1:** Minor allele frequency of the relevant SNPs in the European Ancestry population. **rsid:** rs ID as annotated in NCBI's dbSNP build v153; **chr:** chromosome of marker; **hg19\_coordinates:** genomic positions retrieved from dbSNP v153 (genome build hg19); **hg38\_coordinates:** genomic positions retrieved from dbSNP v153 (genome build hg38); **ref:** reference allele from genome build; **alt:** alternative allele; **allele\_freq\_1kG\_EUR:** allele frequency of alternative (alt) allele retrieved from the 1,000 Genomes data, European superpopulation named "EUR" only (n=503 samples) including subpopulations (a) "CEU" Utah Residents (CEPH) with Northern and Western European Ancestry, (b) "TSI" Toscani in Italia, (c) "FIN" Finnish in Finland, (d) "GBR" British in England and Scotland, (e) "IBS" Iberian Population in Spain; **allele\_freq\_1kG\_CEU:** allele frequency of alternative (alt) allele retrieved from the 1,000 Genomes data, subpopulation "CEU" only (n=99 samples) Utah Residents (CEPH) with Northern and Western European Ancestry; **allele\_freq\_HRC:** allele frequency of alternative (alt) allele retrieved from Haplotype Reference Consortium (HRC) reference panel from individuals with predominantly European ancestry (n=32,470 samples, including 1,000 Genomes data); **allele\_freq\_HRC\_without1kG:** allele frequency of alternative (alt) allele retrieved from Haplotype Reference Consortium (HRC) reference panel from individuals with predominantly European ancestry (n=29,935 samples, excluding 1,000 Genomes data); **ensembl:** the Ensembl ID for the nearest gene; **hgnc:** the HGNC ID for the nearest gene; **consequence:** the consequence of the SNP from Ensembl Variant Effect Predictor (VEP) [McLaren *et al.*, 2016]; **protein\_position:** the position of the SNP in the protein; **amino\_acids:** the amino acids altered by the alleles of the SNP in the protein (does not relate to the ordering of the alleles ref and alt).

**Supplementary table 2: GWAS significance of those nine SNPs.** **snp:** name of variant used as input to query Phenoscanner database version 2; **rsid:** rsID; **hg19\_coordinates:** the hg19 chromosome position; **hg38\_coordinates:** the hg38 chromosome position; **a1:** the effect allele (aligned to the + strand); **a2:** the non-effect allele (aligned to the + strand); **trait:** phenotype or disease; **efo:** the EFO ontology term for the phenotype or disease; **study:** the name of the consortium/lead author of the study; **pmid:** PubMed ID; **ancestry:** the ancestry of the study; **year:** the year the study was published; **beta:** association between the trait and the SNP expressed per additional copy of the effect allele (odds ratios are given on the log-scale); **se:** standard error of beta; **p:** *p*-value; **direction:** the direction of association with respect to the effect allele; **n:** number of individuals; **n\_cases:** number of cases; **n\_controls:** number of controls; **n\_studies:** number of studies; **unit:** unit of analysis (IVNT stands for inverse normally rank transformed phenotype); **dataset:** the dataset ID.

**Supplementary table 3: Linear modelization results.** Here, the HR is related to the augmentation of +1 risk allele.

**Rs11010067**

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.963 (0.953 – 0.972)	0.830 (0.783 – 0.864)	0.689 (0.621 – 0.748)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.026 (0.019 – 0.036)	0.119 (0.089 – 0.158)	0.210 (0.156 – 0.265)
<b>B1 &gt; B3</b> (fistula)	0.010 (0.006 – 0.016)	0.051 (0.033 – 0.081)	0.102 (0.071 – 0.149)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.948 (0.939 – 0.955)	0.766 (0.731 – 0.798)	0.586 (0.536 – 0.634)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.035 (0.029 – 0.42)	0.152 (0.126 – 0.180)	0.256 (0.214 – 0.301)
<b>B1 &gt; B3</b> (fistula)	0.017 (0.013 – 0.023)	0.083 (0.064 – 0.106)	0.158 (0.128 – 0.198)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.926 (0.899 – 0.944)	0.679 (0.597 – 0.749)	0.462 (0.353 – 0.553)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.046 (0.032 – 0.067)	0.190 (0.134 – 0.256)	0.300 (0.216 – 0.398)
<b>B1 &gt; B3</b> (fistula)	0.028 (0.018 – 0.045)	0.131 (0.089 – 0.200)	0.239 (0.165 – 0.355)

