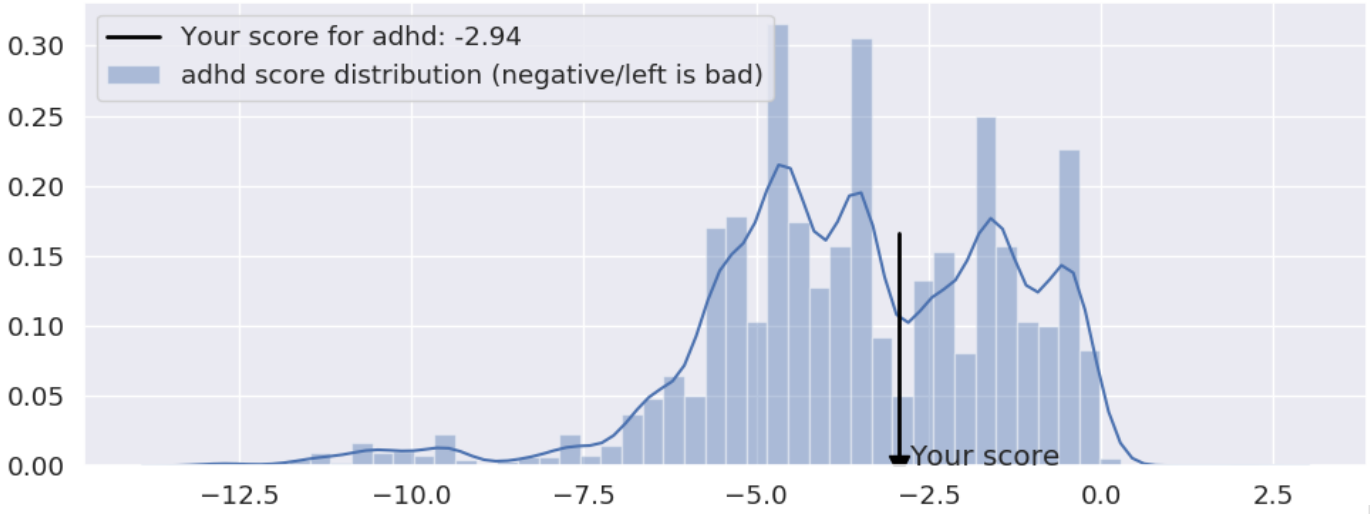
TOPIC: ADHD



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★ rs1800497(C;T) warning:2.46 43.92% **A1/A2: Bad at avoidance of errors. 0.5x lower OCD risk, 0.87x lower Tardive Diskinesia risk, higher ADHD risk. More Alcohol Dependence. Lower risk of Postoperative Nausea. Increased obesity. Bupropion is not effective.**

The DRD2 TaqIA A1/A2 version causes less dopamine receptors. Doesn't learn from mistakes well. Reduced response to errors and increased addictive behavior

Men may have half the risk of Obsessive Compulsive Disorder but higher risk of ADHD. Women have lower Persistence. 0.87x reduced risk of Tardive Diskinesia when taking dopamine receptor antagonists. Slightly increased risk of alcoholism and smoking addiction. Slower recovery from traumatic brain injury. Lower risk of postoperative nausea within 6 hours of surgery. Bupropion (Wellbutrin, Budeprion, Prexaton, Elontril, Aplenzin, Zyban, Voxra) doesn't help to quit smoking. Increased obesity due to decreased pleasure response to food.

Single marker analysis the TaqIA rs1800497 and TaqIB rs1079597 variants were associated with heroin dependence.

DRD2/ANKK1 TaqIA polymorphism is not associated with early infant temperament. There were no differences in the temperament style distribution between the T-carrier and non-T carrier groups. There were also no statistically significant differences between the two groups in the score of the nine temperament dimensions.

Extrapyramidal adverse effects are associated with increased drug occupancy of the dopamine 2 receptors DRD2. The A1 allele of the DRD2/ANKK1, rs1800497, is associated with decreased striatal DRD2 density. Results strongly suggested that A1+ variants of the DRD2/ANKK1 Taq1A allele do confer an associated risk for akathisia in patients who were treated with second-generation antipsychotics SGAs, and these variants may explain inconsistencies found across prior studies, when comparing FGAs and SGAs.

DRD2/ANKK1 Taq1A (rs 1800497 C>T) genotypes are associated with susceptibility to second generation antipsychotic-induced akathisia.

Multivariate analysis of dopaminergic gene variants as risk factors of heroin dependence.

[DRD2/ANKK1 Taq IA polymorphism and early infant temperament].
rs1800497, a SNP also known as the TaqIA (or Taq1A) polymorphism of the dopamine D2 receptor DRD2 gene (even though it is actually located over 10,000bp downstream of the gene), gives rise to the DRD2*A1 allele. This allele (rs1800497(T)) is associated with a reduced number of dopamine binding sites in the brain .

Reduced response to errors and increased addictive behavior

It has been postulated to play a role in alcoholism, smoking, and certain neuropsychiatric disorders.

The reduced number of dopamine binding sites may play a role in nicotine addiction by causing an "understimulated" state that can be relieved by smoking (and/or use of other drugs).

A wide variety of reports have been published over more than ten years either linking rs1800497 to aspects of nicotine use and smoking cessation success, or finding no such association. A meta-analysis of 41 such studies published in 2004 concluded that overall the association of rs1800497 with such phenomena was statistically weak. This same group recently (2009) published a study showing no association between rs1800497 and improved response to nicotine replacement therapy (NRT), contrary to their previous study.

More recently, a relatively large study of over 700 patients attempting to kick their smoking habit using the drug bupropion determined that smokers homozygous for the A2/A2 genotype were more successful than A1/A2 or A1/A1 individuals. The A2/A2 smokers were more than three times as likely, relative to placebo, to be abstinent at end of treatment (35.2% vs. 15.1%; odds ratio = 3.25, CI: 2.00-5.28) and at 6 months of follow-up (26.7% vs. 12.2%; odds ratio = 2.81, CI: 1.66-4.77), whereas not so much by 12 months (16.3% vs. 10.7%; OR = 1.70, CI: 0.95-3.05). Basically, A1/A2 and A1/A1 genotype smokers didn't gain anything from using bupropion versus placebo; bupropion only helped A2/A2 genotypes stop smoking.

In a study of individuals in the Polyp Prevention Trial with any, multiple (>/=2) or advanced colorectal adenoma recurrence after 4 years, compared to those without adenoma recurrence, rs1800497(T;T) individuals were significantly associated with all advanced adenoma recurrence (odds ratio 2.40, CI: 1.11-5.20). The authors speculate this increased risk of adenoma recurrence (and an association with colorectal cancer) may be related to SNP-associated differences in alcohol and fat intake.

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A 2014 preliminary study links an individual's ANKK1 rs1800497 genotype as likely to experience greater positive subjective effects following cocaine exposure, including greater 'high' and 'like', and these individuals may have increased vulnerability to continue using cocaine or they may be at greater risk to relapse during periods of abstinence. The study states that replication of these findings is necessary to confirm these findings.

SNPs rs6276, rs6277, and rs1800497) in the human DRD2 gene are associated with decreased D2R expression and function, as well as high blood pressure. Data supports the hypothesis that D2R function has protective effects in human renal proximal tubule cells hRPTCs and suggest that carriers of these SNPs may be prone to chronic renal disease and high blood pressure.

SNPs, rs1800497 and rs2283265, located near and within the dopamine receptor 2 DRD2 gene, respectively, were significantly associated with improvements during working memory training ($p < .003$ and $p < .0004$, respectively).

A small (54 patient) study of patients with traumatic brain injury concluded that carriers of rs1800497(A) alleles recover slower as assessed by memory and attention tests.

23andMe blog diminished pleasure response from food

GENETICALLY DETERMINED DIFFERENCES IN LEARNING FROM ERRORS

Obsessive Compulsive Disorder

Avoidance of Errors

Postoperative Nausea and Vomiting

A variant in ANKK1 modulates acute subjective effects of cocaine: a preliminary study.

Living in the moment: Effects of time perspective and emotional valence of episodic thinking on delay discounting.

Single-nucleotide polymorphisms of the dopamine d2 receptor increase inflammation and fibrosis in human renal proximal tubule cells.

Polymorphisms in the dopamine receptor 2 gene region influence improvements during working memory training in children and adolescents.

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Gene related topics:

adhd(5.00) · alcohol(5.00) · alcohol dependence(5.00) · obesity(5.00) · obsessive compulsive disorder(1.00) · memory(1.00) · blood pressure(1.00) · CANCER(1.00) · brain(1.00) · postoperative nausea and vomiting(1.00) · alcoholism(1.00) · cancer(1.00) · RENAL(1.00) · colorectal cancer(1.00) · OTHER(1.00) · nicotine(1.00) · smoking cessation(1.00) · heroin dependence(1.00) · temperament(1.00) · smoking(1.00) · inflammation(1.00)

Relevant papers and external links:

PMID 18063800
PMID 18058343
PMID 23840506
PMID 20199723
PMID 23118020
PMID 23118020
PMID 23840506
PMID 20199723
PMID 9672901
PMID 18063800
PMID 8873216
PMID 15370155
PMID 19273465
PMID 18058343
PMID 19065655
PMID 24528631
PMID 24379187
PMID 24001007
PMID 18698520
OMIM 608774

PHARMGKB PA165291720
Evidence: PubMed ID:1969501Risk or phenotype-associated genotype: T. Phenotype: The A1 allele is associated with 24 (69%) of 35 alcoholics, but it associated with only 7 (20%) of 35 nonalcoholics. The absence of the A1 allele is associated with 28 (80%) of 35 nonalcoholics and with only 11 (31%) of 35 alcoholics. Study size: 35 alcoholics and 35 nonalcoholics. Study population: 46 whites; 24 blacks

PHARMGKB PA161145174
Evidence: Web Resource:External Link with 12-month smoking cessation outcomes following treatment with a combination of bupropion and behavioral counseling in women.

PHARMGKB PA162171873
Evidence: PubMed ID:18058343This variant (A2/A2 genotype) is associated with improved response to bupropion efficacy for smoking cessation.

PHARMGKB PA162356250
Evidence: PubMed ID:18855532This SNP is significant predictor of treatment response to risperidone in first-episode schizophrenia.

PHARMGKB PA162370416
Evidence: PubMed ID:18927395In blood oxygen level-dependent functional magnetic resonance imaging studies, obese college-aged women and adolescent girls showed a blunted striatal response to chocolate milkshake tasting (vs. tasting of a tasteless solution) when compared to lean women and girls, and the genotype at this SNP affected the extent of this response. This SNP is known as the TaqIA allele of DRD2 even though it is more than 10 KB downstream from the gene boundary.

PHARMGKB PA165108050

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Evidence: PubMed ID:19339912Risk or phenotype-associated allele: T. Phenotype: Carriers of one or two copies of the T allele of this variant (also known as Taq1A A1) were at higher risk of developing hyperprolactinemia than those with two copies of the C allele (also known as Taq1A A2). This variant is a SNP located about 9.5 kb downstream of the DRD2 coding region, and results in a Glu (C allele) to Lys (T allele) amino acid substitution in the ANKK1 protein. Study size: 90. Study population/ethnicity: 7-17-year-old patients chronically treated with risperidone; non-Hispanic Caucasians. Significance metric(s): OR = 3.1; p < 0.05. Type of association: CO.

PHARMGKB PA165291714
Evidence: PubMed ID:18086475Risk or phenotype-associated genotype: T/T. Phenotype: Patients with one or two A1 alleles (T/T) had a greater risk of significant side effects, particularly if they were male. Study size: 116. Study population: Caucasians.

PHARMGKB PA165291715
Evidence: PubMed ID:17767146Risk or phenotype-associated genotype: C/C. Phenotype: A meta-analysis showed that compared to tardive dyskinesia (TD)-negative patients, TD-positive patients had a higher A2 allele frequency (P = 0.003), with an effect-size of 1.30 (95% CI: 1.09-1.55), and higher A2/A2 genotype frequency (P = 0.001), with an effect-size of 1.50 (95% CI: 1.17-1.92). Study size: 1256 schizophrenia patients.

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PHARMGKB PA165291718
Evidence: PubMed ID:19273465Phenotype: This study found no association between the Taq1A polymorphism and response to nicotine replacement therapy.

PHARMGKB PA165291719
Evidence: PubMed ID:15492764Risk or phenotype-associated genotype: T. Phenotype: Compared to women who carry both A2 (CC) alleles, women with at least one A1 (T) allele were more likely to report having stopped taking bupropion due to medication side effects (odds ratio (OR)=1.91, 95% confidence interval (CI)=1.01-3.60; P<0.04) and at 12 months were somewhat more likely to report smoking (OR=0.76, 95% CI=0.56-1.03; P<0.076). Significant associations or trends were not observed in men. Study size: 451 participants. Study population: Caucasian.

