Supplementary data

Supplementary Figure 1. Brain and spine CT and MRI showing type 1 Arnold–Chiari malformation.
**Supplementary figure 2.** Timeline

**Timeline**

- **2014-03-04**: C-section delivery
- **2014-07-10**: Cleft palate correction
- **2015-01-13**: Developmental delay
- **2015-04-14**: Abdominal ultrasound reported ovaries, a small uterus and shortened vagina, and increased testosterone, LH, and FSH. A peripheral blood karyotype reported a 46XY with positive SRY gene.
- **2016-06-20**: A brain MRI showed an Arnold Chiari malformation type 1.
- **2016-08-08**: Moderate conductive bilateral hearing loss, corrected with hearing aids.
- **2018-10-08**: Visit to explain the WES analysis and consent
- **2021-04-05**: Visit to deliver the results
Supplementary figure 3. Alignment of Human, chimpanzee, gorilla, orangutan, rhesus monkey, house mouse and missense human variants in SOX9.
| Patient | Missense | Sequence |
|---------|----------|----------|
| Patient1 | Missense | A76E/1-509 |
| Patient2 | Missense | G112S/1-509 |
| Patient3 | Missense | N147T/1-509 |
| Patient4 | Missense | P108L/1-509 |
| Patient5 | Missense | R152P/1-509 |
| Patient6 | Missense | A158T/1-509 |
| Patient7 | Missense | G165Q/1-509 |
| Patient8 | Missense | H169P/1-509 |
| Patient9 | Missense | P170R/1-509 |

**Conservation:**

| Conservation |
|--------------|
| 10 | 20 | 30 | 40 |

**Human Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Chimpanzee Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Gorilla Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Orangutan Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Rhesus Monkey Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Human Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Orangutan Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Gorilla Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```

**Human Sox9 Protein/1-509:**

```
MNLLDPFMKMTDEQEKGLSGAPSPTMSEDSAGSCPSPGSGSTDE
```
Patient14Missense_P170R/1-509
Patient11Missense_A158T/1-509
Patient10Missense_F154L/1-509
Patient9Missense_R152P/1-509
Patient7Missense_W143R/1-509
Patient6Missense_M113V/1-509
Patient4Missense_P108L/1-509
Patient2Missense_Q79P/1-509
Patient1Missense_A76E/1-509
HouseMouse_Sox9_Protein/1-507
RhesusMonkey_Sox9_Protein/1-509
Chimpanzee_Sox9_Protein/1-509
Human_Sox9_Protein/1-509

Conservation
| Species                  | Sequence                                      |
|-------------------------|-----------------------------------------------|
| **Human_Sox9_Protein/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Chimpanzee_Sox9_Protein/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Gorilla_Sox9_Protein/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Orangutan_Sox9_Protein/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **RhesusMonkey_Sox9_Protein/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **HouseMouse_Sox9_Protein/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient1_Missense_A76E/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient2_Missense_Q79P/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient3_Missense_V80G/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient4_Missense_P108L/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient5_Missense_F112S/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient6_Missense_M113V/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient7_Missense_W143R/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient8_Missense_N147T/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient9_Missense_R152P/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient10_Missense_F154L/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient11_Missense_A158T/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient12_Missense_H165Q/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient13_Missense_H169P/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| **Patient14_Missense_P170R/1-509** | THGQVTGYSIGSSTAAPASAGHVWMSKQQAPPPPPQQPQA       |
| Patient          | Amino Acid | Conservation |
|------------------|------------|--------------|
| 13 Missense_H169P/1-509 | P P A P Q A P P Q Q A P P Q A P P Q P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q P Q Q A H T L T T L S S E P Q S Q R T H |
| 12 Missense_H165Q/1-509 | P P A P Q A P P Q P Q Q A P P P Q Q P A A P P Q Q P A A P P Q Q P A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q P Q Q A H T L T T L S S E P Q S Q R T H |
| 10 Missense_F154L/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| 8 Missense_N147T/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| 7 Missense_W143R/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| 4 Missense_P108L/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| 3 Missense_V80G/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| 2 Missense_Q79P/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| 1 Missense_A76E/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| Gorilla_Sox9_Protein/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| Chimpanzee_Sox9_Protein/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |
| Human_Sox9_Protein/1-509 | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H | P P A P Q A P P Q Q A P P Q Q A P P Q Q A H T L T T L S S E P Q S Q R T H |

**Conservation**

- **Patient 1** has the highest number of conservation at positions 360 and 370.
- **Patient 2** has the highest number of conservation at positions 380 and 390.
| Genotype                  | Sequence                      |
|--------------------------|-------------------------------|
| Human_Sox9_Protein/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Chimpanzee_Sox9_Protein/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Gorilla_Sox9_Protein/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Orangutan_Sox9_Protein/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| RhesusMonkey_Sox9_Protein/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| HouseMouse_Sox9_Protein/1-507 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient1_Missense_A76E/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient2_Missense_Q79P/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient3_Missense_V80G/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient4_Missense_P108L/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient5_Missense_F112S/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient6_Missense_M113V/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient7_Missense_W143R/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient8_Missense_N147T/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient9_Missense_R152P/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient10_Missense_F154L/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient11_Missense_A158T/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient12_Missense_H165Q/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient13_Missense_H169P/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |
| Patient14_Missense_P170R/1-509 | IKTQLSPSHYESQQHSPPQIAYSPFNLPHYSYPPITRSQY |

Conservation: 8
| Species                  | Protein Region | Amino Acid Sequence                  |
|-------------------------|----------------|--------------------------------------|
| Human_Sox9_Protein      | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Chimpanzee_Sox9_Protein | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Gorilla_Sox9_Protein    | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Orangutan_Sox9_Protein  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| RhesusMouse_Sox9_Protein| 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient1Missense_A76E   | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient2Missense_Q79P   | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient3Missense_V80G   | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient4Missense_P108L  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient5Missense_F112S  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient6Missense_M113V  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient7Missense_W143R  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient8Missense_N147T  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient9Missense_R152P  | 1-509          | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient10Missense_F154L | 1-509         | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient11Missense_A158T | 1-509         | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient12Missense_H165Q | 1-509         | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient13Missense_H169P | 1-509         | GPVSIPQTHSPQHWEQPVYTLTRP             |
| Patient14Missense_P170R | 1-509         | GPVSIPQTHSPQHWEQPVYTLTRP             |
Supplementary figure 4. A) Percentage of similarity between human and human, chimpanzee, gorilla, orangutan, rhesus monkey and house mouse. B) Phylogenetic tree using SOX9 aminoacid sequences of human, chimpanzee, gorilla, orangutan, rhesus monkey and house mouse. Human and chimpanzee group together and the outcast is house mouse.

|                  | Similarity with Human sequence (%) |
|------------------|------------------------------------|
| Human            | 100                                |
| Chimpanzee       | 100                                |
| Gorilla          | 99.8                               |
| Orangutan        | 99.8                               |
| Rhesus Monkey    | 99.61                              |
| House Mouse      | 96.45                              |

B) [Phylogenetic tree diagram]
### Supplementary table 1. Articles of patients with Campomelic dysplasia and the causal variant.

| Variant | Title | Journal | DOI |
|---------|-------|---------|-----|
| 261-262insG | The phenotype of survivors of campomelic dysplasia | Journal of medical genetics | 10.1136/jmg.30.8.307 |
| W66X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | https://doi.org/10.1093/hmg/ddg545 |
| 261-262insG | Patient report: Two novel frameshift mutations in the SOX9 gene in two patients with campomelic dysplasia who showed long term survival | Journal of pediatric endocrinology and metabolism | 10.1515/jemt.2010.187 |
| Q143X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | https://doi.org/10.1093/hmg/ddg545 |
| Y126X | Dominant negative SOX9 mutations in campomelic dysplasia | Human Mutations | 10.1038/humu.23888 |
| Q375X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | https://doi.org/10.1093/hmg/ddg545 |
| Q131X | Dominant negative SOX9 mutations in campomelic dysplasia | Human Mutations | 10.1038/humu.23888 |
| R90X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | https://doi.org/10.1093/hmg/ddg545 |
| E606X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | https://doi.org/10.1093/hmg/ddg545 |
| Q462X | Dominant negative SOX9 mutations in campomelic dysplasia | Human Mutations | 10.1038/humu.23888 |
| Met588Arg | Campomelic Dysplasia: Airway management in two patients and an update on clinical molecular correlations in head and neck | Archives of Otolaryngology-Head & Neck Surgery | 10.1774/jomc.2001.108.3.490 |
| V278X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | 10.1093/hmg/ddg545 |
| Y499X | Mutation analysis of the SOX9 gene in campomelic dysplasia and autosomal sex reversal: lack of gender/phenotype correlations | Human Molecular Genetics | 10.1093/hmg/ddg545 |
| Q649X | Clinical, genetic and bioinformatic characterization of a campomelic dysplasia case report | Gene | https://doi.org/10.1038/s41397-018-01303-4 |

### Notes
- The presence of diminished white matter and corpus callosum thinning in a case with a SOX9 mutation was found in the SOX9 gene.
- Loss of DNA-dependent dimerization of the transcription factor SOX9 in a case of campomelic dysplasia.
- A mutation creating an upstream initiation codon upon SOX9 Structure, Nuclear Transport, DNA Metabolism, and Transcriptional Activation of two cases.
- A mutation creating an upstream initiation codon in the first trimester of pregnancy and final diagnosis of two cases.
- Familial Campomelic dysplasia due to maternal genotype/phenotype correlations.
- Corrigendum: An article on Campomelic dysplasia.
- A case of campomelic dysplasia in whom a new mutation was found in the SOX9 gene.
- A mutation creating an upstream initiation codon in the second trimester of pregnancy and final diagnosis of two cases.
Supplementary table 2. Variants found in the WES analysis
| Chr | Start   | End     | Ref     | Alt     | Func.refGene | Gene.refGene | GeneDetail.refGene | ExonicFunc.r | AAChange.refGene |
|-----|---------|---------|---------|---------|--------------|--------------|---------------------|--------------|------------------|
| 1   | 1238583 | 1238583 | G       | A       | exonic       | ACAP3        | nonsynonymous       |              |                  |
| 1   | 6638995 | 6638995 | G       | T       | exonic       | TAS1R1       | nonsynonymous       |              |                  |
| 1   | 26608843| 26608843| C       | A       | exonic       | UBXN11       | nonsynonymous       |              |                  |
| 1   | 26608852| 26608852| G       | A       | exonic       | UBXN11       | nonsynonymous       |              |                  |
| 1   | 26644537| 26644537| C       | A       | exonic       | CD52,UBXN1   | nonsynonymous       |              |                  |
| 1   | 27278439| 27278439| G       | A       | exonic       | KDF1         | nonsynonymous       |              |                  |
| 1   | 36638206| 36638206| G       | A       | exonic       | MAP7D1       | nonsynonymous       |              |                  |
| 1   | 40928731| 40928731| G       | A       | exonic       | ZFP69B       | nonsynonymous       |              |                  |
| 1   | 46739296| 46739296| G       | C       | exonic       | RAD54L       | nonsynonymous       |              |                  |
| 1   | 113010178| 113010178| G     | A       | exonic       | WNT2B        | nonsynonymous       |              |                  |
| 1   | 113058941| 113058941| G     | A       | exonic       | WNT2B        | nonsynonymous       |              |                  |
| 1   | 115223010| 115223010| C     | T       | exonic       | AMPD1        | nonsynonymous       |              |                  |
| 1   | 152129115| 152129115| T     | C       | exonic       | RPTN         | nonsynonymous       |              |                  |
| 1   | 152275453| 152275453| G     | A       | exonic       | FLG          | nonsynonymous       |              |                  |
| 1   | 152883786| 152883786| C     | G       | exonic       | IVL          | nonsynonymous       |              |                  |
| 1   | 156012575| 156012575| A     | C       | exonic       | UBQLN4       | nonsynonymous       |              |                  |
| 1   | 156708367| 156708367| C     | T       | exonic       | MRPL24       | nonsynonymous       |              |                  |
| 1   | 158687308| 158687308| C     | T       | exonic       | OR6K3        | nonsynonymous       |              |                  |
| 1   | 168698298| 168698298| C     | T       | exonic       | DPT          | nonsynonymous       |              |                  |
| 1   | 177906507| 177906507| G     | A       | exonic       | SEC16B       | nonsynonymous       |              |                  |
| 1   | 179783184| 179783184| C     | T       | exonic       | FAM163A      | nonsynonymous       |              |                  |
| 1   | 186330835| 186330835| C     | T       | exonic       | TPR          | nonsynonymous       |              |                  |
| 1   | 205128792| 205128792| A     | C       | exonic       | DSTYK        | nonsynonymous       |              |                  |
| 1   | 212798251| 212798251| C     | T       | exonic       | FAM71A       | nonsynonymous       |              |                  |
| 1   | 225332296| 225332296| C     | G       | exonic       | DNAH14       | nonsynonymous       |              |                  |
| 1   | 226420879| 226420879| C     | T       | exonic       | LIN9         | nonsynonymous       |              |                  |
| 1   | 226924196| 226924196| C     | T       | exonic       | ITPKB        | nonsynonymous       |              |                  |
| 1   | 247151164| 247151164| C     | A       | exonic       | ZNF695       | nonsynonymous       |              |                  |
| 1   | 247836078| 247836078| A     | C       | exonic       | OR13G1       | nonsynonymous       |              |                  |
| 1   | 248525100| 248525100| G     | A       | exonic       | OR2T4        | nonsynonymous       |              |                  |
| 2   | 1652964 | 1652964 | G     | A       | exonic       | PXDN         | nonsynonymous       |              |                  |
| 2   | 23865369 | 23865369 | C     | G       | exonic       | KLHL29       | nonsynonymous       |              |                  |

**Note:** The table lists genetic variants with their respective positions, functional categories, and variant details. Each variant is associated with a specific gene and functional category, such as nonsynonymous SNV.
| Reference Sequence | Gene Name   | Exonic Position | Description | SNP Position | Transcript Position | Protein Position | Allele 1    | Allele 2    | Protein Change | Reference                                   | Nonsynonymous SNV          |
|-------------------|-------------|-----------------|-------------|--------------|---------------------|-----------------|-------------|-------------|----------------|---------------------------------------------|---------------------------|
| 46707808          | 46707808    | G               | exonic      | TMEM247      |                     |                 |             |             |                | nonsynonymous SNV in TMEM247                  |                          |
| 61412677          | 61412677    | G               | exonic      | AHS2A        |                     |                 |             |             |                | nonsynonymous SNV in AHS2A                   |                          |
| 69732709          | 69732709    | A               | exonic      | AAK1         |                     |                 |             |             |                | nonsynonymous SNV in AAK1                   |                          |
| 71896796          | 71896796    | A               | exonic      | DYSF         |                     |                 |             |             |                | nonsynonymous SNV in DYSF                   |                          |
| 110962532         | 110962532   | A               | exonic      | NPHP1        |                     |                 |             |             |                | nonsynonymous SNV in NPHP1                  |                          |
| 125204473         | 125204473   | T               | exonic      | CNTNAP5      |                     |                 |             |             |                | nonsynonymous SNV in CNTNAP5                |                          |
| 152321090         | 152321090   | G               | exonic      | RIF1         |                     |                 |             |             |                | nonsynonymous SNV in RIF1                   |                          |
| 152499355         | 152499355   | C               | exonic      | NBP          |                     |                 |             |             |                | nonsynonymous SNV in NBP                    |                          |
| 167300128         | 167300128   | C               | exonic      | SCN7A        |                     |                 |             |             |                | nonsynonymous SNV in SCN7A                  |                          |
| 170350312         | 170350312   | G               | exonic      | BBS5         |                     |                 |             |             |                | nonsynonymous SNV in BBS5                   |                          |
| 172325530         | 172325530   | G               | exonic      | DCAF17       |                     |                 |             |             |                | nonsynonymous SNV in DCAF17                 |                          |
| 179309165         | 179309165   | A               | exonic      | PRKRA        |                     |                 |             |             |                | nonsynonymous SNV in PRKRA                  |                          |
| 179497018         | 179497018   | G               | exonic      | TTN          |                     |                 |             |             |                | nonsynonymous SNV in TTN                    |                          |
| 189912958         | 189912958   | G               | exonic      | COL5A2       |                     |                 |             |             |                | nonsynonymous SNV in COL5A2                 |                          |
| 190313105         | 190313105   | T               | exonic      | WDR75        |                     |                 |             |             |                | nonsynonymous SNV in WDR75                  |                          |
| 196765098         | 196765098   | A               | exonic      | DNAH7        |                     |                 |             |             |                | nonsynonymous SNV in DNAH7                  |                          |
| 197208434         | 197208434   | A               | exonic      | HECW2        |                     |                 |             |             |                | nonsynonymous SNV in HECW2                  |                          |
| 220047173         | 220047173   | T               | exonic      | FAM134A      |                     |                 |             |             |                | nonsynonymous SNV in FAM134A                |                          |
| 233127939         | 233127939   | G               | exonic      | DIS3L2       |                     |                 |             |             |                | nonsynonymous SNV in DIS3L2                 |                          |
| 241069329         | 241069329   | C               | exonic      | MYEOV2       |                     |                 |             |             |                | nonsynonymous SNV in MYEOV2                 |                          |
| 9833071           | 9833071     | A               | exonic      | TADA3        |                     |                 |             |             |                | nonsynonymous SNV in TADA3                  |                          |
| 32804254          | 32804254    | T               | exonic      | CNOT10       |                     |                 |             |             |                | nonsynonymous SNV in CNOT10                 |                          |
| 63976489          | 63976489    | A               | exonic      | ATXN7        |                     |                 |             |             |                | nonsynonymous SNV in ATXN7                  |                          |
| 81754732          | 81754732    | G               | exonic      | GBE1         |                     |                 |             |             |                | nonsynonymous SNV in GBE1                   |                          |
| 97311483          | 97311483    | T               | exonic      | EPHA6        |                     |                 |             |             |                | nonsynonymous SNV in EPHA6                  |                          |
| 113528243         | 113528243   | C               | exonic      | ATP6V1A      |                     |                 |             |             |                | nonsynonymous SNV in ATP6V1A                |                          |
| 124896625         | 124896625   | G               | exonic      | SLC12A8      |                     |                 |             |             |                | nonsynonymous SNV in SLC12A8                |                          |
| 185993354         | 185993354   | C               | exonic      | DGKG         |                     |                 |             |             |                | nonsynonymous SNV in DGKG                   |                          |
| 185993355         | 185993355   | G               | exonic      | DGKG         |                     |                 |             |             |                | nonsynonymous SNV in DGKG                   |                          |
| 195516350         | 195516350   | T               | exonic      | MUC4         |                     |                 |             |             |                | nonsynonymous SNV in MUC4                   |                          |
| 196743994         | 196743994   | A               | exonic      | MFI2         |                     |                 |             |             |                | nonsynonymous SNV in MFI2                   |                          |
| 59408             | 59408       | C               | exonic      | ZNF595,ZNF   |                     |                 |             |             |                | nonsynonymous SNV in ZNF595,ZNF             |                          |
| 1388324           | 1388324     | A               | exonic      | CRIPAK       |                     |                 |             |             |                | nonsynonymous SNV in CRIPAK                 |                          |
| Chromosome | Position   | Ref. | Sample | Genotype | Gene       | Description      | Reference Snv       |
|------------|------------|------|--------|----------|------------|------------------|--------------------|
| 4          | 230669     | 230669 | G      | T        | exonic     | ZFYVE28          | nonsynonym: ZFYVE28:NM |
| 4          | 349491     | 349491 | C      | T        | exonic     | DOK7            | nonsynonym: DOK7:NM_00 |
| 4          | 353403     | 353403 | G      | exonic   | LRPAP1     |                 | nonsynonym: LRPAP1:NM_00 |
| 4          | 85889      | 85889 | C      | T        | exonic     | GPR78           | nonsynonym: GPR78:NM_00 |
| 4          | 136044     | 136044 | C      | G        | exonic     | BOD1L1          | nonsynonym: BOD1L1:NM_00 |
| 4          | 426588      | 426588 | C      | A        | exonic     | ATP8A1          | nonsynonym: ATP8A1:NM_00 |
| 4          | 102783      | 102783 | G      | T        | exonic     | BANK1           | nonsynonym: BANK1:NM_00 |
| 4          | 108969      | 108969 | G      | A        | exonic     | LEF1            | nonsynonym: LEF1:NM_00 |
| 4          | 169799      | 169799 | C      | exonic   | PALLD      |                 | nonsynonym: PALLD:NM_00 |
| 5          | 62018      | 62018 | G      | A        | exonic     | CEP72           | nonsynonym: CEP72:NM_00 |
| 5          | 320741     | 320741 | C      | T        | exonic     | PDZD2           | nonsynonym: PDZD2:NM_00 |
| 5          | 538152     | 538152 | C      | G        | exonic     | SNX18           | nonsynonym: SNX18:NM_00 |
| 5          | 748071     | 748071 | C      | T        | exonic     | COL4A3BP        | nonsynonym: COL4A3BP:NM |
| 5          | 140250      | 140250 | G      | T        | exonic     | PCDHA11         | nonsynonym: PCDHA11:NM |
| 5          | 140731      | 140731 | T      | A        | exonic     | PCDHGB1         | nonsynonym: PCDHGB1:NM |
| 5          | 141052      | 141052 | C      | G        | exonic     | ARAP3           | nonsynonym: ARAP3:NM_00 |
| 5          | 148207      | 148207 | C      | T        | exonic     | ADRB2           | nonsynonym: ADRB2:NM_00 |
| 5          | 170736      | 170736 | T      | A        | exonic     | TLX3            | nonsynonym: TLX3:NM_02 |
| 5          | 176072      | 176072 | A      | C        | exonic     | EIF4E1B         | nonsynonym: EIF4E1B:NM_00 |
| 5          | 176952      | 176952 | A      | G        | exonic     | FAM193B         | nonsynonym: FAM193B:NM_00 |
| 6          | 263926      | 263926 | G      | A        | exonic     | BTN2A2          | nonsynonym: BTN2A2:NM_00 |
| 6          | 282282      | 282282 | C      | G        | exonic     | NKAPL           | nonsynonym: NKAPL:NM_00 |
| 6          | 293645      | 293645 | C      | OR12D2   | exonic     |                 | nonsynonym: OR12D2:NM_00 |
| 6          | 301644      | 301644 | C      | A        | exonic     | TRIM26          | nonsynonym: TRIM26:NM_00 |
| 6          | 317505      | 317505 | C      | A        | exonic     | VARS            | nonsynonym: VARS:NM_00 |
| 6          | 317784      | 317784 | C      | A        | exonic     | HSPA1L          | nonsynonym: HSPA1L:NM_00 |
| 6          | 320157      | 320157 | G      | A        | exonic     | TNXB            | nonsynonym: TNXB:NM_00 |
| 6          | 333854      | 333854 | G      | A        | exonic     | CUTA            | nonsynonym: CUTA:NM_00 |
| 6          | 903484      | 903484 | C      | T        | exonic     | LYRM2           | nonsynonym: LYRM2:NM_00 |
| 6          | 159398      | 159398 | C      | T        | exonic     | RSHP3           | nonsynonym: RSHP3:NM_00 |
| 7          | 275198      | 275198 | G      | A        | exonic     | AMZ1            | nonsynonym: AMZ1:NM_00 |
| 7          | 217784      | 217784 | G      | A        | exonic     | DNAH11          | nonsynonym: DNAH11:NM_00 |
| 7          | 875173      | 875173 | A      | C        | exonic     | DBF4            | nonsynonym: DBF4:NM_00 |
| 7  | 94897945 | 94897945 | C   | T    | exonic | PPP1R9A  | nonsynonymous | PPP1R9A:NM  |
| 7  | 97842022 | 97842022 | T   | C    | exonic  | BHLHA15  | nonsynonymous | BHLHA15:NM  |
| 7  | 98449130 | 98449130 | T   | G    | exonic  | TMEM130  | nonsynonymous | TMEM130:NI  |
| 7  | 99474158 | 99474158 | G   | T    | exonic  | OR2AE1   | nonsynonymous | OR2AE1:NM_  |
| 7  | 129818350| 129818350| A   | C    | exonic  | TMEM209  | nonsynonymous | TMEM209:NI  |
| 7  | 129917678| 129917678| C   | T    | exonic  | CPA2     | nonsynonymous | CPA2:NM_0C  |
| 7  | 130008374| 130008374| C   | T    | exonic  | CPA5     | nonsynonymous | CPA5:NM_0C  |
| 7  | 134678273| 134678273| C   | T    | exonic  | AGBL3    | nonsynonymous | AGBL3:NM_   |
| 7  | 150883671| 150883671| A   | G    | exonic  | ASB10    | nonsynonymous | ASB10:NM_  |
| 7  | 157985138| 157985138| T   | exonic| PTMRN2  | nonsynonymous | PTMRN2:NM   |
| 8  | 10480420 | 10480420 | C   | T    | exonic  | RP1L1    | nonsynonymous | RP1L1:NM_1  |
| 8  | 16035422 | 16035422 | G   | A    | exonic  | MSR1     | nonsynonymous | MSR1:NM_0   |
| 8  | 21996546 | 21996546 | C   | T    | exonic  | REEP4    | nonsynonymous | REEP4:NM_0  |
| 8  | 22006170 | 22006170 | C   | T    | exonic  | LGI3     | nonsynonymous | LGI3:NM_13  |
| 8  | 38369926 | 38369926 | A   | C    | exonic  | C8orf86  | nonsynonymous | C8orf86:NM  |
| 8  | 42231859 | 42231859 | C   | T    | exonic  | DKK4     | nonsynonymous | DKK4:NM_01  |
| 8  | 53586746 | 53586746 | C   | T    | exonic  | RB1CC1   | nonsynonymous | RB1CC1:NM_  |
| 8  | 101608953| 101608953| T   | G    | exonic  | SNX31    | nonsynonymous | SNX31:NM_1  |
| 8  | 113299353| 113299353| A   | G    | exonic  | CSMD3    | nonsynonymous | CSMD3:NM_   |
| 8  | 125103719| 125103719| C   | A    | exonic  | FER1L6   | nonsynonymous | FER1L6:NM_  |
| 8  | 144408427| 144408427| C   | A    | exonic  | TOP1MT   | nonsynonymous | TOP1MT:NM   |
| 8  | 144650859| 144650859| C   | G    | exonic  | MROH6    | nonsynonymous | MROH6:NM_   |
| 9  | 12821567 | 12821567 | C   | A    | exonic  | LURAP1L  | nonsynonymous | LURAP1L:NM  |
| 9  | 13110045 | 13110045 | C   | T    | exonic  | MPDZ     | nonsynonymous | MPDZ:NM_0   |
| 9  | 35906601 | 35906601 | C   | A    | exonic  | HRCT1    | nonsynonymous | HRCT1:NM_C  |
| 9  | 35906604 | 35906604 | A   | C    | exonic  | HRCT1    | nonsynonymous | HRCT1:NM_C  |
| 9  | 98229473 | 98229473 | C   | T    | exonic  | PTCH1    | nonsynonymous | PTCH1:NM_C  |
| 9  | 127618856| 127618856| T   | G    | exonic  | WDR38    | nonsynonymous | WDR38:NM_   |
| 9  | 139734846| 139734846| C   | T    | exonic  | RABL6    | nonsynonymous | RABL6:NM_C  |
| 9  | 139747787| 139747787| G   | A    | exonic  | MAMDC4   | nonsynonymous | MAMDC4:NM   |
| 10 | 1230874  | 1230874  | C   | T    | exonic  | ADARB2   | nonsynonymous | ADARB2:NM   |
| 10 | 23393091 | 23393091 | A   | G    | exonic  | MSRB2    | nonsynonymous | MSRB2:NM_   |
| 10 | 26851284 | 26851284 | G   | A    | exonic  | APBB1IP  | nonsynonymous | APBB1IP:NM  |
| Chr | Gene Symbol | Location | Variant Type | Description | Gene Symbol | Location | Variant Type | Description |
|-----|-------------|----------|--------------|-------------|-------------|----------|--------------|-------------|
| 10  | 31134425    | T        | exonic       | ZNF438      |             |           |              |             |
| 10  | 70652345    | A        | exonic       | STOX1       |             |           |              |             |
| 10  | 79603320    | A        | exonic       | DLG5        |             |           |              |             |
| 10  | 88476509    | A        | exonic       | LDB3        |             |           |              |             |
| 10  | 102057199   | G        | exonic       | PKD2L1      |             |           |              |             |
| 10  | 105794495   | A        | exonic       | COL17A1     |             |           |              |             |
| 10  | 105819405   | T        | exonic       | COL17A1     |             |           |              |             |
| 10  | 118969560   | T        | exonic       | KCNK18      |             |           |              |             |
| 10  | 128974238   | C        | exonic       | FAM196A     |             |           |              |             |
| 11  | 803537      | T        | exonic       | PIDD1       |             |           |              |             |
| 11  | 2170560     | T        | exonic       | INS-IGF2    |             |           |              |             |
| 11  | 5510540     | A        | exonic       | OR52D1      |             |           |              |             |
| 11  | 5536386     | G        | exonic       | UBQLNL      |             |           |              |             |
| 11  | 7021374     | A        | exonic       | ZNF214      |             |           |              |             |
| 11  | 18729488    | T        | exonic       | IGSF22      |             |           |              |             |
| 11  | 59573999    | T        | exonic       | MRPL16      |             |           |              |             |
| 11  | 66834232    | T        | exonic       | RHOD        |             |           |              |             |
| 11  | 73679454    | A        | exonic       | DNAJB13     |             |           |              |             |
| 11  | 96104223    | T        | exonic       | CCDC82      |             |           |              |             |
| 11  | 100998343   | T        | exonic       | PGR         |             |           |              |             |
| 11  | 118307385   | T        | exonic       | KMT2A       |             |           |              |             |
| 11  | 124180356   | A        | exonic       | OR8D1       |             |           |              |             |
| 11  | 130332457   | C        | exonic       | ADAMTS15    |             |           |              |             |
| 11  | 134122759   | A        | exonic       | THYN1       |             |           |              |             |
| 11  | 134238603   | A        | exonic       | GLB1L2      |             |           |              |             |
| 12  | 1963174     | A        | exonic       | CACNA2D4    |             |           |              |             |
| 12  | 6729534     | T        | exonic       | LPAR5       |             |           |              |             |
| 12  | 51323835    | A        | exonic       | METTL7A     |             |           |              |             |
| 12  | 56349632    | C        | exonic       | PMEL        |             |           |              |             |
| 12  | 56743044    | A        | exonic       | STAT2       |             |           |              |             |
| 12  | 57433051    | A        | exonic       | MYO1A       |             |           |              |             |
| 12  | 88439500    | G        | exonic       | C12orf29    |             |           |              |             |
| 12  | 104144426   | T        | exonic       | STAB2       |             |           |              |             |
| Chromosome | Start Position (bp) | End Position (bp) | Gene Symbol | Description | Reference Genomic Location | Relation to Clinical Significance |
|------------|---------------------|-------------------|-------------|-------------|-----------------------------|----------------------------------|
| 12         | 108145285           | 108145285         | PRDM4       |              | nonsynonymous               | PRDM4:NM_001286242:exon33:c.A5168G:p.E1723G |
| 12         | 113875765           | 113875765         | SDSL        |              | nonsynonymous               | SDSL:NM_001293204:exon8:c.C1366T:p.R456C |
| 13         | 33590828            | 33590828          | KL          |              | nonsynonymous               | KL:NM_000798455:exon3:c.G1741A:p.R581H |
| 13         | 114762038           | 114762038         | RASA3       |              | nonsynonymous               | RASA3:NM_0218330:exon10:c.A1256C:p.Q419H |
| 14         | 23612372            | 23612372          | SLC7A8      |              | nonsynonymous               | SLC7A8:NM_000779309:exon11:c.C1291T:p.R431C |
| 14         | 55604883            | 55604883          | LGALS3      |              | nonsynonymous               | LGALS3:NM_001289163:exon11:c.A1447G:p.M483V |
| 14         | 60712590            | 60712590          | PPM1A       |              | nonsynonymous               | PPM1A:NM_014027:exon5:c.G53A:p.R18H |
| 14         | 68251815            | 68251815          | ZFYVE26     |              | nonsynonymous               | ZFYVE26:NM_001267036:exon2:c.A235C:p.T79P |
| 14         | 91779480            | 91779480          | CCDC88C     |              | nonsynonymous               | CCDC88C:NM_001267037:exon2:c.A32C:p.H11P |
| 14         | 93392986            | 93392986          | CHGA        |              | nonsynonymous               | CHGA:NM_001293205:exon8:c.C1366T:p.R456C |
| 15         | 96768380            | 96768380          | ATG2B       |              | nonsynonymous               | ATG2B:NM_000779309:exon11:c.C1291T:p.R431C |
| 15         | 42978426            | 42978426          | STARD9      |              | nonsynonymous               | STARD9:NM_001267036:exon2:c.A235C:p.T79P |
| 15         | 43494153            | 43494153          | EPB42       |              | nonsynonymous               | EPB42:NM_000779309:exon11:c.C1291T:p.R431C |
| 15         | 43739672            | 43739672          | TP53BP1     |              | nonsynonymous               | TP53BP1:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 45439691            | 45439691          | DUOX1       |              | nonsynonymous               | DUOX1:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 59186663            | 59186663          | SLTM        |              | nonsynonymous               | SLTM:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 72191110            | 72191110          | MYO9A       |              | nonsynonymous               | MYO9A:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 85525523            | 85525523          | PDE8A       |              | nonsynonymous               | PDE8A:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 86311316            | 86311316          | KHLH25      |              | nonsynonymous               | KHLH25:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 86697675            | 86697675          | AGBL1       |              | nonsynonymous               | AGBL1:NM_001267037:exon2:c.A32C:p.H11P |
| 15         | 1536304             | 1536304           | PTX4        |              | nonsynonymous               | PTX4:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 3081049             | 3081049           | CCDC64B     |              | nonsynonymous               | CCDC64B:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 3613275             | 3613275           | NLRC3       |              | nonsynonymous               | NLRC3:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 3708834             | 3708834           | TRAP1       |              | nonsynonymous               | TRAP1:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 18853620            | 18853620          | SMG1        |              | nonsynonymous               | SMG1:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 19083300            | 19083300          | COQ7        |              | nonsynonymous               | COQ7:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 27476768            | 27476768          | GTF3C1      |              | nonsynonymous               | GTF3C1:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 28962631            | 28962631          | NFATC2IP    |              | nonsynonymous               | NFATC2IP:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 29853091            | 29853091          | MVP         |              | nonsynonymous               | MVP:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 30017797            | 30017797          | DOC2A       |              | nonsynonymous               | DOC2A:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 30748932            | 30748932          | SRCAP       |              | nonsynonymous               | SRCAP:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 31384676            | 31384676          | ITGA4X      |              | nonsynonymous               | ITGA4X:NM_001267037:exon2:c.A32C:p.H11P |
| 16         | 57758631            | 57758631          | DRC7        |              | nonsynonymous               | DRC7:NM_001267037:exon2:c.A32C:p.H11P |
| Chromosome | Position | Gene | Type   | Description | Location |
|------------|----------|------|--------|-------------|----------|
| 16         | 58018231 | 58018231 C | T | exonic | TEPP | nonsynonym | TEPP:NM_19 |
| 16         | 72993725 | 72993725 G | A | exonic | ZFHX3 | nonsynonym | ZFHX3:NM_0 |
| 16         | 81942175 | 81942175 G | A | exonic | PLCG2 | nonsynonym | PLCG2:NM_0 |
| 17         | 1538083  | 1538083 A | G | exonic | SCARF1 | nonsynonym | SCARF1:NM_0 |
| 17         | 5425076  | 5425076 A | G | exonic | NLRP1 | nonsynonym | NLRP1:NM_0 |
| 17         | 7750903  | 7750903 T | C | exonic | KDM6B | nonsynonym | KDM6B:NM_0 |
| 17         | 8280923  | 8280923 C | T | exonic | RPL26 | nonsynonym | RPL26:NM_0 |
| 17         | 16248013 | 16248013 C | T | exonic | CENPV | nonsynonym | CENPV:NM_0 |
| 17         | 38061072 | 38061072 G | C | exonic | GSDBM | nonsynonym | GSDBM:NM_0 |
| 17         | 3864384  | 3864384 C | A | exonic | TNS4 | nonsynonym | TNS4:NM_0 |
| 17         | 43923990 | 43923990 A | G | exonic | SPPL2C | nonsynonym | SPPL2C:NM_0 |
| 17         | 48750431 | 48750431 G | A | exonic | ABCC3 | nonsynonym | ABCC3:NM_0 |
| 17         | 48917355 | 48917355 C | T | exonic | WFIKKN2 | nonsynonym | WFIKKN2:NM_0 |
| 17         | 62121542 | 62121542 G | T | exonic | ERN1 | nonsynonym | ERN1:NM_0 |
| 17         | 73498709 | 73498709 C | T | exonic | CASKIN2 | nonsynonym | CASKIN2:NM_0 |
| 17         | 73733712 | 73733712 G | T | exonic | ITGB4 | nonsynonym | ITGB4:NM_0 |
| 17         | 74475837 | 74475837 A | G | exonic | RHBD2 | nonsynonym | RHBD2:NM_0 |
| 17         | 3071878  | 3071878 C | T | exonic | MYOM1 | nonsynonym | MYOM1:NM_0 |
| 17         | 7011475  | 7011475 T | C | exonic | LAMA1 | nonsynonym | LAMA1:NM_0 |
| 17         | 13826119 | 13826119 G | T | exonic | MC5R | nonsynonym | MC5R:NM_0 |
| 17         | 13884803 | 13884803 C | T | exonic | MC2R | nonsynonym | MC2R:NM_0 |
| 17         | 21946887 | 21946887 G | A | exonic | OSBPL1A | nonsynonym | OSBPL1A:NM_0 |
| 17         | 28908178 | 28908178 G | C | exonic | DSG1 | nonsynonym | DSG1:NM_0 |
| 17         | 44774764 | 44774764 A | C | exonic | SKOR2 | nonsynonym | SKOR2:NM_0 |
| 17         | 50683852 | 50683852 C | T | exonic | DCC | nonsynonym | DCC:NM_005 |
| 17         | 1567630  | 1567630 G | A | exonic | MEX3D | nonsynonym | MEX3D:NM_0 |
| 17         | 7569091  | 7569091 C | G | exonic | C19orf45 | nonsynonym | C19orf45:NM_0 |
| 17         | 7697712  | 7697712 C | A | exonic | PCP2 | nonsynonym | PCP2:NM_0 |
| 17         | 7830938  | 7830938 A | G | exonic; splice | CLEC4M | nonsynonym | CLEC4M:NM_001144 |
| 17         | 8429328  | 8429328 G | C | exonic | ANGPTL4 | nonsynonym | ANGPTL4:NM_0 |
| 17         | 9072130  | 9072130 C | G | exonic | MUC16 | nonsynonym | MUC16:NM_0 |
| 17         | 18994936 | 18994936 C | T | exonic | CERS1 | nonsynonym | CERS1:NM_0 |
| 17         | 34003674 | 34003674 A | G | exonic | PEPD | nonsynonym | PEPD:NM_0 |