**RS1250546**

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.963 (0.945 – 0.974)	0.827 (0.757 – 0.875)	0.685 (0.584 – 0.766)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.032 (0.021 – 0.047)	0.139 (0.094 – 0.197)	0.233 (0.155 – 0.321)
<b>B1 &gt; B3</b> (fistula)	0.005 (0.003 – 0.012)	0.034 (0.020 – 0.064)	0.082 (0.051 – 0.138)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.956 (0.947 – 0.963)	0.799 (0.760 – 0.827)	0.638 (0.580 – 0.686)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.033 (0.027 – 0.040)	0.144 (0.120 – 0.175)	0.248 (0.205 – 0.298)
<b>B1 &gt; B3</b> (fistula)	0.011 (0.008 – 0.016)	0.057 (0.040 – 0.080)	0.114 (0.083 – 0.155)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.941 (0.927 – 0.952)	0.739 (0.681 – 0.781)	0.546 (0.463 – 0.616)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.033 (0.025 – 0.043)	0.145 (0.110 – 0.193)	0.246 (0.194 – 0.314)
<b>B1 &gt; B3</b> (fistula)	0.026 (0.018 – 0.036)	0.116 (0.085 – 0.157)	0.208 (0.152 – 0.279)

**RS17229285**

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.947 (0.929 – 0.958)	0.760 (0.699 – 0.810)	0.577 (0.480 – 0.652)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.044 (0.033 – 0.059)	0.189 (0.141 – 0.243)	0.313 (0.241 – 0.394)
<b>B1 &gt; B3</b> (fistula)	0.010 (0.006 – 0.017)	0.052 (0.034 – 0.085)	0.110 (0.076 – 0.173)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.953 (0.945 – 0.960)	0.786 (0.751 – 0.814)	0.618 (0.567 – 0.662)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.032 (0.026 – 0.039)	0.142 (0.120 – 0.170)	0.243 (0.204 – 0.284)
<b>B1 &gt; B3</b> (fistula)	0.015 (0.011 – 0.020)	0.072 (0.055 – 0.096)	0.139 (0.110 – 0.179)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.953 (0.939 – 0.964)	0.787 (0.727 – 0.832)	0.620 (0.520 – 0.693)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.023 (0.016 – 0.034)	0.105 (0.074 – 0.146)	0.181 (0.129 – 0.250)
<b>B1 &gt; B3</b> (fistula)	0.023 (0.016 – 0.033)	0.108 (0.073 – 0.158)	0.199 (0.139 – 0.283)

RS17694108

Transition intensities	HR (95% CI)
B1 > B2	1.026 (0.771 – 0.1364)
B1 > B3	0.489 (0.289 – 0.830)
B2 > B3	1.363 (0.786 – 2.362)

No risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.946 (0.934 – 0.955)	0.758 (0.713 – 0.798)	0.575 (0.506 – 0.632)
B1 > B2 (stenosis but no fistula)	0.032 (0.025 – 0.041)	0.140 (0.112 – 0.174)	0.238 (0.188 – 0.296)
B1 > B3 (fistula)	0.022 (0.016 – 0.030)	0.101 (0.075 – 0.142)	0.187 (0.144 – 0.247)

One risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.956 (0.947 – 0.963)	0.799 (0.756 – 0.831)	0.638 (0.576 – 0.689)
B1 > B2 (stenosis but no fistula)	0.033 (0.026 – 0.041)	0.146 (0.119 – 0.183)	0.250 (0.205 – 0.300)
B1 > B3 (fistula)	0.011 (0.007 – 0.017)	0.055 (0.038 – 0.084)	0.112 (0.080 – 0.159)