PHARMGKB PA165291721
Evidence: PubMed ID:17989061Risk or phenotype-associated genotype: T. Phenotype: This meta-analysis included 44 studies with 9,382 participants. For all studies combined, when we assumed the dominant model of gene action (A1A1 + A1A2 vs. A2A2), a small but significant association of alcohol dependency with being homozygote or heterozygote for the A1 allele was detected. The odds ratio was 1.38 (95 percent confidence interval (CI): 1.20, 1.58) when random effects were used. Study size: 5,273 cases and 3,995 controls.

PHARMGKB PA165291618
Evidence: PubMed ID:18563706Risk or phenotype-associated allele: T (A1). Phenotype: In a smoking cessation study the TaqIA SNP was significantly associated with being abstinent at 1 year (P = 0.01). Participants who carried at least one minor allele (A1) were less likely to quit compared to A2A2 homozygous (Odds Ratio: 0.47, 95% CI: 0.24-0.94). Study size: 881. metric(s): OR =0.47, 95% CI: 0.24-0.94.

PHARMGKB PA165291713

Evidence: PubMed ID:15286066Risk or phenotype-associated allele: T. Phenotype: In the combined medication group patients with the A1 (T) allele had 40% higher prolactin levels than patients without this allele. Study size: 144 schizophrenic patients. Study population: White patients.

PHARMGKB PA165291717
Evidence: PubMed ID:15077009Risk associated genotype: C/C. Phenotype: In a randomized controlled trial investigating the short-term effectiveness of the nicotine patch, after 1 week of the trial the patch was more effective for smokers with CT/TT genotype (OR 2.80, 95% CI 1.70-4.61) than with CC (OR 1.41, 0.94-2.12; P for difference in ORs 0.04). Study size: 1532.

PHARMGKB PA165291679
Evidence: PubMed ID:20194480Phenotype: A meta-analysis, including eight individual studies, was not able to detect an association between clinical response to antipsychotics and the Taq1A variant. Study size: meta-analysis included 8 individual studies, 748 patients total.

PHARMGKB PA165291688
Evidence: PubMed ID:19603545Phenotype: In this case-control study the polymorphisms -141C Ins/Del (rs1799732); C957T (rs6277); A1385G (rs6276); and TaqIA (rs1800497) were genotyped. The haplotypes I-C-G-A2 and I-C-A-A1 occurred with a higher frequency in alcoholics [P=0.026, odds ratio (OR): 1.340; P=0.010, OR: 1.521, respectively]. Study size: 360 alcoholics and 368 controls. Study population:Caucasian individuals of German origin.

PHARMGKB PA165291677
Evidence: PubMed ID:18926547Phenotype: Compared with patients who had the A2/A2 (C/C) genotype, the positive and negative syndrome scale (PANSS) positive scores of A1/A1 (T/T) patients were 3.71 lower (p = 0.01) and of A1/A2 patients were 1.36 lower (p = 0.03) after 4-week aripiprazole treatment. These results suggest that A1 carriers are associated with superior therapeutic response on positive symptoms. Study size: 128 schizophrenic patients. Study population: Chinese.

PHARMGKB PA165291712
Evidence: PubMed ID:10823405Risk or phenotype-associated allele: T. Phenotype: In schizophrenic patients treated with nemonapride, the delta prolactin at 1 and 3 weeks was significantly (P<0.05) higher in female patients with the A1 allele than in males with or with no A1 allele. The delta prolactin at 3 weeks was also significantly (P<0.05) higher in the female patients with the A1 allele than in those with no A1 allele. Study size: 25 schizophrenic inpatients. Study population: Japanese.

PHARMGKB PA165291716
Evidence: PubMed ID:18180754Risk or phenotype-associated genotype: C/C. Phenotype: This meta-analysis suggests multiple genetic influences on tardive dyskinesia, including the Taq1A SNP. For Taq1A using the A1 allele as reference category, the study showed a risk-increasing effect for the A2 variant (OR=1.30, 95% CI: 1.03-1.65, P=0.026), and for A2-A2 homozygotes using A1-A1 as reference category (OR=1.80, 95% CI: 1.03-3.15, P=0.037).

PHARMGKB PA165374659
Evidence: PubMed ID:20714340Risk or phenotype-associated allele: T. Phenotype: The T allele was associated with weight gain of at least 7% in schizophrenia patients treatment with clozapine or olanzapine. Study size: 206. Study population/ethnicity: European american; German; Schizophrenia. Significance metric(s): OR = 2.18 (CI: 1.00-4.75). Type of association: PD.

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OMIM 608774
PMID 24528631
PMID 24512061
PMID 24379187
PMID 24001007

dbSNP: rs1800497 Genecard: ANKK1 chromosome 11 SNPedia: rs1800497(C;T)

★ rs2300478(G;T) info:1.62 34.44% **1.7x risk for developing restless legs syndrome**

Variants in MEIS1 rs2300478, BTBD9 rs9357271, and MAP2K5/SKOR1 rs1026732 confer a significant risk of RLS in a US population.

Association studies of variants in MEIS1, BTBD9, and MAP2K5/SKOR1 with restless legs syndrome in a US population.
rs2300478, a SNP located in the MEIS1 gene, has been linked to restless legs syndrome, a common sleep disorder, with an overall odds ratio of 1.78 (CI: 1.52-2.09) for the (G) risk allele . The association between this SNP and RLS has been replicated in three European populations, within family lines but not in sporadic cases .

The highest association to restless legs syndrome is a haplotype consisting of the rs6710341(A) and rs12469063(G) alleles. This haplotype gives rise to an odds ratio of 2.75 (CI: 2.23-3.41) .

Variants in MEIS1 rs2300478, BTBD9 rs9357271, and MAP2K5/SKOR1 rs1026732 confer a significant risk of RLS in a US population.

In another study, rs2300478 was not associated with attention deficit hyperactivity disorder (ADHD).

Association studies of variants in MEIS1, BTBD9, and MAP2K5/SKOR1 with restless legs syndrome in a US population.

Restless Legs Syndrome: Preliminary Research

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Established associations:

restless legs syndrome **you have 1 copies of the risk allele G**

(risk allele=G, odds ratio/beta 1.74 [1.57-1.92] with pval 3E-28, pubmedid=17637780; risk allele=G, odds ratio/beta 1.68 [1.57-1.81] with pval 3E-49, pubmedid=21779176)

Gene related topics:

NEUROLOGICAL(1.20) · restless legs syndrome(1.20) · sleep(1.00) · adhd(1.00) · attention deficit

hyperactivity disorder(1.00) · OTHER(0.36) · breath tests(0.36) · METABOLIC(0.07) · metabolism(0.07) · body weight(0.06)

Relevant papers and external links:

PMID 21925394

PMID 21925394

PMID 21779176
Genome-wide association study identifies novel restless legs syndrome susceptibility loci on 2p14 and 16q12.1.

PMID 17637780

PMID 19279021

PMID 17637780

PMID 21925394

PMID 19223043

PHARMGKB PA162356677
Evidence: PubMed ID:17637780; Web Resource:External Link Results: Genome-wide association study of restless legs syndrome identifies common variants in three genomic regions (Initial Sample Size: 401 cases, 1,644 controls; Replication Sample Size: 1,158 cases, 1,178 controls; Risk Allele: rs2300478-G).

PHARMGKB PA162355626
Evidence: PubMed ID:17637780In replicated GWAS case-control studies of Caucasian(European and French-Canadian) familial and sporadic RLS, the G allele of rs2300478 was significantly associated with Restless Legs Syndrome.

OMIM 612853

PMID 21925394

dbSNP: rs2300478 GWAS Catalog: rs2300478 Genecard: MEIS1 chromosome 2

SNPedia: rs2300478(G;T)

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★ rs464049(T;T) bad:3.38 15.35% **increased risk of schizophrenia in limited study**

Associated with schizophrenia in a study of Croatians. Due to the limited number and diversity of the studied population, more study is needed to confirm any link. The T allele was associated with an increased risk of schizophrenia.

A network of dopaminergic gene variations implicated as risk factors for schizophrenia.

Family based association study of pediatric bipolar disorder and the dopamine transporter gene (SLC6A3).

Genome-wide and candidate gene association study of cigarette smoking behaviors.

Financial and psychological risk attitudes associated with two single nucleotide polymorphisms in the nicotine receptor (CHRNA4) gene.

Two loci control tuberculin skin test reactivity in an area hyperendemic for tuberculosis.

Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · bipolar disorder(1.00) · tuberculosis(1.00) · nicotine(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

Relevant papers and external links:

PMID 19673036

PMID 18045777

PMID 18361424

PMID 19247474

PMID 19693267

PMID 19901083

dbSNP: rs464049 Genecard: SLC6A3 chromosome 5 SNPedia: rs464049(T;T)

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★ rs6314(C;T) bad:3.02 13.82% **higher risk for RA; better response to paroxetine as treatment for depression**

rheumatoid arthritis risk

rs6314, also known as C1354T or His452Tyr/H452Y, is a SNP in the serotonin 2A receptor HTR2A gene.

Based on a study of 166 Caucasian patients being treated for depression with paroxetine, rs6314 heterozygotes were associated with better response. There was a significantly higher frequency of heterozygotes in the remitter and response groups in comparison to the non-remitter (odds ratio 7.50, p=0.002) and non-response groups (odds ratio 5.25, p=0.01).

rs6314 is part of a 4-SNP haplotype in the serotonin 2A receptor gene HTR2A that has been associated with rheumatoid arthritis in a study of 1800 European patients. The risk allele is rs6314(C). The overall risk for the haplotype CTCC of SNPs rs6311-rs1328674-rs6313-rs6314 is 1.68 (CI: 1.20 - 2.34, p = 0.02).

Note: the orientation of rs1328674 in dbSNP is opposite that cited by this publication; therefore, with respect to dbSNP, the haplotype of risk as cited above is CACC rather than CTCC.

"Haplotype association analysis suggests that the haplotype CCGCA (at SNPs rs3125, rs6314, rs1923886, rs2224721 and rs2770296) is protective against bipolar disorder (P = 0.021, odds ratio 0.63) and the rarer haplotype CCACG confers risk to the disorder (P = 0.0065, odds ratio 3.08)."

Genetic variation in the serotonin 2A receptor and suicidal ideation in a sample of 270 Irish high-density schizophrenia families.

Gene related topics:

PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · arthritis(1.00) · rheumatoid arthritis(1.00) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

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Relevant papers and external links:

PMID 18006541

PHARMGKB PA162181130
Evidence: PubMed ID:11311507; PubMed ID:15052272; PubMed ID:18253134In a study in a unipolar depressive population (n=166) this variant showed an association with remission and response following paroxetine therapy. HTR2A C1354T heterozygotes were significantly associated with improved response to paroxetine therapy. The SNP was also studied as a modifier of antidepressant response in a study in depressed patients (n=173) given a variety of antidepressant treatments with no association found, however another report found the HTR2A T1354 allele to be associated with response to fluoxetine.

PMID 18712714

PHARMGKB PA162181131
Evidence: PubMed ID:14699448; PubMed ID:15891581; PubMed ID:18602445This variant in the gene encoding the serotonin 2A receptor has been associated with human episodic memory performance and with differences in brain volume in memory-related brain regions.

dbSNP: rs6314 Genecard: HTR2A chromosome 13 SNPedia: rs6314(C;T)

★ rs6313(C;T) warning:2.56 49.31% **higher risk for RA**

rs6313, also known as T102C, is part of a 4-SNP haplotype in the serotonin 2A receptor gene HTR2A that has been associated with rheumatoid arthritis in a study of 1800 European patients. The risk allele is rs6313(C). The overall risk for the haplotype CTCC of SNPs rs6311-rs1328674-rs6313-rs6314 is 1.68 (CI: 1.20 - 2.34, p = 0.02).

Note: the orientation of rs1328674 in dbSNP is opposite that cited by this publication; therefore, with respect to dbSNP, the haplotype of risk as cited above is CACC rather than CTCC.

see also gs108 and gs226

Polymorphisms in the serotonin receptor gene HTR2A are associated with quantitative traits in panic disorder.

Gene related topics:

PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · arthritis(1.00) · rheumatoid arthritis(1.00) · quantitative traits(1.00) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

Relevant papers and external links:

PMID 18006541

PHARMGKB PA165109704
Evidence: PubMed ID:19494443Risk or phenotype-associated allele (s): T/T. Phenotype: Patients, with a diagnosis of probable Alzheimer's disease, carrying the TT genotype were the most delusional during the follow-up period of a study evaluating the association of HTR2A 102T/C polymorphism with psychotic symptom severity. Patients with delusion symptoms carrying the CT and TT genotypes were resistant to the treatment with antipsychotic drugs. Study size: 80. Study population/ethnicity: Caucasian

PMID 17440930

PHARMGKB PA164889040
Evidence: PubMed ID:19193342T allele is associated with olanzapine-induced weight gain

dbSNP: rs6313 Genecard: HTR2A chromosome 13 SNPedia: rs6313(C;T)

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★ rs11974297(G;G) warning:2.25 25.12% **MigraineA four-marker haplotype in DDC was specific to migraine with Aura (rs2329340A, rs11974297C, rs2044859T, rs11761683G)**

A four-marker haplotype in DDC was specific to migraine with Aura (rs2329340A, rs11974297C, rs2044859T, rs11761683G)

a haplotype consisting of rs2329340(A), rs11974297(C), rs2044859(T) and rs11761683(G) associated with increased incidence of migraine with aura among a sample of 528 migraine patients (308 without aura, 220 with aura) and 528 sex-matched migraine-free controls

Gene related topics:

migraine with aura(5.00) · migraine(5.00) · INFECTION(0.08) · malaria(0.08) · PSYCH(0.06) · adhd(0.06)

Relevant papers and external links:

PMID 19455600

dbSNP: rs11974297 Genecard: DDC chromosome 7 SNPedia: rs11974297(G;G)

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★ rs2007153(G;G) info:1.74 37.48% **increased risk of schizophrenia in limited study**

Associated with schizophrenia in a study of Croatians. Due to the limited number and diversity of the studied population, more study is needed to confirm any link. The G allele was associated with an increased risk of schizophrenia.