**Gene List:**

- C19orf45
- MEX3D
- DCC
- DSG1
- SKOR2
- OSBPL1A
- MUC16
- CERS1
- ANGPTL4
- CLEC4M
- PCP2
- TEPP
- SCARF1
- NLRP1
- KDM6B
- RPL26
- ZFHX3
- PLCG2
- CENPV
- GSDBM
- TNS4
- SPPL2C
- ABCC3
- WFIKKN2
- ERN1
- CASKIN2
- ITGB4
- RHBD2
- MYOM1
- LAMA1
- MC5R
- MC2R
- DCC
- MEX3D
- C19orf45
- PCP2
- CLEC4M
- ANGPTL4
- MUC16
- CERS1
- PEPD

**SNV Types:**

- Exonic
- Nonsynonymous SNV
19 38817359 38817359 C T exonic KCNK6 . nonsynonym KCNK6:NM_0
19 40225031 40225031 G C exonic CLC . nonsynonym CLC:NM_001
19 46394095 46394095 G T exonic MYPOP . nonsynonym MYPOP:NM
19 49002627 49002627 G T exonic LMTK3 . nonsynonym LMTK3:NM_0
19 53116949 53116949 T C exonic ZNF83 . nonsynonym ZNF83:NM_0
19 53432449 53432449 C G exonic ZNF816-ZNF . nonsynonym ZNF816-ZNF
19 56090524 56090524 A T exonic ZNF579 . nonsynonym ZNF579:NM_0
19 58639949 58639949 G T exonic ZNF329 . nonsynonym ZNF329:NM_0
20 23433441 23433441 G A exonic CST11 . nonsynonym CST1:NM_0
20 35467706 35467706 A G exonic SOGA1 . nonsynonym SOGA1:NM_0
20 36775191 36775191 A A exonic TGM2 . nonsynonym TGM2:NM_0
20 40040870 40040870 G A exonic CHD6 . nonsynonym CHD6:NM_0
20 44047974 44047974 A A exonic PIGT . nonsynonym PIGT:NM_0
20 56227354 56227354 C C exonic PMEPA1 . nonsynonym PMEPA1:NM_0
20 60992295 60992295 C T exonic RBBP8NL . nonsynonym RBBP8NL:NM_0
20 62196648 62196648 A G exonic HELZ2 . nonsynonym HELZ2:NM_0
21 47848349 47848349 C T exonic PCNT . nonsynonym PCNT:NM_0
22 23503155 23503155 C T exonic RAB36 . nonsynonym RAB36:NM_0
22 29627111 29627111 G A exonic EMID1 . nonsynonym EMID1:NM_0
22 29656165 29656165 C T exonic RHBDL3 . nonsynonym RHBDL3:NM_0
22 29682974 29682974 G C exonic EWSR1 . nonsynonym EWSR1:NM_0
22 30685380 30685380 C A exonic GATSL3 . nonsynonym GATSL3:NM_0
22 32000930 32000930 C T exonic SFI1 . nonsynonym SFI1:NM_0
22 39067128 39067128 C T exonic CBY1 . nonsynonym CBY1:NM_0
22 41605776 41605776 G C exonic L3MBTL2 . nonsynonym L3MBTL2:NM_0
22 42606388 42606388 G G exonic TCF20 . nonsynonym TCF20:NM_0
22 50716045 50716045 G A exonic PLXNB2 . nonsynonym PLXNB2:NM_0
X 2835863 2835863 G T exonic ARSD . nonsynonym ARSD:NM_0
X 2836181 2836181 A T exonic ARSD . nonsynonym ARSD:NM_0
X 2836184 2836184 C T exonic ARSD . nonsynonym ARSD:NM_0
| cytoBand | genomicSuperDups | CLINSIG | CLNDBN | CLNACC | CLNDSDB | CLNDSDBID | gnomAD_genome_ALL | gnomAD_genome_AFR | gnomAD_genome_AMR |
|----------|-----------------|---------|--------|--------|---------|-----------|-------------------|------------------|------------------|
| 1p36.33  |                 |         |        |        |         |           | 0.0059            | 0.0030           | 0.0383           |
| 1p36.31  |                 |         |        |        |         |           | 0.0009            | 0.0003           | 0.0155           |
| 1p36.11  |                 |         |        |        |         |           | 0.0041            | 0.0098           | 0.0015           |
| 1p36.11  |                 |         |        |        |         |           | 0.00003936        | 0.0000           | 0.0000           |
| 1p36.11  |                 |         |        |        |         |           | 0.00082           | 0.0033           | 0.1456           |
| 1p36.11  |                 |         |        |        |         |           | 0.0022            | 0.0007           | 0.0683           |
| 1p34.3   |                 |         |        |        |         |           | 0.0059            | 0.0016           | 0.1695           |
| 1p34.2   |                 |         |        |        |         |           | 0.0055            | 0.0017           | 0.1551           |
| 1p34.1   |                 |         |        |        |         |           | 0.0002            | 0.0000           | 0.0048           |
| 1p13.2   |                 |         |        |        |         |           | 0.0061            | 0.0037           | 0.1742           |
| 1p13.2   |                 |         |        |        |         |           | 0.0001            | 0.0003           | 0.0000           |
| 1q21.3   |                 |         |        |        |         |           | 0.0065            | 0.0031           | 0.0597           |
| 1q21.3   |                 |         |        |        |         |           | 0.0029            | 0.0015           | 0.0752           |
| 1q22     |                 |         |        |        |         |           | 0.0000            | 0.0000           | 0.0000           |
| 1q23.1   |                 |         |        |        |         |           | 0.0021            | 0.0075           | 0.0000           |
| 1q23.1   |                 |         |        |        |         |           | 0.0044            | 0.0154           | 0.0000           |
| 1q24.2   |                 |         |        |        |         |           | 0.0030            | 0.0011           | 0.0907           |
| 1q25.2   |                 |         |        |        |         |           | 0.0076            | 0.0263           | 0.0012           |
| 1q25.2   |                 |         |        |        |         |           | 0.0000            | 0.0000           | 0.0000           |
| 1q31.1   |                 |         |        |        |         |           | 0.0000            | 0.0000           | 0.0000           |
| 1q32.1   |                 |         |        |        |         |           | 0.0000            | 0.0000           | 0.0000           |
| 1q32.3   |                 |         |        |        |         |           | 0.0056            | 0.0022           | 0.0728           |
| 1q42.12  |                 |         |        |        |         |           | 0.0011            | 0.0003           | 0.0334           |
| 1q42.12  |                 |         |        |        |         |           | 0.0008            | 0.0011           | 0.0000           |
| 1q42.12  |                 |         |        |        |         |           | 0.0000            | 0.0000           | 0.0000           |
| 1q44     |                 |         |        |        |         |           | 0.0049            | 0.0174           | 0.0000           |
| 1q44     |                 |         |        |        |         |           | 0.0008            | 0.0011           | 0.0000           |
| 2p25.3   |                 |         |        |        |         |           | 0.0000            | 0.0000           | 0.0000           |
| 2p24.1   |                 |         |        |        |         |           | 0.0017            | 0.0008           | 0.0191           |
| Chromosome | Gene | Genotype | Pathogenicity | Reference | Significance | Probability | Probability | Probability |
|------------|------|----------|---------------|-----------|--------------|-------------|-------------|-------------|
| 2p21 | . | . | . | . | . | 0 | 0 | 0 |
| 2p15 | . | . | . | . | . | 0.0018 | 0.0013 | 0.0538 |
| 2p13.3 | . | . | . | . | . | 0 | 0 | 0 |
| 2p13.2 | Uncertain sig not_specified | RCV0002691 MedGen | CN169374 | 0 | 0 | 0 |
| 2q13 | other | other | not_specified | RCV0001178 MedGen | Me CN169374 | C | 0.0015 | 0.0008 | 0.043 |
| 2q14.3 | . | . | . | . | . | 0 | 0 | 0 |
| 2q23.3 | . | . | . | . | . | 0.0038 | 0.0002 | 0.0095 |
| 2q23.3 | other | Likely sig not_specified | RCV0001177 MedGen | Me CN169374 | C | 0.0066 | 0.0002 | 0.0084 |
| 2q24.3 | . | . | . | . | . | 0.0021 | 0.0008 | 0.037 |
| 2q31.1 | other | not_specified | RCV0002494 MedGen | CN169374 | 0.0015 | 0.0006 | 0.043 |
| 2q31.1 | . | . | . | . | . | 0 | 0 | 0 |
| 2q31.2 | Likely benign | Dystonia | RCV0003904 MedGen | C0393593 | 0 | 0 | 0 |
| 2q31.2 | other | Likely sig not_specified | RCV0000402 MedGen | Me CN169374 | C | 0.0047 | 0.0028 | 0.1325 |
| 2q32.2 | Uncertain sig not_specified | RCV0001975 MedGen | Me CN169374 | C | 0.00009687 | 0.0002 | 0 |
| 2q32.2 | . | . | . | . | . | 0 | 0 | 0 |
| 2q32.3 | . | . | . | . | . | 0.003 | 0.0002 | 0.0322 |
| 2q32.3 | . | . | . | . | . | 0.0008 | 0.0002 | 0.0263 |
| 2q35 | . | . | . | . | . | 0.0057 | 0.002 | 0.0847 |
| 2q37.1 | Benign | Likely sig not_specified | RCV0002518 MedGen | Me CN169374 | C | 0.0056 | 0.001 | 0.0562 |
| 2q37.3 | . | . | . | . | . | 0 | 0 | 0 |
| 3p25.3 | . | . | . | . | . | 0 | 0 | 0 |
| 3p22.3 | . | . | . | . | . | 0 | 0 | 0 |
| 3p14.1 | . | . | . | . | . | 0.0061 | 0.0016 | 0.0979 |
| 3p12.2 | Benign | Likely sig not_specified | RCV0002510 MedGen | Me CN169374 | C | 0.0056 | 0.0027 | 0.0132 |
| 3q11.2 | . | . | . | . | . | 0.0083 | 0.0024 | 0.1289 |
| 3q13.31 | . | . | . | . | . | 0 | 0 | 0 |
| 3q21.2 | . | . | . | . | . | 0.0023 | 0.0006 | 0.0119 |
| 3q27.2 | . | . | . | . | . | 0 | 0 | 0 |
| 3q27.2 | . | . | . | . | . | 0 | 0 | 0 |
| 3q29 | . | . | . | . | . | 0.0093 | 0.0046 | 0.238 |
| 3q29 | . | . | . | . | . | 0.0056 | 0.0019 | 0.037 |
| 4p16.3 | . | . | . | . | . | 0 | 0 | 0 |
| 4p16.3 | . | . | . | . | . | 0 | 0 | 0 |
| Chromosome | Region | Status | Explanation | Accession | Database | Score | P-value | q-value |
|------------|--------|--------|-------------|-----------|----------|-------|---------|---------|
| 4p16.3     | .      | Benign | not_specified | RCV0002497 | MedGen   | 0.005 | 0.017   | 0.0012  |
| 4p16.3     | .      |        |             |           |          | 0.0085| 0.0301  | 0       |
| 4p16.1     | .      |        |             |           |          | 0.0002| 0.0002  | 0.0036  |
| 4p15.33    | .      |        |             |           |          | 0     | 0       | 0       |
| 4p13       | .      |        |             |           |          | 0     | 0       | 0       |
| 4q24       | .      |        |             |           |          | 0.007 | 0.0234  | 0.006   |
| 4q25       | .      |        |             |           |          | 0.0073| 0.0021  | 0.1492  |
| 4q32.3     | .      | Uncertain significance | Pancreatic adenocarcinoma | RCV000123171.5 | Human_Phenotype_Ontology:MedGen | HP:0006725:CN005854 | 0.0014 | 0.0001  | 0.0096  |
| 5p15.33    | .      |        |             |           |          | 0     | 0       | 0       |
| 5p13.3     | .      |        |             |           |          | 0.0022| 0.0028  | 0.037   |
| 5q11.2     | .      |        |             |           |          | 0.0014| 0.0003  | 0.0395  |
| 5q13.3     | .      |        |             |           |          | 0.0021| 0.0001  | 0.0407  |
| 5q31.3     | .      |        |             |           |          | 0.0031| 0.001   | 0.0203  |
| 5q31.3     | .      |        |             |           |          | 0.0003229 | 0 | 0.0012  |
| 5q31.3     | .      |        |             |           |          | 0     | 0       | 0       |
| 5q32       | .      |        |             |           |          | 0     | 0       | 0       |
| 5q35.1     | .      |        |             |           |          | 0     | 0       | 0       |
| 5q35.2     | .      |        |             |           |          | 0.0003| 0.0011  | 0       |
| 5q35.3     | .      |        |             |           |          | 0.0019| 0.0064  | 0.0012  |
| 6p22.2     | .      |        |             |           |          | 0.009 | 0.0036  | 0.0179  |
| 6p22.1     | .      |        |             |           |          | 0.002 | 0.0007  | 0.0537  |
| 6p22.1     | .      |        |             |           |          | 0.0039| 0.0006  | 0.0764  |
| 6p22.1     | .      |        |             |           |          | 0.0072| 0.0016  | 0.1181  |
| 6p21.33    | .      |        |             |           |          | 0     | 0       | 0       |
| 6p21.33    | .      |        |             |           |          | 0     | 0       | 0       |
| 6p21.33    | .      |        |             |           |          | 0.0017| 0.0013  | 0.0383  |
| 6p21.32    | .      |        |             |           |          | 0     | 0       | 0       |
| 6q15       | .      |        |             |           |          | 0.0045| 0.0028  | 0.0764  |
| 6q25.3     | .      |        |             |           |          | 0.0024| 0.001   | 0.074   |
| 7p22.3     | .      |        |             |           |          | 0.0099| 0.0344  | 0.0024  |
| 7p15.3     | .      | Likely benign | not_specifier | RCV0002474 | MedGen | Me CN169374 | C | 0.002 | 0.0068   | 0       |
| 7q21.12    | .      |        |             |           |          | 0.0004| 0       | 0.0107  |
| Chromosome | Region | Uniprot | Gene | Symbol | OMIM | SNP | Function |
|------------|--------|---------|------|--------|------|-----|----------|
| 7q21.3     |        |         |      |        |      |     |          |
| 7q21.3     |        |         |      |        |      | 0.0006 | 0.0005 | 0.0131  |
| 7q22.1     |        |         |      |        |      |     |          |
| 7q22.1     |        |         |      |        |      | 0.0049 | 0.0016 | 0.037   |
| 7q32.2     |        |         |      |        |      |     |          |
| 7q32.2     |        |         |      |        |      | 0.0099 | 0.0303 | 0.0286  |
| 7q32.2     |        |         |      |        |      |     |          |
| 7q32.2     |        |         |      |        |      | 0.0032 | 0.0008 | 0.0406  |
| 7q33       |        |         |      |        |      |     |          |
| 7q33       |        |         |      |        |      | 0.002  | 0.0011 | 0.0549  |
| 7q36.1     |        |         |      |        |      |     |          |
| 7q36.1     |        |         |      |        |      | 0.0004 | 0.0002 | 0.0095  |
| 7q36.3     |        |         |      |        |      |     |          |
| 7q36.3     |        |         |      |        |      | 0.0019 | 0.0064 | 0.0012  |
| 8p23.1     |        |         |      |        |      |     |          |
| 8p23.1     |        |         |      |        |      | 0.000097 | 0.0001 | 0     |
| 8p22       |        |         |      |        |      |     |          |
| 8p22       |        |         |      |        |      | 0.0009699 | 0    | 0     |
| 8p21.3     |        |         |      |        |      |     |          |
| 8p21.3     |        |         |      |        |      | 0.0028 | 0.0003 | 0.0215  |
| 8p21.3     |        |         |      |        |      |     |          |
| 8p11.22    |        |         |      |        |      | 0.0026 | 0.0013 | 0.0716  |
| 8p11.21    |        |         |      |        |      |     |          |
| 8p11.23    |        |         |      |        |      | 0.0076 | 0.0009 | 0.0525  |
| 8p11.23    |        |         |      |        |      |     |          |
| 8q23.3     |        |         |      |        |      |     |          |
| 8q23.3     |        |         |      |        |      | 0.0042 | 0.0022 | 0.1146  |
| 8q24.13    |        |         |      |        |      |     |          |
| 8q24.13    |        |         |      |        |      | 0.0007 | 0.0002 | 0     |
| 8q24.3     |        |         |      |        |      |     |          |
| 8q24.3     |        |         |      |        |      | 0     | 0     | 0     |
| 9p23       |        |         |      |        |      |     |          |
| 9p23       |        |         |      |        |      | 0.0006457 | 0.0001 | 0.0012 |
| 9p23       |        |         |      |        |      |     |          |
| 9p13.3     |        |         |      |        |      |     |          |
| 9p13.3     |        |         |      |        |      | 0.0028 | 0.0053 | 0.0247 |
| 9q22.32    |        |         |      |        |      | 0.0002 | 0    | 0     |
| 9q22.32    |        |         |      |        |      |     |          |
| 9q34.3     |        |         |      |        |      |     |          |
| 9q34.3     |        |         |      |        |      | 0.00003245 | 0    | 0     |
| 9q34.3     |        |         |      |        |      |     |          |
| 10p15.3    |        |         |      |        |      |     |          |
| 10p15.3    |        |         |      |        |      | 0.0025 | 0.0083 | 0     |
| 10p12.2    |        |         |      |        |      |     |          |
| 10p12.2    |        |         |      |        |      | 0.01  | 0.0003 | 0.0394 |
| 10p12.1    |        |         |      |        |      |     |          |
| 10p12.1    |        |         |      |        |      | 0     | 0     | 0     |
| Chromosome | Location | Genotype | Phenotype | Classification | Description | Submitter | Gene | Symbol | Description | Allele Frequency | Total | 50% | 90% |
|------------|----------|----------|-----------|---------------|-------------|-----------|-------|--------|-------------|-----------------|-------|-----|-----|
| 10p11.23   |          |          |           |               |             |           |       |        |             | 0.0052          | 0.0021 | 0.1611 |
| 10q22.1    |          |          |           |               |             |           |       |        |             | 0.0008          | 0.0005 | 0.0191 |
| 10q22.3    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 10q23.2    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 10q24.31   |          |          |           |               |             |           |       |        |             | 0.0002         | 0.0002 | 0.0036 |
| 10q24.33   |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 10q25.1    |          |          |           |               |             |           |       |        |             | 0.0009684      | 0.0001 | 0     |
| 10q25.3    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 10q26.2    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 11p15.5    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 11p15.5    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 11p15.4    |          |          |           |               |             |           |       |        |             | 0.0018         | 0.0009 | 0.0573 |
| 11p15.4    |          |          |           |               |             |           |       |        |             | 0.0076         | 0.0011 | 0.1205 |
| 11p15.4    |          |          |           |               |             |           |       |        |             | 0.0051         | 0.0019 | 0.14  |
| 11p15.4    |          |          |           |               |             |           |       |        |             | 0.0038         | 0.0013 | 0.0036 |
| 11q12.1    |          |          |           |               |             |           |       |        |             | 0.0048         | 0.0015 | 0.0656 |
| 11q13.2    |          |          |           |               |             |           |       |        |             | 0.0092         | 0.0014 | 0.0119 |
| 11q13.4    |          |          |           |               |             |           |       |        |             | 0.003          | 0.0009 | 0.0012 |
| 11q21      |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 11q22.1    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 11q23.3    |          |          |           |               |             |           |       |        |             | 0.0042         | 0.0011 | 0.1423 |
| 11q24.2    |          |          |           |               |             |           |       |        |             | 0.0024         | 0.0084 | 0    |
| 11q24.3    |          |          |           |               |             |           |       |        |             | 0.0083         | 0.003  | 0.1313 |
| 11q25      |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 11q25      |          |          |           |               |             |           |       |        |             | 0.0015         | 0.0011 | 0.0346 |
| 12p13.33   |          |          |           |               |             |           |       |        |             | 0.0018         | 0.0007 | 0.0525 |
| 12p13.31   |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 12q13.12   |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 12q13.2    |          |          |           |               |             |           |       |        |             | 0             | 0     | 0    |
| 12q13.3    |          |          |           |               |             |           |       |        |             | 0.0035         | 0.0011 | 0.0931 |
| 12q13.3    |          |          |           |               |             |           |       |        |             | 0.0067         | 0.0023 | 0.1814 |
| 12q21.32   |          |          |           |               |             |           |       |        |             | 0.0005         | 0.0002 | 0.0156 |
| 12q23.3    |          |          |           |               |             |           |       |        |             | 0.0034         | 0.0014 | 0.043  |
| Chromosome | Region | . | . | . | . | . | . | . | 0.0011 | 0.0003 | 0.0107 |
|------------|--------|---|---|---|---|---|---|---|---------|---------|--------|
| 12q23.3    | .      | . | . | . | . | . | . | 0.0049 | 0.0025  | 0.1384 |
| 12q24.13   | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 13q13.1    | .      | . | . | . | . | . | . | 0.0006462 | 0       | 0    |
| 13q34      | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 14q11.2    | .      | . | . | . | . | . | . | 0.0002  | 0       | 0.0024 |
| 14q22.3    | .      | . | . | . | . | . | . | 0.0004  | 0       | 0      |
| 14q23.1    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 14q24.1    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 14q32.11   | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 14q32.12   | .      | . | . | . | . | . | . | 0.0008  | 0.0027  | 0      |
| 14q32.2    | .      | . | . | . | . | . | . | 0.0044  | 0.0011  | 0.1253 |
| 15q15.2    | .      | . | . | . | . | . | . | 0.0043  | 0.0029  | 0.1038 |
| 15q15.2    | .      | . | . | . | . | . | . | 0.0003235 | 0       | 0      |
| 15q15.3    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 15q21.1    | .      | . | . | . | . | . | . | 0.0005  | 0.0002  | 0.0155 |
| 15q22.1    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 15q23      | .      | . | . | . | . | . | . | 0.0085  | 0.022    | 0.0752 |
| 15q25.3    | .      | . | . | . | . | . | . | 0.0042  | 0.0015  | 0.1091 |
| 15q25.3    | .      | . | . | . | . | . | . | 0.0009697 | 0       | 0      |
| 15q25.3    | .      | . | . | . | . | . | . | 0.0032  | 0.0013  | 0.0742 |
| 16p13.3    | .      | . | . | . | . | . | . | 0.0006462 | 0       | 0      |
| 16p13.3    | .      | . | . | . | . | . | . | 0.0053  | 0.0182  | 0.0024 |
| 16p13.3    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 16p13.3    | .      | . | . | . | . | . | . | 0.000323 | 0.0001  | 0      |
| 16p12.3    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 16p12.3    | .      | . | . | . | . | . | . | 0.0071  | 0.0003  | 0.0263 |
| 16p12.1    | .      | . | . | . | . | . | . | 0.0005  | 0.002   | 0      |
| 16p11.2    | .      | . | . | . | . | . | . | 0.0026  | 0.009   | 0      |
| 16p11.2    | .      | . | . | . | . | . | . | 0.0069  | 0.024   | 0.0024 |
| 16p11.2    | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 16p11.2    | .      | . | . | . | . | . | . | 0.0071  | 0.0247  | 0.0024 |
| 16p21      | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| 16q21      | .      | . | . | . | . | . | . | 0       | 0       | 0      |
| Chromosome | Description | Genomic Region | p-value | q-value | Median | PhenoType | Genomics | Modality | Individual | Patient | Reference Information |
|------------|-------------|----------------|---------|---------|--------|------------|----------|----------|------------|---------|-----------------------|
| 16q21      | Benign      | not specified  | 0.0029  | 0.0102  | 0.0012 |             |          |          |            |         |                       |
| 16q22.3    | Benign      | not specified  | 0.0011  | 0.0005  | 0.0322 |             |          |          |            |         |                       |
| 16q23.3    | Benign      | not specified  | 0.0062  | 0.0077  | 0.0084 |             |          |          |            |         |                       |
| 17p13.3    | Benign      | not specified  | 0.0007  | 0.0003  | 0.0131 |             |          |          |            |         |                       |
| 17p13.2    | Benign      | not specified  | 0.0096  | 0.0038  | 0.2053 |             |          |          |            |         |                       |
| 17p13.1    | Benign      | not specified  | 0.0038  | 0.0022  | 0.105  |             |          |          |            |         |                       |
| 17p11.2    | Benign      | not specified  | 0.0008  | 0.0003  | 0       |             |          |          |            |         |                       |
| 17q12      | Benign      | not specified  | 0.0023  | 0.0001  | 0.006  |             |          |          |            |         |                       |
| 17q21.31   | Benign      | not specified  | 0.001   | 0.0008  | 0.0239 |             |          |          |            |         |                       |
| 17q21.33   | Benign      | not specified  | 0.0035  | 0.0016  | 0.1026 |             |          |          |            |         |                       |
| 17q25.1    | Benign      | not specified  | 0.00003249 | 0       | 0 |             |          |          |            |         |                       |
| 17q25.1    | Likely benign Epidermolysis | RCV000306116.1 | 0.0017 | 0.001 | 0.0382 |             |          |          |            |         |                       |
| 18p11.31   | Benign | not specified | RCV000217979.1 | 0.0028 | 0.0007 | 0.0489 |             |          |          |            |         |                       |
| 18p11.31   | Benign | not specified | RCV000231050.1 | 0.0021 | 0.0072 | 0.0012 |             |          |          |            |         |                       |
| 18p11.21   | Benign | not specified | RCV0002179 | 0.0026 | 0.0092 | 0.0012 |             |          |          |            |         |                       |
| 18q11.2    | Benign | not specified | RCV000231050.1 | 0.0061 | 0.0217 | 0.0012 |             |          |          |            |         |                       |
| 18q12.1    | Benign | not specified | RCV000231050.1 | 0.0001 | 0 | 0 |             |          |          |            |         |                       |
| 18q21.1    | Benign | not specified | RCV000231050.1 | 0.0004 | 0.0011 | 0 |             |          |          |            |         |                       |
| 19p13.3    | Benign | not specified | RCV000231050.1 | 0.0011 | 0.0011 | 0.028 |             |          |          |            |         |                       |
| 19p13.2    | Benign | not specified | RCV000231050.1 | 0.0037 | 0.0005 | 0.0179 |             |          |          |            |         |                       |
| 19p13.2    | Benign | not specified | RCV000231050.1 | 0.0017 | 0.0011 | 0.0453 |             |          |          |            |         |                       |
| 19p13.2    | Benign | not specified | RCV000231050.1 | 0 | 0 | 0 |             |          |          |            |         |                       |
| 19p13.2    | Benign | not specified | RCV000231050.1 | 0.0012 | 0.0001 | 0.0418 |             |          |          |            |         |                       |
| 19p13.2    | Benign | not specified | RCV000231050.1 | 0 | 0 | 0 |             |          |          |            |         |                       |
| 19p13.11   | Benign | not specified | RCV000231050.1 | 0 | 0 | 0 |             |          |          |            |         |                       |
| 19q13.11   | Benign | not specified | RCV000231050.1 | 0 | 0 | 0 |             |          |          |            |         |                       |
| Chromosome | Region | Description | Population | Allele 1 | Allele 2 | Allele 3 |
|------------|--------|-------------|------------|----------|----------|----------|
| 19q13.2    | .      | .           | .          | 0.0076   | 0.0039   | 0.1337   |
| 19q13.2    | .      | .           | .          | 0.0091   | 0.0011   | 0.068    |
| 19q13.32   | .      | .           | .          | 0.0045   | 0.0012   | 0.1308   |
| 19q13.33   | .      | .           | .          | 0.0057   | 0.0039   | 0.0112   |
| 19q13.41   | .      | .           | .          | 0.0041   | 0.0017   | 0.0538   |
| 19q13.42   | .      | .           | .          | 0.0083   | 0.002    | 0.1679   |
| 19q13.43   | .      | .           | .          | 0        | 0        | 0        |
| 20p11.21   | .      | .           | .          | 0        | 0        | 0        |
| 20q11.23   | .      | .           | .          | 0.00003229 | 0        | 0.0012  |
| 20q12      | Benign | not_specified | RCV0002029 MedGen | CN169374 | 0.0099   | 0.0023   | 0.0704   |
| 20q13.12   | .      | .           | .          | 0.0042   | 0.0002   | 0.0847   |
| 20q13.31   | .      | .           | .          | 0        | 0        | 0        |
| 20q13.33   | .      | .           | .          | 0.0011   | 0.0005   | 0.0191   |
| 20q13.33   | .      | .           | .          | 0.002    | 0.0002   | 0.0668   |
| 21q22.3    | .      | .           | .          | 0        | 0        | 0        |
| 22q11.23   | .      | .           | .          | 0.0034   | 0.001    | 0.0979   |
| 22q12.2    | .      | .           | .          | 0.0025   | 0.0086   | 0        |
| 22q12.2    | .      | .           | .          | 0.0002   | 0.0006   | 0        |
| 22q12.2    | .      | .           | .          | 0.0002   | 0.0006   | 0        |
| 22q12.2    | .      | .           | .          | 0        | 0        | 0        |
| 22q12.2    | .      | .           | .          | 0.0083   | 0.003    | 0.0871   |
| 22q13.1    | .      | .           | .          | 0.0004   | 0.0003   | 0.0036   |
| 22q13.2    | .      | .           | .          | 0.0034   | 0.001    | 0.0943   |
| 22q13.2    | .      | .           | .          | 0        | 0        | 0        |
| 22q13.33   | .      | .           | .          | 0        | 0        | 0        |
| Xp22.33    | .      | .           | .          | 0.0004   | 0.0005   | 0.0024   |
| Xp22.33    | .      | .           | .          | 0.0006   | 0.0008   | 0.0024   |
| Xp22.33    | .      | .           | .          | 0.0006   | 0.0008   | 0.0024   |