Two risk alleles

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.961 (0.940 – 0.973)	0.818 (0.733 – 0.873)	0.669 (0.541 – 0.755)
B1 > B2 (stenosis but no fistula)	0.034 (0.022 – 0.052)	0.149 (0.101 – 0.226)	0.254 (0.172 – 0.354)
B1 > B3 (fistula)	0.006 (0.003 – 0.013)	0.033 (0.018 – 0.068)	0.078 (0.042 – 0.146)

RS2066847

Transition intensities	HR (95% CI)
B1 > B2	0.513 (0.355 – 0.741)
B1 > B3	1.205 (0.506 – 2.871)
B2 > B3	1.052 (0.454 – 2.437)

No risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.882 (0.781 – 0.930)	0.534 (0.278 – 0.706)	0.285 (0.081 – 0.489)
B1 > B2 (stenosis but no fistula)	0.107 (0.057 – 0.199)	0.408 (0.226 – 0.622)	0.598 (0.348 – 0.801)
B1 > B3 (fistula)	0.011 (0.003 – 0.062)	0.058 (0.019 – 0.243)	0.117 (0.043 – 0.383)

One risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.930 (0.903 – 0.949)	0.697 (0.602 – 0.768)	0.486 (0.365 – 0.581)
B1 > B2 (stenosis but no fistula)	0.056 (0.041 – 0.078)	0.237 (0.170 – 0.316)	0.384 (0.288 – 0.486)
B1 > B3 (fistula)	0.013 (0.006 – 0.029)	0.066 80.036 – 0.133)	0.130 (0.074 – 0.243)

Two risk alleles

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.955 (0.947 – 0.962)	0.793 (0.757 – 0.821)	0.629 (0.575 – 0.672)
B1 > B2 (stenosis but no fistula)	0.029 (0.023 – 0.036)	0.129 (0.105 – 0.155)	0.221 (0.183 – 0.263)
B1 > B3 (fistula)	0.016 (0.012 – 0.021)	0.078 (0.061 – 0.103)	0.150 (0.120 – 0.191)

RS2836878

Transition intensities	HR (95% CI)
B1 > B2	0.792 (0.591 – 1.063)
B1 > B3	0.570 (0.378 – 0.860)
B2 > B3	0.721 (0.418 – 1.244)

No risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.922 (0.890 – 0.942)	0.666 (0.546 – 0.749)	0.443 (0.304 – 0.566)
B1 > B2 (stenosis but no fistula)	0.045 (0.029 – 0.069)	0.183 (0.120 – 0.270)	0.284 (0.184 – 0.404)
B1 > B3 (fistula)	0.033 (0.019 – 0.060)	0.151 (0.089 – 0.251)	0.273 (0.173 – 0.416)

One risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.945 (0.934 – 0.953)	0.752 (0.711 – 0.787)	0.566 (0.505 – 0.618)
B1 > B2 (stenosis but no fistula)	0.036 (0.030 – 0.045)	0.157 (0.127 – 0.192)	0.261 (0.217 – 0.313)
B1 > B3 (fistula)	0.019 (0.015 – 0.026)	0.091 (0.069 – 0.120)	0.173 (0.137 – 0.219)

Two risk alleles

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.960 (0.950 – 0.967)	0.815 (0.774 – 0.850)	0.665 (0.597 – 0.717)
B1 > B2 (stenosis but no fistula)	0.029 (0.022 – 0.037)	0.131 (0.102 – 0.164)	0.229 (0.184 – 0.287)
B1 > B3 (fistula)	0.011 (0.007 – 0.016)	0.054 (0.037 – 0.080)	0.106 (0.077 – 0.150)

RS2945412

Transition intensities	HR (95% CI)
B1 > B2	1.271 (0.940 – 1.719)
B1 > B3	1.568 (0.991 – 2.482)
B2 > B3	1.606 (0.858 – 3.006)

No risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.969 (0.954 – 0.978)	0.854 (0.788 – 0.896)	0.729 (0.615 – 0.807)
B1 > B2 (stenosis but no fistula)	0.023 (0.015 – 0.036)	0.105 (0.067 – 0.161)	0.190 (0.121 – 0.284)
B1 > B3 (fistula)	0.008 (0.004 – 0.017)	0.041 (0.021 – 0.085)	0.080 (0.046 – 0.153)

One risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.958 (0.949 – 0.965)	0.808 (0.771 – 0.838)	0.653 (0.593 – 0.709)
B1 > B2 (stenosis but no fistula)	0.029 (0.023 – 0.036)	0.128 (0.104 – 0.158)	0.224 (0.178 – 0.272)
B1 > B3 (fistula)	0.013 (0.009 – 0.019)	0.064 (0.046 – 0.090)	0.124 (0.091 – 0.167)

Two risk alleles

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.944 (0.929 – 0.955)	0.748 (0.694 – 0.790)	0.559 (0.480 – 0.627)
B1 > B2 (stenosis but no fistula)	0.036 (0.027 – 0.047)	0.154 (0.118 – 0.197)	0.253 (0.193 – 0.317)
B1 > B3 (fistula)	0.020 (0.014 – 0.029)	0.098 (0.074 – 0.137)	0.188 (0.143 – 0.252)



RS4246905

<b>Transition intensities</b>	<b>HR (95% CI)</b>
<b>B1 &gt; B2</b>	0.691 (0.515 – 0.928)
<b>B1 &gt; B3</b>	0.794 (0.509 – 1.238)
<b>B2 &gt; B3</b>	0.713 (0.409 – 1.243)

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.924 (0.891 – 0.945)	0.672 (0.556 – 0.757)	0.452 (0.311 – 0.572)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.054 (0.035 – 0.082)	0.221 (0.146 – 0.314)	0.343 (0.228 – 0.459)
<b>B1 &gt; B3</b> (fistula)	0.022 (0.012 – 0.042)	0.107 (0.064 – 0.189)	0.206 (0.127 – 0.353)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.944 (0.933 – 0.954)	0.751 (0.709 – 0.787)	0.564 (0.506 – 0.620)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.038 (0.031 – 0.047)	0.164 (0.134 – 0.197)	0.273 (0.225 – 0.323)
<b>B1 &gt; B3</b> (fistula)	0.018 (0.013 – 0.024)	0.085 (0.064 – 0.112)	0.163 (0.127 – 0.213)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.959 (0.950 – 0.967)	0.813 (0.767 – 0.847)	0.661 (0.592 – 0.718)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.027 (0.021 – 0.034)	0.119 (0.092 – 0.155)	0.209 (0.164 – 0.270)
<b>B1 &gt; B3</b> (fistula)	0.014 (0.010 – 0.021)	0.067 (0.048 – 0.097)	0.130 (0.095 – 0.184)

RS913678

Transition intensities	HR (95% CI)
B1 > B2	0.696 (0.523 – 0.926)
B1 > B3	0.557 (0.368 – 0.842)
B2 > B3	0.554 (0.388 – 1.135)

No risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.918 (0.884 – 0.937)	0.650 (0.551 – 0.733)	0.423 (0.304 – 0.533)
B1 > B2 (stenosis but no fistula)	0.051 (0.034 – 0.076)	0.203 (0.139 – 0.279)	0.311 (0.214 – 0.411)
B1 > B3 (fistula)	0.032 (0.019 – 0.055)	0.147 (0.095 – 0.227)	0.267 (0.183 – 0.402)

One risk allele

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.946 (0.937 – 0.954)	0.758 (0.721 – 0.787)	0.575 (0.525 – 0.623)
B1 > B2 (stenosis but no fistula)	0.036 (0.030 – 0.043)	0.156 (0.130 – 0.188)	0.261 (0.219 – 0.308)
B1 > B3 (fistula)	0.018 (0.014 – 0.024)	0.086 (0.068 – 0.110)	0.164 (0.134 – 0.206)

Two risk alleles

Transition	After 1 year	After 5 years	After 10 years
B1 > B1 (stay in B1)	0.965 (0.955 – 0.972)	0.835 (0.794 – 0.869)	0.697 (0.627 – 0.753)
B1 > B2 (stenosis but no fistula)	0.025 (0.018 – 0.034)	0.115 (0.087 – 0.151)	0.205 (0.156 – 0.265)
B1 > B3 (fistula)	0.010 (0.006 – 0.016)	0.050 (0.032 – 0.074)	0.097 (0.068 – 0.147)

**Supplementary table 4: Categorical modelization results.** Here there is one HR per type of genotype. All HRs are with zero risk allele as reference.