Gene related topics:

schizophrenia(5.00) · PSYCH(2.00) · UNKNOWN(2.00) · dopamine beta hydroxylase activity(2.00) · interpersonal sensitivity paranoid ideation psychoticism(2.00) · perceptual disorders(1.00) · NEUROLOGICAL(0.33) · migraine with aura(0.33) · attention deficit hyperactivity disorder(0.21) · CHEMDEPENDENCY(0.16) · smoking behavior(0.16) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · migraine disorders(0.08) · adhd(0.06) · smoking(0.05) · autism(0.03)

Relevant papers and external links:

PMID 19673036

dbSNP: rs2007153 Genecard: DBH chromosome 9 SNPedia: rs2007153(G;G)

★ rs4570625(G;G) info:1.18 41.93% **maybe: higher scores on anxiety-related personality traits; greater placebo response**

One study of (only) 25 people shows this genotype was a significant predictor of clinical placebo response, being associated with greater improvement in anxiety symptoms. A criticism of this study has also been published, and it has not been replicated since the original publication years ago.

This SNP has been linked to several psychiatric and/or behavioral phenomena, including:
higher scores on anxiety-related personality traits
obsessive compulsive disorder
panic disorder with a possible gender-dependent effect
rs4570625, also known as G-703T, is a SNP in the tryptophan hydroxylase 2 TPH2 gene. This SNP has been linked to several psychiatric and/or behavioural phenomena, including:

rs4570625 and rs4565946 linked to the pathogenesis of early-onset obsessive compulsive disorder

rs4570625 and rs11178997 in TPH2's regulatory region display preferential transmission

rs4570625(G;G) homozygosity was a significant predictor of clinical placebo response, being associated with greater improvement in anxiety symptoms.

g2b2mh is rs4570625(G;G) is a significant predictor of clinical placebo response? maybe not

panic disorder with a possible gender-dependent effect

Transmission disequilibrium of polymorphic variants in the tryptophan hydroxylase-2 gene in attention-deficit/hyperactivity disorder.

Association between a polymorphism in the promoter region of the TPH2 gene and the personality trait of harm avoidance.

Tryptophan hydroxylase-2 gene variation influences personality traits and disorders related to emotional dysregulation.

Case-control and family-based association studies of candidate genes in autistic disorder and its endophenotypes: TPH2 and GLO1.

Characterization of a functional promoter polymorphism of the human tryptophan hydroxylase 2 gene in serotonergic raphe neurons.

Genetic variation of serotonin function and cognitive control.

Tryptophan hydroxylase 2 gene and alcohol use among college students.

Resequencing of serotonin-related genes and association of tagging SNPs to citalopram response.

TPH2 gene variants and anxiety during alcohol detoxification outcome.

Epistasis between IL1A, IL1B, TNF, HTR2A, 5-HTTLPR and TPH2 variations does not impact alcohol dependence disorder features.

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Alternative splicing and extensive RNA editing of human TPH2 transcripts.

Association study of tryptophan hydroxylase-2 gene in schizophrenia and its clinical features in Chinese Han population.

Pharmacogenetics of antidepressant response.

Serotonin and early cognitive development: variation in the tryptophan hydroxylase 2 gene is associated with visual attention in 7-month-old infants.

Emotion appraisal and the tryptophan hydroxylase 2 (TPH2) gene.

Common variants in the TPH2 promoter confer susceptibility to paranoid schizophrenia.

Gene related topics:

anxiety(5.00) · personality(5.00) · OTHER(1.00) · chronic fatigue syndrome(1.00) · citalopram(1.00) · obsessive compulsive disorder(1.00) · harm avoidance(1.00) · alcohol(1.00) · alcohol dependence(1.00) · schizophrenia(1.00) · PSYCH(0.56) · suicide(0.56) · METABOLIC(0.45) · waist circumference(0.45) · autism(0.17) · adhd attention deficit hyperactivity disorder(0.15) · depression(0.15) · adhd(0.15) · panic disorder(0.08) · NEUROLOGICAL(0.08) · migraine disorders(0.08) · attention deficit hyperactivity disorder(0.05) · personality traits(0.05) · depressive disorder major(0.05)

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Relevant papers and external links:

PMID 19052197
PMID 16146581
PMID 19052197
PMID 19132526
OMIM 143465
OMIM 607478
OMIM 613003
PMID 16116490
PMID 17176491
PMID 17176492
PMID 17346350
PMID 17568567
PMID 17892388
PMID 18782386
PMID 19077664
PMID 19361870
PMID 19742166
PMID 20126463
PMID 20938755
PMID 21172166

PMID 21418063

PMID 22322887

PMID 22392150

dbSNP: rs4570625 Genecard: TPH2 chromosome 12 SNPedia: rs4570625(G;G)

★ rs7997012(G;G) info:0.86 52.89% **~18% less likely to respond to citalopram**

rs7997012, located in an intron of the HTR2A gene, was found to be associated with a somewhat increased rate of successful response to treatment of depression with the drug citalopram.

From this article :

"HTR2A encodes the serotonin 2A receptor, which is downregulated by citalopram. Participants who were homozygous for the A allele had an 18% reduction in absolute risk of having no response to treatment, compared with those homozygous for the other allele."

See also Anxiety Blog posting

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Gene related topics:

citalopram(5.00) · PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · anxiety(1.00) · OTHER(1.00) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

Relevant papers and external links:

PMID 16642436

PMID 16642436

OMIM 182135

PHARMGKB PA165109601
Evidence: PubMed ID:19636338Risk or phenotype-associated allele: A. Phenotype: Patients with the 5-HTR2A intron 2 (rs7997012) AA genotype suffered from more pronounced side effects compared to carriers of the GA or GG genotype. Study size: 124. Study population/ethnicity: Caucasian; Patients with psychiatric disorders. Significance metric(s): p = 0.018 and p = 0.002. Type of association: PD.

PHARMGKB PA161614203

Evidence: PubMed ID:16642436In one study, subjects homozygous for allele A had a reduction in absolute risk of having no response to treatment with citalopram for major depressive disorder. The allele was found to be more frequent in white than in black subjects, and this is consistant with racial differences in response to antidepressant treatment.

OMIM 182135

dbSNP: rs7997012 Genecard: HTR2A chromosome 13 SNPedia: rs7997012(G;G)

★ rs2329340(T;T) info:0.75 12.98% **MA four-marker haplotype in DDC was specific to migraine with Aura (rs2329340A, rs11974297C, rs2044859T, rs11761683G)**

A four-marker haplotype in DDC was specific to migraine with Aura (rs2329340A, rs11974297C, rs2044859T, rs11761683G)

a haplotype consisting of rs2329340(A), rs11974297(C), rs2044859(T) and rs11761683(G) associated with increased incidence of migraine with aura among a sample of 528 migraine patients (308 without aura, 220 with aura) and 528 sex-matched migraine-free controls

Neurotransmitter systems and neurotrophic factors in autism: association study of 37 genes suggests involvement of DDC.

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Gene related topics:

migraine with aura(5.00) · migraine(5.00) · autism(1.00) · INFECTION(0.08) · malaria(0.08) · PSYCH(0.06) · adhd(0.06)

Relevant papers and external links:

PMID 19455600

PMID 22397633

dbSNP: rs2329340 Genecard: DDC chromosome 7 SNPedia: rs2329340(T;T)

★ rs140701(A;G) info:1.48 50.00% **Increased risk for anxiety disorders**

A study of patients with panic disorder or social anxiety disorder, both moderately heritable anxiety disorders, concluded that the rs140701(A) allele was associated with increased risk for both disorders. This SNP was actually part of a tightly linked haplotype A-A-G (for SNPs rs3794808, rs140701 and rs4583306, respectively) that had 1.7x increased risk for panic disorder (CI: 1.2-2.3).

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

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Relevant papers and external links:

PMID 18663369

dbSNP: rs140701 Genecard: SLC6A4 chromosome 17 SNPedia: rs140701(A;G)

★ rs3785143(C;C) good:0.00 80.13% **normal risk of ADHD**

T allele may be associated with Attention deficit hyperactivity disorder.

Gene related topics:

PSYCH(0.72) · adhd attention deficit hyperactivity disorder(0.72) · depression(0.15) · adhd(0.15) · depressive disorder major(0.10) · CHEMDEPENDENCY(0.10) · alcohol dependence(0.10) · panic disorder(0.08) · attention deficit hyperactivity disorder(0.02)

Relevant papers and external links:

PMID 18937296

PMID 17876324

dbSNP: rs3785143 Genecard: SLC6A2 chromosome 16 SNPedia: rs3785143(C;C)

★ rs734980(A;A) good:0.00 90.30% **common in complete genomics**

G allele associated with better response to treatment of ADHD with atomoxetine.

Gene related topics:

PSYCH(0.72) · adhd attention deficit hyperactivity disorder(0.72) · depression(0.15) · adhd(0.15) · depressive disorder major(0.10) · CHEMDEPENDENCY(0.10) · alcohol dependence(0.10) · panic disorder(0.08) · attention deficit hyperactivity disorder(0.02)

Relevant papers and external links:

PMID 19387424

dbSNP: rs734980 Genecard: SLC6A2 chromosome 16 SNPedia: rs734980(A;A)

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★ rs659734(T;T) good:0.00 84.41% **common in complete genomics**

Genetic variation in the serotonin 2A receptor and suicidal ideation in a sample of 270 Irish high-density schizophrenia families.

Gene related topics:

PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

Relevant papers and external links:

PMID 18712714

dbSNP: rs659734 Genecard: HTR2A chromosome 13 SNPedia: rs659734(T;T)

★ rs740602(G;G) good:0.00 88.38% **common in complete genomics**

Gene related topics:

UNKNOWN(6.00) · digeorge syndrome pharyngeal pouch syndrome(6.00) · PSYCH(5.72) · schizophrenia(5.72) · CANCER(3.00) · neoplasms pain(3.00) · fibromyalgia(2.67) · NEUROLOGICAL(2.00) · mamographic density(2.00) · pain temporomandibular joint disorders(2.00) · psychosis(1.67) · obsessive compulsive disorder(1.31) · CHEMDEPENDENCY(1.07) · substance related disorders(1.07) · panic disorder(1.03) · adhd attention deficit hyperactivity disorder(1.00) · eating disorders(1.00) · pain(0.94) · breast cancer(0.83) · marijuana abuse(0.67) · mood disorders(0.62) · parkinson s disease(0.62) · DEVELOPMENTAL(0.60) · leiomyoma uterine neoplasms(0.60) · mental retardation(0.60) · schizophrenia bipolar disorder(0.60) · OTHER(0.57) · sleep deprivation(0.57) · bipolar disorder(0.50) · depression(0.50) · fractures bone(0.50) · personality(0.38) · mammographic density(0.36) · personality traits(0.33) · heroin abuse(0.30) · alcoholism(0.29) · adhd(0.26) · cognitive ability(0.25) · heroin dependence(0.25) · bulimia(0.24) · endometrial cancer(0.23) · smoking(0.21) · anorexia nervosa(0.15) · suicide(0.14) · liver cancer(0.13) · tobacco use disorder(0.11) · narcolepsy(0.11) · METABOLIC(0.10) · weight gain(0.10) · smoking behavior(0.09) · endometrial neoplasms(0.07) · attention deficit hyperactivity disorder(0.05) · IMMUNE(0.05) · vitiligo(0.05) · autism(0.03) · REPRODUCTION(0.02) · endometriosis(0.02)

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Relevant papers and external links:

dbSNP: rs740602 Genecard: COMT chromosome 22 SNPedia: rs740602(G;G)

★ rs11195419(C;C) good:0.00 67.03% **common in complete genomics**

Gene related topics:

CARDIOVASCULAR(0.23) · tunica media(0.23) · PSYCH(0.21) · attention deficit hyperactivity disorder(0.21) · METABOLIC(0.15) · fasting glucose related traits(0.15) · adhd(0.15) · blood pressure arterial(0.13) · IMMUNE(0.12) · irritable bowel syndrome(0.12) · adhd attention deficit hyperactivity disorder(0.09) · cholesterol hdl(0.05) · suicide(0.04)

Relevant papers and external links:

dbSNP: rs11195419 Genecard: ADRA2A chromosome 10 SNPedia: rs11195419(C;C)

★ rs10831284(A;A) info:0.00 62.43%

The G allele of rs10831284 is associated with a higher risk of attention deficit hyperactivity disorder (ADHD) and conduct disorder.