| gnomAD_genome_ASJ | gnomAD_genome_EAS | gnomAD_genome_FIN | gnomAD_genome_NFE | gnomAD_genome_OTH | 3.5jpn_v2 | 1000g2015aI | 1000g2015aI | ExAC_ALL | ExAC_AFR |
|------------------|------------------|------------------|------------------|------------------|-----------|-------------|-------------|----------|----------|
| 0.0166           | 0.0043           | 0.0006           | 0.0069           | 0.0061           | 0.0176    | 0.0109824   | 0.0109     | 0.0173   | 0.0029   |
| 0.0068           | 0.0001           | 0                | 0                | 0.00319489       | 0         | 0.0025      | 0.0005     |          |          |
| 0.0172           | 0.0007           | 0.002            | 0.0045           | 0                | 0         | 0.0063      | 0.0544     |          |          |
| 0.0066           | 0.024            | 0.0006           | 0.0033           | 0.0102           | 0.0277    | 0.0305511   | 0.003      | 0.0228   | 0.0047   |
| 0.0001           | 0                | 0.0051           | 0.00878594       | 0                | 0.0086    | 0.001       |           |          |          |
| 0.0013           | 0.0092           | 0.0253594        | 0.002            | 0.0252           | 0.0221    |             |            |          |          |
| 0.0025           | 0.0003           | 0.0003           | 0.0143           | 0.0412           | 0.028155  | 0.001       | 0.0193     | 0.0027   |           |
| 0.0006           | 0.00006668       | 0.00059904       | 0.002            | 0.0004           | 0         |             |            |          |          |
| 0.0001           | 0.000662         | 0.0209665        | 0.0228           | 0.0034           | 0         |             |            |          |          |
| 0.0001           | 0.00006661       | 0                | 0.00019968       | 0.0002           | 0         |             |            |          |          |
| 0.0001           | 0.00006661       | 0                | 0.000002491      | 0.0003           | 0         |             |            |          |          |
| 0.0132           | 0.0649           | 0.0005           | 0.0071           | 0.0709           | 0.0249601 | 0.016       | 0.0022     |          |          |
| 0.0004           | 0.0082           | 0.0119808        | 0.002            | 0.0062           | 0         |             |            |          |          |
| 0.0001           | 0                | 0                | 0                | 0                | 0         |             |            |          |          |
| 0.0001           | 0                | 0                | 0                | 0                | 0         |             |            |          |          |
| 0.0001           | 0.00079872       | 0                | 0.0009           | 0.005           | 0.0005    | 0.0061      |           |          |          |
| 0.0001           | 0                | 0                | 0.00579073       | 0                | 0.0015    | 0.0165      |           |          |          |
| 0.0001           | 0.000002         | 0.0051           | 0.0147764        | 0.0125           | 0.0013    |             |            |          |          |
| 0.0001           | 0.00006668       | 0.002            | 0.0081869        | 0.0002           | 0.0028    | 0.0341      |           |          |          |
| 0.0001           | 0                | 0                | 0.00019968       | 8.295E-06        | 0         |             |            |          |          |
| 0.0001           | 0                | 0                | 0                | 0                | 0         |             |            |          |          |
| 0.0241           | 0.0034           | 0.0025           | 0.0041           | 0.0149           | 0.0171275 | 0.002       | 0.0149     | 0.0025   |           |
| 0.0001           | 0.000006675      | 0.001            | 0.00379393       | 0                | 0.0005    | 0           |            |          |          |
| 0.0001           | 0                | 0                | 0                | 0                | 0         |             |            |          |          |
| 0.0715           | 0.0023           | 0.0003           | 0.0122           | 0.0676           | 0.0485224 | 0.026       | 0.0026     |          |          |
| 0.0001           | 0                | 0                | 0                | 0                | 0         |             |            |          |          |
| 0.0001           | 0.00006664       | 0                | 0.00798722       | 0.0017           | 0.0182    |             |            |          |          |
| 0.0036           | 0.002           | 0.0009           | 0.0006           | 0                | 0         | 0.2545      | 0.442      |          |          |
| 0.0111           | 0.0003           | 0.0005           | 0.0041           | 0.0134           | 0.00459265 | 0.0015     | 0          |          |          |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00005793 | 0 |
|---|---|---|---|---|---|---|-------------|---|
| 0 | 0 | 0 | 0 | 0 | 0 | 0.00479233 | 0.0054 | 0.0002 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.8419E-06 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0.002 | 0 | 0.00579073 | 0.0056 | 0.0015 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0.00019968 | 0.001 | 0.00001659 |
| 0 | 0.0624 | 0 | 0.0004 | 0 | 0.0152 | 0.0111821 | 0.002 | 0.0049 | 0.0003 |
| 0 | 0.0878 | 0.01 | 0.0009 | 0.0061 | 0.0486 | 0.0201677 | 0.001 | 0.01 | 0.0004 |
| 0.0033 | 0.0019 | 0.0037 | 0.0004 | 0.0051 | 0.0318 | 0.00858626 | 0.001 | 0.0079 | 0.0019 |
| 0 | 0.0006 | 0 | 0.00006665 | 0.0041 | 0.00239617 | 0 | 0.0045 | 0.0008 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0.0563 | 0 | 0 | 0.098 | 0.0648 |
| 0 | 0.0006 | 0 | 0.0003 | 0.0031 | 0 | 0.0161741 | 0 | 0.021 | 0.0029 |
| 0 | 0 | 0 | 0.00006662 | 0 | 0 | 0.00019968 | 0.001 | 0.00004955 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0.0117 | 0.0049 | 0.0014 | 0.0071 | 0.0443 | 0.0131789 | 0.002 | 0.0066 | 0.0005 |
| 0 | 0.0006 | 0 | 0 | 0 | 0 | 0.00101837 | 0 | 0.0033 | 0.0006 |
| 0.0033 | 0.0012 | 0.0052 | 0.0041 | 0.0061 | 0 | 0.014377 | 0.004 | 0.0151 | 0.0015 |
| 0.0033 | 0.0173 | 0.0123 | 0.0024 | 0.0112 | 0 | 0.014976 | 0.008 | 0.0113 | 0.0009 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00004978 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.0033 | 0.0518 | 0 | 0.0002 | 0.0061 | 0.0519 | 0.019369 | 0 | 0.0173 | 0.0014 |
| 0 | 0 | 0.0043 | 0.0079 | 0.0041 | 0 | 0.00259585 | 0.0089 | 0.0097 | 0.0024 |
| 0.0033 | 0.0006 | 0.0103 | 0.0055 | 0.0081 | 0 | 0.0165735 | 0.002 | 0.023 | 0.0042 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0.0126 | 0.0005 | 0.0051 | 0 | 0.00379393 | 0.001 | 0.0032 | 0.0008 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0.0012 | 0.0003 | 0.0025 | 0.0092 | 0 | 0.0309505 | 0.003 | 0.0318 | 0.0035 |
| 0.0033 | 0.058 | 0.0003 | 0.0015 | 0.0081 | 0.0518 | 0.0283546 | 0.001 | 0.0208 | 0.0013 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0002 | 0.0002 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00001011 | 0 |
| Value | Description |
|-------|-------------|
| 0.0033 | 0.0003 | 0.0114 | 0.00259585 | 0.0027 | 0.0006 |
| 0.0017 | 0.0077 | 0.0018 | 0.0122 | 0.0061901 | 0.004 | 0.0078 | 0.0013 |
| 0.0117 | 0.0051 | 0.0251 | 0.0091853 | 0.02 | 0.0084 | 0.0009 |
| 0.0055 | 0.002 | 0.021 | 0.00279553 | 0.0024 | 0.0005 |
| 0.0006 | 0 | 0 | 0 | 0.00159744 | 0.0026 | 0.0004 |
| 0 | 0 | 0 | 0.006664 | 0.0051 | 0.0129792 | 0 | 0.0015 | 0.0005 |
| 0 | 0 | 0 | 0 | 0.00039936 | 0 | 0.002 |
| 0 | 0 | 0 | 0 | 0.00199681 | 0 | 0.0006 | 0.0062 |
| 0 | 0 | 0 | 0 | 0 | 0.0000172 | 0 |
| 0.0019 | 0 | 0 | 0 | 0 | 0.0002486 | 0 |
| 0.0277 | 0.004 | 0.0003 | 0.0031 | 0.032 | 0.0117812 | 0.001 | 0.0083 | 0.001 |
| 0.0019 | 0.0005 | 0.0092 | 0.0785 | 0.030551 | 0 | 0.0178 | 0.0014 |
| 0.0241 | 0 | 0.0002 | 0.0031 | 0 | 0.0155751 | 0 | 0.0102 | 0.0012 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0.00001647 | 0 |
| 0 | 0 | 0.0003 | 0.0004 | 0.0071 | 0 | 0.0169728 | 0 | 0.0147 | 0.0019 |
| 0 | 0 | 0.0013 | 0.001 | 0 | 0.00019968 | 0.001 | 0.0008 | 0.0002 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0.0001 | 0.0031 | 0 | 0.0131789 | 0.001 | 0.0043 | 0.0047 |
| 0 | 0 | 0 | 0 | 0 | 0.00019968 | 0 | 0.0006 | 0.0002 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0.0000092 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0.014 | 0 | 0 | 0 | 0 |
| 0.0033 | 0 | 0 | 0.0003 | 0 | 0 | 0.00019968 | 0.0003 | 0 |
| 0.0179 | 0 | 0.0006674 | 0.002 | 0.0203 | 0.0241613 | 0 | 0.0159 | 0.0028 |
| 0.0066 | 0 | 0.0006676 | 0 | 0 | 0.00019968 | 0 | 0 | 0 | 0 |
| 0.0037 | 0 | 0 | 0 | 0 | 0.00399361 | 0 | 0.0013 | 0.0115 |
| 0.0066 | 0.1485 | 0.0037 | 0.0011 | 0.0031 | 0.1492 | 0.0325479 | 0 | 0.0161 | 0.0004 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8.238E-06 | 0 | 0 |
| 0 | 0.0006 | 0 | 0 | 0.0081 | 0 | 0.0219649 | 0 | 0.0167 | 0.0018 |
|---|---------|---|---|---------|---|-----------|---|---------|--------|
| 0 | 0.0012 | 0 | 0.0006662 | 0.002 | 0 | 0.00379393 | 0 | 0.0023 | 0.0006 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00002471 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0.00059904 | 0 | 0.0015 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0.0001 | 0 | 0 | 0.00019968 | 0.001 | 0.00007416 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.0033 | 0.0025 | 0.024 | 0.0015 | 0.0132 | 0 | 0.0115815 | 0.003 | 0.0158 | 0.0011 |
| 0 | 0 | 0 | 0.0008 | 0.0123 | 0 | 0.0145767 | 0 | 0.0185 | 0.0026 |
| 0 | 0.0006 | 0.0026 | 0.006 | 0.0031 | 0 | 0.00279553 | 0.004 | 0.0044 | 0.0013 |
| 0 | 0.0438 | 0 | 0.0006 | 0.002 | 0.0724 | 0.0165735 | 0 | 0.0118 | 0.0011 |
| 0 | 0 | 0.0372 | 0.0079 | 0.0163 | 0 | 0.00259585 | 0.008 | 0.0081 | 0.0027 |
| 0 | 0 | 0.0026 | 0.0048 | 0.002 | 0 | 0.00059904 | 0.001 | 0.0032 | 0.0011 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0.0043 | 0.0016 | 0.0008 | 0.0095 | 0 | 0.0101837 | 0.001 | 0.0093 | 0 |
| 0 | 0 | 0 | 0.0006668 | 0 | 0 | 0.00359425 | 0.001 | 0.0009 | 0.0083 |
| 0 | 0.0006 | 0.0014 | 0.0071 | 0.0081 | 0 | 0.0209665 | 0.0099 | 0.0204 | 0.003 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0.0012 | 0 | 0.0001 | 0.002 | 0 | 0.00599042 | 0 | 0.0053 | 0.0009 |
| 0 | 0 | 0 | 0.0003 | 0.001 | 0 | 0.00898562 | 0 | 0.0064 | 0.0003 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0.00019968 | 0 | 0.00003076 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0.008 | 0.0003 | 0.0002 | 0.0041 | 0 | 0.0157748 | 0 | 0.0126 | 0.0006 |
| 0 | 0.0136 | 0 | 0.0003 | 0.0102 | 0 | 0.0225639 | 0.001 | 0.0246 | 0.0021 |
| 0 | 0 | 0 | 0 | 0.001 | 0 | 0.00319489 | 0 | 0.0021 | 0.0007 |
| 0 | 0 | 0 | 0.0023 | 0.0031 | 0.0031 | 0 | 0.0061901 | 0.003 | 0.006 | 0.0018 |
|   | 0.0012 | 0.0037 | 0.0005 | 0   | 0   | 0.00009984 | 0   | 0.0018 | 0.0004 |
|---|--------|--------|--------|----|----|------------|----|--------|--------|
|   | 0      | 0.0006 | 0.0001 | 0.112 | 0   | 0.0235623  | 0.001 | 0.0187 | 0.0021 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0      | 0      |
|   | 0      | 0      | 0.00006671 | 0.001 | 0   | 0          | 0   | 0.00005877 | 0.00009872 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0      | 0      |
|   | 0      | 0      | 0      | 0.0001 | 0.001 | 0          | 0   | 0      | 0.0003 | 0.0001 |
|   | 0.0062 | 0      | 0.0001 | 0   | 0   | 0.00499201 | 0   | 0.0036 | 0.0002 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0      | 0      |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0.00001681 | 0      |
|   | 0      | 0      | 0      | 0   | 0   | 0.00059904 | 0   | 0.0002 | 0.0023 |
|   | 0.0068 | 0      | 0.00006663 | 0.0081 | 0   | 0.0209665  | 0   | 0.0145 | 0.0013 |
|   | 0.0074 | 0.0003 | 0.0002 | 0.0041 | 0.0117 | 0.014377  | 0.001 | 0.0018 | 0.0031 |
|   | 0      | 0      | 0      | 0.0006681 | 0   | 0          | 0   | 0      | 0      |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0      | 0      |
|   | 0      | 0      | 0      | 0.00006676 | 0   | 0.00159744 | 0   | 0.0014 | 0.0004 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0      | 0      |
|   | 0.0025 | 0      | 0.0001 | 0.0031 | 0   | 0.0177716  | 0   | 0.01    | 0.023 |
|   | 0.0148 | 0      | 0.00006695 | 0.0031 | 0.0179 | 0.0205671  | 0   | 0.0566 | 0.0043 |
|   | 0      | 0      | 0      | 0.0002 | 0   | 0          | 0   | 0      | 0.0001 |
|   | 0.0112 | 0      | 0.0003 | 0.002 | 0.0177 | 0.0113818  | 0   | 0.012  | 0.0023 |
|   | 0      | 0      | 0      | 0.0001 | 0   | 0          | 0   | 0.00008435 | 0      |
|   | 0      | 0      | 0      | 0.00006674 | 0.002 | 0.0081869  | 0   | 0.0023 | 0.0299 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0.00001281 | 0      |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0.00004209 | 0.0002 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0.00001656 | 0      |
|   | 0.0068 | 0.0372 | 0.0025 | 0.0184 | 0.0218 | 0.0107827  | 0.006 | 0.0059 | 0.0002 |
|   | 0      | 0      | 0      | 0   | 0   | 0.000079872 | 0   | 0.0001 | 0.0016 |
|   | 0      | 0      | 0      | 0.0001 | 0   | 0.00239617  | 0   | 0.0025 | 0.0105 |
|   | 0      | 0      | 0      | 0   | 0   | 0.00838658  | 0   | 0.0023 | 0.0263 |
|   | 0      | 0      | 0      | 0   | 0   | 0.00019968  | 0   | 0      | 0      |
|   | 0      | 0      | 0      | 0.00006672 | 0.001 | 0.00658946 | 0.002 | 0.0222 |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0.00002477 | 0      |
|   | 0      | 0      | 0      | 0   | 0   | 0          | 0   | 0      | 0      |
|   |   |   | 0.00006664 |   |   | 0.00319489 |   | 0.0009 | 0.0107 |
|---|---|---|------------|---|---|-------------|---|--------|--------|
| 0 | 0 | 0 | 0.00006667 | 0.002 | 0.00738818 | 0.0054 | 0.0003 |
| 0.0265 | 0 | 0.0014 | 0.0062 | 0.0112 | 0.00559105 | 0.0139 | 0.0066 | 0.0093 |
| 0.0066 | 0.0031 | 0 | 0.00006668 | 0.001 | 0.00499201 | 0.001 | 0.0026 | 0.0007 |
| 0.0033 | 0.0006 | 0.0003 | 0.0051 | 0.0112 | 0.0229633 | 0.005 | 0.0286 | 0.0041 |
| 0 | 0 | 0 | 0.0003 | 0.0062 | 0.0161741 | 0.0162 | 0.0024 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0.0009 | 0.0013 | 0 | 0.0079872 | 0.003 | 0.0016 | 0.0002 |
| 0.0389 | 0 | 0.00006662 | 0.002 | 0.0267 | 0.0081869 | 0.0029 | 0.00009612 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 8.246E-06 | 0.00009619 |
| 0 | 0 | 0 | 0.0003 | 0.001 | 0.00539137 | 0.0045 | 0.0006 |
| 0 | 0 | 0 | 0.00006668 | 0.0061 | 0.0127796 | 0.0137 | 0.0011 |
| 0 | 0.0006 | 0 | 0 | 0 | 0.00019968 | 0.00005756 |
| 0 | 0.0031 | 0 | 0.0001 | 0.0031 | 0.0061901 | 0.0057 | 0.0022 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0.0185 | 0 | 0.0004 | 0.0041 | 0.0105831 | 0.0086 | 0.001 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0.00239617 | 0.0007 | 0.0073 |
| 0 | 0 | 0 | 0 | 0 | 0.00259585 | 0.0009 | 0.0095 |
| 0 | 0 | 0 | 0 | 0 | 0.00019968 | 0.00002474 |
| 0 | 0 | 0 | 0 | 0 | 0.00519169 | 0.0019 | 0.0211 |
| 0 | 0.0019 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0.00006661 | 0 | 0.0009984 | 0.0001 | 0.0011 |
| 0 | 0 | 0 | 0 | 0.0033 | 0.00439297 | 0 | 0 |
| 0.0549 | 0 | 0.0003 | 0.0041 | 0.0515 | 0.0125799 | 0.0076 | 0.0006 |
| 0 | 0 | 0 | 0.0041 | 0.0081869 | 0.0034 | 0.0007 |
| 0 | 0 | 0 | 0 | 0 | 0.0213658 | 0.0368 | 0 |
| 0 | 0 | 0 | 0.00006662 | 0 | 0.00579073 | 0.0022 | 0.0011 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0.0000614 | 0.0001 | 0 | 0 |
| 0.0167 | 0.0253 | 0.0003 | 0.0024 | 0.0071 | 0.0619 | 0.0245607 | 0.001 | 0.0173 | 0.0037 |
| 0.0066 | 0      | 0.0263 | 0.0073 | 0.0102 | 0      | 0.0175719 | 0.0089 | 0.0156 | 0.0016 |
| 0      | 0.0037 | 0      | 0.0001 | 0.0096 | 0      | 0.0151757 | 0      | 0.0219 | 0.002  |
| 0      | 0      | 0      | 0      | 0      | 0.0003 | 0.00039936 | 0      | 0      | 0      |
| 0.0035 | 0.0067 | 0.0026 | 0.0069 | 0.0083 | 0      | 0      | 0      | 0.0001 | 0.0003 |
| 0      | 0      | 0      | 0.0041 | 0.0061 | 0      | 0.0071885 | 0.001  | 0.0082 | 0.0021 |
| 0      | 0.0302 | 0.0029 | 0.0022 | 0.0112 | 0.0211 | 0.0189696 | 0      | 0.0028 | 0.0039 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0.0000927 | 0      |
| 0      | 0      | 0      | 0      | 0      | 0.0001 | 0.00019968 | 0      | 0.00008544 | 0      |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 8.419E-06 | 0      |
| 0.0166 | 0.0019 | 0.0135 | 0.0106 | 0.0143 | 0      | 0.0119808 | 0.005  | 0.0144 | 0.0021 |
| 0      | 0.0259 | 0      | 0.0007 | 0.0051 | 0.0204 | 0.0139776 | 0      | 0.0136 | 0.0007 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0      | 0      | 0.0003 | 0.0006 | 0.0031 | 0      | 0.00339457 | 0      | 0.0046 | 0.0005 |
| 0      | 0      | 0      | 0      | 0.0051 | 0      | 0.0127796 | 0      | 0.0132 | 0.0004 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0.00009055 | 0.0001 |
| 0.0099 | 0      | 0      | 0.0003 | 0.0072 | 0      | 0.0185703 | 0      | 0.0128 | 0.0016 |
| 0      | 0      | 0      | 0.0001 | 0      | 0      | 0.00239617 | 0      | 0.0008 | 0.0086 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0.00002519 | 0.0002 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 8.237E-06 | 0.0000961 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0      | 0.0728 | 0.0029 | 0.0016 | 0.0051 | 0.0553 | 0.0249601 | 0.001  | 0.0252 | 0.0033 |
| 0      | 0.0006 | 0      | 0.0003 | 0      | 0      | 0.00019968 | 0      | 0.0007 | 0.0006 |
| 0      | 0.0031 | 0      | 0.0003 | 0.0082 | 0      | 0.0159744 | 0.001  | 0.0093 | 0.0011 |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0.00002699 | 0      |
| 0      | 0      | 0.0011 | 0.0003 | 0      | 0      | 0      | 0      | 0.0438 | 0.03  |
| 0      | 0      | 0.0011 | 0.0003 | 0      | 0      | 0      | 0      | 0.0427 | 0.0298 |
| ExAC_AMR | ExAC_EAS | ExAC_FIN | ExAC_NFE | ExAC_OTH | ExAC_SAS | avsnp147 | SIFT_score | SIFT_convert | SIFT_pred |
|----------|----------|----------|----------|----------|----------|-----------|------------|--------------|-----------|
| 0.092    | 0.012    | 0        | 0.0121   | 0.0136   | 0.0082   | rs145087137 | 0.014       | 0.531       | D         |
| 0.0163   | 0.0071   | 0.0003   | 0.00007517 | 0.0011  | 0.0026   | rs150612979 | 0           | 0.912       | D         |
| 0.0012   | 0.0012   | 0        | 0.0089   | 0.0172   | 0        | rs6667693 | 0           | 0.912       | D         |
| 0.0007   | 0        | 0        | 0.0051   | 0        | 0.0007   | rs61775089 | 0           | 0.912       | D         |
| 0.1931   | 0.026    | 0.0006   | 0.0032   | 0.0209   | 0.0013   | rs77928789 | 0           | 0.912       | D         |
| 0.0862   | 0.0001   | 0        | 0.00004642 | 0.0047  | 0        | rs150246438 | 0.019       | 0.501       | D         |
| 0.2353   | 0.0014   | 0.0006   | 0.001    | 0.0132   | 0.0001   | rs148608573 | 0.004       | 0.682       | D         |
| 0.1881   | 0.0096   | 0.0006   | 0.0005   | 0.0187   | 0.0005   | rs12407929 | 0           | 0.912       | D         |
| 0.0032   | 0        | 0        | 0.0002   | 0.0011   | 0        | rs138546115 | 0.05        | 0.395       | D         |
| 0.2318   | 0        | 0        | 0.0004   | 0.0045   | 0        | rs142980721 | 0.036       | 0.433       | D         |
|         | 0        | 0        | 0        | 0        | 0        | rs37326277 | 0.046       | 0.405       | D         |
|         | 0        | 0        | 0        | 0        | 0        | rs113327860 | 0.013       | 0.538       | D         |
| 0.115    | 0.0576   | 0        | 0.0009   | 0.0088   | 0.0014   | rs3814299 | 0.002       | 0.721       | D         |
| 0.1648   | 0        | 0        | 0.0004   | 0.011    | 0.0008   | rs149718823 | 0.034       | 0.44        | D         |
|         | 0        | 0        | 0        | 0        | 0        | rs149264762 | 0.044       | 0.721       | D         |
| 0.0004   | 0        | 0        | 0.00007498 | 0.0006   | 0.00066 | rs151330882 | 0.005       | 0.632       | D         |
| 0.1294   | 0        | 0        | 0.0002   | 0        | 0        | rs998688 | 0.026       | 0.469       | D         |
| 0.0012   | 0        | 0        | 0        | 0.0026   | 0        | rs114840329 | 0.008       | 0.586       | D         |
|         | 0        | 0        | 0        | 0        | 0        | rs114840329 | 0.008       | 0.586       | D         |
|         | 0        | 0        | 0        | 0.000606 | rs532010657 | 0.024       | 0.477       | D         |
|         | 0        | 0        | 0        | 0        | 0.000606 | rs532010657 | 0.024       | 0.477       | D         |
| 0.1227   | 0.0172   | 0.0056   | 0.0013   | 0.0124   | 0.0015   | rs139614117 | 0.001       | 0.784       | D         |
| 0.0246   | 0        | 0        | 0.0041   | 0        | 0        | rs142356826 | 0           | 0.912       | D         |
|         | 0        | 0        | 0        | 0        | 0        | rs61742803 | 0           | 0.912       | D         |
| 0.1192   | 0.0748   | 0.0014   | 0.0004   | 0.0155   | 0.0628   | rs3754413 | 0.016       | 0.518       | D         |
| 0.00008645 | 0    | 0        | 0        | 0        | 0        | rs762104527 | 0.01        | 0.564       | D         |
| 0.0007   | 0        | 0        | 0.0004503 | 0.0022   | 0        | rs61742803 | 0           | 0.912       | D         |
| 0.2873   | 0.3726   | 0.256    | 0.2061   | 0.2325   | 0.2445   | rs73146195 | 0.025       | 0.473       | D         |
|         | 0        | 0        | 0.0001591 | 0        | 0        | rs773540330 | 0.003       | 0.682       | D         |
| 0.0171   | 0.004    | 0.0016   | 0.0004   | 0.0091   | 0.0025   | rs191820463 | 0.042       | 0.416       | D         |
| rsID      | p-values | D  |
|-----------|----------|----|
| rs74318890 | 0.045    | 0.408 D |
| rs141666493 | 0.002    | 0.721 D |
| rs746642554 | 0.002    | 0.721 D |
| rs190983114 | 0.005    | 0.912 D |
| rs538625524 | 0.001    | 0.784 D |
| rs3732305  | 0.003    | 0.682 D |
| rs14391867  | 0        | 0.912 D |
| rs143191074 | 0        | 0.912 D |
| rs75862065  | 0.008    | 0.586 D |
| rs12471771  | 0.001    | 0.784 D |
| rs755639567 | 0        | 0.912 D |
| rs148270536 | 0        | 0.912 D |
| rs61740605  | 0.001    | 0.784 D |
| rs142503044 | 0.033    | 0.443 D |
| rs148474013 | 0        | 0.912 D |
| rs755639567 | 0        | 0.912 D |
| rs74823804  | 0        | 0.912 D |
| rs28763904  | 0.034    | 0.912 D |
| rs4857276   | 0.006    | 0.721 D |
| rs201533072 | 0.002    | 0.721 D |
| rs753827309 | 0.015    | 0.524 D |
| rs74377230 | 0.001    | 0.784 D |
| rs139285983 | 0        | 0.912 D |
|    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|
|0.0009 | 0 | 0 | 0.0003189 | 0 | 0 | rs114467899 | 0.007 | 0.614 D |
|0.0028 | 0 | 0 | 0.001 | 0.0015 | 0.00007097 | rs149905649 | 0.001 | 0.784 D |
|0.0032 | 0 | 0 | 0 | 0 | 0.0001 | rs148017639 | 0.05 | 0.395 D |
|0.0044 | 0.0002 | 0 | 0.0002 | 0 | 0.0005 | rs372911936 | 0.001 | 0.784 D |
|0 | 0 | 0 | 0 | 0 | 0 | 0.007 | 0.12 | 0.546 D |
|0 | 0 | 0 | 0 | 0 | 0 | 0.001 | 0.006 | 0.912 D |
|0.0016 | 0 | 0 | 0.0001 | 0.0034 | 0.0001 | rs28485258 | 0.003 | 0.682 D |
|0.1894 | 0.0428 | 0 | 0.0003 | 0.0078 | 0.0018 | rs4365796 | 0.008 | 0.586 D |
|0 | 0 | 0 | 0.0004 | 0.0085 | 0.0008 | rs535155432 | 0.034 | 0.44 D |
|0.0417 | 0.006 | 0.0005 | 0.0007499 | 0.0022 | 0.0002 | rs139754344 | 0.003 | 0.682 D |
|0.0539 | 0.0013 | 0 | 0.0006015 | 0.0033 | 0 | rs190203684 | 0.001 | 0.784 D |
|0.1243 | 0.0177 | 0 | 0.0005 | 0.0042 | 0 | rs5744539 | 0.028 | 0.461 D |
|0.0299 | 0.0434 | 0.0014 | 0.0004 | 0.0044 | 0.0012 | rs17844350 | 0.008 | 0.586 D |
|0.0000864 | 0 | 0 | 0 | 0 | 0 | rs756115221 | 0 | 0.912 D |
|0 | 0 | 0 | 0 | 0 | 0 | 0.001 | 0.016 | 0.531 D |
|0 | 0 | 0 | 0.0001499 | 0 | 0 | rs765634337 | 0 | 0.912 D |
|0 | 0 | 0 | 0 | 0 | 0 | 0.002 | 0.721 D |
|0 | 0 | 0 | 0 | 0 | 0 | rs202006112 | 0.041 | 0.419 D |
|0.0008 | 0 | 0 | 0.0008326 | 0.0013 | 0 | rs201036666 | 0.012 | 0.546 D |
|0.0113 | 0.0017 | 0.0032 | 0.0134 | 0.011 | 0.0122 | rs142803339 | 0.008 | 0.784 D |
|0.0563 | 0.005 | 0 | 0.0007498 | 0.0055 | 0.0002 | rs61737340 | 0.028 | 0.461 D |
|0.0986 | 0.0174 | 0 | 0.0025 | 0.0023 | 0.002 | rs117171552 | 0 | 0.912 D |
|0.1627 | 0.052 | 0.0062 | 0.0013 | 0.02 | 0.0351 | rs17194565 | 0.002 | 0.721 D |
|0.0002 | 0.0001 | 0 | 0 | 0 | 0.00006196 | rs555534146 | 0 | 0.912 D |
|0.0000864 | 0 | 0 | 0 | 0 | 0 | rs201161706 | 0 | 0.912 D |
|0.0589 | 0.0001 | 0 | 0.0007902 | 0.0012 | 0 | rs140530599 | 0.023 | 0.481 D |
|0 | 0 | 0 | 0 | 0 | 0 | 0.048 | 0.4 | 0.4 D |
|0.1145 | 0.0347 | 0 | 0.0007 | 0.0111 | 0.0002 | rs74466886 | 0.032 | 0.461 D |
|0.0827 | 0 | 0 | 0.0001 | 0.0011 | 0.0007056 | rs147880570 | 0.006 | 0.614 D |
|0.0024 | 0.0004 | 0 | 0.0004 | 0.0014 | 0 | rs61745221 | 0 | 0.912 D |
|0.0002 | 0.0002 | 0 | 0.0002406 | 0 | 0.0002 | rs145239537 | 0.018 | 0.506 D |
|0.0261 | 0 | 0 | 0.000456 | 0.0011 | 0 | rs186372390 | 0.018 | 0.506 D |
| 0.0239 | 0.0027 | 0.0002 | 0.0003 | 0.0033 | 0.0004 | rs150722853 | 0 | 0.912 D |
| 0 | 0 | 0 | 0 | 0 | 0 | . | 0.019 | 0.501 D |
| 0.0484 | 0.0006 | 0.0165 | 0.003 | 0.0089 | 0.0033 | rs145989307 | 0.031 | 0.45 D |
| 0.0376 | 0.0001 | 0 | 0.0016 | 0.0044 | 0.0027 | rs115450325 | 0.008 | 0.586 D |
| 0.0574 | 0.0179 | 0.0135 | 0.0013 | 0.0056 | 0.0002 | rs140475659 | 0 | 0.912 D |
| 0.012 | 0.0005 | 0.0083 | 0.0006 | 0.0025 | 0.0002 | rs144237288 | 0 | 0.912 D |
| 0.025 | 0.0017 | 0 | 0.00002997 | 0.0022 | 0.00006056 | rs2302824 | 0.021 | 0.491 D |
| 0.0732 | 0 | 0 | 0 | 0.0083 | 0 | rs186048202 | 0 | 0.912 D |
| 0.0219 | 0 | 0 | 0 | 0 | 0 | rs201535252 | 0.026 | 0.477 D |
| 0.0005 | 0.0002 | 0 | 0.00007678 | 0 | 0.00006061 | rs149999873 | 0.048 | 0.4 D |
| 0 | 0 | 0 | 0.00003133 | 0 | 0 | rs372108562 | 0 | 0.912 D |
| 0 | 0 | 0 | 0.00004514 | 0 | 0 | rs201351339 | 0 | 0.912 D |
| 0.0416 | 0.0397 | 0.0025 | 0.0014 | 0.0056 | 0.0013 | rs117397164 | 0.003 | 0.682 D |
| 0.0867 | 0 | 0 | 0.0001 | 0.0056 | 0.0001 | rs149352514 | 0.011 | 0.555 D |
| 0.0619 | 0.1063 | 0 | 0.0004 | 0.0245 | 0.0298 | rs74846385 | 0 | 0.912 D |
| 0 | 0 | 0 | 0 | 0 | 0 | . | 0 | 0.912 D |
| 0.0855 | 0.0228 | 0 | 0.00004496 | 0.0055 | 0.0019 | rs77653001 | 0.038 | 0.427 D |
| 0.0002 | 0 | 0 | 0 | 0 | 0 | rs754886531 | 0.016 | 0.518 D |
| 0.1486 | 0.0016 | 0.0002 | 0.0003 | 0.0077 | 0.001 | rs145027071 | 0.035 | 0.491 D |
| 0.0004 | 0.0001 | 0 | 0.0012 | 0.0022 | 0.0005 | rs141164874 | 0.005 | 0.632 D |
| 0 | 0 | 0 | 0 | 0 | 0 | . | 0.008 | 0.632 D |
| 0.163 | 0 | 0 | 0 | 0 | 0 | rs146559587 | 0.013 | 0.538 D |
| 0.0059 | 0 | 0 | 0 | 0 | 0 | rs140138868 | 0.008 | 0.586 D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs758517075 | 0.021 | 0.599 D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs112212538 | 0 | 0.912 D |
| 0.0169 | 0.0333 | 0 | 0.0000735 | 0 | 0.0021 | . | 0 | 0.912 D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs201125580 | 0.001 | 0.784 D |
| 0.1317 | 0.0217 | 0 | 0.0001 | 0.0068 | 0.0098 | rs117033551 | 0.002 | 0.721 D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs368748227 | 0.008 | 0.586 D |
| 0.0005 | 0.0033 | 0 | 0.00004592 | 0 | 0.00006083 | rs141298814 | 0.003 | 0.682 D |
| 0.0475 | 0.1394 | 0.0032 | 0.0015 | 0.0156 | 0.0033 | rs2296466 | 0.019 | 0.501 D |
| 0 | 0 | 0 | 0 | 0.0001499 | 0 | rs774121997 | 0.012 | 0.546 D |
| 0.1693 | 0.0002 | 0 | 0.0002 | 0.0111 | 0 | rs142326775 | 0.003 | 0.682 | D |
| 0.0212 | 0.0021 | 0 | 0.000045 | 0 | 0.0002 | rs185349094 | 0.009 | 0.574 | D |
| 0.0002 | 0 | 0 | 0.0001498 | 0 | 0 | rs770474065 | 0.001 | 0.784 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs146693057 | 0.012 | 0.632 | D |
| 0.0161 | 0 | 0 | 0 | 0 | 0 | rs75290777 | 0.004 | 0.682 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs147713756 | 0.003 | 0.682 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs149901958 | 0.001 | 0.546 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs190320444 | 0 | 0.912 | D |
| 0.0736 | 0.0003 | 0 | 0.0001 | 0.0044 | 0.0002 | rs147713756 | 0.003 | 0.682 | D |
| 0.14 | 0.0018 | 0.0271 | 0.0012 | 0.0121 | 0.0002 | rs147713756 | 0.003 | 0.682 | D |
| 0.187 | 0 | 0 | 0.0011 | 0.0011 | 0.0003 | rs143981854 | 0.003 | 0.453 | D |
| 0.0024 | 0 | 0.0017 | 0.0056 | 0.0011 | 0.0066 | rs146342750 | 0.001 | 0.555 | D |
| 0.0794 | 0.054 | 0 | 0.0003 | 0.0033 | 0.0007 | rs147545257 | 0.001 | 0.784 | D |
| 0.0135 | 0.0001 | 0.0352 | 0.0072 | 0.0099 | 0.0047 | rs149901958 | 0.001 | 0.912 | D |
| 0.0026 | 0 | 0.0014 | 0.005 | 0.0022 | 0.0004 | rs147921001 | 0.034 | 0.44 | D |
| 0 | 0.0001 | 0 | 0.000015 | 0 | 0.0003 | rs9332747 | 0 | 0.912 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs150257705 | 0.002 | 0.416 | D |
| 0.1545 | 0.0001 | 0.0023 | 0.008 | 0.0103 | 0.0034 | rs116897071 | 0 | 0.912 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs138130138 | 0 | 0.912 | D |
| 0.0534 | 0.0003 | 0 | 0.0001 | 0.0044 | 0.0001 | rs138130138 | 0 | 0.912 | D |
| 0.0638 | 0.0008 | 0 | 0.0002 | 0.0106 | 0.0003 | rs181994120 | 0.001 | 0.654 | D |
| 0.0002 | 0 | 0 | 0.0001842 | 0 | 0 | rs187536858 | 0 | 0.912 | D |
| 0 | 0 | 0 | 0 | 0 | 0 | rs2066815 | 0.001 | 0.912 | D |
| 0.1215 | 0.0086 | 0.0002 | 0.0005 | 0.0055 | 0.0004 | rs4759043 | 0.001 | 0.912 | D |
| 0.2447 | 0.0102 | 0 | 0.0003 | 0.0178 | 0.0002 | rs4759043 | 0.001 | 0.912 | D |
| 0.0212 | 0 | 0 | 0.0004515 | 0.0022 | 0 | rs146104771 | 0 | 0.912 | D |
| 0.039 | 0 | 0.0005 | 0.0034 | 0.0099 | 0.0016 | rs150301267 | 0 | 0.912 | D |
| rsID        | P-value | D-value | rsID        | P-value | D-value |
|------------|---------|---------|------------|---------|---------|
| rs12423276 | 0.0002  | 0.912   | rs146573098| 0.009   | 0.574   |
| 0          | 0.001   | 0.784   | rs377602797| 0.004   | 0.654   |
| 0          | 0.001   | 0.784   | rs372345466| 0.007   | 0.599   |
| rs146747045| 0.001   | 0.784   | rs144321854| 0.007   | 0.599   |
| rs143874205| 0.007   | 0.446   | rs150261781| 0.037   | 0.433   |
| rs150558344| 0.047   | 0.403   | rs756437130| 0.016   | 0.912   |
| rs564246714| 0.029   | 0.614   | rs114581451| 0.006   | 0.654   |
| rs190387347| 0.039   | 0.424   | rs75125670 | 0.001   | 0.784   |
| rs780288749| 0.041   | 0.421   | 0          | 0.01    | 0.564   |
0.0003  0  0  0.00001498  0  0  rs115991261  0.001  0.784  D