**RS11010067**

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.966 (0.954 – 0.975)	0.842 (0.793 – 0.880)	0.709 (0.624 – 0.771)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.024 (0.017 – 0.033)	0.109 (0.078 – 0.148)	0.193 (0.143 – 0.263)
<b>B1 &gt; B3</b> (fistula)	0.010 (0.006 – 0.017)	0.050 (0.031 – 0.083)	0.099 (0.063 – 0.160)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.943 (0.929 – 0.953)	0.745 (0.692 – 0.785)	0.556 (0.478 – 0.622)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.039 (0.030 – 0.051)	0.169 (0.132 – 0.214)	0.283 (0.223 – 0.349)
<b>B1 &gt; B3</b> (fistula)	0.018 (0.012 – 0.026)	0.085 (0.062 – 0.121)	0.162 (0.119 – 0.226)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.934 (0.902 – 0.952)	0.709 (0.604 – 0.782)	0.503 (0.369 – 0.610)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.039 (0.026 – 0.063)	0.163 (0.105 – 0.247)	0.261 (0.165 – 0.359)
<b>B1 &gt; B3</b> (fistula)	0.027 (0.016 – 0.048)	0.128 (0.078 – 0.209)	0.236 (0.153 – 0.373)

RS11150589

No risk allele

Transition	After 1 year	After 5 years	After 10 years
<b>B1 &gt; B1</b> (stay in B1)	0.948 (0.932 – 0.959)	0.766 (0.701 – 0.816)	0.587 (0.495 – 0.663)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.032 (0.023 – 0.045)	0.137 (0.095 – 0.186)	0.232 (0.168 – 0.306)
<b>B1 &gt; B3</b> (fistula)	0.020 (0.013 – 0.031)	0.096 (0.064 – 0.145)	0.182 (0.124 – 0.254)

One risk allele

Transition	After 1 year	After 5 years	After 10 years
<b>B1 &gt; B1</b> (stay in B1)	0.960 (0.949 – 0.968)	0.815 (0.770 – 0.852)	0.665 (0.592 – 0.721)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.026 (0.020 – 0.035)	0.116 (0.086 – 0.153)	0.199 (0.148 – 0.255)
<b>B1 &gt; B3</b> (fistula)	0.014 (0.009 – 0.020)	0.069 (0.049 – 0.100)	0.136 (0.099 – 0.194)

Two risk alleles

Transition	After 1 year	After 5 years	After 10 years
<b>B1 &gt; B1</b> (stay in B1)	0.935 (0.911 – 0.952)	0.714 (0.631 – 0.776)	0.510 (0.388 – 0.609)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.052 (0.036 – 0.073)	0.224 (0.165 – 0.300)	0.377 (0.278 – 0.476)
<b>B1 &gt; B3</b> (fistula)	0.013 (0.007 – 0.027)	0.062 (0.034 – 0.117)	0.114 (0.066 – 0.207)

**RS11230563**

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.956 (0.927 – 0.971)	0.798 (0.676 – 0.868)	0.637 (0.469 – 0.608)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.039 (0.023 – 0.063)	0.172 (0.108 – 0.268)	0.293 (0.178 – 0.423)
<b>B1 &gt; B3</b> (fistula)	0.005 (0.014 – 0.028)	0.031 (0.012 – 0.113)	0.070 (0.032 – 0.193)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.941 (0.927 – 0.951)	0.736 (0.684 – 0.779)	0.542 (0.467 – 0.608)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.040 (0.031 – 0.052)	0.170 (0.135 – 0.216)	0.281 (0.223 – 0.344)
<b>B1 &gt; B3</b> (fistula)	0.019 (0.014 – 0.28)	0.093 (0.068 – 0.127)	0.177 (0.132 – 0.236)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.962 (0.949 – 0.971)	0.826 (0.773 – 0.862)	0.682 (0.598 – 0.749)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.023 (0.016 – 0.032)	0.103 (0.072 – 0.142)	0.182 (0.128 – 0.250)
<b>B1 &gt; B3</b> (fistula)	0.015 (0.010 – 0.023)	0.071 (0.046 – 0.108)	0.136 (0.095 – 0.197)