Established associations:

attention deficit hyperactivity disorder **you have 0 copies of the risk allele G**

(risk allele=G complex/no impact summary)

conduct disorder **you have 0 copies of the risk allele G**

(risk allele=G complex/no impact summary)

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Gene related topics:

adhd(1.00) · conduct disorder(1.00) · attention deficit hyperactivity disorder(1.00)

Relevant papers and external links:

PHARMGKB PA164740773
Evidence: PubMed ID:18951430; Web Resource:External Link results: Conduct disorder and ADHD: Evaluation of conduct problems as a categorical and quantitative trait in the international multicentre ADHD genetics study. (Initial Sample Size: 938 affected trios; Replication Sample Size: NR); (Region: 4q13.3; Reported Gene(s): AMOTL1, CWC15, JMJD2D; Risk Allele: rs10831284-G); (p-value= 0.000002).This variant is associated with Attention-deficit/hyperactivity disorder and conduct disorder.

PMID 18951430

dbSNP: rs10831284 GWAS Catalog: rs10831284 Genecard: nan chromosome 11

SNPedia: rs10831284(A;A)

★ rs4531(G;G) good:0.00 87.37% **common on affy axiom data**

Cholinergic nicotinic receptor genes implicated in a nicotine dependence association study targeting 348 candidate genes with 3713 SNPs.

Gene related topics:

PSYCH(2.00) · UNKNOWN(2.00) · dopamine beta hydroxylase activity(2.00) · interpersonal sensitivity paranoid ideation psychoticism(2.00) · perceptual disorders(1.00) · nicotine(1.00) · nicotine dependence(1.00) · NEUROLOGICAL(0.33) · migraine with aura(0.33) · attention deficit hyperactivity disorder(0.21) · CHEMDEPENDENCY(0.16) · smoking behavior(0.16) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · migraine disorders(0.08) · adhd(0.06) · smoking(0.05) · autism(0.03)

Relevant papers and external links:

PMID 17135278

dbSNP: rs4531 Genecard: DBH chromosome 9 SNPedia: rs4531(G;G)

★ rs4648317(C;C) good:0.00 60.83% **normal**

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rs4648317, a SNP in the dopamine D2 receptor DRD2 gene, has been linked to higher rates of smoking and higher nicotine dependence scores, based on a study of ~220 adolescents. The risk allele rs4648317 (T).

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · nicotine(1.00) · nicotine dependence(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

PMID 18434921

dbSNP: rs4648317 Genecard: DRD2 chromosome 11 SNPedia: rs4648317(C;C)

★ rs5558(T;T) good:0.00 **normal**

rs5558 (F528C) is a non-synonymous SNP in SLC6A2 (norepinephrine transporter), with a T encoding for Phenylalanine and C encoding the rare Cysteine variant.

assoc. w/ major depression

Cysteine variant exhibited increased norepinephrine transport, insensitivity to protein kinase C induced down-regulation, and a decrease in desipramine (tricyclic antidepressant) potency

Gene related topics:

major depression(1.00) · PSYCH(0.72) · adhd attention deficit hyperactivity disorder(0.72) · depression(0.15) · adhd(0.15) · depressive disorder major(0.10) · CHEMDEPENDENCY(0.10) · alcohol dependence(0.10) · panic disorder(0.08) · attention deficit hyperactivity disorder(0.02)

Relevant papers and external links:

PMID 19105200

PMID 15894713

dbSNP: rs5558 Genecard: SLC6A2 chromosome 16 SNPedia: rs5558(T;T)

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★ rs11568324(C;C) good:0.00 99.28% **common in complete genomics**

The data were consistent for rs11568324, suggesting the existence of a rare allele conferring protection for ADHD

Gene related topics:

PSYCH(0.72) · adhd attention deficit hyperactivity disorder(0.72) · depression(0.15) · adhd(0.15) · depressive disorder major(0.10) · CHEMDEPENDENCY(0.10) · alcohol dependence(0.10) · panic disorder(0.08) · attention deficit hyperactivity disorder(0.02)

Relevant papers and external links:

PMID 18937296

dbSNP: rs11568324 Genecard: SLC6A2 chromosome 16 SNPedia: rs11568324(C;C)

★ rs17110747(G;G) good:0.00 73.04% **common in complete genomics**

Gene related topics:

OTHER(1.00) · chronic fatigue syndrome(1.00) · PSYCH(0.56) · suicide(0.56) · METABOLIC(0.45) · waist circumference(0.45) · autism(0.17) · adhd attention deficit hyperactivity disorder(0.15) · depression(0.15) · adhd(0.15) · panic disorder(0.08) · NEUROLOGICAL(0.08) · migraine disorders(0.08) · attention deficit hyperactivity disorder(0.05) · personality traits(0.05) · depressive disorder major(0.05)

Relevant papers and external links:

dbSNP: rs17110747 Genecard: TPH2 chromosome 12 SNPedia: rs17110747(G;G)

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★ rs11178997(T;T) info:0.00 72.05% **common for Caucasians on the 23andme platform**

common for Caucasians on the 23andme platform

rs4570625 and rs11178997 in TPH2's regulatory region display preferential transmission

paper Association with and bipolar disorder in a Northern Swedish, Isolated Population. 182 patients and 364 unrelated control individuals. P = .001

rs11178997 significantly reduced TPH2 transcriptional activity by 22% and 7% in cell lines might have implications for the development and function of the serotonergic system in the brain.

paper Carriers of the A-Allele of rs11178997 showed a decreased cortisol and ACTH stimulation. might be crucial factors for major depression

pdf paper associated with bipolar disorder

Minor allele yielded odds ratio of 1.5 (CI:1.2-1.9) for increased risk for bipolar disorder in a study of 883 Russian patients.

Transmission disequilibrium of polymorphic variants in the tryptophan hydroxylase-2 gene in attention-deficit/hyperactivity disorder.

Association of brain-specific tryptophan hydroxylase, TPH2, with unipolar and bipolar disorder in a Northern Swedish, isolated population.

Tryptophan hydroxylase 2 gene and alcohol use among college students.

Investigation of the tryptophan hydroxylase 2 gene in bipolar I disorder in the Romanian population.

Alternative splicing and extensive RNA editing of human TPH2 transcripts.

Pharmacogenetics of antidepressant response.

Common variants in the TPH2 promoter confer susceptibility to paranoid schizophrenia.

Gene related topics:

OTHER(1.00) · chronic fatigue syndrome(1.00) · bipolar disorder(1.00) · brain(1.00) · alcohol(1.00) · schizophrenia(1.00) · major depression(1.00) · PSYCH(0.56) · suicide(0.56) · METABOLIC(0.45) · waist circumference(0.45) · autism(0.17) · adhd attention deficit hyperactivity disorder(0.15) · depression(0.15) · adhd(0.15) · panic disorder(0.08) · NEUROLOGICAL(0.08) · migraine disorders(0.08) · attention deficit hyperactivity disorder(0.05) · personality traits(0.05) · depressive disorder major(0.05)

Relevant papers and external links:

PMID 17568567

PMID 17905754

OMIM 143465

OMIM 607478

OMIM 125480

OMIM 613003

PMID 16116490

PMID 17015812

PMID 18782386

PMID 18797398

PMID 20126463

PMID 21172166

PMID 22392150

dbSNP: rs11178997 Genecard: TPH2 chromosome 12 SNPedia: rs11178997(T;T)

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★ rs25533(T;T) good:0.00 85.95% **common in complete genomics**

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory

evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

Relevant papers and external links:

dbSNP: rs25533 Genecard: SLC6A4 chromosome 17 SNPedia: rs25533(T;T)

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★ rs6869645(C;C) good:0.03 85.29% **common in complete genomics**

Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

Relevant papers and external links:

dbSNP: rs6869645 Genecard: SLC6A3 chromosome 5 SNPedia: rs6869645(C;C)

★ rs12364283(A;A) good:0.15 90.76% **common in complete genomics**

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

PHARMGKB PA162355756
Evidence: PubMed ID:18077373; PubMed ID:18829695This promoter variant affects total DRD2 mRNA expression. The C allele is associated with enhanced total DRD2 mRNA expression and is associated with working memory activity in prefrontal cortex and striatum of schizophrenia patients.

dbSNP: rs12364283 Genecard: DRD2 chromosome 11 SNPedia: rs12364283(A;A)

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★ **rs1042173(G;T)** **info:0.38** **49.96%** **normal**

rs1042173 is a SNP in the solute carrier family 6 (neurotransmitter transporter, serotonin), member 4 SLC6A4 gene.

A study of 275 patients seeking treatment for alcoholism concluded that Caucasians of with the rs1042173 (T;T) genotype consumed an average of 11.17 drinks per drinking day, compared with an average of 8.58 for carriers of a rs1042173(G) allele (p = 0.0034). While this held true for both men and women, this association was not seen in Hispanics.

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major

depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

Relevant papers and external links:

PMID 19032574

dbSNP: rs1042173 Genecard: SLC6A4 chromosome 17 SNPedia: rs1042173(G;T)

★ **rs165599(A;G)** **info:0.25** **49.98%**

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anxiety-related personality traits, ADHD, schizophrenia

part of a three marker haplotype rs737865-rs4680-rs165599

epistasis between SNPs in COMT (rs2097603, Val158Met (rs4680), rs165599) and polymorphisms in other schizophrenia susceptibility genes

popular in pubmed

is associated with bipolar disorder and influences prefrontal aspects of verbal memory in bipolar patients and healthy controls.

Gene related topics:

UNKNOWN(6.00) · digeorge syndrome pharyngeal pouch syndrome(6.00) · PSYCH(5.72) · schizophrenia(5.72) · CANCER(3.00) · neoplasms pain(3.00) · fibromyalgia(2.67) · NEUROLOGICAL(2.00) · mamographic density(2.00) · pain temporomandibular joint disorders(2.00) · psychosis(1.67) · obsessive compulsive disorder(1.31) · CHEMDEPENDENCY(1.07) · substance related disorders(1.07) · panic disorder(1.03) · adhd attention deficit hyperactivity disorder(1.00) · eating disorders(1.00) · anxiety(1.00) · memory(1.00) · pain(0.94) · breast cancer(0.83) · marijuana abuse(0.67) · mood disorders(0.62) · parkinson s disease(0.62) · DEVELOPMENTAL(0.60) · leiomyoma uterine neoplasms(0.60) · mental retardation(0.60) · schizophrenia bipolar disorder(0.60) · OTHER(0.57) · sleep deprivation(0.57) · bipolar disorder(0.50) · depression(0.50) · fractures bone(0.50) · personality(0.38) · mammographic density(0.36) · personality traits(0.33) · heroin abuse(0.30) · alcoholism(0.29) · adhd(0.26) · cognitive ability(0.25) · heroin dependence(0.25) · bulimia(0.24) · endometrial cancer(0.23) · smoking(0.21) · anorexia nervosa(0.15) · suicide(0.14) · liver cancer(0.13) · tobacco use disorder(0.11) · narcolepsy(0.11) · METABOLIC(0.10) · weight gain(0.10) · smoking behavior(0.09) · endometrial neoplasms(0.07) · attention deficit hyperactivity disorder(0.05) · IMMUNE(0.05) · vitiligo(0.05) · autism(0.03) · REPRODUCTION(0.02) · endometriosis(0.02)

Relevant papers and external links:

PMID 17547583

OMIM 104300

OMIM 116790

PHARMGKB PA164888988
Evidence: PubMed ID:19451915In a study of 78 African American and 65 white patients diagnosed with schizophrenia or schizoaffective disorder, this SNP in the COMT gene was found to have significant associations with response to risperidone over 2-12 weeks in both African-American and white patients.

PHARMGKB PA162168065
Evidence: PubMed ID:16876132This variant may predict a favorable outcome for bupropion treatment for smoking cessation

dbSNP: rs165599 Genecard: COMT chromosome 22 SNPedia: rs165599(A;G)

★ **rs1076560(C;C)** info:0.21 59.35% **normal**

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rs1076560 is located in intron 6 of the dopamine receptor D2 gene.

In one study of Japanese males, rs1076560(A) alleles were 1.3 fold more associated with Alcoholism than the rs1076560(C) alleles.

The DRD2 risk allele A was more prevalent in the alcoholic patients than in the healthy controls. These data identify rs1076560 as a potentially important variable in the development of alcoholism.

rs1076560 and the DAT 3'-VNTR variant influences memory

Genetic variants altering dopamine D2 receptor expression or function modulate the risk of opiate addiction and the dosage requirements of methadone substitution

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · memory(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

PMID 17196743

PMID 19176830

PMID 19373123

PHARMGKB PA162360621
Evidence: PubMed ID:17196743This variant is a potential marker for alcoholism. A allele was more prevalent in the alcoholic patients than in the healthy controls in a study consists of 248 alcoholic patients and 322 healthy controls (all Japanese males).