0.0504  0  0  0.0001  0.0026  0  rs145239736  0.008  0.586  D
0.0106  0  0.0012  0.008  0.0132  0.0011  rs75472618  0.01  0.564  D
0.0198  0.0022  0  0.0008  0.0011  0.0001  rs142148792  0.009  0.574  D
0.2586  0  0.0003  0.005  0.0212  0.0041  rs146932154  0.003  0.721  D
0.1622  0.0001  0  0.0004  0.0131  0  rs138395797  0.002  0.721  D
0  0  0  0  0  0  .  0.026  0.469  D
0  0  0  0  0  0  .  0.042  0.416  D
0.0004  0  0.0014  0.0016  0.0033  0.0038  rs150508589  0  0.912  D
0.0068  0.0304  0  0.0004495  0.0022  0.0001  rs140876567  0.007  0.599  D
0  0  0  0  0  0  .  0.015  0.524  D
0  0  0  0  0  0  .  0.002  0.721  D
0.0452  0  0  0.0001  0.0022  0.0003  rs191998613  0.006  0.654  D
0.1301  0  0  0.00008032  0.0039  0  rs139229826  0  0.912  D
0  0.0005  0  0.00002747  0  0  rs547029082  0.035  0.446  D
0.0524  0.0028  0  0.0002  0.0062  0.0007  rs143203816  0  0.912  D
0  0  0  0  0  0  .  0.002  0.721  D
0.075  0.028  0  0.0002  0.0019  0.0006  rs117342470  0.005  0.632  D
0  0  0  0  0  0  .  0.01  0.564  D
0.0003  0  0  0  0  0  .  rs61738816  0  0.912  D
0.0005  0  0  0.00001502  0.0011  0  rs146976229  0.048  0.4  D
0  0.0001  0  0.00003  0  0  rs574476197  0  0.912  D
0.0006  0  0  0.00001501  0.0011  0  rs74368609  0.003  0.682  D
0  0  0  0  0  0  .  0  0.912  D
0.0002  0  0  0.00002999  0  0.0006057  rs139976043  0.001  0.784  D
0  0  0  0  0  0  .  rs575591206  0.003  0.682  D
0.0337  0.0583  0  0.0003005  0.0022  0.0009  rs138148015  0.005  0.632  D
0.1061  0  0  0.0001  0.0051  0  rs189368660  0.002  0.721  D
0  0  0  0  0  0  .  rs145645281  0.003  0.682  D
0.1053  0.0052  0  0  0  0.0004  rs186754194  0.025  0.473  D
0  0  0  0  0  0  .  0.011  0.555  D
0  0  0  0.0006277  0  0.0001  rs374308521  0.009  0.574  D
0  0  0  0  0  0  .  0.002  0.721  D
| 0.1376 | 0.0297 | 0.0002 | 0.0023 | 0.0111 | 0.0025 | rs35762773 | 0.001 | 0.784 D |
|-------|--------|--------|--------|--------|--------|------------|-------|--------|
| 0.0858 | 0.0001 | 0.0212 | 0.0082 | 0.0198 | 0.0108 | rs146776010 | 0.015 | 0.524 D |
| 0.2281 | 0.0087 | 0     | 0.0009 | 0.1071 | 0     | rs182802964 | 0.031 | 0.45 D  |
| 0     | 0     | 0     | 0     | 0     | 0     | rs558211642 | 0.001 | 0.784 D |
| 0.0007 | 0.0011 | 0     | 0.0002115 | 0     | 0.00007677 | rs113015820 | 0.017 | 0.512 D |
| 0.0659 | 0     | 0     | 0.0024 | 0.0121 | 0.0025 | rs191740949 | 0.011 | 0.555 D |
| 0.09  | 0.0362 | 0     | 0.0025 | 0     | 0.0011 | rs117911884 | 0.019 | 0.501 D |
| 0     | 0     | 0     | 0     | 0     | 0     | .           | 0.037 | 0.43 D  |
| 0     | 0     | 0     | 0.00001689 | 0     | 0     | rs200290505 | 0.007 | 0.614 D |
| 0.0006 | 0     | 0     | 0.00003117 | 0.0012 | 0     | rs564729213 | 0     | 0.912 D |
| 0     | 0     | 0     | 0.00001539 | 0     | 0     | rs746351550 | 0.001 | 0.784 D |
| 0.0822 | 0.0025 | 0.0138 | 0.0083 | 0.0132 | 0.0059 | rs61752057 | 0.001 | 0.784 D |
| 0.1187 | 0.0249 | 0.0003 | 0.0004 | 0.0088 | 0.0007 | rs80158178 | 0.045 | 0.465 D |
| 0     | 0     | 0     | 0     | 0     | 0     | .           | 0.003 | 0.682 D |
| 0.0504 | 0.0002 | 0.0007 | 0.0012 | 0     | 0.0007 | rs150702382 | 0.016 | 0.518 D |
| 0.1311 | 0     | 0     | 0.0001 | 0.0094 | 0     | rs190592136 | 0.001 | 0.784 D |
| 0     | 0.0008 | 0     | 0.00001647 | 0     | 0.00006448 | rs372603301 | 0.046 | 0.405 D |
| 0.1257 | 0.0001 | 0     | 0.0005 | 0.0123 | 0.0013 | rs142280693 | 0.001 | 0.784 D |
| 0.001  | 0     | 0     | 0     | 0     | 0     | rs139996840 | 0.001 | 0.912 D |
| 0     | 0     | 0     | 0     | 0     | 0     | rs113362509 | 0.033 | 0.443 D |
| 0     | 0     | 0     | 0     | 0     | 0     | rs768764962 | 0.005 | 0.912 D |
| 0     | 0     | 0     | 0     | 0     | 0     | .           | 0.041 | 0.421 D |
| 0.1468 | 0.0831 | 0.0032 | 0.0022 | 0.0271 | 0.0212 | rs35047625 | 0.001 | 0.784 D |
| 0.0036 | 0.0007 | 0     | 0.0003 | 0.0011 | 0.0004 | rs143403345 | 0.001 | 0.784 D |
| 0.0869 | 0.0045 | 0     | 0.0008 | 0.0099 | 0.0009 | rs143455680 | 0.018 | 0.506 D |
| 0     | 0     | 0     | 0     | 0     | 0     | .           | 0.002 | 0.721 D |
| 0     | 0     | 0     | 0.00003193 | 0     | 0.00008372 | rs780142749 | 0.035 | 0.437 D |
| 0.0744 | 0.103  | 0.1435 | 0.1098 | 0.1213 | 0.0975 | rs78034736 | 0     | 0.912 D |
| 0.0308 | 0.0345 | 0.053  | 0.0399 | 0.0598 | 0.0817 | rs73632975 | 0.039 | 0.424 D |
| 0.0287 | 0.0332 | 0.0543 | 0.0381 | 0.0481 | 0.0836 | rs73632976 | 0.017 | 0.512 D |
|                | Polyphen2_HDIV_score | Polyphen2_HDIV_rankscore | Polyphen2_HDIV_pred | Polyphen2_HVAR_score | Polyphen2_HVAR_rankscore | Polyphen2_HVAR_pred | LRT_score | LRT_converted_rankscore | LRT_pred | MutationTaster_score |
|----------------|-----------------------|--------------------------|---------------------|----------------------|--------------------------|----------------------|-----------|------------------------|----------|-----------------------|
| 0.763          |                       | 0.899                    | 0.245               | 0.619                | 0                        | 0.629                | D         |                        | 0.629    | 0.996                 |
| 1              | 0.899                 | 0.999                    | 0.971               | 0                    | 0.843                    | D                    | 1         |                        | 0.843    | 1                     |
|                |                       | 0.899                    | 0.992               | 0.79                 |                          |                      | 1         |                        | 0.79     | 1                     |
| 0.999          |                       | 0.764                    | 0.982               | 0.739                | 0.003                    | 0.349                | N         |                        | 0.349    | 0.703                 |
| 1              | 0.899                 | 0.951                    | 0.672               | 0.14                 | 0.351                    | D                    | 0.629     |                        | 0.629    | 1                     |
| 1              | 0.899                 | 0.923                    | 0.774               | 0.003               | 0.351                    | D                    | 0.621     |                        | 0.621    | 1                     |
| 0.999          |                       | 0.615                    | 0.799               | 0.563                | 0                        | 0.843                | D         |                        | 0.843    | 1                     |
| 0              | 0.026                 | 0.001                    | 0.04                | 0                    |                          |                      | 1         |                        | 0.04     | 1                     |
| 1              | 0.899                 | 0.954                    | 0.797               | 0                    | 0.843                    | D                    | 1         |                        | 0.843    | 1                     |
| 1              | 0.899                 | 0.999                    | 0.971               | 0                    | 0.843                    | D                    | 1         |                        | 0.843    | 1                     |
| 0.745          |                       | 0.412                    | 0.276               | 0.384                | 0.973                    | 0.078                | U         |                        | 0.078    | 1                     |
| 0.99           |                       | 0.476                    | 0.286               | 0.388                |                          |                      | 1         |                        | 0.388    | 1                     |
|                | 0.129                 | 0.254                    | 0.078               | 0.271                |                          |                      | 1         |                        | 0.271    | 1                     |
| 0.99           |                       | 0.615                    | 0.827               | 0.576                | 0                        | 0.629                | D         |                        | 0.629    | 1                     |
| 0.993          |                       | 0.637                    | 0.84                | 0.584                | 0                        | 0.843                | D         |                        | 0.843    | 1                     |
| 0.988          |                       | 0.604                    | 0.973               | 0.713                |                          |                      | 1         |                        | 0.713    | 1                     |
| 0.99           |                       | 0.615                    | 0.885               | 0.61                 | 0                        | 0.629                | D         |                        | 0.629    | 1                     |
| 0.944          |                       | 0.512                    | 0.321               | 0.421                | 0.539                    | 0.116                | N         |                        | 0.116    | 1                     |
| 0.001          |                       | 0.067                    | 0.007               | 0.121                | 0.055                    | 0.227                | N         |                        | 0.227    | 0.513                 |
| 0.997          |                       | 0.689                    | 0.814               | 0.57                 | 0                        | 0.629                | D         |                        | 0.629    | 0.973                 |
| 1              | 0.899                 | 0.997                    | 0.85                | 0                    | 0.843                    | D                    | 1         |                        | 0.843    | 1                     |
| 1              | 0.899                 | 0.997                    | 0.85                | 0.008                | 0.312                    | N                    | 1         |                        | 0.312    | 1                     |
| 0.958          |                       | 0.53                     | 0.682               | 0.517                | 0.248                    | 0.156                | N         |                        | 0.156    | 1                     |
| 0.974          |                       | 0.622                    | 0.416               | 0.608                | 0                        | 0.843                | D         |                        | 0.843    | 1                     |
| 0.01           |                       | 0.144                    | 0.006               | 0.112                | 0.739                    | 0.098                | N         |                        | 0.098    | 1                     |
| 0.189          |                       | 0.277                    | 0.097               | 0.288                |                          |                      | 1         |                        | 0.288    | 0.998                 |
| 1              | 0.899                 | 0.999                    | 0.916               | 0                    | 0.441                    | D                    | 0.691     |                        | 0.691    | 1                     |
| 0.001          |                       | 0.067                    | 0.012               | 0.149                | 0.056                    | 0.225                | N         |                        | 0.225    | 1                     |
| 0.997          |                       | 0.689                    | 0.991               | 0.782                | 0                        | 0.843                | D         |                        | 0.843    | 1                     |
| 0.328          |                       | 0.314                    | 0.127               | 0.311                |                          |                      | 0.836     |                        | 0.836    | 1                     |
|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 0.998 | 0.715 D | 0.921 | 0.639 D | 0.002 | 0.387 N | 0.986 |
| 1 | 0.899 D | 0.987 | 0.85 D | 0.523 D | 0.002 | 0.369 N | 1 |
| 0.999 | 0.764 D | 0.98 | 0.732 D | 0.002 | 0.369 N | 0.992 |
| 1 | 0.899 D | 0.855 | 0.591 P | 0.629 U | 0.002 | 0.381 N | 0.995 |
| 0.718 | 0.403 P | 0.39 | 0.424 B | 0.659 | 0.104 N | 1 |
| 0.686 | 0.396 P | 0.25 | 0.373 B | 0.002 | 0.381 N | 0.992 |
| 0.992 | 0.689 D | 0.906 | 0.626 P | 0.481 D | 0.002 | 0.345 N | 0.872 |
| 0.994 | 0.647 D | 0.725 | 0.532 P | 0.026 | 0.013 B | 0.637 |
| 0 | 0.026 B | 0 | 0.013 B | 0.026 | 0.013 B | 1 |
| 1 | 0.899 D | 1 | 0.971 D | 0.843 D | 0.002 | 0.381 N | 1 |
| 0.004 | 0.112 B | 0.001 | 0.063 B | 0.548 | 0.002 | 0.355 N | 1 |
| 0.999 | 0.764 D | 0.934 | 0.652 D | 0.002 | 0.355 N | 1 |
| 0.188 | 0.276 B | 0.034 | 0.212 B | 0.002 | 0.355 N | 1 |
| 1 | 0.899 D | 0.973 | 0.713 D | 0.445 D | 0.002 | 0.355 N | 0.983 |
| 1 | 0.899 D | 0.973 | 0.713 D | 0.445 D | 0.002 | 0.355 N | 0.99 |
| 0.987 | 0.6 D | 0.91 | 0.629 D | 0.676 | 0.103 N | 0.851 |
| 0.832 | 0.442 P | 0.625 | 0.497 P | 0.158 | 0.178 N | 0.69 |
| 0.607 | 0.715 P | 0.146 | 0.774 B | 0.002 | 0.355 N | 0.972 |
| 0.964 | 0.764 D | 0.3 | 0.659 B | 0.002 | 0.355 N | 1 |
| 0.998 | 0.715 D | 0.992 | 0.79 D | 0.843 D | 0.002 | 0.355 N | 1 |
| 0.987 | 0.6 D | 0.873 | 0.602 P | 0.165 | 0.175 N | 1 |
| 1 | 0.899 D | 0.945 | 0.664 D | 0.001 | 0.419 D | 0.964 |
| 0.626 | 0.382 P | 0.67 | 0.513 P | 0.058 | 0.225 N | 1 |
| 0.991 | 0.622 D | 0.992 | 0.79 D | 0.007 | 0.315 N | 1 |
| 0.005 | 0.119 B | 0.023 | 0.188 B | 0.177 | 0.172 N | 0.999 |
| 0.003 | 0.102 B | 0.003 | 0.08 B | 0.061 | 0.222 N | 1 |
| 0.18 | 0.274 B | 0.046 | 0.233 B | 0.005 | 0.33 N | 1 |
| 1 | 0.899 D | 0.967 | 0.699 D | 0.005 | 0.33 N | 1 |
| 0.003 | 0.102 B | 0.002 | 0.063 B | 0.005 | 0.33 N | 1 |
| 0.194 | 0.278 B | 0.045 | 0.231 B | 0.005 | 0.33 N | 1 |
| 0.998 | 0.715 D | 0.854 | 0.591 P | 0.004 | 0.345 N | 0.92 |
|   | 0.899 | D  | 0.972 | 0.971 | D  | 0 | 0.843 | D  | 1 |
|---|--------|----|--------|--------|----|---|------|----|---|
| 0.997 | 0.689 | D  | 0.879 | 0.606 | P  | 0 | 0.843 | U  | 1 |
| 0.206 | 0.282 | B  | 0.085 | 0.279 | B  | 0.037 | 0.244 | N  | 1 |
| 0.991 | 0.622 | D  | 0.857 | 0.593 | P  | 0.123 | 0.189 | N  | 0.992 |
| 1   | 0.899 | D  | 0.998 | 0.875 | D  | 0 | 0.629 | D  | 1 |
| 1   | 0.899 | D  | 1    | 0.971 | D  | 0 | 0.629 | D  | 1 |
| 1   | 0.899 | D  | 0.94  | 0.658 | D  | 0 | 0.629 | D  | 1 |
| 1   | 0.899 | D  | 0.999 | 0.916 | D  | 0 | 0.559 | D  | 0.988 |
| 0.675 | 0.131 | B  | 0.003 | 0.08  | B  | .  | .    | .   | 1 |
| 1   | 0.899 | D  | 0.998 | 0.875 | D  | .  | .    | .   | 0.998 |
| 1   | 0.899 | D  | 0.997 | 0.916 | D  | 0.083 | 0.207 | N  | 0.979 |
| 1   | 0.899 | D  | 0.988 | 0.764 | D  | 0 | 0.504 | D  | 1 |
| 0.977 | 0.566 | D  | 0.498 | 0.458 | P  | 0 | 0.629 | D  | 0.654 |
| 0.991 | 0.622 | D  | 0.721 | 0.531 | P  | .  | .    | .   | 1 |
| 1   | 0.899 | D  | 1    | 0.971 | D  | 0 | 0.629 | D  | 1 |
| 0.302 | 0.308 | B  | 0.109 | 0.298 | B  | 0.001 | 0.391 | N  | 0.996 |
| 0.023 | 0.499 | B  | 0.015 | 0.441 | B  | 0 | 0.559 | D  | 0.951 |
| 0.999 | 0.764 | D  | 0.997 | 0.85  | D  | 0 | 0.481 | D  | 1 |
| 0.997 | 0.689 | D  | 0.804 | 0.565 | P  | 0 | 0.537 | U  | 1 |
| 0.75  | 0.413 | P  | 0.454 | 0.444 | P  | 0.08 | 0.21  | U  | 0.993 |
| 1   | 0.899 | D  | 0.999 | 0.916 | D  | 0.788 | 0.067 | N  | 1 |
| 0.29  | 0.306 | B  | 0.241 | 0.369 | B  | 0.018 | 0.276 | N  | 0.999 |
| 0.998 | 0.899 | D  | 0.879 | 0.651 | P  | 0.123 | 0.189 | N  | 0.527 |
| 0.574 | 0.368 | P  | 0.146 | 0.323 | B  | 0.08 | 0.023 | N  | 1 |
| 0.966 | 0.542 | D  | 0.844 | 0.586 | P  | 0.002 | 0.384 | N  | 1 |
| 1   | 0.899 | D  | 0.975 | 0.736 | D  | 0 | 0.629 | D  | 1 |
| 0.954 | 0.524 | P  | 0.759 | 0.545 | P  | 0.003 | 0.355 | N  | 0.755 |
| 0.963 | 0.537 | D  | 0.178 | 0.341 | B  | 0.23 | 0.159 | U  | 1 |
| 1   | 0.899 | D  | 0.983 | 0.742 | D  | 0 | 0.559 | D  | 0.785 |
| 0.462 | 0.764 | P  | 0.327 | 0.628 | B  | 0.016 | 0.28  | N  | 0.864 |
| 0.001 | 0.067 | B  | 0.001 | 0.04  | B  | 0.108 | 0.026 | U  | 1 |
| 1   | 0.899 | D  | 0.982 | 0.739 | D  | 0 | 0.843 | D  | 1 |
|   | 0.899 D | 0.989 | 0.818 D | 0 | 0.843 D |   |
|---|---------|-------|---------|---|---------|---|
| 0.487 | 0.35 P | 0.122 | 0.308 B | . | . | . | 0.86 |
| 1 | 0.899 D | 0.998 | 0.875 D | 0.029 | 0.254 N | 1 |
| 0.679 | 0.536 P | 0.281 | 0.666 B | 0.004 | 0.338 N | 0.737 |
| 1 | 0.899 D | 1 | 0.971 D | 0 | 0.843 D | 1 |
| 0.976 | 0.564 D | 0.626 | 0.498 P | 0 | 0.449 D | 1 |
| 0.954 | 0.524 P | 0.374 | 0.419 B | 0.241 | 0.157 N | 0.956 |
| 0.153 | 0.265 B | 0.246 | 0.371 B | 0 | 0.629 D | 1 |
| 0.925 | 0.552 P | 0.621 | 0.496 P | 0 | 0.629 D | 1 |
| 0.73 | 0.481 P | 0.273 | 0.383 B | 0.037 | 0.244 N | 1 |
| 0.456 | 0.344 P | 0.115 | 0.303 B | . | . | . | 0.999 |
| 1 | 0.899 D | 1 | 0.971 D | 0 | 0.629 D | 1 |
| 0.961 | 0.535 D | 0.541 | 0.47 P | 0.206 | 0.165 N | 1 |
| 0.977 | 0.566 D | 0.796 | 0.562 P | 0.001 | 0.402 N | 0.994 |
| 0.016 | 0.161 B | 0.015 | 0.162 B | . | . | . | 1 |
| 0.028 | 0.184 B | 0.014 | 0.158 B | 0.001 | 0.405 N | 1 |
| 0.979 | 0.571 D | 0.646 | 0.504 P | 0.001 | 0.422 D | 0.823 |
| 0.563 | 0.365 P | 0.081 | 0.275 B | 0.004 | 0.342 N | 0.865 |
| 1 | 0.899 D | 0.999 | 0.916 D | 0 | 0.843 D | 1 |
| 0.792 | 0.473 P | 0.507 | 0.523 P | 0.916 | 0.085 N | 1 |
| 0.889 | 0.535 P | 0.022 | 0.223 B | 0.662 | 0.104 U | 0.769 |
| 0.185 | 0.276 B | 0.101 | 0.292 B | 0.002 | 0.387 U | 0.598 |
| 1 | 0.899 D | 1 | 0.971 D | . | . | . | 1 |
| 0.998 | 0.715 D | 0.986 | 0.754 D | 0.101 | 0.199 N | 0.999 |
| 1 | 0.899 D | 0.999 | 0.916 D | 0 | 0.843 D | 1 |
| 0.99 | 0.615 D | 0.756 | 0.544 P | 0 | 0.843 D | 1 |
| 1 | 0.899 D | 1 | 0.971 D | 0 | 0.629 D | 0.998 |
| 0.552 | 0.363 P | 0.346 | 0.409 B | 0 | 0.629 D | 1 |
| 0.995 | 0.899 D | 0.921 | 0.875 D | 0 | 0.629 D | 0.919 |
| 1 | 0.899 D | 0.969 | 0.703 D | 0.001 | 0.406 N | 1 |
| 0.985 | 0.592 D | 0.507 | 0.46 P | 0 | 0.504 D | 1 |
| 0.675 | 0.393 P | 0.367 | 0.416 B | 0 | 0.629 D | 0.999 |
| 0.987 | 0.6 D | 0.886 | 0.611 P | 0 | 0.843 D | 1 |
| 0.256 | 0.296 B | 0.052 | 0.241 B | 0 | 0.46 D | 0.527 |
|-------|---------|-------|---------|---|---------|-------|
| 0.966 | 0.542 D | 0.973 | 0.713 D | 0 | 0.629 D | 1     |
| 1     | 0.899 D | 0.999 | 0.916 D | 0 | 0.843 D | 1     |
| 0.697 | 0.398 P | 0.493 | 0.456 P | 0 | 0.843 D | 1     |
| 1     | 0.899 D | 0.995 | 0.818 D | 0 | 0.843 D | 1     |
| 1     | 0.899 D | 0.999 | 0.916 D | 0.298 | 0.146 N | 1     |
| 0.928 | 0.496 P | 0.66  | 0.51 P  | 0.01 | 0.299 N | 0.882 |
| 0.999 | 0.764 D | 0.918 | 0.636 D | 0.004 | 0.341 U | 0.898 |
| 0.407 | 0.564 B | 0.331 | 0.518 B | 0 | 0.629 D | 0.926 |
| 0.297 | 0.307 B | 0.172 | 0.337 B | 0 | 0.843 D | 1     |
|       |         |       |         | 0.331 | 0.141 U | 1     |
| 0.995 | 0.764 D | 0.847 | 0.679 P | 0.029 | 0.255 N | 1     |
| 0.993 | 0.637 D | 0.968 | 0.701 D | 0 | 0.843 D | 1     |
| 0.292 | 0.306 B | 0.039 | 0.223 B | 0 | 0.457 D | 0.79  |
| 1     | 0.899 D | 0.998 | 0.875 D | 0 | 0.629 D | 1     |
| 0.478 | 0.348 P | 0.16  | 0.331 B | .   |         | .     |
| 0.002 | 0.09 B  | 0.001 | 0.04 B  | 0 | 0.005 N | 0.993 |
| 0.629 | 0.383 P | 0.286 | 0.388 B | 0 | 0.473 N | 1     |
| 0.561 | 0.365 P | 0.016 | 0.166 B | .   |         | 0.998 |
| 0.84  | 0.445 P | 0.767 | 0.549 P | 0.014 | 0.287 N | 0.999 |
| 1     | 0.899 D | 0.958 | 0.683 D | 0 | 0.504 D | 0.992 |
| 0.812 | 0.435 P | 0.416 | 0.432 B | 0.392 | 0.045 N | 1     |
| 0.191 | 0.288 B | 0.056 | 0.286 B | 0 | 0.537 D | 1     |
| 0.272 | 0.301 B | 0.075 | 0.268 B | 0 | 0.497 D | 0.765 |
| 0.736 | 0.511 P | 0.45  | 0.527 P | 0 | 0.629 D | 1     |
| 0.698 | 0.46 P  | 0.155 | 0.422 B | 0.211 | 0.164 N | 0.934 |
| 0.718 | 0.403 P | 0.349 | 0.41 B  | 0.867 | 0.071 N | 1     |
| 0.998 | 0.715 D | 0.667 | 0.512 P | 0 | 0.843 D | 1     |
| 0.245 | 0.294 B | 0.232 | 0.366 B | 0 | 0.537 D | 1     |
| 0.514 | 0.355 P | 0.326 | 0.402 B | 0.183 | 0.17 N  | 0.999 |
| 0.874 | 0.461 P | 0.224 | 0.363 B | .   |         | 1     |
| 0.27  | 0.523 B | 0.095 | 0.43 B  | 0 | 0.843 D | 1     |
|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 0.999 | 0.764 | D | 0.974 | 0.715 | D | 0 | 0.463 | D | 0.998 |
| 0.995 | 0.657 | D | 0.791 | 0.559 | P | 0.004 | 0.341 | N | 1 |
| 0.001 | 0.067 | B | 0.005 | 0.104 | B | 0.013 | 0.289 | N | 0.622 |
| 0.827 | 0.44 | P | 0.416 | 0.432 | B | 0.002 | 0.379 | N | 1 |
| 0.001 | 0.067 | B | 0 | 0.149 | B | 0.058 | 0.224 | N | 1 |
| 0 | 0.026 | B | 0 | 0.013 | B | 0.964 | 0.077 | N | 0.685 |
| 0.998 | 0.715 | D | 0.871 | 0.601 | P |   |   |   | 1 |
| 0.732 | 0.408 | P | 0.561 | 0.477 | P | 0 | 0.481 | D | 0.96 |
| 0.767 | 0.899 | P | 0.258 | 0.682 | B | 0.172 | 0.173 | N | 1 |
| 0.46 | 0.345 | P | 0.098 | 0.289 | B | 0 | 0.002 | N | 1 |
| 0.267 | 0.299 | B | 0.086 | 0.28 | B | 0.173 | 0.173 | N | 1 |
| 1 | 0.899 | D | 0.997 | 0.85 | D | 0 | 0.523 | D | 1 |
| 1 | 0.899 | D | 0.981 | 0.736 | D | 0 | 0.559 | D | 0.982 |
| 0.897 | 0.474 | P | 0.925 | 0.643 | D | 0 | 0.629 | D | 1 |
| 0.01 | 0.144 | B | 0.002 | 0.063 | B | 0.005 | 0.327 | N | 1 |
| 0.996 | 0.67 | D | 0.939 | 0.657 | D | 0 | 0.843 | D | 1 |
| 0.999 | 0.899 | D | 0.997 | 0.971 | D | 0 | 0.843 | D | 1 |
| 1 | 0.899 | D | 0.993 | 0.797 | D | 0 | 0.843 | D | 1 |
| 0.051 | 0.21 | B | 0.024 | 0.19 | B | 0.048 | 0.233 | N | 1 |
| 1 | 0.899 | D | 1 | 0.971 | D | 0 | 0.843 | D | 1 |
| 0.004 | 0.112 | B | 0.007 | 0.121 | B | 0.02 | 0.271 | N | 0.952 |
| 1 | 0.899 | D | 0.999 | 0.916 | D | 0.093 | 0.203 | U | 1 |
| 0.988 | 0.604 | D | 0.942 | 0.66 | D | 0.019 | 0.273 | N | 0.515 |
|   |   |   |   |   |   |   |   |   | 0.804 |
| 0.9 | 0.53 | P | 0.762 | 0.664 | P | 0.005 | 0.335 | N | 0.932 |
| 0.019 | 0.167 | B | 0.014 | 0.158 | B |   |   |   | 0.999 |
| 1 | 0.899 | D | 0.998 | 0.875 | D | 0 | 0.843 | D | 0.58 |
| 0.935 | 0.503 | P | 0.567 | 0.479 | P | 0.007 | 0.319 | N | 1 |
| 0.087 | 0.261 | B | 0.03 | 0.42 | B |   |   |   | 1 |
| 0.083 | 0.232 | B | 0.008 | 0.127 | B | 0 | 0.629 | U | 0.582 |
| 0.991 | 0.622 | D | 0.686 | 0.518 | P |   |   |   | 1 |
| 0.999 | 0.764 | D | 0.931 | 0.649 | D |   |   |   | 0.995 |
| 0.18 | 0.581 | B | 0.147 | 0.566 | B | 0 | 0.629 | D | 0.995 |
| 0.857 | 0.453 | P | 0.461 | 0.446 | P | 0.066 | 0.218 | N | 1 |
|-------|-------|---|-------|-------|---|-------|-------|---|---|
| 1     | 0.899 | D | 1     | 0.971 | P | 0.003 | 0.356 | N | 0.823 |
| 0.084 | 0.233 | B | 0.043 | 0.229 | B | 0.002 | 0.386 | U | 1 |
| 0.425 | 0.336 | B | 0.092 | 0.285 | B | 0.001 | 0.328 | N | 0.951 |
| 0.728 | 0.899 | P | 0.181 | 0.655 | B | 0.503 | 0.119 | N | 1 |
| 1     | 0.899 | D | 1     | 0.971 | D | 0.001 | 0.418 | D | 0.64 |
| 0.949 | 0.899 | D | 0.948 | 0.719 | D | 0.018 | 0.275 | N | 1 |
| 1     | 0.899 | D | 0.996 | 0.832 | D | 0.003 | 0.411 | U | 1 |
| 0.999 | 0.764 | D | 0.954 | 0.677 | D | 0.001 | 0.356 | N | 1 |
| 0.981 | 0.609 | D | 0.656 | 0.57  | P | 0.001 | 0.431 | U | 1 |
| 0.006 | 0.163 | B | 0.002 | 0.063 | B | 0.99  | 0.08  | N | 1 |
| 0.013 | 0.222 | B | 0.004 | 0.158 | B | 0.356 | 0.137 | N | 1 |
| 0.999 | 0.899 | D | 0.887 | 0.916 | P | 0.529 | 0.117 | N | 0.992 |
| 0.999 | 0.764 | D | 0.992 | 0.832 | D | 0.001 | 0.431 | U | 1 |
| 0.978 | 0.568 | D | 0.969 | 0.703 | D | 0.001 | 0.431 | U | 1 |
| 0.002 | 0.899 | D | 0.959 | 0.685 | D | 0.001 | 0.431 | U | 1 |
| 0.789 | 0.426 | P | 0.222 | 0.362 | B | 0.015 | 0.284 | N | 0.591 |
| 0.998 | 0.715 | D | 0.994 | 0.807 | D | 0.001 | 0.431 | U | 1 |
| 0.899 | 0.899 | D | 0.996 | 0.832 | D | 0.001 | 0.431 | U | 1 |
| 0.314 | 0.311 | B | 0.248 | 0.372 | B | 0.001 | 0.431 | U | 1 |
| 0.931 | 0.585 | P | 0.873 | 0.609 | P | 0.001 | 0.431 | U | 1 |
| MutationTaster | MutationTaster | MutationAssessor | MutationAssessor | FATHMM_sc | FATHMM_co | FATHMM_pr | PROVEAN_sc | PROVEAN_cc |
|---------------|---------------|-----------------|-----------------|-----------|-----------|-----------|------------|------------|
| 0.428 D       | 1.905         | 0.51 L          | 6.89            | 0.045     | T         | -3.1      | 0.635      |
| 0.81 D        | 2.975         | 0.857 M         | -2.73           | 0.907     | D         | -8.71     | 0.976      |
| 0.09 N        | 0.695         | 0.181 N         | 1.88            | 0.239     | T         | -0.29     | 0.117      |
| 0.09 P        | 0.805         | 0.203 L         | 1.8             | 0.269     | T         | -0.57     | 0.172      |
| 0.588 P       |               |                 | 0.56            | 0.546     | T         | -5        | 0.823      |
| 0.334 D       | 0.805         | 0.203 L         | 1.68            | 0.272     | T         | -3        | 0.623      |
| 0.308 N       | 2.65          | 0.778 M         | 3.64            | 0.043     | T         | -3.52     | 0.684      |
| 0.81 P        | 2.39          | 0.691 M         | 4.72            | 0.017     | T         | -7.99     | 0.964      |
| 0.81 D        | 2.815         | 0.823 M         | -0.95           | 0.754     | T         | -5.38     | 0.849      |
| 0.09 N        |               |                 | -1.08           | 0.771     | T         | -0.21     | 0.103      |
| 0.81 D        | 2.845         | 0.829 M         | -1.56           | 0.818     | D         | -5.13     | 0.832      |
| 0.81 D        | 3.19          | 0.892 M         | -3.09           | 0.926     | D         | -5.07     | 0.828      |
| 0.09 N        | 2.305         | 0.662 M         | 2.51            | 0.143     | T         | -2.92     | 0.611      |
| 0.09 N        | 1.7           | 0.44 L          | 5.3             | 0.011     | T         | -0.77     | 0.214      |
| 0.09 N        | 1.935         | 0.52 L          | 2.86            | 0.105     | T         | -0.81     | 0.223      |
| 0.81 D        | 2.095         | 0.583 M         | 0.44            | 0.566     | T         | -1.75     | 0.414      |
| 0.81 D        | 2.52          | 0.738 M         |                |           |           | -2.18     | 0.548      |
| 0.09 N        | 1.6           | 0.409 L         | 8.52            | 0.002     | T         | -1.51     | 0.368      |
| 0.81 D        | 0.895         | 0.225 L         | 0.7             | 0.515     | T         | -1.45     | 0.356      |
| 0.09 N        | 1.65          | 0.424 L         | 2.3             | 0.17      | T         | -1.48     | 0.362      |
| 0.316 N       | 0.955         | 0.24 L          |                |           |           | -2.07     | 0.473      |
| 0.39 D        | 2.28          | 0.651 M         | 1.71            | 0.267     | T         | -1.64     | 0.393      |
| 0.81 D        | 2.215         | 0.627 M         | -1.18           | 0.783     | T         | -6.93     | 0.942      |
| 0.09 N        | 2.955         | 0.853 M         | 3.36            | 0.059     | T         | -4.98     | 0.821      |
| 0.09 N        | 2.825         | 0.825 M         | 0.7             | 0.515     | T         | -4.78     | 0.819      |
| 0.81 D        | 2.25          | 0.64 M          |                |           |           | -1.39     | 0.372      |
| 0.09 N        | 1.65          | 0.424 L         | 1.85            | 0.248     | T         | -0.32     | 0.253      |
| 0.81 D        | 3.315         | 0.908 M         | 1.97            | 0.221     | T         | -7.95     | 0.963      |
| 0.333 D       | 4.04          | 0.971 H         | 7.08            | 0.005     | T         | -5.7      | 0.874      |
| 0.199 N       | 1.68          | 0.433 L         | 6.71            | 0.005     | T         | -4.16     | 0.753      |
| 0.81 D        | 2.525         | 0.74 M          | -0.98           | 0.758     | T         | -7.78     | 0.959      |
| 0.35 D        | 0.55          | 0.145 N         | -1.81           | 0.84      | D         | -0.42     | 0.142      |
|   | 2.36 | 0.681 M |   |   | -2.62 | 0.563 |
|---|------|---------|---|---|-------|-------|
| 0.511 D | 2.815 | 0.823 M |   |   | -6.06 | 0.899 |
| 0.81 D | 1.59 | 0.404 L | 1.54 | 0.301 T | -1.73 | 0.412 |
| 0.588 D | 3.56 | 0.935 H | -0.62 | 0.719 T | -5.69 | 0.873 |
| 0.09 N | 2.56 | 0.75 M | -0.31 | 0.68 T | -1.62 | 0.793 |
| 0.548 D | 2.82 | 0.824 M | -1.2 | 0.785 T | -4.41 | 0.774 |
| 0.182 N | 1.7 | 0.44 L | 2.8 | 0.111 T | -1.52 | 0.397 |
| 0.81 D | 3.415 | 0.92 M | 0.83 | 0.478 T | -2.62 | 0.608 |
| 0.385 D | 2.38 | 0.688 M | -4.38 | 0.974 D | -8.44 | 0.974 |
| 0.81 D | 1.78 | 0.463 L | 1.24 | 0.747 T | -3.73 | 0.751 |
| 0.588 D | 2.25 | 0.64 M | 0.71 | 0.512 T | -4.18 | 0.755 |
| 0.81 D | 3.8 | 0.955 H | -1.48 | 0.812 T | -8.93 | 0.98 |
| 0.81 D | 2.95 | 0.852 M | -0.29 | 0.677 T | -5.17 | 0.864 |
| 0.444 D | 3.115 | 0.881 M | -3.41 | 0.943 D | -6.43 | 0.913 |
| 0.81 D | 2.34 | 0.674 M | 3.52 | 0.049 T | -2.62 | 0.563 |
| 0.81 D | 3.545 | 0.934 H | 1.03 | 0.405 T | -7.24 | 0.943 |
| 0.81 D | 2.08 | 0.576 M | 1.3 | 0.356 T | -2.75 | 0.769 |
| 0.383 D | 2.175 | 0.612 M | 1.12 | 0.387 T | -2.9 | 0.608 |
| 0.588 D | 2.485 | 0.726 M | 1.25 | 0.365 T | -3.57 | 0.712 |
| 0.09 N |   |   |   |   | -0.4 | 0.208 |
| 0.81 D | 2.325 | 0.668 M |   |   | -3.12 | 0.742 |
| 0.81 D | 2.985 | 0.859 M | 1.5 | 0.418 T | -3.78 | 0.715 |
| 0.81 D | 2.87 | 0.836 M | 0.74 | 0.505 T | -3.84 | 0.737 |
| 0.488 D | 2.81 | 0.821 M | 2.04 | 0.229 T | -4.06 | 0.745 |
| 0.311 N | 0.59 | 0.155 N | -1.68 | 0.829 D | -0.1 | 0.129 |
| 0.81 D | 3.11 | 0.88 M | -1.01 | 0.762 T | -2.21 | 0.496 |
| 0.81 D | 2.74 | 0.803 M | -5.21 | 0.989 D | -5.53 | 0.86 |
| 0.81 D | 3.795 | 0.955 H | -3.39 | 0.942 D | -2.42 | 0.531 |
| 0.81 D | 2.695 | 0.791 M | -3.25 | 0.935 D | -4.87 | 0.822 |
| 0.09 P | -0.695 | 0.019 N | 0.27 | 0.592 T | -0.8 | 0.221 |
| 0.224 N | 2.495 | 0.729 M | 2.47 | 0.148 T | -3.89 | 0.728 |
| 0.214 N |   |   |   |   | 4.19 | 0.027 T | -5.37 | 0.849 |
| 0.09 N |   |   |   |   | 1.91 | 0.233 T | -0.54 | 0.166 |
|    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|
| 0.246 | N  | 2.205 | 0.624 | M  | 0.39 | 0.577 | T  | -1.33 | 0.385 |
| 0.182 | N  | 2.455 | 0.715 | M  | 0.41 | 0.694 | T  | -5.31 | 0.844 |
| 0.416 | D  | 2.81  | 0.821 | M  | 0.58 | 0.542 | T  | -2.46 | 0.537 |