RS1363907

<b>Transition intensities</b>	<b>HR (95% CI) For 1 risk allele</b>	<b>HR (95% CI) For 2 risk alleles</b>
<b>B1 &gt; B2</b>	0.822 (0.523 – 1.292)	1.645 (0.992 – 2.727)
<b>B1 &gt; B3</b>	0.717 (0.378 – 1.362)	1.218 (0.570 – 2.605)
<b>B2 &gt; B3</b>	0.382 (0.164 – 0.894)	0.536 (0.179 – 1.603)

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.950 (0.934 – 0.961)	0.775 (0.713 – 0.820)	0.600 (0.507 – 0.680)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.032 (0.023 – 0.044)	0.138 (0.092 – 0.187)	0.228 (0.165 – 0.301)
<b>B1 &gt; B3</b> (fistula)	0.018 (0.011 – 0.028)	0.088 (0.060 – 0.127)	0.172 (0.120 – 0.242)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.961 (0.950 – 0.969)	0.818 (0.771 – 0.855)	0.669 (0.587 – 0.727)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.027 (0.020 – 0.036)	0.121 (0.091 – 0.158)	0.214 (0.163 – 0.287)
<b>B1 &gt; B3</b> (fistula)	0.013 (0.008 – 0.020)	0.061 (0.040 – 0.092)	0.116 (0.079 – 0.169)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.926 (0.899 – 0.944)	0.682 (0.585 – 0.753)	0.466 (0.347 – 0.571)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.052 (0.037 – 0.076)	0.220 (0.154 – 0.300)	0.355 (0.255 – 0.466)
<b>B1 &gt; B3</b> (fistula)	0.021 (0.012 – 0.038)	0.098 (0.060 – 0.168)	0.179 (0.114 – 0.291)

RS17229285

<b>Transition intensities</b>	<b>HR (95% CI) For 1 risk allele</b>	<b>HR (95% CI) For 2 risk alleles</b>
<b>B1 &gt; B2</b>	1.071 (0.685 – 1.676)	0.453 (0.238 – 0.860)
<b>B1 &gt; B3</b>	2.970 (1.056 – 8.353)	3.401 (1.162 – 9.954)
<b>B2 &gt; B3</b>	1.014 (0.435 – 2.366)	0.458 (0.138 – 1.520)

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.956 (0.937 – 0.968)	0.802 (0.726 – 0.852)	0.643 (0.528 – 0.731)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.037 (0.026 – 0.054)	0.163 (0.116 – 0.226)	0.279 (0.199 – 0.371)
<b>B1 &gt; B3</b> (fistula)	0.006 (0.003 – 0.017)	0.035 (0.019 – 0.074)	0.078 (0.044 – 0.154)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.943 (0.928 – 0.953)	0.745 (0.693 – 0.785)	0.555 (0.484 – 0.615)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.039 (0.031 – 0.050)	0.077 (0.045 – 0.125)	0.279 (0.222 – 0.339)
<b>B1 &gt; B3</b> (fistula)	0.018 (0.013 – 0.026)	0.096 (0.060 – 0.155)	0.166 (0.125 – 0.224)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.963 (0.947 – 0.974)	0.827 (0.762 – 0.873)	0.684 (0.576 – 0.766)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.017 (0.010 – 0.028)	0.077 (0.045 – 0.125)	0.137 (0.081 – 0.215)
<b>B1 &gt; B3</b> (fistula)	0.020 (0.013 – 0.033)	0.096 (0.060 – 0.155)	0.179 (0.117 – 0.271)