PHARMGKB PA162355758
Evidence: PubMed ID:18077375; PubMed ID:18829695This variant is in intron 6, and T allele shifts mRNA splicing from the short form (D2S) to the long form (D2L). The T allele carriers are also associated with reduced working memory and attension perfermance.

dbSNP: rs1076560 Genecard: DRD2 chromosome 11 SNPedia: rs1076560(C;C)

★ rs1800496(C;C) good:0.22 99.84% **common in complete genomics**

origins associated with an independent aspect of decision making in a learning paradigm

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · decision making(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

dbSNP: rs1800496 Genecard: DRD2 chromosome 11 SNPedia: rs1800496(C;C)

★ rs3785152(C;C) good:0.09 72.66% **common in complete genomics**

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T allele associated with better response to treatment of ADHD with atomoxetine.

Gene related topics:

PSYCH(0.72) · adhd attention deficit hyperactivity disorder(0.72) · depression(0.15) · adhd(0.15) · depressive disorder major(0.10) · CHEMDEPENDENCY(0.10) · alcohol dependence(0.10) · panic disorder(0.08) · attention deficit hyperactivity disorder(0.02)

Relevant papers and external links:

PMID 19387424

dbSNP: rs3785152 Genecard: SLC6A2 chromosome 16 SNPedia: rs3785152(C;C)

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★ **rs1611115(C;C)** info:0.39 61.99% **normal**

rs1611115 (C-1021T) is a SNP near the dopamine beta-hydroxylase (DBH) gene.

per OMIM, the T allele is associated with lower DBH expression in plasma (16 of TT genotype had DBH activity of 4.1, 46 of CT genotype had DBH activity of 25.2, and 112 of CC genotype had DBH activity of 48.1 nmol/min/ml)

Association tests related to affective disorders such as ADHD were performed using four independent samples, healthy volunteers (N = 387), patients with affective disorders (N = 182), adult attention deficit hyperactivity disorder (ADHD) patients (N = 407), and patients with personality disorders (N = 637). Personality disorder patients carrying the DBH TT genotype exhibited higher neuroticism and novelty seeking scores as compared to individuals with the (C;C) or (C;T) genotype. Analyses on the level of the neuroticism and novelty seeking subscales revealed that the DBH (T;T) genotype was primarily associated with personality features related to impulsiveness and aggressive hostility. Also adult ADHD patients carrying the homozygous (T;T) genotypes displayed by significantly increased neuroticism scores; when both personality disorder and adult ADHD patient were analyzed together, (T;T) carriers also displayed by significantly lower conscientiousness levels.

This study concludes that rs1611115(T;T) homozygotes appear to be at increased risk for personality traits related to impulsiveness, aggression, and adult ADHD.

Dopamine-beta-hydroxylase in postural tachycardia syndrome. T allele associated with lower plasma DBH levels, and accounts for up to 52% of variation in plasma DBH, but not linked to increased susceptibility to postural tachycardia syndrome (POTS).

Gene related topics:

PSYCH(2.00) · UNKNOWN(2.00) · dopamine beta hydroxylase activity(2.00) · interpersonal sensitivity paranoid ideation psychoticism(2.00) · perceptual disorders(1.00) · personality traits(1.00) · neuroticism(1.00) · affective disorder(1.00) · personality disorders(1.00) · novelty seeking(1.00) · NEUROLOGICAL(0.33) · migraine with aura(0.33) · attention deficit hyperactivity disorder(0.21) · CHEMDEPENDENCY(0.16) · smoking behavior(0.16) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · migraine disorders(0.08) · adhd(0.06) · smoking(0.05) · autism(0.03)

Relevant papers and external links:

PMID 18982239

PMID 18982239

PMID 17625104

dbSNP: rs1611115 Genecard: DBH chromosome 9 SNPedia: rs1611115(C;C)

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★ **rs916457(C;C)** **info:0.12** **79.28%**

Association and synergistic interaction between promoter variants of the DRD4 gene in Japanese schizophrenics.

Gene related topics:

PSYCH(21.00) · novelty seeking(21.00) · attention deficit hyperactivity disorder(9.95) · adhd(4.13) · OTHER(3.00) · behavior problems(3.00) · temperament(3.00) · personality traits(2.58) · disorganized attachment behavior(2.00) · major psychoses(1.80) · personality disorders(1.53) · impulsivity(1.29) · CHEMDEPENDENCY(1.20) · heroin abuse(1.20) · adhd attention deficit hyperactivity disorder(1.16) · bipolar disorder depression(1.00) · methamphetamine abuse(1.00) · schizophrenia(0.90) · mood disorder(0.60) · METABOLIC(0.53) · body mass(0.53) · NEUROLOGICAL(0.42) · tardive dyskinesia(0.42) · alcohol abuse(0.38) · cognitive function(0.33) · alcoholism(0.29) · psychosis(0.27) · bmi(0.25) · heroin dependence(0.25) · migraine(0.24) · mood disorders(0.23) · weight gain(0.23) · dyslexia(0.19) · smoking behavior(0.16) · obsessive compulsive disorder(0.15) · personality(0.14) · cognitive ability(0.11) · PHARMACOGENOMIC(0.04)

Relevant papers and external links:

PHARMGKB PA164892187
Evidence: PubMed ID:19238168This variant along with 3 other SNPs near DRD4 (4 SNP haplotype: rs3758653; rs916457; rs762502; rs11246226) is associated with tardive dyskinesia in male schizophrenia patients.

PMID 17089069

dbSNP: rs916457 Genecard: DRD4 chromosome 11 SNPedia: rs916457(C;C)

★ rs187715(A;A) good:0.10 97.07%

Gene related topics:

PSYCH(0.72) · adhd attention deficit hyperactivity disorder(0.72) · depression(0.15) · adhd(0.15) · depressive disorder major(0.10) · CHEMDEPENDENCY(0.10) · alcohol dependence(0.10) · panic disorder(0.08) · attention deficit hyperactivity disorder(0.02)

Relevant papers and external links:

dbSNP: rs187715 Genecard: SLC6A2 chromosome 16 SNPedia: rs187715(A;A)

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★ rs1801028(C;C) good:0.35 93.75% **normal risk**

rs1801028 is a SNP in the dopamine D2 receptor DRD2 gene. A meta-analysis comprising 27 samples and over 3,707 schizophrenia patients concluded that Cys/Ser heterozygotes, i.e. rs1801028(C;G) genotypes, were at elevated risk for schizophrenia when compared to either homozygote genotype (rs1801028(C;C) or rs1801028(G;G)). The odds ratio was 1.4 ($p<0.005$).

An earlier meta-analysis comprising over 9,000 schizophrenia patients concluded pretty much the same thing: the Cys311 (rs1801028(G)) allele frequency led to an odds ratio of 1.43 (CI: 1.16-1.78, $p<0.001$) for this risk allele.

A study of ~120 Chinese patients with schizophrenia concluded that Cys/Ser heterozygotes may not respond to risperidone treatment as well as Ser/Ser homozygotes.

A paper has been published describing mistakes made in assigning allele status for this SNP:

(free full text) Misassigned alleles can annihilate efforts to control quality in otherwise well-designed genetic association analyses. To date, the issue remains underreported, as is exemplified by studies of a diallelic DRD2 missense variant in schizophrenia. For this variant, allele frequency data have been either misassigned, or incorrectly cited on four consecutive occasions. Contrary to conjecture, low heterozygosity has not guarded against the error with regard to rs1801028, a SNP that features a canonical base pair transversion, G:C.

In the case of rs1801028, rs1801028(C) is the more common allele, encoding the amino acid Serine at position 311, whereas rs1801028(G) encodes Cysteine.

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

PMID 16402354

PMID 12707934

PMID 15140279

PMID 18154681

PHARMGKB PA161145173
Evidence: Web Resource:External Link variant has decreased affinity for dopamine; no clear concensus on association between Ser311Cys polymorphism and schizophrenia.

dbSNP: rs1801028 Genecard: DRD2 chromosome 11 SNPedia: rs1801028(C;C)

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★ **rs6413429(G;G)** **info:0.31** **91.18%**

Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

Relevant papers and external links:

dbSNP: rs6413429 Genecard: SLC6A3 chromosome 5 SNPedia: rs6413429(G;G)

★ rs769224(G;G) good:0.54 90.19%

The complex global pattern of genetic variation and linkage disequilibrium at catechol-O-methyltransferase.

Influence and interaction of genetic polymorphisms in catecholamine neurotransmitter systems and early life stress on antidepressant drug response.

Gene related topics:

UNKNOWN(6.00) · digeorge syndrome pharyngeal pouch syndrome(6.00) · PSYCH(5.72) · schizophrenia(5.72) · CANCER(3.00) · neoplasms pain(3.00) · fibromyalgia(2.67) · NEUROLOGICAL(2.00) · mamographic density(2.00) · pain temporomandibular joint disorders(2.00) · psychosis(1.67) · obsessive compulsive disorder(1.31) · CHEMDEPENDENCY(1.07) · substance related disorders(1.07) · panic disorder(1.03) · adhd attention deficit hyperactivity disorder(1.00) · eating disorders(1.00) · stress(1.00) · pain(0.94) · breast cancer(0.83) · marijuana abuse(0.67) · mood disorders(0.62) · parkinson s disease(0.62) · DEVELOPMENTAL(0.60) · leiomyoma uterine neoplasms(0.60) · mental retardation(0.60) · schizophrenia bipolar disorder(0.60) · OTHER(0.57) · sleep deprivation(0.57) · bipolar disorder(0.50) · depression(0.50) · fractures bone(0.50) · personality(0.38) · mammographic density(0.36) · personality traits(0.33) · heroin abuse(0.30) · alcoholism(0.29) · adhd(0.26) · cognitive ability(0.25) · heroin dependence(0.25) · bulimia(0.24) · endometrial cancer(0.23) · smoking(0.21) · anorexia nervosa(0.15) · suicide(0.14) · liver cancer(0.13) · tobacco use disorder(0.11) · narcolepsy(0.11) · METABOLIC(0.10) · weight gain(0.10) · smoking behavior(0.09) · endometrial neoplasms(0.07) · attention deficit hyperactivity disorder(0.05) · IMMUNE(0.05) · vitiligo(0.05) · autism(0.03) · REPRODUCTION(0.02) · endometriosis(0.02)

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Relevant papers and external links:

PMID 18574484

PMID 21680027

dbSNP: rs769224 Genecard: COMT chromosome 22 SNPedia: rs769224(G;G)

★ rs25531(A;A) info:1.12 74.38% **short form of 5-HTTLPR. lower levels of serotonin, slightly less happy, benefits from more support**

23andMe reports that this genotype is not reliable on their platform. 23andMe users should ignore this result.

This genotype is associated with lower levels of serotonin and appears to have a cognitive effect related to emotions, but the effect is slight and no one in SNPedia has yet found a good description. However the (G;G) genotype generally seems to have more positive associations, while this (A;A) is more negative. Examples of the differences include biased attention for negative word stimuli and gaze bias for emotional information.

More reluctant to endorse utilitarian actions resulting in foreseen harm to an innocent individual

The genotype of this SNP is not meaningful on 23andme v3.
External Link
According to David Hinds of 23andMe on community forums, "nearly everyone (99.97%) is getting called as CC, and there is no clear heterozygote cluster" ... "the genotype calls for rs25531 on our platform are not meaningful." Looking at OpenSNP frequency data, this seems to be universal for direct to consumer genotyping services at this stage.

The minor allele (G) of rs25531 is almost always in phase with the long (L) allele of the 5-HTTLPR, which is the most commonly studied variation in this region. The (L) long allele may be associated with lower levels of serotonin.

The article and video from "The Atlantic" suggests that children with the short allele (A), may need and benefit greatly from more maternal support
External Link

In contrast to earlier reports linking rs25531, a SNP in the serotonin transporter SLC6A4 gene, to obsessive compulsive disorder (OCD), a March 2007 publication finds no significant association studying "the largest sample size of OCD patients (N=347) and controls (N=749) ever investigated".

A separate study of 75 patients suffering mood disorders after traumatic brain injury (TBI) concluded that there was no evidence of association between rs25531 and depression post-TBI.

A small study (62 patients and 62 matched controls) investigated this SNP in relation to blushing. (Blushing is considered to be one of the prime pathophysiological markers of social anxiety disorder.) The less active 5-HTTLPR genotypes were nominally significantly associated with increased blushing propensity in patients with social anxiety disorder, and association remained significant even when statistically controlled for he influence of depression.

A study of 94 depressed patients who attempted suicide compared to 94 without psychiatric disorders found no evidence of an association with rs25531.

A study of 97 "normal" individuals concluded that rs25531(G;G) individuals selectively process positive affective material alongside selective avoidance of negative affective material, in a manner absent among individuals carrying a rs25531(A) allele. To put it another way, if this conclusion drawn from a very small sample of people can be replicated, rs25531(G;G) individuals may have a tendency to be optimists and to be more resilient to stress.

A study published in 2011 of 2,500+ individuals followed from 1995 - 2008 as part of the US National Longitudinal Study of Adolescent Health found that twice as many respondents with two 5-HTTLPR long variants said they were very satisfied with life compared with carriers of two short versions. Conversely, 26% of those carrying two short alleles said they were dissatisfied with life, compared with 20% of people carrying two long variants. This blog post investigates the statistics.