| 0.271 | N  | 0.895 | 0.225 | L  | 1.08 | 0.394 | T  | -3.32 | 0.66  |
| 0.09  | N  | 2.045 | 0.562 | M  | 3.18 | 0.075 | T  | -1.24 | 0.314 |
| 0.424 | D  | 0.945 | 0.238 | L  | 0.98 | 0.421 | T  | -1.75 | 0.804 |
| 0.361 | D  | 2.425 | 0.705 | M  | 2.61 | 0.272 | T  | -4.84 | 0.81  |
| 0.81  | D  |     |     |     | -5.53 | 0.992 | D  | -0.65 | 0.189 |
| 0.09  | N  | 0    | 0.065 | N  | 0.26 | 0.593 | T  | -0.58 | 0.174 |
| 0.548 | D  | 2.78  | 0.814 | M  | 2.91 | 0.1  | T   | -5.29 | 0.843 |
| 0.09  | N  | 1.795 | 0.474 | L  | 3.23 | 0.07  | T  | -3.62 | 0.695 |
| 0.524 | D  | 2.7  | 0.793 | M  | 2.75 | 0.16  | T  | -2.27 | 0.506 |
| 0.81  | D  |     |     |     | 2.63 | 0.129 | T  | -0.16 | 0.095 |
| 0.81  | D  | 3.705 | 0.948 | H  | 0.1  | 0.614 | T  | -2.84 | 0.598 |
| 0.26  | N  | 3.425 | 0.921 | M  | 2.01 | 0.213 | T  | -5.74 | 0.877 |
| 0.399 | D  | 1.525 | 0.387 | L  | 2.33 | 0.211 | T  | -2.3  | 0.579 |
| 0.242 | N  | 3.115 | 0.881 | M  | -0.74 | 0.732 | T  | -4.13 | 0.751 |
| 0.352 | D  | 1.15  | 0.294 | L  | -3.01 | 0.922 | D  | -1.21 | 0.307 |
| 0.333 | D  | 1.565 | 0.397 | L  | 1    | 0.414 | T  | -4.48 | 0.779 |
| 0.441 | D  | 1.1  | 0.281 | L  | 0.47 | 0.561 | T  | -0.94 | 0.251 |
| 0.81  | D  | 3.745 | 0.951 | H  | 1.11 | 0.389 | T  | -3.27 | 0.687 |
| 0.81  | D  | 1.905 | 0.51  | L  | 2.27 | 0.174 | T  | -1.45 | 0.356 |
| 0.09  | N  | 1.75  | 0.456 | L  | 6.27 | 0.006 | T  | -4.51 | 0.782 |
| 0.384 | D  | 2.19  | 0.618 | M  | 3.48 | 0.722 | T  | -2.63 | 0.674 |
| 0.272 | N  | 1.43  | 0.36  | L  | 1.5  | 0.312 | T  | -3.09 | 0.634 |
| 0.506 | D  | 2.71  | 0.795 | M  | 3.17 | 0.076 | T  | -2.43 | 0.532 |
| 0.22  | N  | 2.57  | 0.754 | M  | 1.7  | 0.269 | T  | -2.67 | 0.571 |
| 0.09  | N  | 0.55  | 0.145 | N  |     |     |     | -0.12 | 0.172 |
| 0.333 | D  |     |     |     | 1.83 | 0.248 | T  | -2.15 | 0.496 |
| 0.43  | D  | 2.815 | 0.823 | M  | 2.12 | 0.197 | T  | -3.42 | 0.672 |
| 0.09  | N  |     |     |     | 1.08 | 0.394 | T  | -1.18 | 0.301 |
| 0.372 | D  | 2.065 | 0.569 | M  | 0.91 | 0.449 | T  | -0.93 | 0.249 |
| 0.366 | D  | 2.32  | 0.666 | M  | 2.45 | 0.15  | T  | -3.1  | 0.635 |
| 0.588 D | 2.67 | 0.784 M | 1.31 | 0.354 T | -4.71 | 0.812 |
| 0.81 D | 2.05 | 0.567 M | -2.35 | 0.881 D | -4.53 | 0.783 |
| 0.09 N | 2.075 | 0.572 M | -0.25 | 0.67 T | -1.03 | 0.27 |
| 0.239 N | 1.87 | 0.498 L | 8.65 | 0.002 T | -5.56 | 0.863 |
| 0.81 D | 2.31 | 0.663 M | -0.17 | 0.656 T | -2.73 | 0.58 |
| 0.81 D | 4.115 | 0.975 H | 3.48 | 0.052 T | -7.6 | 0.953 |
| 0.588 D | . | . | . | 3.81 | 0.038 T | -5.34 | 0.846 |
| 0.407 D | 1.1 | 0.281 L | -0.12 | 0.646 T | -3.14 | 0.64 |
| 0.09 N | 0.975 | 0.246 L | 0 | 0.626 T | 0.26 | 0.057 |
| 0.09 N | 0.69 | 0.17 N | 4.18 | 0.028 T | -0.15 | 0.144 |
| 0.449 D | 1.77 | 0.46 L | -2.3 | 0.877 D | -4.94 | 0.818 |
| 0.395 D | 2.36 | 0.681 M | -2.24 | 0.916 D | -3.69 | 0.964 |
| 0.81 D | 3.165 | 0.888 M | -2.03 | 0.897 D | -3.86 | 0.724 |
| 0.33 D | 0 | 0.065 N | -1.32 | 0.798 T | 1.37 | 0.009 |
| 0.09 N | 0 | 0.065 N | 0.54 | 0.549 T | -1.5 | 0.366 |
| 0.81 D | 3.245 | 0.9 M | -2.03 | 0.856 D | -10.34 | 0.99 |
| 0.429 D | 1.955 | 0.53 M | 2.36 | 0.161 T | -1.5 | 0.366 |
| 0.377 D | 2.96 | 0.854 M | 2.26 | 0.229 T | -2.17 | 0.49 |
| 0.53 D | 1.76 | 0.459 L | -0.25 | 0.67 T | -4.76 | 0.803 |
| 0.524 D | 2.475 | 0.721 M | 0.05 | 0.619 T | -1.72 | 0.408 |
| 0.238 N | 1.875 | 0.501 L | 1.57 | 0.293 T | 0.3 | 0.043 |
| 0.81 D | 1.85 | 0.492 L | 1.06 | 0.398 T | -2.13 | 0.483 |
| 0.457 D | 1.935 | 0.52 L | 0.76 | 0.499 T | -2.2 | 0.495 |
| 0.419 D | 0.55 | 0.145 N | 1.06 | 0.398 T | -1.42 | 0.427 |
| 0.09 P | 1.1 | 0.281 L | . | . | 0.07 | 0.061 |
| 0.09 N | 1.735 | 0.45 L | . | . | -5.12 | 0.831 |
| 0.81 D | 2.815 | 0.823 M | -2.42 | 0.886 D | -2.23 | 0.516 |
| 0.34 D | 0.635 | 0.16 N | 0.18 | 0.604 T | -2.79 | 0.59 |
| 0.192 N | 1.7 | 0.44 L | -0.26 | 0.672 T | -2.17 | 0.49 |
| 0.396 D | 3.68 | 0.946 H | 3.68 | 0.042 T | -3.53 | 0.714 |
| 0.354 D | 2.765 | 0.81 M | -3.35 | 0.94 D | -1.91 | 0.468 |
| 0.09 N | 0.895 | 0.225 L | -0.18 | 0.658 T | -1.56 | 0.377 |
| 0.81 D | 2.8 | 0.819 M | 1.34 | 0.348 T | -4.47 | 0.778 |
|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| 0.53 D | 2.545 | 0.745 M | 2.71 | 0.121 T | -3.05 | 0.629 |
| 0.81 D |   |   | -1.04 | 0.766 T | -4.73 | 0.8 |
| 0.81 D | 1.625 | 0.417 L | 3.29 | 0.065 T | -4.75 | 0.802 |
| 0.338 D | 1.245 | 0.315 L | -2.18 | 0.867 D | -3.37 | 0.666 |
| 0.81 D | 3.125 | 0.882 M | -0.81 | 0.74 T | -6.5 | 0.916 |
| 0.588 D | 3.155 | 0.887 M | -2.92 | 0.929 D | -4.24 | 0.76 |
| 0.38 D | 2.255 | 0.644 M | -2.92 | 0.918 D | -1.57 | 0.559 |
| 0.588 D | 1.58 | 0.399 L | -3.72 | 0.954 D | -4.29 | 0.764 |
| 0.81 D | 2.595 | 0.761 M | 0.17 | 0.605 T | -3.52 | 0.684 |
| 0.09 N | 0.15 | 0.089 N | 1.07 | 0.418 T | -1.28 | 0.322 |
| 0.211 N |   | 0.065 N | -2.45 | 0.889 D | -0.15 | 0.093 |
| 0.81 D | 3.535 | 0.933 H | 8.67 | 0.001 T | -7.46 | 0.949 |
| 0.81 D | 0.975 | 0.246 L | 0.2 | 0.601 T | -4.24 | 0.76 |
| 0.236 N | 1.34 | 0.335 L | 0.55 | 0.547 T | -1.23 | 0.312 |
| 0.09 N |   |   | 0.66 | 0.524 T | -2.62 | 0.563 |
| 0.09 N | 0.345 | 0.112 N | 2.01 | 0.213 T | 2.05 | 0.004 |
| 0.81 D | 3.37 | 0.915 M | -0.54 | 0.71 T | -8 | 0.965 |
| 0.292 N | 2.32 | 0.666 M | 0.83 | 0.478 T | -2.71 | 0.577 |
| 0.524 D | 2.135 | 0.597 M | 0.79 | 0.491 T | -2.8 | 0.592 |
| 0.182 N | 0 | 0.065 N | 3.02 | 0.09 T | -1.34 | 0.34 |
| 0.294 N | 0.345 | 0.112 N | -1.72 | 0.833 D | -0.37 | 0.156 |
| 0.309 N | 1.3 | 0.327 L | 6.99 | 0.005 T | -5.29 | 0.843 |
| 0.81 D | 3.77 | 0.953 H | 3.04 | 0.088 T | -4.87 | 0.812 |
| 0.456 D | 1.95 | 0.526 M |   |   | -2.19 | 0.493 |
| 0.81 D | 4.52 | 0.991 H | -7.03 | 0.998 D | -7.85 | 0.96 |
| 0.81 D | 2.72 | 0.798 M | 1.33 | 0.35 T | -3.15 | 0.641 |
| 0.449 D | 4.055 | 0.971 H | -5.15 | 0.988 D | -7.52 | 0.951 |
| 0.81 D | 2.325 | 0.668 M | 4.07 | 0.031 T | -3.07 | 0.632 |
| 0.415 D | 2.455 | 0.715 M | 2.99 | 0.093 T | -2.98 | 0.62 |
| 0.81 D | 3.005 | 0.862 M | -2.81 | 0.911 D | -4.81 | 0.807 |
| 0.499 D | 1.645 | 0.421 L | -2.22 | 0.871 D | -3.23 | 0.65 |
| 0.46 D | 1.59 | 0.404 L | 0.64 | 0.529 T | -3.43 | 0.673 |
| 0.588 D | 2.695 | 0.791 M | -0.1 | 0.643 T | -7.75 | 0.958 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.319 D | 0.695 | 0.181 N | 2.86 | 0.652 T | -0.11 | 0.088 |
| 0.588 D | 2.39 | 0.691 M | -4.09 | 0.966 D | -1.53 | 0.372 |
| 0.81 D | 4.295 | 0.983 H | -0.49 | 0.704 T | -6.78 | 0.928 |
| 0.81 D | 1.87 | 0.498 L | -3.25 | 0.935 D | -1.81 | 0.425 |
| 0.81 D |   |   | -2.57 | 0.897 D | -5.51 | 0.859 |
| 0.497 D | 3.5 | 0.929 M | -0.3 | 0.679 T | -6.75 | 0.927 |
| 0.09 N |   |   | 1.53 | 0.304 T | 0.02 | 0.068 |
| 0.358 D | 2.485 | 0.726 M | 0.77 | 0.54 T | -2.12 | 0.481 |
| 0.361 D | 2.38 | 0.688 M | 2.38 | 0.158 T | -5.48 | 0.857 |
| 0.272 N | 2.275 | 0.649 M | 4.33 | 0.024 T | -1.68 | 0.401 |
| 0.588 D | 2.23 | 0.633 M | 2.64 | 0.128 T | -4.24 | 0.76 |
| 0.09 N | 2.05 | 0.567 M | -0.13 | 0.648 T | -2.06 | 0.471 |
| 0.09 N | 2.585 | 0.758 M | -0.32 | 0.682 T | -4.2 | 0.757 |
| 0.548 D | 0.975 | 0.246 L | 0.53 | 0.551 T | -3 | 0.68 |
| 0.297 N | 2.19 | 0.618 M | -0.02 | 0.629 T | -4.64 | 0.797 |
| 0.81 D | 3.325 | 0.91 M | 2.23 | 0.759 T | -6.62 | 0.936 |
| 0.419 D | 2.19 | 0.618 M | -1.88 | 0.893 D | -2.32 | 0.514 |
| 0.09 N | 1.1 | 0.281 L | -0.59 | 0.716 T | -1.39 | 0.344 |
| 0.537 D | 1.995 | 0.543 M | -0.43 | 0.697 T | -0.18 | 0.098 |
| 0.222 N | 0 | 0.065 N | 1.47 | 0.32 T | -0.65 | 0.189 |
| 0.81 D | 2.03 | 0.557 M | -0.4 | 0.693 T | -6.33 | 0.909 |
| 0.81 D | 1.87 | 0.498 L | 3.53 | 0.049 T | -4.97 | 0.82 |
| 0.09 N |   |   | -1.84 | 0.842 D | -2.34 | 0.518 |
| 0.81 D | 1.475 | 0.372 L | 0.96 | 0.429 T | -2.17 | 0.49 |
| 0.341 D | 0.205 | 0.094 N | -1.47 | 0.811 T | -1.07 | 0.946 |
| 0.548 D | 1.845 | 0.488 L | 0.86 | 0.496 T | -2.07 | 0.473 |
| 0.27 N | 2.285 | 0.654 M | 1.69 | 0.27 T | -3.18 | 0.644 |
| 0.09 N | 1.385 | 0.346 L | 1.91 | 0.233 T | 0.2 | 0.049 |
| 0.81 D | 2.435 | 0.708 M | 1 | 0.414 T | -6.77 | 0.928 |
| 0.501 D | 0.74 | 0.19 N | -0.5 | 0.705 T | -3.48 | 0.679 |
| 0.231 N | 0.695 | 0.181 N | -3.07 | 0.925 D | -2.21 | 0.496 |
| 0.09 N | 0.735 | 0.189 N | 0.8 | 0.488 T | -1.61 | 0.387 |
| 0.588 D | 2.41 | 0.699 M | 3.22 | 0.087 T | -2.77 | 0.587 |
| N  | D  | M  | L  | T  |     |     |
|----|----|----|----|----|------|------|
| 0.224 | 2.24 | 0.636 | 0.46 | 0.563 |  -5.13 | 0.832 |
| 0.81  | -0.345 | 0.033 | -0.72 | 0.73 |  -0.6 | 0.178 |
| 0.327 | 0.104 | -2.44 | 0.888 |  -0.35 | 0.129 |
| 0.81  | 1.1  | 0.281 | 1.7  | 0.269 |  -1.2 | 0.316 |
| 0.09  | 0    | 0.065 | 2.28 | 0.173 |  -0.71 | 0.223 |
| 0.302 | 0.46 | 0.13  | 3.11 | 0.082 |  -0.13 | 0.09  |
| 0.81  | 2.625 | 0.771 |      |      |  -3.92 | 0.731 |
| 0.81  | 1.155 | 0.297 |      |      |  -0.93 | 0.249 |
| 0.09  | 0.805 | 0.203 | 2.9  | 0.107 |  -0.72 | 0.219 |
| 0.09  | 1.91  | 0.513 | 2.17 | 0.19  |  -1.96 | 0.454 |
| 0.09  | 0.805 | 0.203 | 3.47 | 0.052 |  -1.94 | 0.45  |
| 0.81  | 2.04  | 0.558 | -2.84 | 0.913 |  -2.63 | 0.564 |
| 0.398 | 1.42  | 0.358 | -0.28 | 0.676 |  -3.51 | 0.683 |
| 0.508 | 1.85  | 0.492 | 1.41 | 0.334 |  -1.87 | 0.437 |
| 0.09  | 2.275 | 0.649 | -0.76 | 0.734 |  -1.74 | 0.412 |
| 0.81  | 1.545 | 0.392 | -1.04 | 0.766 |  -5.06 | 0.827 |
| 0.548 | 2.465 | 0.718 | 0.15 | 0.616 |  -2.64 | 0.566 |
| 0.588 | 2.42  | 0.702 | 0.86 | 0.505 |  -2.86 | 0.601 |
| 0.09  | 2.56  | 0.75  | 2.26 | 0.176 |  -3.21 | 0.648 |
| 0.81  | 3.845 | 0.958 | 2.13 | 0.196 |  -8.87 | 0.979 |
| 0.264 | -0.965 | 0.012 | 1.23 | 0.369 |   0.83 | 0.018 |
| 0.81  | 2.895 | 0.841 | -0.49 | 0.704 |  -1.91 | 0.973 |
| 0.318 | 1.795 | 0.474 | 0.13 | 0.61 |  -3.19 | 0.646 |
| 0.345 | 0     | 0.065 | -0.75 | 0.733 |  -0.24 | 0.108 |
| 0.401 | 1.97  | 0.535 | 0.35 | 0.621 |  -2.74 | 0.782 |
| 0.463 | 0.695 | 0.181 | 0.85 | 0.471 |  -0.51 | 0.16  |
| 0.311 | 2.175 | 0.612 | 0.79 | 0.491 |  -5.73 | 0.876 |
| 0.588 | 1.955 | 0.53  |      |      |  -2.04 | 0.468 |
| 0.09  | 0     | 0.065 | 4.01 | 0.219 |  -0.6  | 0.178 |
| 0.81  | 2.075 | 0.572 | 0.48 | 0.56  |   0.4  | 0.037 |
| 0.09  | 0.55  | 0.145 | 1.73 | 0.264 |  -0.45 | 0.148 |
| 0.81  | 2.645 | 0.776 | -2.25 | 0.873 |  -1.52 | 0.389 |
| 0.427 | 2.92  | 0.846 | -1.37 | 0.837 |  -5.1  | 0.83  |
| Mass (N) | Force (M) | Acceleration (H) | Force (T) | Force (D) |
|---------|-----------|------------------|-----------|-----------|
| 0.09    | 3.125     | 0.882            | 1.73      | 0.264     | -3.9     | 0.729    |
| 0.09    | 3.525     | 0.932            | 2.08      | 0.202     | -5.65    | 0.87     |
| 0.288   | 0.805     | 0.203            | 0.67      | 0.522     | -1.64    | 0.393    |
| 0.2     | 0.695     | 0.181            | -1.23     | 0.79      | -1.06    | 0.277    |
| 0.09    | 0.61      | 0.157            | 2.11      | 0.199     | -2.57    | 0.555    |
| 0.09    | 2.72      | 0.798            | 5.73      | 0.008     | -7.07    | 0.939    |
| 0.09    | 0.0       | 0.065            | 3.35      | 0.06      | -0.46    | 0.15     |
| 0.377   | 1.445     | 0.365            | 2.08      | 0.202     | -1.72    | 0.408    |
| 0.09    | 1.1       | 0.281            | 2.57      | 0.247     | -1.88    | 0.644    |
| 0.482   | 1.965     | 0.534            | 1.28      | 0.37      | -6.45    | 0.922    |
| 0.588   | 2.585     | 0.758            | -2.52     | 0.894     | -4.75    | 0.802    |
| 0.81    | 2.275     | 0.649            | 0.81      | 0.485     | -5.95    | 0.891    |
| 0.81    | 2.525     | 0.74             | 0.99      | 0.418     | -3.26    | 0.654    |
| 0.588   | 2.475     | 0.721            | 0.36      | 0.579     | -5.11    | 0.831    |
| 0.328   | 2.36      | 0.681            | 2.12      | 0.197     | -2.39    | 0.526    |
| 0.09    | 0.695     | 0.181            | 1.31      | 0.354     | -4.09    | 0.748    |
| 0.09    | 0.69      | 0.17             | 4.85      | 0.015     | -2.47    | 0.539    |
| 0.09    | 1.01      | 0.254            | -0.16     | 0.654     | -3.66    | 0.7      |
| 0.415   | 3.96      | 0.966            | -3.2      | 0.948     | -5.9     | 0.915    |
| 0.455   | 0.345     | 0.112            | 1.59      | 0.288     | -0.69    | 0.197    |
| 0.81    | 2.24      | 0.636            | -4.03     | 0.972     | -3.58    | 0.761    |
| 0.42    | 1.7       | 0.44             |         |           | -1.94    | 0.45     |
| 0.444   | 2.34      | 0.674            | 2.41      | 0.307     | -4.63    | 0.827    |
| 0.524   | 2.36      | 0.681            |         |           | -3.06    | 0.65     |
| 0.324   | 1.79      | 0.469            | 2.18      | 0.189     | -1.58    | 0.381    |
| 0.396   | 2.28      | 0.651            | -0.05     | 0.634     | -1.29    | 0.332    |
| 0.511   | 2.75      | 0.806            | 2.25      | 0.178     | -5.56    | 0.863    |
| 0.588   | 4.085     | 0.973            | -3.86     | 0.959     | -5.43    | 0.853    |
| 0.446   | 1.4       | 0.355            | -3.28     | 0.937     | -4.77    | 0.804    |
| 0.588   | 3.21      | 0.895            | -3.76     | 0.956     | -6.7     | 0.925    |
|        | PROVEAN_pred | VEST3_score | VEST3_rankscore | MetaSVM_score | MetaSVM_rankscore | MetaSVM_pred | MetaLR_score | MetaLR_rankscore | MetaLR_pred | M-CAP_score |
|--------|--------------|-------------|----------------|---------------|-----------------|--------------|--------------|-----------------|-------------|--------------|
| D      | 0.64         | 0.657       | -1.157         | 0.008         | 0.008           | 0.028        |               |                 |             |              |
| D      | 0.93         | 0.959       | 0.806          | 0.945         | 0.83            | 0.943        |               |                 |             |              |
| N      | 0.34         | 0.419       | -1.048         | 0.149         | 0.059           | 0.246        |               |                 |             |              |
| N      | 0.234        | 0.287       | -0.936         | 0.433         | 0             | 0.0           | 0.007         |                 |             | 0.013        |
| D      | 0.263        | 0.32        | -0.998         | 0.304         | 0.002           | 0.04         |               |                 |             |              |
| D      | 0.34         | 0.401       | -1.035         | 0.19          | 0.011           | 0.04         |               |                 |             |              |
| D      | 0.547        | 0.586       | -1.226         | 0             | 0.001           | 0.003        |               |                 |             |              |
| D      | 0.521        | 0.563       | -0.85          | 0.52          | 0              | 0.0           |               |                 |             |              |
| D      | 0.885        | 0.873       | 0.068          | 0.836         | 0.532           | 0.827        |               |                 |             | 0.07         |
| N      | 0.105        | 0.111       | -1.003         | 0.29          | 0.116           | 0.411        |               |                 |             |              |
| D      | 0.968        | 0.969       | 0.575          | 0.916         | 0.731           | 0.908        |               |                 |             | 0.184        |
| D      | 0.974        | 0.975       | 0.858          | 0.951         | 0.886           | 0.962        |               |                 |             | 0.338        |
| D      | 0.128        | 0.146       | -1.076         | 0.082         | 0.013           | 0.051        |               |                 |             | 0.006        |
| N      | 0.294        | 0.354       | -0.876         | 0.501         | 0.001           | 0.004        |               |                 |             |              |
| N      | 0.17         | 0.221       | -0.927         | 0.447         | 0.008           | 0.026        |               |                 |             |              |
| N      | 0.601        | 0.626       | -0.768         | 0.57          | 0.171           | 0.512        |               |                 |             | 0.027        |
| N      | 0.58         | 0.614       | -0.469         | 0.698         | 0.304           | 0.676        |               |                 |             | 0.006        |
| N      | 0.152        | 0.202       | -0.835         | 0.53          | 0              | 0.001        |               |                 |             |              |
| N      | 0.687        | 0.693       | -0.76          | 0.574         | 0.189           | 0.54         |               |                 |             |              |
| N      | 0.046        | 0.026       | -1.061         | 0.114         | 0.015           | 0.06         |               |                 |             |              |
| N      | 0.111        | 0.12        | -0.995         | 0.313         | 0.081           | 0.319        |               |                 |             | 0.01         |
| N      | 0.588        | 0.616       | -1.057         | 0.124         | 0.106           | 0.388        |               |                 |             | 0.014        |
| D      | 0.964        | 0.963       | 0.258          | 0.869         | 0.619           | 0.866        |               |                 |             | 0.232        |
| D      | 0.783        | 0.774       | -1.214         | 0.001         | 0.004           | 0.014        |               |                 |             |              |
| D      | 0.357        | 0.426       | -0.832         | 0.532         | 0.11            | 0.398        |               |                 |             |              |
| N      | 0.846        | 0.848       | -0.805         | 0.549         | 0.259           | 0.63         |               |                 |             | 0.004        |
| N      | 0.019        | 0.009       | -0.99          | 0.327         | 0.002           | 0.007        |               |                 |             |              |
| D      | 0.135        | 0.156       | -1.048         | 0.15          | 0.083           | 0.326        |               |                 |             | 0.004        |
| D      | 0.295        | 0.407       | -1.063         | 0.109         | 0.002           | 0.007        |               |                 |             |              |
| D      | 0.242        | 0.296       | -0.945         | 0.418         | 0.002           | 0.007        |               |                 |             |              |
| D      | 0.863        | 0.85        | 0.379          | 0.888         | 0.637           | 0.873        |               |                 |             | 0.166        |
| N      | 0.115        | 0.127       | -0.909         | 0.47          | 0.075           | 0.302        |               |                 |             |              |
|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| D | 0.313 | 0.761 | -0.45 | 0.704 T | 0.271 | 0.643 T |
| D | 0.829 | 0.822 | -0.371 | 0.729 T | 0.212 | 0.572 T |
| N | 0.427 | 0.483 | -1.048 | 0.148 T | 0.047 | 0.2 T |
| D | 0.843 | 0.83 | 0.546 | 0.912 D | 0.651 | 0.879 D |
| N | 0.42 | 0.613 | -0.795 | 0.555 T | 0.146 | 0.47 T |
| D | 0.73 | 0.728 | 0.167 | 0.854 D | 0.586 | 0.852 D |
| N | 0.387 | 0.456 | -1.024 | 0.225 T | 0.006 | 0.021 T |
| D | 0.86 | 0.851 | -0.848 | 0.521 T | 0.032 | 0.139 T |
| D | 0.701 | 0.739 | 0.413 | 0.893 D | 0.774 | 0.923 D |
| D | 0.698 | 0.702 | -0.276 | 0.757 T | 0.306 | 0.677 T |
| D | 0.817 | 0.805 | -0.477 | 0.695 T | 0.343 | 0.708 T |
| D | 0.904 | 0.894 | -0.398 | 0.721 T | 0.093 | 0.354 T |
| D | 0.402 | 0.582 | -0.576 | 0.658 T | 0.081 | 0.32 T |
| D | 0.525 | 0.566 | 0.742 | 0.937 D | 0.841 | 0.947 D |
| D | 0.328 | 0.463 | -1.133 | 0.016 T | 0.032 | 0.138 T |
| D | 0.703 | 0.706 | -0.497 | 0.688 T | 0.084 | 0.33 T |
| D | 0.821 | 0.809 | -1.011 | 0.266 T | 0.045 | 0.193 T |
| D | 0.291 | 0.35 | -1.005 | 0.285 T | 0.015 | 0.06 T |
| D | 0.194 | 0.353 | -1.015 | 0.253 T | 0.038 | 0.163 T |
| N | 0.039 | 0.019 | -1.012 | 0.264 T | 0.069 | 0.282 T |
| D | 0.833 | 0.823 | -0.119 | 0.797 T | 0.413 | 0.761 T |
| D | 0.94 | 0.949 | 0.181 | 0.856 D | 0.553 | 0.836 D |
| D | 0.809 | 0.825 | -0.684 | 0.612 T | 0.066 | 0.272 T |
| D | 0.707 | 0.709 | -0.881 | 0.497 T | 0.103 | 0.379 T |
| N | 0.267 | 0.354 | -0.723 | 0.593 T | 0.017 | 0.07 T |
| N | 0.855 | 0.904 | -0.297 | 0.751 T | 0.429 | 0.772 T |
| D | 0.986 | 0.991 | 0.726 | 0.935 D | 0.942 | 0.981 D |
| N | 0.678 | 0.925 | 1.065 | 0.985 D | 0.927 | 0.976 D |
| D | 0.26 | 0.575 | 0.825 | 0.947 D | 0.861 | 0.954 D |
| N | 0.055 | 0.086 | -1.089 | 0.057 T | 0 | 0 T |
| D | 0.49 | 0.537 | -1.162 | 0.007 T | 0.014 | 0.054 T |
| D | 0.399 | 0.588 | -1.035 | 0.189 T | 0.015 | 0.06 T |
| N | 0.124 | 0.14 | -1.028 | 0.211 T | 0.024 | 0.101 T |
|   | D     | 0.786 | 0.782 | -0.854 | 0.517 T | 0.148 | 0.474 T |   |
|---|-------|-------|-------|--------|---------|-------|---------|---|
|   | D     | 0.75  | 0.745 | 0.375  | 0.887 D | 0.679 | 0.889 D | 0.305 |
| N | 0.295 | 0.426 | -0.988 | 0.331 T | 0.093 | 0.354 T |   |
|   | D     | 0.073 | 0.062 | -0.82  | 0.54 T   | 0   | 0.001 T |   |
| D | 0.892 | 0.937 | -0.525 | 0.678 T | 0.204 | 0.562 T |   |
| D | 0.923 | 0.915 | -0.95  | 0.41 T   | 0.068 | 0.278 T |   |
| D | 0.121 | 0.893 | -1.026 | 0.218 T | 0.058 | 0.243 T |   |
| D | 0.698 | 0.833 | -0.629 | 0.636 T | 0.068 | 0.279 T |   |
| N | 0.352 | 0.473 | -0.903 | 0.477 T | 0.131 | 0.442 T |   |
| N | 0.047 | 0.028 | -0.909 | 0.47 T   | 0.006 | 0.021 T | 0.01 |
| D | 0.246 | 0.301 | 0.525  | 0.909 D | 0.722 | 0.905 D | 0.179 |
| D | 0.35  | 0.639 | 0.742  | 0.937 D | 0.828 | 0.942 D | 0.043 |
| D | 0.75  | 0.745 | 0.178  | 0.855 D | 0.486 | 0.804 T |   |
| N | 0.348 | 0.409 | -0.547 | 0.669 T | 0.065 | 0.267 T |   |
| N | 0.321 | 0.382 | -1.126 | 0.02 T   | 0.003 | 0.008 T |   |
| D | 0.997 | 0.999 | 0.695  | 0.931 D | 0.787 | 0.928 D | 0.091 |
| N | 0.03  | 0.034 | -1.123 | 0.022 T | 0.011 | 0.04 T |   |
| N | 0.641 | 0.693 | -1.054 | 0.133 T | 0.074 | 0.297 T | 0.011 |
| D | 0.779 | 0.771 | -0.868 | 0.507 T | 0.026 | 0.113 T |   |
| N | 0.516 | 0.565 | -0.188 | 0.78 T   | 0.411 | 0.759 T | 0.025 |
| N | 0.162 | 0.294 | -1.049 | 0.146 T | 0.086 | 0.335 T | 0.002 |
| N | 0.663 | 0.674 | -1.104 | 0.036 T | 0.02  | 0.084 T |   |
| N | 0.221 | 0.271 | -0.953 | 0.404 T | 0.12  | 0.42 T | 0.01 |
| N | 0.591 | 0.64  | -0.886 | 0.493 T | 0.156 | 0.487 T | 0.018 |
| N | 0.166 | 0.2  | -1.066 | 0.103 T | 0   | 0 T |   |
| D | 0.263 | 0.32  | -1.057 | 0.126 T | 0.098 | 0.366 T |   |
| N | 0.513 | 0.667 | 0.583  | 0.917 D | 0.809 | 0.935 D | 0.19 |
| D | 0.603 | 0.648 | -0.971 | 0.369 T | 0.01  | 0.035 T |   |
| N | 0.21  | 0.258 | -0.904 | 0.476 T | 0.124 | 0.429 T | 0.118 |
| D | 0.707 | 0.709 | 0.453  | 0.899 D | 0.582 | 0.85 D | 0.082 |
| N | 0.084 | 0.157 | 0.637  | 0.924 D | 0.778 | 0.925 D |   |
| N | 0.417 | 0.474 | -1.076 | 0.081 T | 0.003 | 0.008 T |   |
| D | 0.643 | 0.681 | -0.499 | 0.687 T | 0.257 | 0.628 T | 0.166 |
| D  | 0.55  | 0.626  | -1.272  | 0.003  | 0.008 T | .   |
| D  | 0.733 | 0.894  | -1.152  | 0.068  | 0.281 T | 0.014 |
| D  | 0.336 | 0.435  | 0.105   | 0.638  | 0.874 D | 0.048 |
| D  | 0.968 | 0.968  | 0.488   | 0.652  | 0.879 D | .   |
| D  | 0.504 | 0.567  | 0.74    | 0.829  | 0.943 D | 0.156 |
| N  | 0.249 | 0.311  | 0.538   | 0.703  | 0.898 D | 0.042 |
| D  | 0.933 | 0.926  | 0.389   | 0.786  | 0.928 D | 0.096 |
| D  | 0.151 | 0.185  | -0.64   | 0.632  | 0.596 T | 0.029 |
| N  | 0.043 | 0.023  | -1.081  | 0.054  | 0.227 T | 0.009 |
| N  | 0.174 | 0.219  | -0.401  | 0.49   | 0.806 T | 0.1   |
| D  | 0.844 | 0.831  | -0.918  | 0.459  | 0.001  | 0.002 T |
| D  | 0.505 | 0.549  | -0.665  | 0.621  | 0.164 T | .   |
| N  | 0.197 | 0.25   | -1.142  | 0.013  | 0.062 T | .   |
| D  | 0.128 | 0.166  | -0.91   | 0.469  | 0.398 T | 0.013 |
| N  | 0.245 | 0.299  | -1.014  | 0.255  | 0.011 T | .   |
| D  | 0.492 | 0.548  | -0.179  | 0.782  | 0.398  | 0.75 T |
| D  | 0.308 | 0.387  | -0.789  | 0.558  | 0.341 T | 0.079 |
| D  | 0.508 | 0.693  | -0.513  | 0.682  | 0.647 T | 0.042 |
| N  | 0.206 | 0.264  | -0.987  | 0.333  | 0.116 T | 0.094 |
| N  | 0.157 | 0.264  | -0.707  | 0.601  | 0.567 T | .   |
| D  | 0.43  | 0.486  | -1.026  | 0.299  | 0.004  | 0.004 T |
| D  | 0.936 | 0.93   | -1.122  | 0.022  | 0.025 T | .   |
| N  | 0.224 | 0.275  | -0.807  | 0.548  | 0.192  | 0.545 T |
| D  | 0.993 | 0.998  | 0.186   | 0.857  | 0.302  | 0.673 T |
| D  | 0.242 | 0.823  | -0.792  | 0.556  | 0.273 T | .   |
| D  | 0.778 | 0.77   | 1.064   | 0.984  | 0.993 D | 0.885 |
| D  | 0.317 | 0.853  | -1.011  | 0.266  | 0.095 T | 0.015 |
| D  | 0.577 | 0.618  | -0.568  | 0.661  | 0.679 T | 0.031 |
| D  | 0.389 | 0.514  | 0.054   | 0.833  | 0.777 T | .   |
| D  | 0.244 | 0.298  | -0.972  | 0.368  | 0.056 T | .   |
| D  | 0.552 | 0.588  | -0.894  | 0.486  | 0.396 T | .   |
| D  | 0.718 | 0.718  | -0.434  | 0.71   | 0.578 T | .   |
|   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|
| N | 0.251 | 0.306 | -0.744 | 0.583 T | 0.133 | 0.445 T |   |
| N | 0.301 | 0.361 | -0.449 | 0.705 T | 0.266 | 0.638 T |   |
| D | 0.858 | 0.845 | 0.675 | 0.929 D | 0.669 | 0.885 D | 0.431 |
| N | 0.085 | 0.138 | 0.605 | 0.92 D | 0.796 | 0.931 D | 0.43 |
| D | 0.922 | 0.915 | 1.052 | 0.982 D | 0.874 | 0.958 D | 0.334 |
| D | 0.807 | 0.812 | 0.136 | 0.848 D | 0.553 | 0.837 D | 0.075 |
| N | 0.099 | 0.103 | -1.028 | 0.21 T | 0.038 | 0.163 T |   |
| N | 0.528 | 0.568 | -0.894 | 0.486 T | 0.136 | 0.451 T | 0.009 |
| D | 0.358 | 0.419 | -1.118 | 0.024 T | 0.085 | 0.331 T | 0.031 |
| N | 0.552 | 0.588 | -1.062 | 0.111 T | 0.022 | 0.091 T | 0.015 |
| D | 0.882 | 0.87 | -1.055 | 0.13 T | 0.002 | 0.005 T |   |
| N | 0.391 | 0.451 | -1.052 | 0.138 T | 0.018 | 0.077 T |   |
| D | 0.478 | 0.58 | -0.708 | 0.601 T | 0.354 | 0.718 T | 0.045 |
| D | 0.527 | 0.567 | -0.621 | 0.64 T | 0.337 | 0.704 T | 0.02 |
| D | 0.342 | 0.409 | -0.659 | 0.623 T | 0.158 | 0.491 T |   |
| D | 0.915 | 0.934 | 0.622 | 0.922 D | 0.693 | 0.894 D | 0.172 |
| N | 0.141 | 0.501 | -0.65 | 0.668 T | 0.145 | 0.468 T |   |
| N | 0.152 | 0.181 | -1.03 | 0.204 T | 0.011 | 0.042 T |   |
| N | 0.54 | 0.578 | -0.654 | 0.625 T | 0.263 | 0.634 T | 0.046 |
| N | 0.274 | 0.332 | -1.069 | 0.096 T | 0.009 | 0.031 T |   |
| D | 0.296 | 0.356 | -0.391 | 0.723 T | 0.343 | 0.708 T | 0.014 |
| D | 0.225 | 0.511 | -1.228 | 0 T | 0.015 | 0.061 T |   |
| N | 0.268 | 0.49 | -0.461 | 0.701 T | 0.518 | 0.82 D | 0.037 |
| N | 0.262 | 0.607 | -1.023 | 0.228 T | 0.088 | 0.34 T | 0.021 |
| N | 0.47 | 0.52 | -0.535 | 0.674 T | 0.279 | 0.651 T | 0.048 |
| N | 0.381 | 0.441 | -0.997 | 0.307 T | 0.042 | 0.18 T |   |
| D | 0.272 | 0.33 | -1.012 | 0.262 T | 0.077 | 0.309 T | 0.025 |
| N | 0.061 | 0.047 | -1.011 | 0.267 T | 0.054 | 0.23 T |   |
| D | 0.48 | 0.529 | -0.696 | 0.607 T | 0.092 | 0.352 T |   |
| D | 0.352 | 0.48 | -0.673 | 0.617 T | 0.25 | 0.62 T | 0.046 |
| N | 0.068 | 0.059 | -0.394 | 0.722 T | 0.303 | 0.674 T |   |
| N | 0.064 | 0.055 | -1.038 | 0.178 T | 0.058 | 0.245 T | 0.007 |
| D | 0.754 | 0.749 | -1.086 | 0.063 T | 0.026 | 0.112 T | 0.008 |
|    |    |    |    |    |    |
|----|----|----|----|----|----|
|    |    |    |    |    |    |
| D  | 0.678 | 0.698 | -0.772 | 0.568 T | 0.252 | 0.622 T |
| N  | 0.242 | 0.296 | -0.599 | 0.649 T | 0.131 | 0.441 T |
| N  | 0.111 | 0.12 | -0.004 | 0.822 T | 0.432 | 0.773 T |
| N  | 0.291 | 0.35 | -1.1 | 0.041 T | 0.021 | 0.089 T |
| N  | 0.103 | 0.107 | -0.987 | 0.333 T | 0.001 | 0.003 T |
| N  | 0.037 | 0.049 | -0.944 | 0.42 T | 0.001 | 0.003 T |
| D  | 0.571 | 0.612 | -0.269 | 0.759 T | 0.362 | 0.724 T |
| N  | 0.154 | 0.184 | -0.859 | 0.513 T | 0.161 | 0.497 T |
| N  | 0.169 | 0.265 | -1.069 | 0.097 T | 0.034 | 0.145 T |
| N  | 0.205 | 0.251 | -1.038 | 0.18 T | 0.022 | 0.091 T |
| N  | 0.223 | 0.274 | -1.011 | 0.265 T | 0.017 | 0.068 T |
| D  | 0.872 | 0.86 | 0.897 | 0.956 D | 0.854 | 0.951 D |
| D  | 0.565 | 0.598 | -0.355 | 0.734 T | 0.249 | 0.619 T |
| N  | 0.633 | 0.651 | -1.165 | 0.006 T | 0.013 | 0.052 T |
| N  | 0.188 | 0.24 | -0.623 | 0.639 T | 0.27 | 0.642 T |
| D  | 0.789 | 0.82 | -0.203 | 0.776 T | 0.254 | 0.624 T |
| D  | 0.879 | 0.867 | -0.307 | 0.748 T | 0.371 | 0.731 T |
| D  | 0.773 | 0.772 | -0.622 | 0.639 T | 0.2 | 0.557 T |
| D  | 0.243 | 0.297 | -1.013 | 0.26 T | 0.034 | 0.148 T |
| D  | 0.948 | 0.944 | -0.42 | 0.714 T | 0.173 | 0.516 T |
| N  | 0.023 | 0.006 | -1.031 | 0.201 T | 0.019 | 0.078 T |
| N  | 0.932 | 0.925 | -0.21 | 0.774 T | 0.482 | 0.802 T |
| D  | 0.133 | 0.153 | -0.832 | 0.532 T | 0.142 | 0.464 T |
| N  | 0.4 | 0.459 | -0.784 | 0.561 T | 0.168 | 0.509 T |
| D  | 0.254 | 0.435 | -0.304 | 0.749 T | 0.325 | 0.694 T |
| N  | 0.13 | 0.149 | -1.067 | 0.101 T | 0.065 | 0.269 T |
| D  | 0.437 | 0.492 | -0.826 | 0.536 T | 0.051 | 0.218 T |
| N  | 0.354 | 0.415 | -1.085 | 0.065 T | 0.053 | 0.225 T |
| N  | 0.113 | 0.127 | -0.907 | 0.472 T | 0.034 | 0.146 T |
| N  | 0.193 | 0.236 | -1.045 | 0.158 T | 0.051 | 0.218 T |
| N  | 0.249 | 0.304 | -1.009 | 0.272 T | 0.059 | 0.247 T |
| N  | 0.305 | 0.365 | 0.642 | 0.924 D | 0.755 | 0.916 D |
| D  | 0.484 | 0.532 | 0.312 | 0.877 D | 0.637 | 0.873 D |
|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| D | 0.453 | 0.506 | -1.144 | 0.012 T | 0.005 | 0.016 T |
| D | 0.555 | 0.59 | -1.083 | 0.068 T | 0.049 | 0.208 T |
| N | 0.343 | 0.404 | -1.103 | 0.038 T | 0.009 | 0.034 T |
| N | 0.049 | 0.03 | -0.982 | 0.345 T | 0.158 | 0.492 T |
| D | 0.033 | 0.056 | -0.964 | 0.384 T | 0 | 0 T |
| D | 0.087 | 0.103 | -0.905 | 0.474 T | 0.002 | 0.007 T |
| N | 0.153 | 0.182 | -0.927 | 0.446 T | 0.001 | 0.004 T |
| N | 0.492 | 0.539 | -1.075 | 0.083 T | 0.041 | 0.177 T |
| N | 0.159 | 0.191 | -1.058 | 0.123 T | 0.079 | 0.313 T |
| D | 0.583 | 0.685 | -0.693 | 0.608 T | 0.213 | 0.574 T |
| D | 0.545 | 0.596 | 0.653 | 0.926 D | 0.774 | 0.923 D |
| D | 0.77 | 0.763 | -0.593 | 0.651 T | 0.179 | 0.526 T |
| D | 0.849 | 0.836 | -0.987 | 0.334 T | 0.044 | 0.19 T |
| D | 0.436 | 0.491 | -0.469 | 0.698 T | 0.261 | 0.632 T |
| N | 0.356 | 0.417 | -1.004 | 0.288 T | 0.05 | 0.212 T |
| D | 0.288 | 0.39 | -0.849 | 0.52 T | 0.037 | 0.159 T |
| N | 0.118 | 0.13 | -0.912 | 0.466 T | 0.004 | 0.015 T |