RS2945412

<b>Transition intensities</b>	<b>HR (95% CI) For 1 risk allele</b>	<b>HR (95% CI) For 2 risk alleles</b>
<b>B1 &gt; B2</b>	3.568 (1.415 – 9.000)	2.985 (1.778 – 7.564)
<b>B1 &gt; B3</b>	1.525 (0.496 – 4.685)	2.418 (0.828 – 4.685)
<b>B2 &gt; B3</b>	1.267 (0.274 – 5.860)	2.226 (0.509 – 9.733)

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.981 (0.960 – 0.989)	0.907 (0.814 – 0.950)	0.822 (0.667 – 0.896)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.011 (0.004 – 0.026)	0.051 (0.022 – 0.117)	0.095 (0.042 – 0.203)
<b>B1 &gt; B3</b> (fistula)	0.009 (0.003 – 0.024)	0.042 (0.016 – 0.106)	0.083 (0.034 – 0.201)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.949 (0.936 – 0.960)	0.769 (0.710 – 0.807)	0.592 (0.505 – 0.667)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.038 (0.029 – 0.050)	0.168 (0.126 – 0.219)	0.287 (0.220 – 0.363)
<b>B1 &gt; B3</b> (fistula)	0.013 (0.008 – 0.021)	0.063 (0.040 – 0.096)	0.122 (0.083 – 0.181)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.948 (0.933 – 0.958)	0.765 (0.712 – 0.807)	0.585 (0.508 – 0.654)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.032 (0.023 – 0.043)	0.137 (0.104 – 0.180)	0.227 (0.171 – 0.289)
<b>B1 &gt; B3</b> (fistula)	0.021 (0.014 – 0.030)	0.099 (0.069 – 0.141)	0.189 (0.142 – 0.251)



RS913678

<b>Transition intensities</b>	<b>HR (95% CI) For 1 risk allele</b>	<b>HR (95% CI) For 2 risk alleles</b>
<b>B1 &gt; B2</b>	0.826 (0.459 – 1.487)	0.517 (0.278 – 0.965)
<b>B1 &gt; B3</b>	0.328 (0.160 – 0.672)	0.286 (0.137 – 0.599)
<b>B2 &gt; B3</b>	0.679 (0.245 – 1.884)	0.448 (0.150 – 1.337)

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.914 (0.872 – 0.939)	0.636 (0.500 – 0.725)	0.405 (0.264 – 0.528)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.045 (0.027 – 0.076)	0.180 (0.110 – 0.281)	0.273 (0.167 – 0.401)
<b>B1 &gt; B3</b> (fistula)	0.041 (0.024 – 0.070)	0.184 (0.113 – 0.301)	0.322 (0.214 – 0.469)

One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.948 (0.934 – 0.958)	0.765 (0.715 – 0.805)	0.585 (0.504 – 0.649)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.038 (0.030 – 0.049)	0.166 (0.133 – 0.207)	0.280 (0.225 – 0.350)
<b>B1 &gt; B3</b> (fistula)	0.014 (0.009 – 0.021)	0.069 (0.048 – 0.102)	0.135 (0.097 – 0.192)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.964 (0.952 – 0.971)	0.831 (0.780 – 0.870)	0.691 (0.609 – 0.755)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.024 (0.017 – 0.033)	0.110 (0.081 – 0.152)	0.195 (0.143 – 0.261)
<b>B1 &gt; B3</b> (fistula)	0.012 (0.007 – 0.019)	0.059 (0.038 – 0.093)	0.114 (0.077 – 0.170)

RS917997

<b>Transition intensities</b>	<b>HR (95% CI) For 1 risk allele</b>	<b>HR (95% CI) For 2 risk alleles</b>
<b>B1 &gt; B2</b>	1.536 (1.028 – 2.295)	1.122 (0.505 – 2.492)
<b>B1 &gt; B3</b>	0.691 (0.355 – 1.345)	2.654 (1.262 – 5.580)
<b>B2 &gt; B3</b>	0.905 (0.402 – 2.036)	2.315 (0.763 – 7.030)

No risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.957 (0.947 – 0.966)	0.804 (0.752 – 0.842)	0.646 (0.576 – 0.707)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.027 (0.020 – 0.036)	0.120 (0.090 – 0.156)	0.207 (0.158 – 0.263)
<b>B1 &gt; B3</b> (fistula)	0.016 (0.011 – 0.023)	0.076 (0.053 – 0.109)	0.147 (0.106 – 0.201)

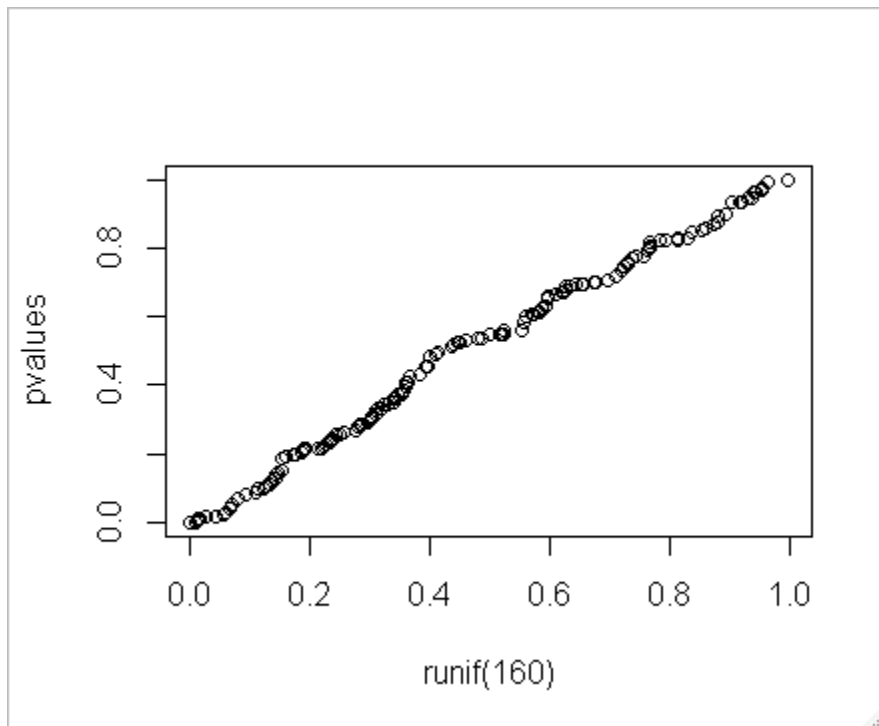
One risk allele

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.948 (0.934 – 0.958)	0.765 (0.708 – 0.808)	0.586 (0.499 – 0.654)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.041 (0.032 – 0.053)	0.180 (0.139 – 0.229)	0.306 (0.212 – 0.381))
<b>B1 &gt; B3</b> (fistula)	0.011 (0.007 – 0.018)	0.055 (0.035 – 0.088)	0.109 (0.071 – 0.166)

Two risk alleles

<b>Transition</b>	<b>After 1 year</b>	<b>After 5 years</b>	<b>After 10 years</b>
<b>B1 &gt; B1</b> (stay in B1)	0.929 (0.886 – 0.954)	0.693 (0.524 – 0.799)	0.480 (0.280 – 0.630)
<b>B1 &gt; B2</b> (stenosis but no fistula)	0.029 (0.015 – 0.058)	0.119 (0.054 – 0.228)	0.182 (0.083 – 0.348)
<b>B1 &gt; B3</b> (fistula)	0.041 (0.022 – 0.076)	0.189 (0.110 – 0.325)	0.338 (0.212 – 0.535)

## Supplementary figures



Supplementary figure 1: QQ-plot of the 160 p-values from the linear modeling and a random sample from a uniform distribution.

## Supplementary references

Mclaren, W., Gil, L., Hunt, S.E., Riat, H.S., Ritchie, G.R., Thormann, A. *et al.* (2016) The Ensembl Variant Effect Predictor. *Genome Biol* 17: 122.