A study of 135 patients with major depressive disorder (mean age 31.1+/-11.6 years, 68% females) treated with escitalopram 10-20 mg/day for 12 weeks concluded that patients carrying the rs25531(A) allele may be at increased risk for side effects (e.g. headaches), but they say no associations with efficacy.

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Protocol for genotyping rs25531

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · stress(1.00) · brain(1.00) · psychiatric disorders(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

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Relevant papers and external links:

PMID 8929413

PMID 17375136

PMID 18465388

PMID 18629430

PMID 19103261

PMID 19272758

PHARMGKB PA164920378
Evidence: PubMed ID:15993855This vatiant in the SLC6A4 gene, located upstream of the HTTLPR polymorphism, showed evidence of an association with treatment response, and biochemical experiments showed this polymorphism altered binding of nuclear extracts to a consensus sequence for the activator protein 2 transcription factor, which is believed to be a critical factor in regulating neural gene expression in mammals.

PHARMGKB PA162008701
Evidence: PubMed ID:18618621This promoter SNP is not associated with depression remission frequency upon treatment with citalopram in white Hispanics, white non-Hispanics, or Blacks.

dbSNP: rs25531 Genecard: SLC6A4 chromosome 17 SNPedia: rs25531(A;A)

★ rs4251417(G;G) info:1.15 94.53%

Association between a functional polymorphism in the serotonin transporter gene and diarrhoea predominant irritable bowel syndrome in women.

Sexually dimorphic effects of four genes (COMT, SLC6A2, MAOA, SLC6A4) in genetic associations of ADHD: a preliminary study.

Variants of the serotonin transporter gene and NEO-PI-R Neuroticism: No association in the BLSA and SardiNIA samples.

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

Relevant papers and external links:

PHARMGKB PA164920374
Evidence: PubMed ID:19541292This study identified a two-SNP haplotype proxy for 5HTTLPR (the length polymorphism repeat in the promoter region of the SLC6A4 gene) ; the CA haplotype of SNPs rs4251417 and rs2020934 is coupled with the short allele of 5HTTLPR (r(2) = .72).

PMID 15361494

PMID 18937309

PMID 19199283

dbSNP: rs4251417 Genecard: SLC6A4 chromosome 17 SNPedia: rs4251417(G;G)

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★ rs4633(C;C) info:0.65 39.49% **normal**

rs4633 is a variant at codon 62 of the COMT gene, however, it does not change the amino acid sequence of the COMT protein.

In a study of 150 (Caucasian) cases of endometrial cancer, a significant increase in rs4633(T;T) genotype was observed in patients compared to controls (OR = 2.39, CI: 1.31-4.37, p = 0.004). Furthemore, the frequency of the C-G haplotype of rs4633-rs4680 was significantly higher in controls (p < 0.0001) than in patients. This correlated with lower expression levels of the COMT protein in carriers of these alleles.

pubmed 1180576 Schizophrenia Susceptibility

Genetic basis for individual variations in pain perception and the development of a chronic pain condition

Gene related topics:

UNKNOWN(6.00) · digeorge syndrome pharyngeal pouch syndrome(6.00) · PSYCH(5.72) · schizophrenia(5.72) · CANCER(3.00) · neoplasms pain(3.00) · fibromyalgia(2.67) · NEUROLOGICAL(2.00) · mamographic density(2.00) · pain temporomandibular joint disorders(2.00) · psychosis(1.67) · obsessive compulsive disorder(1.31) · CHEMDEPENDENCY(1.07) · substance related disorders(1.07) · panic disorder(1.03) · adhd attention deficit hyperactivity disorder(1.00) · eating disorders(1.00) · cancer(1.00) · pain(0.94) · breast cancer(0.83) · marijuana abuse(0.67) · mood disorders(0.62) · parkinson s disease(0.62) · DEVELOPMENTAL(0.60) · leiomyoma uterine neoplasms(0.60) · mental retardation(0.60) · schizophrenia bipolar disorder(0.60) · OTHER(0.57) · sleep deprivation(0.57) · bipolar disorder(0.50) · depression(0.50) · fractures bone(0.50) · personality(0.38) · mammographic density(0.36) · personality traits(0.33) · heroin abuse(0.30) · alcoholism(0.29) · adhd(0.26) · cognitive ability(0.25) · heroin dependence(0.25) · bulimia(0.24) · endometrial cancer(0.23) · smoking(0.21) · anorexia nervosa(0.15) · suicide(0.14) · liver cancer(0.13) · tobacco use disorder(0.11) · narcolepsy(0.11) · METABOLIC(0.10) · weight gain(0.10) · smoking behavior(0.09) · endometrial neoplasms(0.07) · attention deficit hyperactivity disorder(0.05) · IMMUNE(0.05) · vitiligo(0.05) · autism(0.03) · REPRODUCTION(0.02) · endometriosis(0.02)

Relevant papers and external links:

PMID 18324659

PMID 15537663

OMIM 116790

PHARMGKB PA164944060
Evidence: PubMed ID:15537663On the basis of subjects' pain responsiveness, haplotypes involving rs6269 (A/G), rs4633 (C/T), rs4818 (C/G), and rs4680 (G/A) were designated as low (low pain sensitivity (LPS) haplotype; GCGG), average (average pain sensitivity (APS) haplotype; ATCA), or high (high pain sensitivity (HPS) haplotype; ACCG) pain sensitive.

dbSNP: rs4633 Genecard: COMT chromosome 22 SNPedia: rs4633(C;C)

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★ rs9534505(G;G) good:0.48 81.24% **common in complete genomics**

Gene related topics:

PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

Relevant papers and external links:

dbSNP: rs9534505 Genecard: HTR2A chromosome 13 SNPedia: rs9534505(G;G)

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★ rs11214606(C;C) good:0.56 95.77% **common on affy axiom data**

ARVCF single marker and haplotypic association with schizophrenia.

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

PMID 19508883

dbSNP: rs11214606 Genecard: DRD2 chromosome 11 SNPedia: rs11214606(C;C)

★ rs28914832(A;A) good:1.40 99.96% **common in complete genomics**

Allelic heterogeneity at the serotonin transporter locus (SLC6A4) confers susceptibility to autism and rigid-compulsive behaviors.

Enhanced activity of human serotonin transporter variants associated with autism.

Characterization of a functional polymorphism in the 3' UTR of SLC6A4 and its association with drinking intensity.

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

Relevant papers and external links:

OMIM 182138

PMID 15995945

PMID 18957375

PMID 19032574

dbSNP: rs28914832 Genecard: SLC6A4 chromosome 17 SNPedia: rs28914832(A;A)

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★ rs27048(C;T) info:0.51 43.64% **normal**

[rs27048]], a SNP in the dopamine transporter SLC6A3 gene, has been associated with more severe symptoms upon alcohol withdrawal, such as seizures, in a study of 250 Caucasian alcohol-dependent patients. Two haplotypes appear to be tagged by this SNP and a neighbor, rs27072.

Variations in the DAT1 gene may affect the inattentive subtype of ADHD.

Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · seizures(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

Relevant papers and external links:

PMID 18070248

PMID 20800641

dbSNP: rs27048 Genecard: SLC6A3 chromosome 5 SNPedia: rs27048(C;T)

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★ rs6267(G;G) good:0.92 97.34% **common**

Gene related topics:

UNKNOWN(6.00) · digeorge syndrome pharyngeal pouch syndrome(6.00) · PSYCH(5.72) · schizophrenia(5.72) · CANCER(3.00) · neoplasms pain(3.00) · fibromyalgia(2.67) · NEUROLOGICAL(2.00) · mamographic density(2.00) · pain temporomandibular joint disorders(2.00) · psychosis(1.67) · obsessive compulsive disorder(1.31) · CHEMDEPENDENCY(1.07) · substance related disorders(1.07) · panic disorder(1.03) · adhd attention deficit hyperactivity disorder(1.00) · eating disorders(1.00) · pain(0.94) · breast cancer(0.83) · marijuana abuse(0.67) · mood disorders(0.62) · parkinson s disease(0.62) · DEVELOPMENTAL(0.60) · leiomyoma uterine neoplasms(0.60) · mental retardation(0.60) · schizophrenia bipolar disorder(0.60) · OTHER(0.57) · sleep deprivation(0.57) · bipolar disorder(0.50) · depression(0.50) · fractures bone(0.50) · personality(0.38) · mammographic density(0.36) · personality traits(0.33) · heroin abuse(0.30) · alcoholism(0.29) · adhd(0.26) · cognitive ability(0.25) · heroin dependence(0.25) · bulimia(0.24) · endometrial cancer(0.23) · smoking(0.21) · anorexia nervosa(0.15) · suicide(0.14) · liver cancer(0.13) · tobacco use disorder(0.11) · narcolepsy(0.11) · METABOLIC(0.10) · weight gain(0.10) ·

smoking behavior(0.09) · endometrial neoplasms(0.07) · attention deficit hyperactivity disorder(0.05) · IMMUNE(0.05) · vitiligo(0.05) · autism(0.03) · REPRODUCTION(0.02) · endometriosis(0.02)

Relevant papers and external links:

OMIM 116790

PHARMGKB PA164944058
Evidence: PubMed ID:18163386This study showed a highly significant association between a COMT haplotype of two functional SNPs (Ala72Ser and Val158Met) and aggressive behavior in schizophrenia.

dbSNP: rs6267 Genecard: COMT chromosome 22 SNPedia: rs6267(G;G)

★ rs1328674(G;G) good:0.70 89.85% **average**

rs1328675 is part of a 4-SNP haplotype in the serotonin 2A receptor gene HTR2A that has been associated with rheumatoid arthritis in a study of 1800 European patients. The risk allele is rs1328674(A) in dbSNP orientation. The overall risk for the haplotype CTCC of SNPs rs6311-rs1328674-rs6313-rs6314 is 1.68 (CI: 1.20 - 2.34, p = 0.02). This is actually quite close to the odds ratio calculated for rs1328674 by itself; OR of 1.62 (p = 0.007).

Note: the orientation of rs1328674 in dbSNP is opposite that cited by this publication; therefore, with respect to dbSNP, the haplotype of risk as cited above should be CACC, rather than CTCC as published.

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Gene related topics:

PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · arthritis(1.00) · rheumatoid arthritis(1.00) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

Relevant papers and external links:

PMID 18006541

dbSNP: rs1328674 Genecard: HTR2A chromosome 13 SNPedia: rs1328674(G;G)

★ rs363043(C;C) info:0.19 58.67%

SNPs in the SNAP25 gene were initially linked to intelligence but have failed to replicate .

While now suspect, the original work can be found in .

The (T;T) genotype averages several PIQ points higher than the (C;T) genotype, which averages several PIQ points higher than the (C;C) genotype.

For SNPs rs363039 - rs363043 - rs353016, respectively, the haplotype C-T-T is most associated with higher intelligence in children, whereas the haplotype C-C-T is most associated in adults (SNPs oriented as in dbSNP).

Gene related topics:

intelligence(1.00) · PSYCH(0.29) · adhd attention deficit hyperactivity disorder(0.29) · attention deficit hyperactivity disorder(0.29) · adhd(0.26)

Relevant papers and external links:

PMID 17160701
PMID 19418213
PMID 16801949
PMID 17908175
PMID 17908175

dbSNP: rs363043 Genecard: SNAP25 chromosome 20 SNPedia: rs363043(C;C)

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★ rs2283123(C;C) info:1.08 78.60% **normal risk of schizophrenia in limited study**

Associated with schizophrenia in a study of Croatians. Due to the limited number and diversity of the studied population, more study is needed to confirm any link. The T allele was associated with a decreased risk of schizophrenia.