| D | 0.207 | 0.254 | -1.082 | 0.07 T | 0.014 | 0.055 T |
| D | 0.38 | 0.44 | 0.877 | 0.954 D | 0.913 | 0.971 D |
| N | 0.456 | 0.508 | -1.014 | 0.256 T | 0.099 | 0.37 T |
| D | 0.751 | 0.763 | 1.053 | 0.982 D | 0.941 | 0.981 D |
| N | 0.384 | 0.697 | -0.572 | 0.66 T | 0.285 | 0.658 T |
| D | 0.602 | 0.627 | -1.045 | 0.157 T | 0.009 | 0.033 T |
| D | 0.821 | 0.817 | -0.116 | 0.797 T | 0.422 | 0.767 T |
| N | 0.662 | 0.7 | -1.072 | 0.089 T | 0.002 | 0.007 T |
| N | 0.57 | 0.612 | -0.202 | 0.776 T | 0.444 | 0.781 T |
| D | 0.744 | 0.74 | -1.022 | 0.232 T | 0.106 | 0.386 T |
| D | 0.757 | 0.751 | -0.813 | 0.544 T | 0.163 | 0.499 T |
| D | 0.556 | 0.591 | -0.117 | 0.797 T | 0.172 | 0.514 T |
| D | 0.845 | 0.832 | -0.14 | 0.792 T | 0.511 | 0.816 D |
| M-CAP_rankscore | M-CAP_pred | CADD_raw | CADD_phred | DANN_score | DANN_ranks | fathmm-MKL_coding_score | fathmm-MKL_coding_ranks | fathmm-MKL_coding_pred | CADD_raw_rankscore | CADD_phred | DANN_score | DANN_ranks | fathmm-MKL_coding_score | fathmm-MKL_coding_ranks | fathmm-MKL_coding_pred |
|----------------|------------|----------|------------|------------|------------|-------------------------|--------------------------|--------------------------|-----------------------|------------|------------|------------|-------------------------|--------------------------|--------------------------|
| 0.323 T        | 1.5        | 0.242    | 13.31      | 0.923      | 0.211      | 0.007                  | 0.028                    | 0.009                    | 0.71 D                | 5.392      | 0.731      | 26         | 0.997                  | 0.81                    | 0.978                    | 0.769                    |
| 0.858 D        | 7.117      | 0.942    | 34         | 0.999      | 0.963      | 0.991                  | 0.918                    | 0.12 N                   | 0.161 T              | 6.333      | 0.875      | 29.3       | 0.999                  | 0.977                  | 0.916                    | 0.537                    |
| 0.5 D          | -1.373     | 0.02     | 0.004      | 0.302      | 0.016      | 0.035                  | 0.085                    | 0.094                    | 0.164 T              | 4.978      | 0.67       | 25.1       | 0.998                  | 0.918                  | 0.132                    | 0.175                    |
| 0.271 T        | 1.984      | 0.299    | 16.11      | 0.991      | 0.511      | 0.653                  | 0.324                    | 0.337                    | 5.524    | 0.751      | 26.3       | 0.998                  | 0.88                   | 0.978                    | 0.773                    |
| 0.098 T        | 3.699      | 0.502    | 23.3       | 0.975      | 0.34       | 0                     | 0.001                    | 0.047                    | 0.845 D              | 5.521      | 0.75       | 26.3       | 0.999                  | 0.976                  | 0.993                    | 0.939                    |
|                |            | 1.736    | 0.27       | 14.61      | 0.987      | 0.449                  | 0.971                    | 0.725                    | 0.884 D              | 4.666      | 0.625      | 24.5       | 0.991                  | 0.925                  | 0.956                    | 0.652                    |
|                |            | -0.447   | 0.059      | 0.298      | 0.633      | 0.07                   | 0.047                    | 0.102                    | 0.11 T               | 4.233      | 0.567      | 23.9       | 0.999                  | 0.982                  | 0.959                    | 0.664                    |
|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
|   |   |   |   |   |   |   |   |
| 4.998 | 0.672 | 25.1 | 0.995 | 0.7 | 0.823 | 0.413 | D |
| 6.449 | 0.89 | 29.8 | 0.998 | 0.884 | 0.966 | 0.698 | D |
| 0.244 T | 3.48 | 0.476 | 23.1 | 0.998 | 0.842 | 0.961 | 0.674 D |
| 0.649 D | 7.066 | 0.94 | 33 | 0.998 | 0.875 | 0.985 | 0.833 D |
| 0.786 D | 7.234 | 0.946 | 34 | 0.999 | 0.994 | 0.945 | 0.612 D |
| 1.664 | 0.261 | 14.2 | 0.998 | 0.872 | 0.361 | 0.252 N |
| 4.792 | 0.643 | 24.7 | 0.999 | 0.933 | 0.983 | 0.815 D |
| 5.641 | 0.769 | 26.6 | 0.998 | 0.909 | 0.974 | 0.744 D |
| 0.608 D | 5.772 | 0.789 | 27 | 0.998 | 0.885 | 0.99 | 0.891 D |
| 5.821 | 0.797 | 27.2 | 0.998 | 0.926 | 0.956 | 0.65 D |
| 3.684 | 0.5 | 23.3 | 0.96 | 0.278 | 0.972 | 0.73 D |
| 0.886 D | 4.747 | 0.637 | 24.7 | 0.988 | 0.466 | 0.912 | 0.528 D |
| 0.549 D | 4.624 | 0.619 | 24.5 | 0.997 | 0.807 | 0.956 | 0.652 D |
| 6.786 | 0.924 | 32 | 0.999 | 0.996 | 0.938 | 0.591 D |
| 6.265 | 0.865 | 29 | 0.999 | 0.967 | 0.989 | 0.882 D |
| 4.078 | 0.547 | 23.7 | 0.987 | 0.448 | 0.98 | 0.786 D |
| 6.785 | 0.924 | 32 | 1 | 1 | 0.974 | 0.743 D |
| 0.034 T | 0.173 | 0.11 | 4.391 | 0.954 | 0.263 | 0.018 | 0.056 N |
| 0.791 D | 6.543 | 0.901 | 31 | 0.999 | 0.992 | 0.986 | 0.839 D |
| 0.373 T | 7.299 | 0.948 | 34 | 0.999 | 0.981 | 0.995 | 0.962 D |
| 7.368 | 0.95 | 34 | 0.999 | 0.999 | 0.964 | 0.686 D |
| 3.714 | 0.503 | 23.3 | 0.997 | 0.82 | 0.983 | 0.811 D |
| 5.381 | 0.729 | 25.9 | 0.998 | 0.894 | 0.914 | 0.532 D |
| 0.764 D | 3.94 | 0.53 | 23.5 | 0.979 | 0.366 | 0.992 | 0.928 D |
| 0.872 D | 6.261 | 0.864 | 28.9 | 0.999 | 0.979 | 0.99 | 0.896 D |
| 0.897 D | 5.898 | 0.809 | 27.5 | 0.995 | 0.665 | 0.998 | 0.94 D |
| 0.71 | 0.942 | 33 | 0.999 | 0.991 | 0.894 | 0.495 D |
| 0.012 T | 0.368 | 0.129 | 6.327 | 0.796 | 0.124 | 0.068 | 0.127 N |
| 0.011 T | -1.404 | 0.019 | 0.003 | 0.154 | 0.004 | 0.001 | 0.008 N |
|    |    |    |    |    |    |    |    |  
|---|---|---|---|---|---|---|---|
| 0.373 | 0.464 | 22.9 | 0.993 | 0.575 | 0.485 | 0.28 N|
| 0.281 | 0.402 | 21.6 | 0.998 | 0.842 | 0.146 | 0.183 N|
| 0.155 T | 4.935 | 0.663 | 25 | 0.996 | 0.751 | 0.379 | 0.256 N|
| 0.131 T | 3.8 | 0.514 | 23.4 | 0.991 | 0.513 | 0.201 | 0.207 N|
| 0.747 D | 4.007 | 0.539 | 23.6 | 0.986 | 0.433 | 0.382 | 0.257 N|
| 0.346 T | -0.283 | 0.07 | 0.724 | 0.579 | 0.057 | 0.023 | 0.065 N|
| 0.243 T | 4.959 | 0.667 | 25 | 0.998 | 0.897 | 0.934 | 0.579 D|
| 0.302 T | 4.578 | 0.613 | 24.4 | 0.991 | 0.51 | 0.446 | 0.271 N|
| 0.457 T | 3.902 | 0.526 | 23.5 | 0.995 | 0.671 | 0.951 | 0.633 D|
| 0.801 D | 5.372 | 0.728 | 25.9 | 0.999 | 0.931 | 0.675 | 0.332 D|
| 0.985 D | 5.622 | 0.766 | 26.6 | 0.995 | 0.698 | 0.933 | 0.575 D|
| 0.563 D | 2.201 | 0.326 | 17.51 | 0.927 | 0.217 | 0.978 | 0.767 D|
| 0.36 T | 5.937 | 0.815 | 27.6 | 0.999 | 0.971 | 0.446 | 0.271 N|
| 0.489 D | 3.597 | 0.49 | 23.2 | 0.984 | 0.406 | 0.957 | 0.657 D|
| 0.172 T | 3.291 | 0.454 | 22.8 | 0.993 | 0.582 | 0.404 | 0.262 N|
| 0.359 T | 2.265 | 0.333 | 17.94 | 0.98 | 0.368 | 0.889 | 0.488 D|
| 0.155 T | 4.938 | 0.664 | 25 | 0.997 | 0.824 | 0.969 | 0.711 D|
|   | 6.625 | 0.909 | 32   | 0.999 | 0.993 | 0.889 | 0.488 | D  |
|---|-------|-------|------|-------|-------|-------|-------|---|
| 0.91 D | 4.157 | 0.557 | 23.8 | 0.987 | 0.446 | 0.937 | 0.586 | D |
|   | 0.847 | 0.175 | 9.751| 0.979 | 0.363 | 0.035 | 0.085 | N |
|   | 4.516 | 0.605 | 24.3 | 0.998 | 0.854 | 0.762 | 0.37  | D |
|   | 4.682 | 0.627 | 24.6 | 0.997 | 0.836 | 0.889 | 0.488 | D |
|   | 7.454 | 0.951 | 34   | 0.999 | 0.972 | 0.726 | 0.352 | D |
|   | 6.129 | 0.845 | 28.4 | 0.998 | 0.928 | 0.963 | 0.681 | D |
|   | 7.963 | 0.956 | 35   | 0.999 | 0.99  | 0.843 | 0.43  | D |
|   | 2.713 | 0.387 | 20.9 | 0.997 | 0.771 | 0.9   | 0.505 | D |
| 0.263 T | 1.043 | 0.194 | 10.9 | 0.957 | 0.27  | 0.026 | 0.071 | N |
| 0.855 D  | 5.799 | 0.793 | 27.1 | 0.999 | 0.972 | 0.974 | 0.746 | D |
| 0.607 D  | 4.828 | 0.648 | 24.8 | 0.999 | 0.982 | 0.549 | 0.295 | D |
|   | 8.001 | 0.957 | 35   | 0.999 | 0.999 | 0.975 | 0.751 | D |
|   | 3.653 | 0.496 | 23.2 | 0.998 | 0.875 | 0.359 | 0.252 | N |
|   | 0.571 | 0.149 | 7.951| 0.764 | 0.111 | 0.025 | 0.068 | N |
| 0.756 D  | 6.034 | 0.83  | 28   | 0.996 | 0.723 | 0.936 | 0.584 | D |
|   | 2.385 | 0.348 | 18.72| 0.994 | 0.612 | 0.735 | 0.357 | D |
| 0.282 T  | 1.971 | 0.298 | 16.03| 0.997 | 0.793 | 0.771 | 0.376 | D |
|   | 5.03  | 0.677 | 25.2 | 0.999 | 0.962 | 0.948 | 0.623 | D |
| 0.482 D  | 6.423 | 0.887 | 29.7 | 0.995 | 0.705 | 0.948 | 0.622 | D |
| 0.042 T  | 5.324 | 0.72  | 25.8 | 0.995 | 0.703 | 0.946 | 0.615 | D |
|   | 6.178 | 0.852 | 28.6 | 0.845 | 0.148 | 0.639 | 0.32  | D |
| 0.26 T   | 3.552 | 0.484 | 23.1 | 0.993 | 0.589 | 0.389 | 0.258 | N |
| 0.406 T  | 7.542 | 0.953 | 34   | 0.997 | 0.802 | 0.91  | 0.524 | D |
|   | 0.069 | 0.1   | 3.28 | 0.907 | 0.193 | 0.024 | 0.067 | N |
|   | 0.322 | 0.125 | 5.908| 0.884 | 0.174 | 0.14  | 0.18  | N |
| 0.862 D  | 6.677 | 0.914 | 32   | 0.999 | 0.986 | 0.94  | 0.595 | D |
|   | 3.479 | 0.476 | 23.1 | 0.964 | 0.291 | 0.962 | 0.677 | D |
| 0.798 D  | 3.007 | 0.422 | 22.3 | 0.908 | 0.195 | 0.015 | 0.049 | N |
| 0.74 D   | 6.199 | 0.856 | 28.7 | 0.999 | 0.99  | 0.958 | 0.661 | D |
|   | 5.199 | 0.702 | 25.5 | 0.999 | 0.958 | 0.383 | 0.257 | N |
|   | 2.444 | 0.355 | 19.1 | 0.997 | 0.82  | 0.218 | 0.213 | N |
| 0.846 D  | 5.506 | 0.748 | 26.3 | 0.999 | 0.976 | 0.95  | 0.629 | D |
|       |       |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0.94  | 0.94  | 0.919 | 0.724 | 0.247 | 0.533 | 0.354 | 0.621 | 0.431 |
| 0.94 D| 0.94 D| 0.919 D| 0.724 D| 0.247 T| 0.533 D| 0.354 T| 0.621 D| 0.431 T|
| 6.243 | 5.429 | 6.417 | 4.94  | 3.412 | 6.213 | 5.253 | 3.469 | 6.327 |
| 0.862 | 0.736 | 0.886 | 0.664 | 0.468 | 0.857 | 0.71  | 0.475 | 0.874 |
| 0.879 | 0.999 | 0.997 | 0.997 | 0.998 | 0.999 | 0.987 | 0.995 | 0.992 |
| 0.945 | 0.729 | 0.979 | 0.987 | 0.889 | 0.964 | 0.655 | 0.660 | 0.542 |
| 0.61 D| 0.472 D| 0.854 D| 0.705 D| 0.389 D| 0.512 D| 0.287 D| 0.31 D| 0.628 D|
| 28.9  | 26.1  | 29.7  | 25.0  | 23.0  | 28.7  | 25.6  | 23.0  | 29.3  |
| 0.997 | 0.997 | 0.997 | 0.998 | 0.999 | 0.999 | 0.987 | 0.995 | 0.992 |
| 0.797 | 0.812 | 0.964 | 0.968 | 0.792 | 0.904 | 0.608 | 0.606 | 0.95  |
| 0.878 | 0.969 | 0.904 | 0.705 D| 0.389 D| 0.512 D| 0.287 D| 0.31 D| 0.628 D|
| 0.472 D| 0.854 D| 0.705 D| 0.389 D| 0.628 D| 0.356 | 0.936 | 0.313 | 0.176 |
| 23.5  | 0.997 | 0.999 | 0.997 | 0.995 | 0.999 | 0.985 | 0.995 | 0.998 |
| 0.804 | 0.729 | 0.979 | 0.987 | 0.889 | 0.964 | 0.655 | 0.660 | 0.542 |
| 0.908 | 0.945 | 0.878 | 0.854 D| 0.705 D| 0.389 D| 0.628 D| 0.313 | 0.176 |
| 0.519 D| 0.472 D| 0.854 D| 0.705 D| 0.389 D| 0.628 D| 0.356 | 0.936 | 0.313 |
| 0.61  | 0.472 D| 0.854 D| 0.705 D| 0.389 D| 0.628 D| 0.356 | 0.936 | 0.313 |
| 0.472 D| 0.854 D| 0.705 D| 0.389 D| 0.628 D| 0.356 | 0.936 | 0.313 | 0.176 |
| 0.519 D| 0.472 D| 0.854 D| 0.705 D| 0.389 D| 0.628 D| 0.356 | 0.936 | 0.313 |
|   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
|   |   | 5.411 | 0.733 | 26 | 0.999 | 0.943 | 0.428 | 0.267 |
|   |   | 2.948 | 0.415 | 22 | 0.997 | 0.787 | 0.978 | 0.769 |
|   |   | 3.346 | 0.461 | 22.9 | 0.997 | 0.806 | 0.314 | 0.241 |
|   |   | 4.609 | 0.617 | 24.4 | 0.99 | 0.508 | 0.921 | 0.547 |
|   |   | 2.46 | 0.357 | 19.21 | 0.934 | 0.226 | 0.103 | 0.157 |
|   |   | 1.459 | 0.238 | 13.09 | 0.719 | 0.095 | 0.452 | 0.272 |
| 0.285 T |   | 5.199 | 0.702 | 25.5 | 0.963 | 0.287 | 0.934 | 0.578 |
| 0.198 T |   | 2.883 | 0.407 | 21.8 | 0.899 | 0.187 | 0.681 | 0.334 |
| 0.105 T |   | 3.214 | 0.446 | 22.7 | 0.968 | 0.307 | 0.183 | 0.2 |
|   |   | 1.803 | 0.278 | 15.01 | 0.271 | 0.013 | 0.149 | 0.184 |
| 0.104 T |   | 1.335 | 0.224 | 12.45 | 0.97 | 0.316 | 0.042 | 0.096 |
| 0.65 D |   | 6.419 | 0.886 | 29.7 | 0.999 | 0.978 | 0.991 | 0.917 |
|   |   | 6.481 | 0.894 | 30 | 0.999 | 0.982 | 0.288 | 0.234 |
|   |   | 4.726 | 0.634 | 24.6 | 0.995 | 0.654 | 0.983 | 0.812 |
| 0.694 D |   | 2.462 | 0.357 | 19.23 | 0.995 | 0.665 | 0.459 | 0.274 |
|   |   | 6.423 | 0.887 | 29.7 | 0.933 | 0.224 | 0.935 | 0.58 |
| 0.826 D |   | 6.589 | 0.906 | 31 | 0.999 | 0.969 | 0.993 | 0.942 |
|   |   | 7.903 | 0.956 | 35 | 0.999 | 0.999 | 0.991 | 0.907 |
| 0.154 T |   | 0.649 | 0.156 | 8.491 | 0.72 | 0.095 | 0.582 | 0.303 |
| 0.522 D |   | 5.497 | 0.747 | 26.2 | 0.996 | 0.722 | 0.989 | 0.885 |
|   |   | 1.193 | 0.209 | 11.71 | 0.909 | 0.196 | 0.1 | 0.155 |
| 0.873 D |   | 6.617 | 0.909 | 32 | 0.998 | 0.911 | 0.984 | 0.822 |
|   |   | 3.441 | 0.472 | 23 | 0.997 | 0.806 | 0.673 | 0.331 |
| 0.933 D |   | -0.979 | 0.033 | 0.018 | 0.657 | 0.076 | 0.452 | 0.272 |
| 0.596 D |   | 6.607 | 0.908 | 32 | 0.918 | 0.205 | 0.931 | 0.57 |
|   |   | 3.474 | 0.475 | 23 | 0.992 | 0.548 | 0.659 | 0.326 |
|   |   | 5.223 | 0.705 | 25.6 | 0.997 | 0.84 | 0.277 | 0.231 |
|   |   | 5.303 | 0.717 | 25.8 | 0.996 | 0.745 | 0.506 | 0.285 |
|   |   | -0.031 | 0.091 | 2.297 | 0.902 | 0.189 | 0.003 | 0.015 |
|   |   | 4.135 | 0.555 | 23.8 | 0.993 | 0.58 | 0.813 | 0.405 |
| 0.002 T |   | -0.208 | 0.075 | 1.054 | 0.286 | 0.015 | 0.002 | 0.014 |
| 0.901 D |   | 6.341 | 0.876 | 29.3 | 0.992 | 0.54 | 0.655 | 0.325 |
| 0.873 D |   | 5.181 | 0.699 | 25.5 | 0.997 | 0.839 | 0.929 | 0.565 |
|       | 3.345   | 0.461   | 22.9 | 0.994 | 0.647 | 0.47 | 0.276 N |
|-------|---------|---------|------|-------|-------|------|---------|
| 0.982 D | 1.166   | 0.207   | 11.57| 0.995 | 0.693 | 0.1  | 0.155 N |
|       | 0.493   | 0.141   | 7.377| 0.996 | 0.722 | 0.142| 0.181 N |
|       | 1.568   | 0.25    | 13.68| 0.964 | 0.291 | 0.011| 0.039 N |
|       | -0.37   | 0.064   | 0.457| 0.738 | 0.101 | 0.078| 0.137 N |
| 0.122 T | 4.397   | 0.589   | 24.1 | 0.991 | 0.517 | 0   | 0.002 N |
| 0.015 T | 0.263   | 0.119   | 5.327| 0.996 | 0.766 | 0.051| 0.108 N |
| 0.74 D | 6.647   | 0.912   | 32   | 0.999 | 0.988 | 0.965| 0.691 D |
| 0.817 D | 5.596   | 0.762   | 26.5 | 0.999 | 0.979 | 0.953| 0.639 D |
|       | 8.066   | 0.957   | 35   | 0.999 | 0.99  | 0.971| 0.725 D |
|       | 6.363   | 0.879   | 29.4 | 1     | 1     | 0.949| 0.625 D |
| 0.717 D | 4.391   | 0.588   | 24.1 | 0.996 | 0.744 | 0.988| 0.863 D |
|       | 7.084   | 0.941   | 33   | 0.999 | 0.994 | 0.154| 0.187 N |
|       | 3.298   | 0.455   | 22.9 | 0.995 | 0.703 | 0.196| 0.205 N |
| 0.423 T | 1.134   | 0.203   | 11.4 | 0.752 | 0.106 | 0.409| 0.263 N |
|       | 4.259   | 0.571   | 23.9 | 0.995 | 0.676 | 0.092| 0.148 N |
|       | 3.893   | 0.525   | 23.5 | 0.998 | 0.892 | 0.762| 0.371 D |
| 0.401 T | 4.482   | 0.6     | 24.2 | 0.997 | 0.828 | 0.811| 0.403 D |
| 0.814 D | 2.591   | 0.373   | 20.1 | 0.993 | 0.578 | 0.966| 0.697 D |
| 0.862 D | 4.263   | 0.571   | 23.9 | 0.989 | 0.477 | 0.843| 0.431 D |
|       | 7.331   | 0.949   | 34   | 0.999 | 0.976 | 0.6  | 0.308 D |
| 0.297 T | 7.761   | 0.955   | 35   | 0.999 | 0.99  | 0.889| 0.488 D |
|       | 6.111   | 0.842   | 28.3 | 0.995 | 0.682 | 0.864| 0.454 D |
| 0.552 D | 4.659   | 0.624   | 24.5 | 0.997 | 0.825 | 0.972| 0.73 D |
| 0.501 D | 5.537   | 0.753   | 26.3 | 0.998 | 0.928 | 0.958| 0.661 D |
|       | 5.246   | 0.709   | 25.6 | 0.995 | 0.69  | 0.926| 0.558 D |
|       | 2.622   | 0.376   | 20.3 | 0.972 | 0.325 | 0.891| 0.491 D |
|       | 5.826   | 0.798   | 27.2 | 0.998 | 0.899 | 0.844| 0.432 D |
|        | Eigen_coding | Eigen-raw | GenoCanyon | GenoCanyon.integrated | integrated_fitCons | GERP++_RS | GERP++_RS.rankscore |
|--------|--------------|-----------|------------|-----------------------|-------------------|----------|---------------------|
| c      | 0.249        | 0.187     | 1          | 0.473                 | 0.706             | 0.609    | 3.33                | 0.371 |
| c      | 0.711        | 0.6       | 1          | 0.747                 | 0.428             | 0.059    | 5.19                | 0.713 |
| c      | -0.674       | -0.93     | 1          | 0.517                 | 0.65              | 0.456    | 0.33                | 0.018 |
| c      | -1.148       | -1.296    | 1          | 0.517                 | 0.65              | 0.456    | 0.33                | 0.018 |
| c      | 0.501        | 0.221     | 1          | 0.747                 | 0.206             | 0.033    | 2       | 2.18  | 0.267 |
| c      | 0.31         | 0.309     | 0.993      | 0.332                 | 0.635             | 0.413    | 0.33                | 0.018 |
| c      | 0.748        | 0.725     | 1          | 0.747                 | 0.752             | 0.988    | 0.33                | 0.018 |
| c      | 0.472        | 0.414     | 1          | 0.747                 | 0.563             | 0.31     | 0.33                | 0.018 |
| c      | 0.767        | 0.728     | 1          | 0.747                 | 0.672             | 0.522    | 0.33                | 0.018 |
| c      | -1.013       | -1.075    | 1          | 0.408                 | 0.549             | 0.223    | 0.33                | 0.018 |
| c      | 0.964        | 0.931     | 1          | 0.983                 | 0.554             | 0.246    | 0.33                | 0.018 |
| c      | 0.8          | 0.728     | 1          | 0.747                 | 0.487             | 0.133    | 0.33                | 0.018 |
| c      | -1.027       | -1.292    | 1          | 0.424                 | 0.487             | 0.133    | 0.33                | 0.018 |
| c      | -0.49        | -0.636    | 0          | 0.035                 | 0.487             | 0.133    | 0.33                | 0.018 |
| c      | -1.427       | -1.516    | 1          | 0.473                 | 0.706             | 0.609    | 0.33                | 0.018 |
| c      | 0.652        | 0.643     | 1          | 0.747                 | 0.563             | 0.31     | 0.33                | 0.018 |
| c      | 0.674        | 0.671     | 1          | 0.747                 | 0.707             | 0.73     | 0.33                | 0.018 |
| c      | -0.024       | -0.089    | 0.031      | 0.14                  | 0.487             | 0.133    | 0.33                | 0.018 |
| c      | 0.632        | 0.624     | 1          | 0.747                 | 0.487             | 0.133    | 0.33                | 0.018 |
| c      | -0.314       | -0.44     | 0.355      | 0.197                 | 0.653             | 0.482    | 0.33                | 0.018 |
| c      | -0.389       | -0.304    | 1          | 0.48                  | 0.497             | 0.185    | 0.33                | 0.018 |
| c      | 0.559        | 0.572     | 0.997      | 0.352                 | 0.707             | 0.73     | 0.33                | 0.018 |
| c      | 0.096        | -0.052    | 0.3        | 0.192                 | 0.563             | 0.31     | 0.33                | 0.018 |
| c      | 0.408        | 0.221     | 0.684      | 0.225                 | 0.447             | 0.083    | 0.33                | 0.018 |
| c      | 0.039        | -0.177    | 0          | 0.052                 | 0.554             | 0.283    | 0.33                | 0.018 |
| c      | 0.451        | 0.52      | 1          | 0.517                 | 0.732             | 0.924    | 0.33                | 0.018 |
| c      | -0.883       | -0.86     | 1          | 0.48                  | 0.628             | 0.401    | 0.33                | 0.018 |
| c      | -0.784       | -1.048    | 0.001      | 0.085                 | 0.563             | 0.31     | 0.33                | 0.018 |
| c      | 0.436        | 0.216     | 0          | 0.069                 | 0.487             | 0.133    | 0.33                | 0.018 |
| c      | -1.227       | -1.294    | 0          | 0.012                 | 0.554             | 0.246    | 0.33                | 0.018 |
| c      | 0.886        | 0.818     | 1          | 0.983                 | 0.707             | 0.73     | 0.33                | 0.018 |
| c      | 0.134        | 0.213     | 1          | 0.747                 | 0.563             | 0.31     | 0.33                | 0.018 |
| c    | 0.469 | 0.453 | 1   | 0.747 | 0.568 | 0.321 | 0   | 4.76 | 0.6  |
|------|-------|-------|-----|-------|-------|-------|-----|------|------|
| c    | 0.738 | 0.707 | 1   | 0.747 | 0.722 | 0.854 | 0   | 5.49 | 0.809|
| c    | -0.016| 0.186 | 1   | 0.747 | 0.707 | 0.73  | 0   | 5.46 | 0.799|
| c    | 0.927 | 0.857 | 1   | 0.747 | 0.706 | 0.609 | 0   | 4.87 | 0.627|
| c    | -0.041| -0.219| 1   | 0.747 | 0.443 | 0.08  | 1   | 4.06 | 0.464|
| c    | 0.501 | 0.429 | 0.001| 0.074 | 0.581 | 0.33  | 0   | 2.86 | 0.323|
| c    | -0.263| -0.242| 0.165| 0.177 | 0.707 | 0.73  | 0   | 3.25 | 0.362|
| c    | 0.772 | 0.742 | 1   | 0.747 | 0.487 | 0.133 | 0   | 5.97 | 0.969|
| c    | 0.609 | 0.562 | 0.137| 0.172 | 0.487 | 0.133 | 0   | 4.87 | 0.627|
| c    | 0.52  | 0.608 | 1   | 0.747 | 0.615 | 0.372 | 0   | 5.8  | 0.921|
| c    | 0.458 | 0.529 | 1   | 0.747 | 0.707 | 0.73  | 0   | 5.85 | 0.936|
| c    | 0.949 | 0.902 | 1   | 0.747 | 0.732 | 0.924 | 0   | 6.07 | 0.987|
| c    | 0.848 | 0.831 | 1   | 0.747 | 0.554 | 0.246 | 0   | 5.96 | 0.967|
| c    | 0.152 | 0.097 | 0.856| 0.251 | 0.732 | 0.924 | 0   | 3.55 | 0.396|
| c    | 0.388 | 0.466 | 1   | 0.747 | 0.707 | 0.73  | 0   | 5.8  | 0.921|
| c    | 0.621 | 0.493 | 0.622| 0.219 | 0.487 | 0.133 | 0   | 4.13 | 0.475|
| c    | 0.899 | 0.919 | 1   | 0.747 | 0.732 | 0.924 | 0   | 6.06 | 0.983|
| c    | 0.331 | 0.387 | 1   | 0.747 | 0.707 | 0.73  | 0   | 5.22 | 0.722|
| c    | 0.573 | 0.526 | 1   | 0.489 | 0.737 | 0.974 | 0   | 4.16 | 0.48 |
| c    | -0.714| -1.021| 0.658| 0.222 | 0.498 | 0.195 | 0   | -0.565| 0.111|
| c    | 0.797 | 0.76  | 1   | 0.983 | 0.66  | 0.49  | 0   | 4.77 | 0.603|
| c    | 0.927 | 0.89  | 1   | 0.747 | 0.707 | 0.73  | 0   | 5.62 | 0.857|
| c    | 0.915 | 0.88  | 1   | 0.983 | 0.722 | 0.854 | 0   | 5.47 | 0.803|
| c    | 0.638 | 0.627 | 1   | 0.747 | 0.732 | 0.924 | 0   | 5.68 | 0.88 |
| c    | 0.161 | 0.355 | 0.95| 0.278 | 0.487 | 0.133 | 0   | 6.16 | 0.993|
| c    | 0.2   | 0.348 | 1   | 0.747 | 0.706 | 0.609 | 0   | 5.51 | 0.817|
| c    | 0.875 | 0.84  | 1   | 0.747 | 0.615 | 0.372 | 0   | 5.74 | 0.9  |
| c    | 1.057 | 0.991 | 1   | 0.747 | 0.516 | 0.203 | 0   | 5.55 | 0.832|
| c    | 0.532 | 0.457 | 0.995| 0.339 | 0.516 | 0.203 | 0   | 3.39 | 0.378|
| c    | -1.963| -2.017| 0.614| 0.218 | 0.497 | 0.185 | 0   | -6.31| 0.018|
| c    | 0.513 | 0.481 | 0.081| 0.159 | 0.635 | 0.413 | 0   | 4.81 | 0.613|
| c    | -1.022| -1.255| 1   | 0.48  | 0.005 | 0     | 3   | -2.15| 0.067|
| c    | -1.741| -1.815| 0.001| 0.08  | 0.66  | 0.495 | 0   | .    | .    |
| c       | -0.044  | -0.114  | 0.986  | 0.31   | 0.554  | 0.283  | 0     | 2.97   | 0.333  |
|---------|---------|---------|--------|--------|--------|--------|-------|--------|--------|
| c       | -0.339  | -0.588  | 1      | 0.434  | 0.583  | 0.331  | 0     | 1.99   | 0.253  |
| c       | 0.543   | 0.461   | 1      | 0.747  | 0.442  | 0.072  | 0     | 3.8    | 0.427  |
| c       | -0.678  | -0.907  | 0.942  | 0.275  | 0.516  | 0.203  | 0     | -4.71  | 0.03   |
| c       | -0.502  | -0.572  | 0.985  | 0.308  | 0.707  | 0.73   | 0     | 0.011  | 0.133  |
| c       | -0.175  | -0.046  | 1      | 0.747  | 0.442  | 0.072  | 0     | 4.61   | 0.566  |
| c       | 0.528   | 0.513   | 0.997  | 0.349  | 0.616  | 0.391  | 0     | 4.84   | 0.62   |
| c       | 0.719   | 0.749   | 1      | 0.747  | 0.706  | 0.609  | 0     | 5.8    | 0.921  |
| c       | -1.116  | -1.201  | 1      | 0.473  | 0.652  | 0.477  | 0     | 0.155  | 0.141  |
| c       | 0.64    | 0.53    | 1      | 0.747  | 0.672  | 0.522  | 0     | 4.81   | 0.613  |
| c       | -1.176  | -1.145  | 0.915  | 0.264  | 0.554  | 0.283  | 0     | 1.9    | 0.247  |
| c       | 0.709   | 0.708   | 1      | 0.747  | 0.741  | 0.977  | 0     | 5.24   | 0.728  |
| c       | -0.11   | -0.026  | 1      | 0.747  | 0.442  | 0.072  | 0     | 3.69   | 0.413  |
| c       | 0.831   | 0.682   | 1      | 0.462  | 0.651  | 0.465  | 0     | 4.78   | 0.605  |
| c       | 0.043   | -0.121  | 0.264  | 0.188  | 0.549  | 0.223  | 0     | 3.52   | 0.393  |
| c       | -0.126  | -0.044  | 1      | 0.489  | 0.707  | 0.73   | 0     | 4.35   | 0.513  |
| c       | 0.515   | 0.4     | 1      | 0.747  | 0.549  | 0.223  | 0     | 5.44   | 0.793  |
| c       | 0.429   | 0.387   | 1      | 0.747  | 0.598  | 0.34   | 0     | 4.12   | 0.473  |
| c       | 0.092   | 0.025   | 1      | 0.489  | 0.701  | 0.575  | 0     | 4.28   | 0.5    |
| c       | 0.32    | 0.422   | 1      | 0.747  | 0.732  | 0.924  | 0     | 5.75   | 0.904  |
| c       | 0.691   | 0.569   | 1      | 0.747  | 0.672  | 0.522  | 0     | 3.92   | 0.444  |
| c       | 0.703   | 0.661   | 1      | 0.747  | 0.615  | 0.372  | 0     | 4.63   | 0.57   |
| c       | -0.092  | -0.381  | 0      | 0.054  | 0.487  | 0.133  | 0     | 2.54   | 0.295  |
| c       | 0.481   | 0.436   | 1      | 0.747  | 0.707  | 0.73   | 0     | 4.51   | 0.544  |
| c       | -0.136  | -0.219  | 0.999  | 0.397  | 0.707  | 0.73   | 0     | 2.94   | 0.33   |
| c       | 0.448   | 0.267   | 1      | 0.747  | 0.615  | 0.372  | 0     | 4.26   | 0.497  |
| c       | -0.443  | -0.432  | 1      | 0.747  | 0.646  | 0.45   | 0     | 4.5    | 0.542  |
| c       | -0.876  | -0.795  | 1      | 0.747  | 0.628  | 0.401  | 0     | 2.27   | 0.274  |
| c       | -0.159  | -0.122  | 1      | 0.983  | 0.442  | 0.072  | 0     | 4.9    | 0.635  |
| c       | 0.083   | -0.092  | 0.051  | 0.149  | 0.554  | 0.246  | 0     | 2.55   | 0.296  |
| c       | -1.413  | -1.588  | 1      | 0.747  | 0.554  | 0.283  | 0     | -9.71  | 0.004  |
| c       | -0.61   | -0.578  | 0.004  | 0.105  | 0.554  | 0.283  | 0     | 3.58   | 0.4    |
| c       | 0.564   | 0.571   | 1      | 0.48   | 0.732  | 0.924  | 0     | 5.38   | 0.772  |
| c  | 0.553 | 0.506 | 1 | 0.747 | 0.615 | 0.372 | 0 | 5.58 | 0.843 |
|----|-------|-------|---|-------|-------|-------|---|------|-------|
| c  | 0.454 | 0.443 | 1 | 0.747 | 0.701 | 0.575 | 0 | 5.21 | 0.719 |
| c  | -0.636 | -0.657 | 0.007 | 0.113 | 0.615 | 0.372 | 0 | 1.17 | 0.199 |
| c  | 0.368 | 0.286 | 1 | 0.747 | 0.487 | 0.133 | 0 | 3.49 | 0.389 |
| c  | 0.458 | 0.359 | 0.058 | 0.151 | 0.732 | 0.924 | 0 | 3.41 | 0.38 |
| c  | 0.459 | 0.243 | 1 | 0.422 | 0.526 | 0.212 | 0 | -1.92 | 0.072 |
| c  | 0.704 | 0.606 | 1 | 0.983 | 0.554 | 0.283 | 0 | 5.85 | 0.936 |
| c  | 0.767 | 0.75 | 1 | 0.747 | 0.421 | 0.056 | 0 | 5.66 | 0.872 |
| c  | 0.055 | 0.079 | 0.998 | 0.358 | 0.497 | 0.185 | 0 | 5.01 | 0.663 |
| c  | -1.151 | -1.12 | 0.001 | 0.083 | 0.554 | 0.246 | 0 | 3.29 | 0.366 |
| c  | 0.533 | 0.456 | 0.997 | 0.348 | 0.497 | 0.185 | 0 | 3.86 | 0.435 |
| c  | 0.456 | 0.367 | 0 | 0.012 | 0.487 | 0.133 | 0 | 3.46 | 0.386 |
| c  | 0.776 | 0.739 | 1 | 0.983 | 0.731 | 0.878 | 0 | 4.86 | 0.625 |
| c  | -0.12 | -0.135 | 1 | 0.747 | 0.497 | 0.185 | 0 | 5.13 | 0.696 |
| c  | -0.675 | -0.893 | 1 | 0.747 | 0.487 | 0.133 | 0 | 0.46 | 0.158 |
| c  | 0.874 | 0.821 | 1 | 0.747 | 0.554 | 0.283 | 0 | 6.03 | 0.978 |
| c  | 0.047 | 0.176 | 0.776 | 0.237 | 0.707 | 0.73 | 0 | 4.47 | 0.536 |
| c  | -0.11 | -0.127 | 0.002 | 0.087 | 0.554 | 0.246 | 0 | 2.04 | 0.257 |
| c  | 0.535 | 0.497 | 0.003 | 0.095 | 0.487 | 0.133 | 0 | 4.17 | 0.481 |
| c  | 0.667 | 0.655 | 0.837 | 0.248 | 0.447 | 0.083 | 0 | 5.7 | 0.886 |
| c  | -0.018 | -0.114 | 1 | 0.747 | 0.732 | 0.924 | 0 | 2.47 | 0.29 |
| c  | 0.227 | 0.198 | 1 | 0.747 | 0.564 | 0.319 | 0 | 4.89 | 0.632 |
| c  | -0.364 | -0.345 | 1 | 0.432 | 0.554 | 0.246 | 0 | 1.01 | 0.19 |
| c  | 0.448 | 0.521 | 1 | 0.747 | 0.732 | 0.924 | 0 | 5.3 | 0.746 |
| c  | -1.293 | -1.432 | 1 | 0.747 | 0.516 | 0.203 | 0 | -1.14 | 0.092 |
| c  | -0.443 | -0.698 | 1 | 0.747 | 0.616 | 0.392 | 0 | 0.698 | 0.172 |
| c  | 0.666 | 0.645 | 1 | 0.747 | 0.563 | 0.31 | 0 | 5.52 | 0.821 |
| c  | 0.032 | 0.047 | 1 | 0.747 | 0.578 | 0.323 | 2 | 2.18 | 0.267 |
| c  | -1.149 | -1.399 | 1 | 0.747 | 0.742 | 0.98 | 0 | -6.35 | 0.018 |
| c  | 0.459 | 0.411 | 1 | 0.747 | 0.66 | 0.495 | 0 | 4.62 | 0.568 |
| c  | -0.227 | -0.384 | 0.542 | 0.212 | 0.516 | 0.203 | 0 | -3.04 | 0.051 |
| c  | -0.864 | -0.827 | 0.02 | 0.132 | 0.706 | 0.609 | 0 | 3.65 | 0.408 |
| c  | 0.65 | 0.553 | 1 | 0.747 | 0.707 | 0.73 | 0 | 5.29 | 0.743 |
| c   | 0.729 | 0.714 | 1   | 0.408 | 0.732 | 0.924 | 0 | 5.8 | 0.921 |
|-----|-------|-------|-----|-------|-------|-------|---|-----|-------|
| c   | 0.705 | 0.682 | 0.003 | 0.097 | 0.615 | 0.372 | 0 | 4.9 | 0.635 |
| c   | 0.858 | 0.846 | 1 | 0.983 | 0.632 | 0.408 | 0 | 5.36 | 0.765 |
| c   | 0.199 | 0.279 | 1 | 0.747 | 0.554 | 0.283 | 0 | 4.85 | 0.622 |
| c   | 0.766 | 0.685 | 1 | 0.747 | 0.447 | 0.083 | 0 | 4.75 | 0.598 |
| c   | 0.567 | 0.54 | 1 | 0.454 | 0.515 | 0.199 | 0 | 5.07 | 0.68 |
| c   | 0.23 | 0.219 | 1 | 0.747 | 0.497 | 0.185 | 0 | 5.61 | 0.853 |
| c   | -0.018 | 0.13 | 0.992 | 0.325 | 0.497 | 0.185 | 0 | 5.4 | 0.799 |
| c   | 0.347 | 0.291 | 0.553 | 0.213 | 0.554 | 0.283 | 0 | 1.94 | 0.249 |
| c   | -0.393 | -0.406 | 1 | 0.431 | 0.635 | 0.413 | 0 | 3.18 | 0.355 |
| c   | -0.452 | -0.462 | 0.999 | 0.378 | 0.598 | 0.34 | 0 | 2.25 | 0.272 |
| c   | 0.961 | 0.86 | 1 | 0.983 | 0.487 | 0.133 | 0 | 5.48 | 0.806 |
| c   | 0.223 | 0.154 | 0.999 | 0.377 | 0.554 | 0.246 | 0 | 5.3 | 0.746 |
| c   | 0.168 | 0.09 | 0.991 | 0.324 | 0.638 | 0.428 | 0 | 3.74 | 0.419 |
| c   | -0.669 | -0.725 | 0.846 | 0.249 | 0.549 | 0.223 | 0 | 1.83 | 0.242 |
| c   | -1.296 | -1.259 | 0.975 | 0.295 | 0.672 | 0.522 | 0 | -0.331 | 0.12 |
| c   | 0.228 | 0.077 | 0.415 | 0.202 | 0.706 | 0.609 | 0 | 1.85 | 0.243 |
| c   | 0.212 | 0.295 | 1 | 0.429 | 0.66 | 0.495 | 0 | 5.23 | 0.725 |
| c   | 0.627 | 0.591 | 0.721 | 0.229 | 0.732 | 0.924 | 0 | 4.64 | 0.572 |
| c   | -0.349 | -0.449 | 1 | 0.747 | 0.623 | 0.393 | 0 | 1.84 | 0.242 |
| c   | -0.209 | -0.176 | 1 | 0.747 | 0.524 | 0.211 | 1 | 1.29 | 0.206 |
| c   | -0.452 | -0.423 | 0.043 | 0.146 | 0.487 | 0.133 | 0 | 4.29 | 0.502 |
| c   | 0.891 | 0.822 | 1 | 0.747 | 0.615 | 0.352 | 0 | 5.48 | 0.806 |
| c   | -0.033 | 0.062 | 1 | 0.747 | 0.726 | 0.872 | 0 | 3.96 | 0.449 |
| c   | 0.689 | 0.641 | 1 | 0.747 | 0.635 | 0.413 | 0 | 5.19 | 0.713 |
| c   | 0.687 | 0.63 | 1 | 0.747 | 0.487 | 0.133 | 0 | 5.4 | 0.779 |
| c   | 0.987 | 0.898 | 1 | 0.747 | 0.461 | 0.09 | 0 | 4.89 | 0.632 |
| c   | 0.453 | 0.541 | 1 | 0.747 | 0.626 | 0.397 | 0 | 5.61 | 0.853 |
| c   | 0.353 | 0.436 | 1 | 0.437 | 0.635 | 0.413 | 0 | 5.59 | 0.846 |
| c   | 0.89 | 0.839 | 1 | 0.747 | 0.707 | 0.73 | 0 | 5.27 | 0.737 |
| c   | 0.305 | 0.295 | 1 | 0.747 | 0.554 | 0.283 | 0 | 3.82 | 0.43 |
| c   | 0.442 | 0.522 | 0.939 | 0.274 | 0.732 | 0.924 | 0 | 5.64 | 0.864 |
| c   | 0.705 | 0.662 | 1 | 0.747 | 0.497 | 0.185 | 0 | 5.32 | 0.753 |
| c   | 0.087 | 0.292 | 0.517 | 0.707 | 0.73  | 0   | 5.77 | 0.91 |
|-----|-------|-------|-------|-------|-------|-----|------|-----|
| c   | 0.536 | 0.469 | 0.119 | 0.168 | 0.638 | 0.428 | 0   | 4.31 | 0.505 |
| c   | 0.78  | 0.632 | 0.983 | 0.437 | 0.062 | 0   | 3.8  | 0.427 |
| c   | 0.15  | 0.122 | 0.747 | 0.707 | 0.73  | 0   | 5.37 | 0.769 |
| c   | 0.977 | 0.906 | 0.747 | 0.672 | 0.522 | 0   | 5.75 | 0.904 |
| c   | 0.788 | 0.72  | 0.747 | 0.722 | 0.854 | 0   | 5.58 | 0.843 |
| c   | -0.525| -0.572| 0.425 | 0.616 | 0.391 | 0   | 1.84 | 0.242 |
| c   | -0.031| -0.093| 0.286 | 0.707 | 0.73  | 0   | -2.6 | 0.058 |
| c   | 0.222 | 0.176 | 0.443 | 0.707 | 0.73  | 0   | 2.57 | 0.298 |
| c   | 0.157 | 0.114 | 0.747 | 0.635 | 0.413 | 0   | 4.55 | 0.553 |
| c   | -0.581| -0.639| 0.173 | 0.615 | 0.372 | 0   | -2.73| 0.056 |
| c   | -0.468| -0.597| 0.23  | 0.615 | 0.372 | 0   | 2.33 | 0.279 |
| c   | 0.228 | 0.122 | 0.784 | 0.239 | 0.447 | 0.083 | 0   | 3.43 | 0.382 |
| c   | 0.686 | 0.687 | 0.747 | 0.732 | 0.924 | 0   | 5.67 | 0.876 |
| c   | -0.004| 0.037 | 0.747 | 0.554 | 0.283 | 0   | 4.85 | 0.622 |
| c   | 0.982 | 0.923 | 0.747 | 0.719 | 0.83  | 0   | 5.96 | 0.967 |
| c   | -0.016| 0.094 | 0.998 | 0.364 | 0.638 | 0.428 | 0   | 4.98 | 0.655 |
| c   | -1.192| -1.268| 0.747 | 0.455 | 0.088 | 0   | -1.34| 0.086 |
| c   | 0.349 | 0.441 | 0.747 | 0.713 | 0.817 | 0   | 5.71 | 0.89  |
| c   | -0.255| -0.142| 0.489 | 0.487 | 0.133 | 0   | 4.46 | 0.534 |
| c   | 0.196 | 0.104 | 0.932 | 0.27  | 0.497 | 0.185 | 0   | 3.53 | 0.394 |
| c   | 0.182 | 0.073 | 0.472 | 0.207 | 0.635 | 0.413 | 0   | -0.536| 0.112 |
| c   | -0.126| -0.194| 0    | 0.063 | 0.116 | 0.024 | 0   | 3    | 0.336 |
| c   | -0.369| -0.365| 0.963 | 0.286 | 0.707 | 0.73  | 0   | 3.63 | 0.406 |
| c   | 0.01  | 0.197 | 0.952 | 0.279 | 0.707 | 0.73  | 0   | 5.43 | 0.789 |
| c   | 0.193 | 0.218 | 0.747 | 0.744 | 0.983 | 0   | 4.76 | 0.6   |
| c   | 0.032 | -0.009| 0.747 | 0.707 | 0.73  | 0   | 5.34 | 0.759 |
| c   | -1.057| -1.24 | 0.747 | 0.442 | 0.072 | 0   | -3.48| 0.044 |
| c   | 0.514 | 0.453 | 0.993 | 0.331 | 0.707 | 0.73  | 0   | 4.85 | 0.622 |
| c   | 0.022 | 0.135 | 0.747 | 0.635 | 0.413 | 0   | 5.01 | 0.663 |
| c   | -0.311| -0.274| 0.517 | 0.672 | 0.522 | 0   | 3.59 | 0.401 |
| c   | -0.914| -1.054| 0.056 | 0.151 | 0.706 | 0.609 | 0   | -2.02| 0.069 |
| c   | 0.21  | 0.283 | 0.999 | 0.384 | 0.578 | 0.323 | 0   | 5.18 | 0.71  |
c  0.502  0.373    1  0.417  0.496  0.176  0   3.37  0.375
c  0.427  0.429    1  0.747  0.372  0.05  0   5.11  0.691
c -0.333 -0.206    1  0.5   0.672  0.522  0   4.85  0.622
c  0.058   0.1  0.964   0.287  0.672  0.522  0   5.11  0.691
c -0.769 -0.707  0.187   0.18  0.706  0.609  0   1.99  0.253
c -0.894 -0.769  0.066   0.154  0.672  0.522  0   0.151 0.141
c  0.693  0.656    1  0.747  0.722  0.854  0   4.41  0.524
c  0.026  0.023  0.035   0.142  0.732  0.598  0   3.75  0.421
c -0.476 -0.654    1  0.747  0.732  0.924  0   0.889 0.183
c -0.747 -0.781    1  0.747  0.598  0.34  0   3.26  0.363
c -0.909 -0.968    0  0.05  0.516  0.203  0   1.17  0.199
c  0.872  0.812    1  0.747  0.554  0.283  0   4.72  0.591
c  0.27   0.196  0.972   0.293  0.515  0.199  0   4.46  0.534
c  0.415  0.372  0.775   0.237  0.672  0.522  0   5.22  0.722
c -0.692 -0.719  0.942   0.275  0.696  0.567  0   1.69  0.232
c  0.463  0.452    1  0.747  0.554  0.283  0   4.26  0.497
c  0.77   0.776    1  0.747  0.731  0.878  0   6.06  0.983
c  0.717  0.653    1  0.747  0.554  0.246  0   4.88  0.63
c -0.922 -0.913  0.144   0.173  0.732  0.924  0   3.29  0.366
c  0.958  0.864    1  0.983  0.497  0.185  0   5.01  0.663
c -1.13  -1.047  0.089   0.161  0.487  0.133  0  -1.99  0.07
c  0.488  0.439    1  0.747  0.707  0.73  0   4.72  0.591
c  0.264  0.221  0.018   0.131  0.5   0.196  0   2.78  0.316
c -0.34 -0.333  0.996   0.343  0.598  0.34  0   2.82  0.319
c  0.649  0.639  0.001   0.076  0.554  0.246  0   4.68  0.582
c -0.591  -0.5    1  0.747  0.658  0.486  0   1.93  0.249
c  0.203  0.059    0  0.065  0.516  0.203  0   2.79  0.317
c  0.006  0.031    1  0.747  0.66  0.495  0   4.9  0.635
c -1.442 -1.543    0  0.012  0.549  0.223  0  -0.635 0.109
c -0.118  0.064    1  0.747  0.652  0.477  0   4.95  0.648
c -0.645 -0.894    0  0.05  0.487  0.133  0  -0.773 0.104
c  0.404  0.318    1  0.747  0.635  0.413  0   4.44  0.53
c  0.172  0.113  0.863   0.252  0.732  0.924  0   3.52  0.393
|               | phyloP100way_vertebrate | phastCons100way_vertebrate | phastCons100way_vertebrate_rankscore | phastCons20way_mammalian | phastCons20way_mammalian_rankscore | SiPhy_29way_logOdds_rankscore |
|---------------|-------------------------|----------------------------|--------------------------------------|--------------------------|-----------------------------------|-------------------------------|
| 3.498         | 0.528                   | 0.994                      | 0.605                                | 1                        | 0.715                             | 0.599                         | 0.288 | 10.408 | 0.433 |
| 5.985         | 0.7                     | 0.852                      | 0.362                                | 1                        | 0.715                             | 0.223                         | 0.222 | 17.725 | 0.882 |
| -0.049        | 0.118                   | 0                          | 0.135                                | 0.001                    | 0.137                             | 0.162                         | 0.208 | 4.66   | 0.119 |
| -0.536        | 0.062                   | 0                          | 0.135                                | 0.003                    | 0.159                             | 0.173                         | 0.211 | 12.486 | 0.55  |
| 0.701         | 0.251                   | 0.875                      | 0.382                                | 0.047                    | 0.211                             | 0.987                         | 0.523 | 6.478  | 0.211 |
| 1.183         | 0.314                   | 0.953                      | 0.551                                | 0.818                    | 0.297                             | 1                             | 0.888 | 8.775  | 0.337 |
| 6.75          | 0.745                   | 0.953                      | 0.551                                | 1                        | 0.715                             | 0.999                         | 0.75  | 17.429 | 0.874 |
| 6.594         | 0.738                   | 0.998                      | 0.613                                | 1                        | 0.715                             | 0.555                         | 0.28  | 12.486 | 0.55  |
| 9.507         | 0.97                    | 1.048                      | 0.713                                | 1                        | 0.715                             | 0.971                         | 0.463 | 18.42  | 0.905 |
| 0.544         | 0.228                   | -0.36                      | 0.068                                | 0.697                    | 0.284                             | 0.003                         | 0.074 | 4.732  | 0.123 |
| 10.003        | 0.997                   | 1.048                      | 0.713                                | 1                        | 0.715                             | 0.994                         | 0.587 | 19.281 | 0.94  |
| 7.867         | 0.854                   | 0.892                      | 0.403                                | 1                        | 0.715                             | 0.507                         | 0.272 | 20.652 | 0.996 |
| -0.081        | 0.112                   | 0.046                      | 0.159                                | 0                        | 0.063                             | 0.006                         | 0.095 | 5.425  | 0.156 |
| 1.897         | 0.392                   | 0.953                      | 0.551                                | 0.01                     | 0.182                             | 0.002                         | 0.062 | 5.158  | 0.143 |
| -1.554        | 0.023                   | -0.139                     | 0.11                                 | 0                        | 0.063                             | 0.002                         | 0.062 | 9.853  | 0.4   |
| 9.225         | 0.943                   | 1.073                      | 0.849                                | 1                        | 0.715                             | 0.999                         | 0.75  | 13.046 | 0.582 |
| 2.792         | 0.473                   | 0.935                      | 0.49                                 | 0.991                    | 0.37                              | 0.033                         | 0.15  | 17.253 | 0.869 |
| -0.429        | 0.07                    | 0.789                      | 0.32                                 | 0                        | 0.063                             | 0.006                         | 0.095 | 9.104  | 0.357 |
| 4.591         | 0.605                   | 0.935                      | 0.49                                 | 1                        | 0.715                             | 1                             | 0.888 | 18.056 | 0.892 |
| 1.863         | 0.389                   | 1.048                      | 0.713                                | 0.009                    | 0.18                              | 0.03                          | 0.147 | 6.035  | 0.188 |
| 0.25          | 0.179                   | 0.935                      | 0.49                                 | 0.988                    | 0.363                             | 1                             | 0.888 | 0.49   | 0.005 |
| 3.593         | 0.535                   | 0.935                      | 0.49                                 | 1                        | 0.715                             | 0.992                         | 0.562 | 13.015 | 0.58  |
| 0.372         | 0.201                   | -0.139                     | 0.11                                 | 0.995                    | 0.385                             | 0.995                         | 0.604 | 14.476 | 0.67  |
| 3.398         | 0.521                   | 0.892                      | 0.403                                | 0.935                    | 0.322                             | 0.052                         | 0.166 | 12.016 | 0.524 |
| 0.749         | 0.258                   | -0.011                     | 0.132                                | 0.146                    | 0.234                             | 0.868                         | 0.363 | 9.511  | 0.381 |
| 5.513         | 0.665                   | 0.932                      | 0.445                                | 1                        | 0.715                             | 1                             | 0.888 | 19.442 | 0.948 |
| 0.926         | 0.282                   | 0.935                      | 0.49                                 | 0.001                    | 0.137                             | 0.177                         | 0.212 | 3.157  | 0.061 |
| 0.395         | 0.204                   | 0.242                      | 0.267                                | 0.129                    | 0.231                             | 0.037                         | 0.154 | 5.028  | 0.136 |
| 5.291         | 0.652                   | 0.989                      | 0.601                                | 0.999                    | 0.424                             | 0.01                          | 0.111 | 7.913  | 0.288 |
| -0.049        | 0.118                   | -1.455                     | 0.011                                | 0                        | 0.063                             | 0.04                          | 0.157 | 8.885  | 0.344 |
| 9.778         | 0.982                   | 1.045                      | 0.669                                | 1                        | 0.715                             | 0.017                         | 0.128 | 19.515 | 0.951 |
| 5.284         | 0.652                   | 0.852                      | 0.362                                | 1                        | 0.715                             | 1                             | 0.888 | 14.812 | 0.695 |
|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| 2.752 | 0.469 | 0.935 | 0.49 | 1 | 0.715 | 0.998 | 0.697 | 14.788 | 0.693 |
| 3.556 | 0.532 | 0.935 | 0.49 | 1 | 0.715 | 0.912 | 0.389 | 16.513 | 0.841 |
| 4.591 | 0.605 | 1.048 | 0.713 | 1 | 0.715 | 0.999 | 0.75 | 13.626 | 0.615 |
| 9.994 | 0.993 | 1.048 | 0.713 | 1 | 0.715 | 0.974 | 0.471 | 15.89 | 0.79 |
| 2.116 | 0.413 | 0.935 | 0.49 | 0.038 | 0.207 | 0.001 | 0.043 | 9.055 | 0.354 |
| 3.097 | 0.497 | 0.038 | 0.153 | 1 | 0.715 | 0.97 | 0.461 | 14.259 | 0.655 |
| 0.459 | 0.215 | 0.852 | 0.362 | 0.132 | 0.232 | 0.652 | 0.299 | 8.407 | 0.316 |
| 6.1 | 0.709 | 1.061 | 0.807 | 1 | 0.715 | 1 | 0.888 | 16.461 | 0.838 |
| 3.433 | 0.523 | 0.011 | 0.035 | 1 | 0.715 | 1 | 0.888 | 12.747 | 0.565 |
| 9.325 | 0.96 | 1.199 | 0.96 | 1 | 0.715 | 0.999 | 0.75 | 16.148 | 0.813 |
| 8.586 | 0.905 | 0.014 | 0.093 | 1 | 0.715 | 0.994 | 0.587 | 16.236 | 0.821 |
| 5.204 | 0.648 | 0.104 | 0.073 | 1 | 0.715 | 1 | 0.888 | 17.561 | 0.877 |
| 5.542 | 0.667 | 0.034 | 0.713 | 1 | 0.715 | 0.998 | 0.697 | 15.164 | 0.724 |
| 3.321 | 0.515 | 0.112 | 0.026 | 1 | 0.715 | 0.984 | 0.507 | 14.009 | 0.638 |
| 4.464 | 0.596 | 0.998 | 0.613 | 1 | 0.715 | 0.997 | 0.653 | 17.802 | 0.884 |
| 3.272 | 0.511 | 1.029 | 0.652 | 1 | 0.715 | 0.905 | 0.384 | 14.393 | 0.664 |
| 9.926 | 0.988 | 0.98 | 0.597 | 1 | 0.715 | 0.995 | 0.604 | 19.393 | 0.946 |
| 2.172 | 0.418 | 0.018 | 0.086 | 1 | 0.715 | 1 | 0.888 | 9.173 | 0.361 |
| 5.435 | 0.661 | 0.014 | 0.073 | 1 | 0.715 | 0.891 | 0.375 | 12.171 | 0.533 |
| -1.948 | 0.016 | -0.406 | 0.061 | 0 | 0.063 | 0.001 | 0.043 | 7.565 | 0.269 |
| 9.676 | 0.979 | 0.014 | 0.073 | 1 | 0.715 | 1 | 0.888 | 17.8 | 0.884 |
| 7.791 | 0.843 | 0.932 | 0.445 | 1 | 0.715 | 0.999 | 0.75 | 19.69 | 0.96 |
| 8.035 | 0.891 | 0.014 | 0.073 | 1 | 0.715 | 0.999 | 0.75 | 19.686 | 0.96 |
| 7.792 | 0.843 | 1.199 | 0.96 | 1 | 0.715 | 0.956 | 0.434 | 15.602 | 0.763 |
| 3.302 | 0.513 | 0.935 | 0.49 | 1 | 0.715 | 0.954 | 0.431 | 19.04 | 0.929 |
| 8.017 | 0.886 | 0.964 | 0.58 | 1 | 0.715 | 1 | 0.888 | 15.625 | 0.765 |
| 8.915 | 0.923 | 1.166 | 0.901 | 1 | 0.715 | 0.993 | 0.574 | 14.616 | 0.68 |
| 9.998 | 0.993 | 0.014 | 0.073 | 1 | 0.715 | 0.996 | 0.625 | 18.645 | 0.913 |
| 0.29 | 0.186 | 0.071 | 0.179 | 0.982 | 0.353 | 0.988 | 0.529 | 7.565 | 0.269 |
| -0.483 | 0.066 | -0.975 | 0.023 | 0 | 0.063 | 0 | 0.016 | 8.985 | 0.35 |
| 1.325 | 0.331 | 0.014 | 0.073 | 1 | 0.715 | 0.906 | 0.313 | 9.63 | 0.446 |
| -1.143 | 0.033 | -0.528 | 0.049 | 0.003 | 0.159 | 0.5 | 0.271 | 3.307 | 0.065 |
| -2.15 | 0.014 | -1.72 | 0.007 | 0.001 | 0.137 | 0.001 | 0.043 | 8.985 | 0.35 |
|     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0.728 | 0.255 | 0.978 | 0.596 | 0.224 | 0.244 | 0.815 | 0.341 | 7.105 | 0.244 |
| 0.187 | 0.167 | -0.487 | 0.053 | 0.001 | 0.137 | 0.035 | 0.152 | 11.234 | 0.48 |
| 2.089 | 0.411 | 0.807 | 0.329 | 1 | 0.715 | 1 | 0.888 | 11.042 | 0.469 |
| -0.269 | 0.086 | -0.653 | 0.041 | 0.862 | 0.304 | 0.003 | 0.074 | 1.173 | 0.017 |
| -0.265 | 0.086 | 0.007 | 0.138 | 0.002 | 0.151 | 0.678 | 0.304 | 7.233 | 0.251 |
| 2.344 | 0.434 | -0.013 | 0.131 | 1 | 0.715 | 0.96 | 0.441 | 13.298 | 0.596 |
| 4.996 | 0.634 | 1.011 | 0.635 | 1 | 0.715 | 0.999 | 0.75 | 12.474 | 0.55 |
| 8.34 | 0.899 | 1.048 | 0.713 | 1 | 0.715 | 0.955 | 0.433 | 20.071 | 0.977 |
| 0.114 | 0.152 | -1.009 | 0.022 | 0.057 | 0.215 | 0 | 0.016 | 3.618 | 0.076 |
| 6.832 | 0.749 | 0.953 | 0.551 | 1 | 0.715 | 0.294 | 0.236 | 15.157 | 0.723 |
| 0.54 | 0.227 | -0.346 | 0.071 | 0 | 0.063 | 0.001 | 0.043 | 2.283 | 0.038 |
| 6.164 | 0.715 | 0.935 | 0.49 | 1 | 0.715 | 1 | 0.888 | 19.033 | 0.929 |
| 1.042 | 0.297 | 0.87 | 0.379 | 0.926 | 0.319 | 0.772 | 0.328 | 13.105 | 0.585 |
| 9.184 | 0.94 | 0.802 | 0.324 | 1 | 0.715 | 0.012 | 0.117 | 13.647 | 0.616 |
| 0.023 | 0.133 | 0.095 | 0.197 | 0 | 0.063 | 0.54 | 0.278 | 7.308 | 0.255 |
| 4.212 | 0.581 | 0.852 | 0.362 | 1 | 0.715 | 0.806 | 0.338 | 14.806 | 0.695 |
| 2.203 | 0.421 | 0.935 | 0.49 | 0.949 | 0.328 | 0.052 | 0.166 | 13.078 | 0.583 |
| 2.747 | 0.469 | 0.833 | 0.339 | 0.996 | 0.391 | 0.998 | 0.697 | 13.092 | 0.584 |
| 4.142 | 0.576 | 1.199 | 0.96 | 1 | 0.715 | 0.123 | 0.197 | 11.148 | 0.475 |
| 6.353 | 0.728 | 1.088 | 0.866 | 1 | 0.715 | 0.991 | 0.552 | 16.055 | 0.805 |
| 9.457 | 0.968 | 0.879 | 0.385 | 1 | 0.715 | 0.669 | 0.302 | 13.825 | 0.627 |
| 6.044 | 0.704 | 0.935 | 0.49 | 1 | 0.715 | 0.96 | 0.441 | 15.389 | 0.743 |
| 0.844 | 0.271 | 0.739 | 0.307 | 0 | 0.063 | 0.015 | 0.124 | 5.042 | 0.137 |
| 1.84 | 0.386 | 0.927 | 0.437 | 1 | 0.715 | 0.996 | 0.625 | 13.902 | 0.632 |
| 3.298 | 0.513 | 0.017 | 0.142 | 0.234 | 0.245 | 0.053 | 0.166 | 10.117 | 0.416 |
| 6.167 | 0.716 | 0.892 | 0.403 | 1 | 0.715 | 0.809 | 0.339 | 13.397 | 0.601 |
| 0.079 | 0.145 | 0.902 | 0.416 | 0 | 0.063 | 0.031 | 0.148 | 14.215 | 0.652 |
| 1.085 | 0.302 | 0.117 | 0.209 | 0.002 | 0.151 | 0.99 | 0.544 | 7.372 | 0.258 |
| 5.198 | 0.648 | 0.97 | 0.593 | 0.905 | 0.313 | 0.023 | 0.138 | 15.43 | 0.747 |
| 1.862 | 0.389 | 0.892 | 0.403 | 0.83 | 0.299 | 0.783 | 0.331 | 5.951 | 0.184 |
| -2.602 | 0.01 | -0.212 | 0.1 | 0 | 0.063 | 0.002 | 0.062 | 1.266 | 0.019 |
| 2.369 | 0.436 | -0.204 | 0.101 | 0.988 | 0.363 | 0.654 | 0.299 | 12.291 | 0.54 |
| 3.94 | 0.561 | 1.199 | 0.96 | 1 | 0.715 | 1 | 0.888 | 10.436 | 0.434 |
| 3.393 | 0.52 | 0.932 | 0.445 | 1 | 0.715 | 0.972 | 0.466 | 15.559 | 0.759 |
| 7.937 | 0.87 | 0.986 | 0.6 | 1 | 0.715 | 0.638 | 0.296 | 14.259 | 0.655 |
| 1.239 | 0.321 | 0.11 | 0.204 | 0.002 | 0.151 | 0.95 | 0.426 | 0.921 | 0.012 |
| 0.437 | 0.211 | -0.602 | 0.044 | 0.045 | 0.21 | 0.51 | 0.273 | 13.296 | 0.596 |
| 3.458 | 0.525 | 0.191 | 0.249 | 1 | 0.715 | 0.986 | 0.517 | 8.197 | 0.304 |
| 0.41 | 0.207 | 0.935 | 0.49 | 0.991 | 0.37 | 1 | 0.888 | 8.565 | 0.325 |
| 5.056 | 0.639 | 0.935 | 0.49 | 1 | 0.715 | 0.861 | 0.359 | 19.154 | 0.935 |
| 4.547 | 0.602 | 0.852 | 0.362 | 1 | 0.715 | 0.965 | 0.45 | 18.513 | 0.908 |
| 6.194 | 0.718 | 1.14 | 0.893 | 0.942 | 0.325 | 0.052 | 0.166 | 9.966 | 0.407 |
| 0.663 | 0.246 | -0.022 | 0.129 | 0 | 0.063 | 0 | 0.016 | 8.739 | 0.335 |
| 7.41 | 0.791 | 0.07 | 0.177 | 1 | 0.715 | 0.591 | 0.287 | 11.997 | 0.523 |
| 2.203 | 0.421 | 1.038 | 0.658 | 0.9 | 0.312 | 0.955 | 0.433 | 7.519 | 0.266 |
| 7.822 | 0.847 | 0.852 | 0.362 | 1 | 0.715 | 0.993 | 0.574 | 15.512 | 0.754 |
| 3.142 | 0.5 | 0.852 | 0.362 | 0.203 | 0.241 | 0.959 | 0.439 | 9.666 | 0.39 |
| -1.632 | 0.021 | -0.329 | 0.075 | 0 | 0.063 | 0.001 | 0.043 | 3.332 | 0.066 |
| 7.786 | 0.842 | 0.935 | 0.49 | 1 | 0.715 | 0.988 | 0.529 | 18.061 | 0.893 |
| 2.14 | 0.415 | 0.892 | 0.403 | 1 | 0.715 | 0.997 | 0.653 | 11.278 | 0.482 |
| 0.473 | 0.217 | 0.964 | 0.58 | 1 | 0.715 | 0.994 | 0.587 | 6.864 | 0.231 |
| 5.158 | 0.645 | 1.199 | 0.96 | 1 | 0.715 | 1 | 0.888 | 12.83 | 0.569 |
| 2.737 | 0.468 | 0.935 | 0.49 | 1 | 0.715 | 0.998 | 0.697 | 19.841 | 0.967 |
| 6.493 | 0.734 | -0.083 | 0.118 | 0.986 | 0.359 | 0.123 | 0.197 | 9.395 | 0.374 |
| 2.296 | 0.43 | 0.839 | 0.342 | 0.943 | 0.325 | 0.074 | 0.178 | 15.541 | 0.757 |
| 0.076 | 0.145 | 0.065 | 0.171 | 0.328 | 0.253 | 0.956 | 0.434 | 10.316 | 0.427 |
| 4.3 | 0.586 | 0.935 | 0.49 | 0.999 | 0.424 | 0.999 | 0.75 | 19.575 | 0.954 |
| -0.258 | 0.087 | -3.053 | 0.001 | 0 | 0.063 | 0 | 0.016 | . | . |
| 0.099 | 0.149 | 1.13 | 0.883 | 0.012 | 0.185 | 0.109 | 0.192 | . | . |
| 3.755 | 0.547 | 0.892 | 0.403 | 0.998 | 0.411 | 0.996 | 0.625 | 19.436 | 0.948 |
| 2.048 | 0.407 | 0.148 | 0.236 | 0.99 | 0.367 | 0.983 | 0.502 | 8.264 | 0.308 |
| -0.335 | 0.079 | -0.055 | 0.122 | 0.024 | 0.198 | 0.189 | 0.215 | 7.096 | 0.243 |
| 7.032 | 0.761 | 0.949 | 0.536 | 1 | 0.715 | 0.849 | 0.354 | 16.003 | 0.8 |
| 0.569 | 0.232 | -0.035 | 0.126 | 0.116 | 0.229 | 0.499 | 0.271 | 11.233 | 0.48 |
| 1.068 | 0.3 | 1.199 | 0.96 | 0.611 | 0.276 | 0.008 | 0.104 | 7.681 | 0.275 |
| 5.759 | 0.682 | 1.044 | 0.665 | 1 | 0.715 | 0.767 | 0.326 | 15.652 | 0.768 |
| x1  | x2  | x3   | index | y1   | y2   | y3   |
|-----|-----|------|-------|------|------|------|
| 2.705 | 0.465 | 0.935 | 0.49 | 1   | 0.715 | 0.996 |
| 4.619 | 0.607 | 1.048 | 0.713 | 1   | 0.715 | 1.088 |
| 9.579 | 0.973 | 1.036 | 0.656 | 1   | 0.715 | 1.088 |
| 2.569 | 0.454 | 0.935 | 0.49 | 0.997 | 0.399 | 0.996 |
| 5.059 | 0.639 | 0.935 | 0.49 | 1   | 0.715 | 0.997 |
| 1.796 | 0.382 | 0.953 | 0.551 | 0.983 | 0.354 | 0.96 |
| 5.448 | 0.661 | 0.935 | 0.49 | 1   | 0.715 | 0.049 |
| 5.726 | 0.679 | 0.935 | 0.49 | 1   | 0.715 | 0.932 |
| 5.633 | 0.673 | 1.061 | 0.807 | 1   | 0.715 | 0.993 |
| -0.009 | 0.126 | 0.964 | 0.58 | 0.163 | 0.217 | 0.251 |
| 1.856 | 0.388 | 0.075 | 0.182 | 1   | 0.291 | 0.257 |
| 5.012 | 0.635 | 1.199 | 0.96 | 0.522 | 0.269 | 0.853 |
| 4.837 | 0.623 | 0.88   | 0.385 | 0   | 0.063 | 1.088 |
| 0.541 | 0.227 | 0.935 | 0.49 | 0   | 0.063 | 0.947 |
| 0.181 | 0.166 | -2.425 | 0.003 | 0.003 | 0.159 | 0.016 |
| 1.981 | 0.4   | 0.935 | 0.49 | 0.98 | 0.35  | 0.997 |
| 1.918 | 0.394 | 1.024 | 0.645 | 1   | 0.715 | 0.998 |
| 5.368 | 0.657 | 0.892 | 0.403 | 1   | 0.715 | 1.088 |
| -0.121 | 0.105 | -0.586 | 0.045 | 0.686 | 0.283 | 0.087 |
| -0.017 | 0.124 | 0.51  | 0.281 | 0.005 | 0.169 | 0.998 |
| 0.487 | 0.219 | 0.998 | 0.613 | 0   | 0.063 | 0.1 |
| 8.017 | 0.886 | 1.061 | 0.807 | 1   | 0.715 | 0.955 |
| 1.794 | 0.382 | 0.855 | 0.374 | 1   | 0.715 | 0.985 |
| 9.604 | 0.978 | 1.048 | 0.713 | 1   | 0.715 | 0.972 |
| 10.003 | 0.997 | 1.048 | 0.713 | 1   | 0.715 | 0.947 |
| 9.87  | 0.985 | 0.919 | 0.43  | 1   | 0.715 | 0.998 |
| 8.976 | 0.93   | 1.03  | 0.653 | 1   | 0.715 | 0.277 |
| 3.185 | 0.504 | 1.048 | 0.713 | 0.998 | 0.411 | 0.985 |
| 9.405 | 0.966 | 0.953 | 0.551 | 1   | 0.715 | 0.919 |
| 2.715 | 0.466 | 1.048 | 0.713 | 0.997 | 0.399 | 0.908 |
| 6.469 | 0.733 | 1.199 | 0.96  | 1   | 0.715 | 0.998 |
| 7.133 | 0.767 | 0.935 | 0.49  | 1   | 0.715 | 0.851 |
|   |     |     |     |     |     |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3.794  | 0.549  | 0.935  | 0.49  | 1  | 0.715  | 1  | 0.888  | 13.559  | 0.611  |
| 1.986  | 0.401  | 0.059  | 0.165  | 0.998  | 0.411  | 0.655  | 0.299  | 12.738  | 0.564  |
| 6.352  | 0.728  | 0.805  | 0.326  | 1  | 0.715  | 0.994  | 0.587  | 15.435  | 0.748  |
| 5.494  | 0.664  | 0.852  | 0.362  | 1  | 0.715  | 0.113  | 0.194  | 19.095  | 0.932  |
| 7.674  | 0.83  | 1.061  | 0.807  | 1  | 0.715  | 1  | 0.888  | 15.351  | 0.74  |
| 4.171  | 0.578  | 0.072  | 0.18  | 0.996  | 0.391  | 0.038  | 0.155  | 16.482  | 0.839  |
| 0.217  | 0.173  | -0.298  | 0.081  | 0.954  | 0.33  | 0.689  | 0.307  | 4.366  | 0.106  |
| 0.234  | 0.176  | 0.098  | 0.198  | 0.961  | 0.334  | 0.948  | 0.423  | 1.031  | 0.014  |
| 4.213  | 0.581  | 0.076  | 0.183  | 1  | 0.715  | 0.999  | 0.75  | 11.647  | 0.503  |
| 1.793  | 0.382  | 0.935  | 0.49  | 0.856  | 0.303  | 0.909  | 0.387  | 9.028  | 0.352  |
| -0.541  | 0.061  | 0.148  | 0.236  | 0.192  | 0.24  | 0.997  | 0.653  | 1.202  | 0.018  |
| 0.21  | 0.171  | 0.144  | 0.231  | 0  | 0.063  | 0.002  | 0.062  | 7.34  | 0.256  |
| 3.339  | 0.516  | 0.964  | 0.58  | 0.961  | 0.334  | 0.964  | 0.448  | 7.413  | 0.26  |
| 4.978  | 0.633  | 1.048  | 0.713  | 1  | 0.715  | 1  | 0.888  | 19.115  | 0.933  |
| 4.294  | 0.586  | 0.848  | 0.348  | 0.267  | 0.248  | 0.123  | 0.197  | 10.825  | 0.456  |
| 8.014  | 0.882  | 1.056  | 0.757  | 1  | 0.715  | 1  | 0.888  | 16.445  | 0.837  |
| 1.804  | 0.383  | 0.051  | 0.162  | 0.927  | 0.319  | 0.844  | 0.352  | 13.266  | 0.594  |
| 0.123  | 0.154  | -0.084  | 0.118  | 0.001  | 0.137  | 0.001  | 0.043  | 2.025  | 0.033  |
| 8.012  | 0.881  | 1.061  | 0.807  | 1  | 0.715  | 0.982  | 0.498  | 15.152  | 0.723  |
| 1.116  | 0.306  | 0.935  | 0.49  | 0.993  | 0.376  | 0.962  | 0.444  | 11.569  | 0.499  |
| 1.105  | 0.305  | 0.07  | 0.177  | 0.001  | 0.137  | 0.005  | 0.09  | 8.869  | 0.343  |
| 1.284  | 0.326  | 0.953  | 0.551  | 0.628  | 0.277  | 0.991  | 0.552  | 14.571  | 0.677  |
| 0.729  | 0.255  | 0.953  | 0.551  | 0.005  | 0.169  | 0.18  | 0.213  | 8.2  | 0.304  |
| 2.463  | 0.445  | 0.935  | 0.49  | 0.983  | 0.354  | 0.001  | 0.043  | 4.648  | 0.119  |
| 3.872  | 0.556  | 0.892  | 0.403  | 1  | 0.715  | 0.994  | 0.587  | 7.404  | 0.26  |
| 6.104  | 0.71  | 1.048  | 0.713  | 1  | 0.715  | 0.342  | 0.244  | 15.671  | 0.769  |
| 3.881  | 0.556  | 0.979  | 0.596  | 0.985  | 0.357  | 0.013  | 0.12  | 13.569  | 0.611  |
| -0.047  | 0.118  | -0.053  | 0.122  | 0  | 0.063  | 0.001  | 0.043  | 6.733  | 0.224  |
| 2.205  | 0.422  | 0.935  | 0.49  | 0.999  | 0.424  | 0.963  | 0.446  | 12.764  | 0.566  |
| 7.174  | 0.77  | 0.892  | 0.403  | 1  | 0.715  | 0.991  | 0.552  | 12.932  | 0.575  |
| 1.433  | 0.343  | 0.789  | 0.32  | 0.027  | 0.2  | 0.023  | 0.138  | 10.996  | 0.466  |
| -0.007  | 0.126  | -0.349  | 0.07  | 0  | 0.063  | 0.001  | 0.043  | 2.476  | 0.043  |
| 7.682  | 0.833  | 1.199  | 0.96  | 1  | 0.715  | 0.634  | 0.295  | 13.865  | 0.629  |
|     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0.646 | 0.243 | -0.021 | 0.129 | 0.023 | 0.197 | 0.011 | 0.114 | 10.233 | 0.423 |
| 1.593 | 0.361 | 0.361 | 0.273 | 0.66 | 0.28 | 0.007 | 0.1 | 5.87 | 0.179 |
| 2.839 | 0.477 | 0.853 | 0.373 | 1 | 0.715 | 0.511 | 0.273 | 12.433 | 0.547 |
| 0.053 | 0.14 | 0.845 | 0.345 | 0.001 | 0.137 | 0.766 | 0.326 | 5.864 | 0.179 |
| -0.987 | 0.038 | 0.77 | 0.312 | 0 | 0.063 | 0.263 | 0.23 | 5.805 | 0.176 |
| -0.962 | 0.039 | -0.155 | 0.108 | 0 | 0.063 | 0.003 | 0.074 | 3.968 | 0.089 |
| -0.708 | 0.051 | -0.048 | 0.123 | 0 | 0.063 | 0 | 0.016 | 6.594 | 0.217 |
| 2.087 | 0.41 | 0.976 | 0.595 | 0.018 | 0.193 | 1 | 0.888 | 5.869 | 0.179 |
| 0.738 | 0.256 | 0.064 | 0.169 | 0.144 | 0.233 | 0.002 | 0.062 | 3.878 | 0.085 |
| 2.478 | 0.446 | 0.902 | 0.416 | 0.998 | 0.411 | 0.966 | 0.452 | 12.063 | 0.527 |
| 1.637 | 0.365 | 1.048 | 0.713 | 0.551 | 0.271 | 0.998 | 0.697 | 12.908 | 0.574 |
| 7.497 | 0.802 | 1.048 | 0.713 | 1 | 0.715 | 1 | 0.888 | 18.827 | 0.921 |
| 9.353 | 0.965 | 1.048 | 0.713 | 1 | 0.715 | 0.631 | 0.295 | 18.656 | 0.914 |
| 7.533 | 0.807 | 1.048 | 0.713 | 1 | 0.715 | 1 | 0.888 | 16.221 | 0.82 |
| 2.147 | 0.416 | 0.919 | 0.43 | 0.298 | 0.251 | 0.986 | 0.517 | 3.586 | 0.075 |
| 3.08 | 0.496 | 1.024 | 0.645 | 0.035 | 0.205 | 0.029 | 0.146 | 14.036 | 0.64 |
| 2.699 | 0.465 | -0.443 | 0.057 | 0.262 | 0.247 | 0.003 | 0.074 | 6.387 | 0.206 |
| 0.918 | 0.281 | 0.935 | 0.49 | 0 | 0.063 | 0.024 | 0.14 | 7.844 | 0.284 |
| 2.226 | 0.424 | 0.998 | 0.613 | 0.038 | 0.207 | 0.978 | 0.483 | 13.179 | 0.589 |
| 2.243 | 0.425 | 0.954 | 0.563 | 1 | 0.715 | 0.991 | 0.552 | 13.305 | 0.596 |
| 4.96 | 0.631 | 1.045 | 0.669 | 1 | 0.715 | 0.997 | 0.653 | 19.835 | 0.966 |
| 3.853 | 0.554 | 0.852 | 0.362 | 1 | 0.715 | 0.994 | 0.587 | 11.304 | 0.484 |
| 0.121 | 0.154 | 0.077 | 0.185 | 0.858 | 0.303 | 0.999 | 0.75 | 5.437 | 0.157 |
| 1.915 | 0.394 | 0.935 | 0.49 | 1 | 0.715 | 0.997 | 0.653 | 16.524 | 0.841 |
| 2.228 | 0.424 | 0.937 | 0.529 | 1 | 0.715 | 0.993 | 0.574 | 12.027 | 0.525 |
| 6.125 | 0.712 | 0.935 | 0.49 | 1 | 0.715 | 1 | 0.888 | 20.344 | 0.988 |
| 7.793 | 0.843 | 0.998 | 0.613 | 1 | 0.715 | 0.325 | 0.241 | 12.115 | 0.53 |
| 4.494 | 0.598 | 0.62 | 0.289 | 1 | 0.715 | 0.032 | 0.149 | 14.32 | 0.659 |
| 5.957 | 0.698 | 0.701 | 0.299 | 1 | 0.715 | 0.933 | 0.406 | 11.476 | 0.494 |
| 4.906 | 0.628 | 0.557 | 0.284 | 1 | 0.715 | 0.913 | 0.39 | 14.531 | 0.674 |
| Domain/Function                                      | Interpro | GTEx_V6_ge | GTEx_V6_tissue |
|-----------------------------------------------------|----------|------------|----------------|
| Arfaptin homology (AH) domain/BAR domain            |          |            |                |
| GPCR family                                         |          |            |                |
| UBX domain                                          |          |            |                |
| UBX domain ENSG0000001 Lung                         |          |            |                |
| Zinc finger C2H2-type/integrase DNA-binding domain   |          |            |                |
| P-loop containing nucleoside triphosphate hydrolase |          |            |                |
| Metal-dependent                                    |          |            |                |
| Heat shock cl.                                      |          |            |                |
| Ribosomal protein L2 domain 2                       |          |            |                |
| GPCR, rhodopsin-like                                |          |            |                |
| Protein kinase domain                               |          |            |                |
| AAA+ ATPase                                         |          |            |                |
| Zinc finger C2H2                                    |          |            |                |
| GPCR, rhodopsin-like                                |          |            |                |
Activator of Hsp90 ATPase, N-terminal
C2 domain
Concanavalin A-like lectin/glucanase domain|Laminin G domain
Ion transport domain|Voltage-dependent channel, four helix bundle domain
Double-stranded RNA-binding domain
Immunoglobulin I-set|Immunoglobulin subtype|Immunoglobulin-like domain|Immunoglobulin-like fold
Quinoprotein alcohol dehydrogenase-like superfamily|WD40/YVTN repeat-like-containing domain;WD40-repeat-containing domain|WD40/YVTN repeat-like-containing domain
P-loop containing nucleoside triphosphate hydrolase
E3 ubiquitin-protein ligase HECW1/2, N-terminal
Nucleic acid-binding, OB-fold
Tetratricopeptide-like helical domain
SCA7 domain
Ephrin receptor ligand binding domain|Galactose-binding domain-like|Tyrosine-protein kinase, receptor class V, conserved site
ATPase, F1/V1/A1 complex, alpha/beta subunit, C-terminal
Amino acid permease/SLC12A domain
Diacylglycerol/phorbol-ester binding|Protein kinase C-like, phorbol ester/diacylglycerol-binding domain;Protein kinase C-like, phorbol ester/diacylglycerol-binding domain
Protein kinase C-like, phorbol ester/diacylglycerol-binding domain
ENSG00000224769.1
Thyroid
Transferrin-like domain
Krueppel-associated box
Alpha-2-mac.