Gene related topics:

schizophrenia(5.00) · PSYCH(2.00) · UNKNOWN(2.00) · dopamine beta hydroxylase activity(2.00) · interpersonal sensitivity paranoid ideation psychoticism(2.00) · perceptual disorders(1.00) · NEUROLOGICAL(0.33) · migraine with aura(0.33) · attention deficit hyperactivity disorder(0.21) ·

CHEMDEPENDENCY(0.16) · smoking behavior(0.16) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · migraine disorders(0.08) · adhd(0.06) · smoking(0.05) · autism(0.03)

Relevant papers and external links:

PMID 19673036

dbSNP: rs2283123 Genecard: DBH chromosome 9 SNPedia: rs2283123(C;C)

★ rs11615016(A;A) good:0.44 95.03%

Gene related topics:

OTHER(1.00) · chronic fatigue syndrome(1.00) · PSYCH(0.56) · suicide(0.56) · METABOLIC(0.45) · waist circumference(0.45) · autism(0.17) · adhd attention deficit hyperactivity disorder(0.15) · depression(0.15) · adhd(0.15) · panic disorder(0.08) · NEUROLOGICAL(0.08) · migraine disorders(0.08) · attention deficit hyperactivity disorder(0.05) · personality traits(0.05) · depressive disorder major(0.05)

Relevant papers and external links:

dbSNP: rs11615016 Genecard: TPH2 chromosome 12 SNPedia: rs11615016(A;A)

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★ rs1800443(T;T) good:0.41 97.30% **common in clinvar**

Gene related topics:

PSYCH(21.00) · novelty seeking(21.00) · attention deficit hyperactivity disorder(9.95) · adhd(4.13) · OTHER(3.00) · behavior problems(3.00) · temperament(3.00) · personality traits(2.58) · disorganized attachment behavior(2.00) · major psychoses(1.80) · personality disorders(1.53) · impulsivity(1.29) · CHEMDEPENDENCY(1.20) · heroin abuse(1.20) · adhd attention deficit hyperactivity disorder(1.16) · bipolar disorder depression(1.00) · methamphetamine abuse(1.00) · schizophrenia(0.90) · mood disorder(0.60) · METABOLIC(0.53) · body mass(0.53) · NEUROLOGICAL(0.42) · tardive dyskinesia(0.42) · alcohol abuse(0.38) · cognitive function(0.33) · alcoholism(0.29) · psychosis(0.27) · bmi(0.25) · heroin dependence(0.25) · migraine(0.24) · mood disorders(0.23) · weight gain(0.23) · dyslexia(0.19) · smoking behavior(0.16) · obsessive compulsive disorder(0.15) · personality(0.14) · cognitive ability(0.11) · PHARMACOGENOMIC(0.04)

Relevant papers and external links:

OMIM 126452

dbSNP: rs1800443 Genecard: DRD4 chromosome 11 SNPedia: rs1800443(T;T)

★ rs37022(T;T) good:1.02 41.52% **common in complete genomics**

D2 dopamine receptor gene haplotypes and their influence on alcohol and tobacco consumption magnitude in alcohol-dependent individuals.

Neurotransmission and bipolar disorder: a systematic family-based association study.

Association of tagging single nucleotide polymorphisms on 8 candidate genes in dopaminergic pathway with schizophrenia in Croatian population.

Financial and psychological risk attitudes associated with two single nucleotide polymorphisms in the nicotine receptor (CHRNA4) gene.

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Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · bipolar disorder(1.00) · nicotine(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

Relevant papers and external links:

PMID 17526637

PMID 18444252

PMID 19673036

PMID 19693267

dbSNP: rs37022 Genecard: SLC6A3 chromosome 5 SNPedia: rs37022(T;T)

★ rs25532(C;T) info:3.02 **may be part of a haplotype associated with OCD**

rs25532 is a SNP in a regulatory region upstream of the serotonin transporter SLC6A4 gene. The more common allele, rs25532(C), is the higher-expressing allele.

A study of patients with obsessive compulsive disorder (OCD) concluded that the major allele of rs25532 was a major contributor to the association of a corresponding haplotype with this disorder.

Gene related topics:

PSYCH(24.57) · depression(24.57) · suicide(6.88) · obsessive compulsive disorder(5.82) · IMMUNE(5.28) · irritable bowel syndrome(5.28) · personality traits(4.75) · anxiety disorder(4.50) · REPRODUCTION(4.00) · depressive disorder major bipolar disorder(4.00) · sexual dysfunction physiological(4.00) · personality disorders(3.78) · depressive disorder major(3.72) · affective disorder(3.12) · anxiety related traits(3.00) · decision making(3.00) · psychoses(3.00) · personality(2.60) · panic disorder(2.19) · autism(2.13) · mood disorders(2.02) · CHEMDEPENDENCY(2.00) · OTHER(2.00) · PHARMACOGENOMIC(2.00) · UNKNOWN(2.00) · alcohol abuse smoking behavior(2.00) · alcoholism attention deficit hyperactivity disorder(2.00) · alcoholism recurrence(2.00) · antidepressant adverse effects(2.00) · anxiety(2.00) · auditory evoked potential(2.00) · bipolar and unipolar disorder(2.00) · eating disorder(2.00) · hallucinations(2.00) · harm avoidance(2.00) · impulse control disorder(2.00) · manic depressive illness(2.00) · personality traits illegal drug use(2.00) · suicidal behavior(1.92) · alcoholism(1.92) · NEUROLOGICAL(1.80) · cocaine dependence(1.80) · major depression(1.80) · migraine migraine with aura(1.80) · neuroticism(1.80) · major depressive disorder(1.73) · migraine(1.73) · substance related disorders(1.67) · bulimia(1.47) · attention deficit hyperactivity disorder(1.16) · adhd attention deficit hyperactivity disorder(1.00) · aggressive behavior(1.00) · alcohol related disorders(1.00) · bipolar disorder depression(1.00) · conduct disorder(1.00) · eating disorders(1.00) · sudden infant death(1.00) · anorexia nervosa(0.93) · CARDIOVASCULAR(0.80) · hypertension pulmonary(0.80) · major psychoses(0.80) · bipolar disorder(0.79) · schizophrenia(0.69) · alcohol abuse(0.68) · bipolar affective disorder(0.67) · fibromyalgia(0.67) · sids sudden infant death syndrome(0.67) · smoking behavior(0.66) · mood disorder(0.60) · psychosis(0.60) · heroin abuse(0.53) · epilepsy temporal lobe(0.43) · sleep disorders(0.36) · cognitive function(0.33) · migraine with aura(0.33) · syncope vasovagal(0.33) · DEVELOPMENTAL(0.27) · mental retardation(0.27) · adhd(0.26) · METABOLIC(0.23) · weight gain(0.23) · smoking(0.21) · tourette syndrome(0.21) · alcohol(0.21) · migraine disorders(0.17) · cognitive ability(0.11) · chronic obstructive pulmonary disease(0.07) · hearing loss(0.07) · AGING(0.04) · longevity(0.04)

Relevant papers and external links:

PMID 18055562

PHARMGKB PA164920373

Evidence: PubMed ID:18055562This study found that the minor allele of the functional C > T single nucleotide polymorphism, rs25532, located less than 150 nucleotides centromeric of the serotonin transporter-linked polymorphic region indel (known as 5-HTTLPR) significantly decreased luciferase reporter gene expression levels by 15-80%, depending on 5-HTTLPR allele background and cell type.

dbSNP: rs25532 Genecard: SLC6A4 chromosome 17 SNPedia: rs25532(C;T)

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★ **rs1799978(A;A)** **good:1.30** **77.61%**

Association between ADORA2A and DRD2 polymorphisms and caffeine-induced anxiety.

Physiogenomic analysis of localized FMRI brain activity in schizophrenia.

Evaluation of genetic variability in the dopamine receptor D2 in relation to behavioral inhibition and impulsivity/sensation seeking: an exploratory study with d-amphetamine in healthy participants.

Pharmacogenetics and antipsychotics: therapeutic efficacy and side effects prediction.

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · anxiety(1.00) · brain(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

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Relevant papers and external links:

PHARMGKB PA165108051
Evidence: PubMed ID:19339912Risk or phenotype-associated allele: A. Phenotype: Having the AA genotype of this variant was associated with a protective effect from increased prolactin concentration. Study size: 90. Study population/ethnicity: 7-17-year-old patients chronically treated with risperidone; non-Hispanic Caucasians. Significance metric(s): p = 0.002. Type of association: CO.

PHARMGKB PA162356251
Evidence: PubMed ID:18855532This SNP is significant predictor of treatment response to risperidone in first-episode schizophrenia.

PMID 18305461

PMID 18330705

PMID 19968402

PMID 21162693

dbSNP: rs1799978 Genecard: DRD2 chromosome 11 SNPedia: rs1799978(A;A)

★ rs4565946(C;T) info:0.75 40.59%

rs4570625 and rs4565946 linked to the pathogenesis of early-onset obsessive compulsive disorder

Tourette's Syndrome

Gene related topics:

OTHER(1.00) · chronic fatigue syndrome(1.00) · obsessive compulsive disorder(1.00) · PSYCH(0.56) · suicide(0.56) · METABOLIC(0.45) · waist circumference(0.45) · autism(0.17) · adhd attention deficit hyperactivity disorder(0.15) · depression(0.15) · adhd(0.15) · panic disorder(0.08) · NEUROLOGICAL(0.08) · migraine disorders(0.08) · attention deficit hyperactivity disorder(0.05) · personality traits(0.05) · depressive disorder major(0.05)

Relevant papers and external links:

PMID 16146581

dbSNP: rs4565946 Genecard: TPH2 chromosome 12 SNPedia: rs4565946(C;T)

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★ rs4680(G;G) good:1.99 39.79% **(warrior) multiple associations, see details**

You have the VAL/VAL version of the snp discussed in this news article. It is able to perform better in a test where the optimal strategy changes.

Placebo is less effective for you

External Link
rs4680 (Val158Met) is a well studied SNP in the COMT gene. 23andMe blog summarizes them as
rs4680(A) = Worrier. Met, more exploratory, lower COMT enzymatic activity, therefore higher dopamine levels; lower pain threshold, enhanced vulnerability to stress, yet also more efficient at processing information under most conditions
rs4680(G) = Warrior. Val, less exploratory, higher COMT enzymatic activity, therefore lower dopamine levels; higher pain threshold, better stress resiliency, albeit with a modest reduction in executive cognition performance under most conditions

Roughly speaking, the predominant wisdom (known colloquially as the warrior/worrier hypothesis; summary at) posits that people with Val alleles have increased COMT activity and lower prefrontal extracellular dopamine compared with those with the Met substitution. Val158 alleles may be associated with an advantage in the processing of aversive stimuli (warrior strategy), while Met158 alleles may be associated with an advantage in memory and attention tasks (worrier strategy). Under conditions of increased dopamine release (eg, stress), individuals with Val158 alleles may have improved dopaminergic transmission and better performance, while individuals with Met158 alleles may have less efficient neurotransmission and worse performance. Some evidence suggests that Val158 alleles are associated with schizophrenia, while Met158 alleles are associated with anxiety.

Specific studies include:

rs4680, a functional Val/Met polymorphism, showed modest association with Irish familial schizophrenia. Haplotype A-G-A for SNPs rs737865-rs4680-rs165599 was preferentially transmitted to the affected subjects.

A study of 400 individuals reported that an increase in plasma total homocysteine (tHcy) of 10.4% (CI: 0.01-0.21, p=0.03) for associated with rs4680(A;A) homozygotes compared with rs4680(G;G) subjects. The (A;A) genotype was also more common, but statistically not that significantly, in venous thrombosis patients (OR 1.61, CI: 0.97-2.65], p=0.06) compared to control subjects.

And from :
"Adolescent cannabis use was associated with increased risk of schizophreniform disorder in adulthood among Val/Val (i.e. rs4680(G;G)) individuals (OR = 10.9, 95% CI: 2.2â€“54.1) and, to a lesser extent, among Met/Val individuals (rs4680(A;G)); OR = 2.5, 95% CI: .78 â€“ 8.2), but not among Met/Met (rs4680 (A;A)) individuals (OR = 1.1, 95% CI: .21â€“5.4)."

Also potentially associated with schizophrenia

As part of a haplotype with rs4633, the (G) allele is also associated with endometrial cancer

In a study of 2 populations of breast cancer patients (2,000+ patients), increased risk was associated with rs4680(G;G) genotypes in both the Ontario [odds ratio 2.22, CI: 1.49-3.28] and Finland [OR 1.73, CI: 1.08-2.78] populations.

23andMe blog The A version of rs4680 appears to boost working memory and cognitive function compared to G â€” but it also hampers emotional control.

A study of 330 cocaine-dependent individuals, all of African descent, concluded that there was a slight (odds ratio 1.44, CI: 1.12-1.86, p = 0.014) association between the rs4680(A) allele, in other words the Met encoding allele, and cocaine dependence.

A study of the antidepressant paroxetine found better response in Met/Met homozygotes, worse effects in Val/Val homozygotes and intermediate effects in heterozygotes. The effect became significant at the third week of treatment. Paroxetine daily dose was proportional to baseline severity, but did not influence outcome.

g2b2mh (A;A) subjects deploy more attentional focus when they realize they have made an error.

A meta-analysis of neuroimaging studies found a significant association between the COMT genotype and prefrontal activation; strong and opposing effects were found for executive cognition paradigms (favoring Met allele carriers) and emotional paradigms (favoring Val).

gray matter volume and interacts with rs2097603 related to extracellular dopamine

rs6275/DRD2 and rs4680/COMT useful in predicting disease risk among schizophrenia patients

rs4680(G;G) carriers deprived of sleep respond quite well to 2x 100mg modafinil in terms of improved vigor and well-being, and maintained baseline performance with respect to executive functioning, whereas rs4680 (A;A) individuals barely responded to the drug at all.

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Met158 allele carriers had "a more focused response...during a working memory task." "The met158 allele seems to be beneficial during the performance of working memory and attention-related tasks, whereas the val158 allele appears to be advantageous during the processing of aversive emotional stimuli."

"Increased limbic and prefrontal activation elicited by unpleasant stimuli in subjects with more met158 alleles might contribute to the observed lower emotional resilience against negative mood states."