DBB domain

High mobility

Leucine-rich

Sorting nexir

PH domain-li.

Cadherin|Ca.

Cadherin, cyt.

Sterile alpha.

GPCR, rhodo.

B30.2/SPRY.

Aminoacyl-tf.

Heat shock p.

Fibronectin t.

AAA+ ATPase.
| Domain Description                          |
|--------------------------------------------|
| Zinc finger, C                             |
| Storkhead-box                               |
| Zinc finger, L                             |
| Polycystin cation channel, PKD1/PKD2       |
| Polycystin cation channel                  |
| Potassium channel                          |
| Leucine-rich                               |
| Insulin-like                               |
| GPCR, rhodopsin-like                       |
| Zinc finger C                              |
| Ribosomal p                             |
| P-loop containing nucleoside triphosphate |
| Chaperone D                               |
| Domain of unknown function DUF4211         |
| GPCR, rhodopsin-like                       |
| Metallopeptidase                           |
| Glycoside hydrolase                        |
| GPCR, rhodopsin-like                       |
| S-adenosyl-Lmethionine-dependent methyltransferase |
| STAT transcription factor, DNA-binding     |
| STAT transcription factor, DNA-binding, subdomain |
| p53-like transcription factor, DNA-binding |
| Myosin head                               |
| P-loop containing nucleoside triphosphate |
| Green fluorescent protein-like              |
Tryptophan synthase beta subunit-like
Glycoside hydrolase superfamily
PH domain-like
PPM-type phosphatase domain
Chromogranin
Immunoglobulin-like fold
Nucleotide-binding alpha-beta plait domain
Armadillo-like helical
Concanavalin A-like lectin/glucanase domain
Protein kinase-like domain
C2 domain
Integrin alpha-2
SH2 domain
FIIND domain
Glutathione-dependent formaldehyde-activating enzyme/centromere protein V|Mss4-like
AAA+ ATPase domain|ABC transporter-like|P-loop containing nucleoside triphosphate hydrolase
Immunoglobulin I-set|Immunoglobulin subtype 2|Immunoglobulin-like domain|Immunoglobulin-like fold
KEN domain|PUG domain
GPCR, rhodopsin-like, 7TM
Ankyrin repeat-containing domain
Cadherin|Cadherin-like
Fibronectin type III|Immunoglobulin subtype|Immunoglobulin-like fold;Fibronectin type III|Immunoglobulin-like fold
C-type lectin fold;C-type lectin-like
TRAM/LAG1,.
Concanavalin A-like lectin/glucanase domain

Zinc finger C2H2-type/integrase DNA-binding domain

Zinc finger C.

Transglutaminase-like

Tumour-suppressor protein CtIP N-terminal

AAA+ ATPase domain

P-loop containing nucleoside triphosphate hydrolase

P-loop containing nucleoside triphosphate hydrolase

UBA-like

Plexin, cytoplasmic RasGAP domain

Alkaline phosphatase-like, alpha/beta/alpha

Alkaline phosphatase-like

Alkaline phosphatase

Alkaline phosphatase

Alkaline phosphatase

Alkaline phosphatase

Alkaline phosphatase
Adipose Subcutaneous | Colon Transverse | Muscle Skeletal | Nerve Tibial | Skin Not Sun Exposed Suprapubic | Skin Sun Exposed Lower Leg | Thyroid