In response to pain Met/Met allele carriers showed greater "sensory and affective ratings of pain and a more negative internal affective state. Opposite effects were observed in val158 homozygotes. The COMT val158met polymorphism thus influences the human experience of pain and may underlie interindividual differences in the adaptation and responses to pain and other stressful stimuli."

Reports that ease of entering hypnosis correlates with number of rs4680(G) alleles.

see gs226 for a report related to impulsiveness

External Link and blog discussion of data about rs4680 thinking about nothing in an fmri.

Breast Cancer Risk Modifiers

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Established associations:

blood metabolite measurement **you have 0 copies of the risk allele A**

(risk allele=A, X-01911 odds ratio/beta 0.044 [0.032-0.056] unit decrease with pval 1E-13, pubmedid=24816252; risk allele=A, X-11593--O-methylascorbate odds ratio/beta 0.049 [0.045-0.053] unit decrease with pval 5E-178, pubmedid=24816252)

Gene related topics:

UNKNOWN(6.00) · digeorge syndrome pharyngeal pouch syndrome(6.00) · PSYCH(5.72) · schizophrenia(5.72) · CANCER(3.00) · neoplasms pain(3.00) · fibromyalgia(2.67) · NEUROLOGICAL(2.00) · mamographic density(2.00) · pain temporomandibular joint disorders(2.00) · psychosis(1.67) · obsessive compulsive disorder(1.31) · CHEMDEPENDENCY(1.07) · substance related disorders(1.07) · panic disorder(1.03) · adhd attention deficit hyperactivity disorder(1.00) · eating disorders(1.00) · sleep(1.00) · cognitive function(1.00) · anxiety(1.00) · homocysteine(1.00) · memory(1.00) · stress(1.00) · cancer(1.00) · thrombosis(1.00) · venous thrombosis(1.00) · cocaine dependence(1.00) · pain(0.94) · breast cancer(0.83) · marijuana abuse(0.67) · mood disorders(0.62) · parkinson s disease(0.62) · DEVELOPMENTAL(0.60) · leiomyoma uterine neoplasms(0.60) · mental retardation(0.60) · schizophrenia bipolar disorder(0.60) · OTHER(0.57) · sleep deprivation(0.57) · bipolar disorder(0.50) · depression(0.50) · fractures bone(0.50) · personality(0.38) · mammographic density(0.36) · personality traits(0.33) · heroin abuse(0.30) · alcoholism(0.29) · adhd(0.26) · cognitive ability(0.25) · heroin dependence(0.25) · bulimia(0.24) · endometrial cancer(0.23) · smoking(0.21) · anorexia nervosa(0.15) · suicide(0.14) · liver cancer(0.13) · tobacco use disorder(0.11) · narcolepsy(0.11) · METABOLIC(0.10) · weight gain(0.10) · smoking behavior(0.09) · endometrial neoplasms(0.07) · attention deficit hyperactivity disorder(0.05) · IMMUNE(0.05) · vitiligo(0.05) · autism(0.03) · REPRODUCTION(0.02) · endometriosis(0.02)

Relevant papers and external links:

PMID 24816252

An atlas of genetic influences on human blood metabolites.

PMID 17008817

PMID 18064318

PMID 15866551

PMID 18194538

PMID 18704099

PMID 18989660

PMID 19417742

PMID 19071221

PMID 19207030

PMID 19037200

PMID 16878403

PMID 15673663

PMID 12595695

PMID 20509070

OMIM 116790

OMIM 104300

PHARMGKB PA162630417
Evidence: PubMed ID:19207030This variant (rs4680/COMT) along with rs6275/DRD2 are associated with risk for schizophrenia in a study consisting of 254 patients and 225 controls of southern indian origin.

PHARMGKB PA161145211
Evidence: Web Resource:External Link variant is responsible for low (Met) and high (Val) activity alleles that have been studied in relation to schizophrenia and other psychiatric/neurological disorders and in relation to breast cancer.

PHARMGKB PA161748325
Evidence: PubMed ID:17156920In an study at 207 patients treated with morphine, carriers of COMT Val/Val and Val/Met genotype required 63% and 23%, respectively, higher morphine dose compared to carriers of Met/Met genotype (p=0.02).

PHARMGKB PA164944057
Evidence: PubMed ID:19365560The minor allele A of this 472G>A variant produces a valine to methionine substitution, resulting in a less thermostable COMT enzyme that exhibits a 3-fold reduction in activity.

PHARMGKB PA164944062
Evidence: PubMed ID:15537663On the basis of subjects' pain responsiveness, haplotypes involving rs6269 (A/G), rs4633 (C/T), rs4818 (C/G), and rs4680 (G/A) were designated as low (low pain sensitivity (LPS) haplotype; GCGG), average (average pain sensitivity (APS) haplotype; ATCA), or high (high pain sensitivity (HPS) haplotype; ACCG) pain sensitive.

dbSNP: rs4680 GWAS Catalog: rs4680 Genecard: COMT chromosome 22

SNPedia: rs4680(G;G)

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★ rs6350(C;C) info:1.39 91.10%

Genetic polymorphisms in monoamine neurotransmitter systems show only weak association with acute post-surgical pain in humans.

SLC6A3 and body mass index in the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial.

Familiality and molecular genetics of attention networks in ADHD.

Financial and psychological risk attitudes associated with two single nucleotide polymorphisms in the nicotine receptor (CHRNA4) gene.

Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · ovarian cancer(1.00) · pain(1.00) · CANCER(1.00) · body mass(1.00) · cancer(1.00) · nicotine(1.00) · body mass index(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

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Relevant papers and external links:

PMID 16848906

PMID 19183461

PMID 19418498

PMID 19693267

dbSNP: rs6350 Genecard: SLC6A3 chromosome 5 SNPedia: rs6350(C;C)

★ rs909525(A;-) good:1.59 32.29% **Probably MAOA 4 or 5 repeats: not Warrior Gene.**

People with this SNP usually also have either the 4 or 5 repeat (non-Warrior) version of MAOA which makes them less aggressive and less anti-social. If you are male, you inherited this from your mother. Do not confuse this with the completely different warrior/worrier gene.
This is the best proxy for the number of repeats of the MAOA warrior gene. In 105 samples (69 males, 36 females) from the Stanley foundation brain collection, it was always A in people with the 4 or 5 repeat non-

Warrior version and always G in people with the 3 repeat Warrior version. The combination rs909525(A) AND rs6323(G) AND rs3027399(G) indicate specifically that it is the 5 repeat version. The 2 repeat version and the 3.5 repeat version weren't mentioned.

mentioned as potentially affecting white matter volume, sample size tiny

Gene related topics:

PSYCH(3.00) · antisocial personality disorder(3.00) · bp major depressive(2.00) · personality disorders(1.12) · aggressive behavior(1.00) · brain(1.00) · mood disorder(0.60) · UNKNOWN(0.56) · sudden infant death(0.56) · CHEMDEPENDENCY(0.51) · smoking behavior(0.51) · personality traits(0.47) · suicide(0.32) · panic disorder(0.31) · depression(0.30) · personality(0.25) · major depressive disorder(0.24) · alcoholism(0.24) · bipolar disorder(0.24) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · smoking(0.21) · alcohol abuse(0.17) · adhd(0.15) · NEUROLOGICAL(0.13) · restless legs syndrome(0.13) · autism(0.12) · parkinson s disease(0.12) · migraine(0.11) · depressive disorder major(0.10) · mood disorders(0.10) · obsessive compulsive disorder(0.06) · dementia(0.04)

Relevant papers and external links:

PMID 16893905

PMID 19028548

dbSNP: rs909525 Genecard: MAOA chromosome X SNPedia: rs909525(A;A)

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★ rs6277(T;T) good:1.66 5.95% **normal schizophrenia risk, learns NoGo faster**

According to 23andMe blog this genotype is better for a particular learning task.
rs6277 (957C>T, Pro319Pro) is one of several SNPs in the dopamine receptor DRD2 gene.

In a study of 300+ Russian patients with schizophrenia, the rs6277(C) allele was associated with higher risk. From a pooled meta-study (total of 4 other reports plus this one) the allelic odds ratio is 1.42 (CI: 1.26-1.61, p<0.00005), and the genotypic odds ratio for the (C;C) genotype was 1.6 (CI: 1.32-1.95, p<0.00005).

Note that rs6275 and rs6277 are only 18bp apart, hence their very tight linkage (r2=1).

gs278 reflects a gene-gene interaction between this SNP and a NR3A SNP, rs10989591, in which older adults with a particular combination of genotypes at these two (independent) loci are reported to exhibit better episodic memory.

C allele associated significantly (p = 0.021) with post-traumatic stress disorder in a sample of (assumedly Australian) 127 war veterans w/ 228 controls

23andMe blog people with two As at rs6277(T;T) were better at NoGo learning.

[pharmgkb] T allele associated with decrease in mRNA levels

Gene related topics:

CHEMDEPENDENCY(6.04) · alcoholism(6.04) · alcoholism substance related disorders(4.00) · PSYCH(2.30) · schizophrenia(2.30) · METABOLIC(2.00) · NEUROLOGICAL(2.00) · hyperprolactinaemia hyperprolactinemia(2.00) · nervous system diseases(2.00) · substance withdrawal syndrome(2.00) · substance withdrawal syndrome tobacco use disorder(2.00) · tic combined vocal and multiple motor tourette syndrome(2.00) · smoking behavior(1.74) · UNKNOWN(1.29) · neuroleptic malignant syndrome(1.29) · heroin dependence(1.00) · methamphetamine abuse(1.00) · memory(1.00) · stress(1.00) · OTHER(1.00) · tardive dyskinesia(0.95) · heroin abuse(0.83) · cocaine dependence(0.80) · cocaine related disorders(0.67) · delirium(0.57) · impulsivity(0.57) · alcohol abuse(0.52) · tobacco use disorder(0.44) · adhd(0.40) · mood disorders(0.40) · parkinson s disease(0.40) · smoking(0.33) · alcohol(0.32) · mood disorder(0.27) · substance related disorders(0.27) · CARDIOVASCULAR(0.25) · atrial natriuretic factor(0.25) · alcohol dependence(0.22) · personality traits(0.21) · tourette syndrome(0.21) · dyslexia(0.19) · migraine disorders(0.17) · adhd attention deficit hyperactivity disorder(0.15) · personality(0.14) · personality disorders(0.12) · depressive disorder major(0.10) · bipolar disorder(0.07) · attention deficit hyperactivity disorder(0.05) · autism(0.03)

Relevant papers and external links:

PMID 18255274

PMID 18833581

PHARMGKB PA165374657
Evidence: PubMed ID:20714340Risk or phenotype-associated allele: CC. Phenotype: The CC genotype was associated with weight gain of at least 7% in schizophrenia patients treatment with clozapine or olanzapine. Study size: 206. Study population/ethnicity: European american; African American; German; Schizophrenia. Significance metric(s): OR = 3.37 (CI = 1.00-11.36). Type of association: PD.

PHARMGKB PA161145172
Evidence: Web Resource:External Link allele led to a decrease in mRNA levels, C/C genotype was reported to be associated with schizophrenia.

PHARMGKB PA165291683
Evidence: PubMed ID:18687376Phenotype: The 957CC carriers were more frequently non-responders to methadone treatment (OR=2.4; p=0.02). The 957CC carriers were 25% (95% CI = 15-36%) in the non-responder group (n = 73) whereas they were only 12% (95% CI = 8-18%) in the responder group (n = 165; $\chi 2 = 5.9$; p = 0.015). No significant difference was observed for the TaqI A genotype frequency in responder and non-responder groups (p = 0.9). Study size: 238 patients. Study population: Caucasian.

PHARMGKB PA165291681
Evidence: PubMed ID:15567074The T allele led to a decrease in mRNA levels and stability whereas the C allele was not found to be associated with any mRNA changes, which led to a relative increase in the expression of DRD2 in carriers of the C allele.

PHARMGKB PA165291682
Evidence: PubMed ID:19582781Results of an in vivo study with [11C]raclopride indicated that this variant increased binding potential by decreasing DRD2 KD (C/C>C/T>T/T), while Bmax was not significantly altered.

PHARMGKB PA165291689
Evidence: PubMed ID:16973280Risk or phenotype-associated allele: C. Phenotype: A greater proportion of patients with schizophrenia than healthy controls were C-allele carriers. Study size: 188 schizophrenia patients and 384 healthy controls. Study population: Finnish. Metric(s): OR =1.5, 95% confidence interval

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(CI) 1.0-2.3, p=0.05.

PHARMGKB PA165291685
Evidence: PubMed ID:19603545Phenotype: In this case-control study the polymorphisms -141C Ins/Del (rs1799732); C957T (rs6277); A1385G (rs6276); and TaqIA (rs1800497) were genotyped. The haplotypes I-C-G-A2 and I-C-A-A1 occurred with a higher frequency in alcoholics [P=0.026, odds ratio (OR): 1.340; P=0.010, OR: 1.521, respectively]. Study size: 360 alcoholics and 368 controls. Study population:Caucasian individuals of German origin.

PHARMGKB PA165291676
Evidence: PubMed ID:18926547Phenotype: Patients with C/C genotype were associated with poor aripiprazole response for excitement symptoms (measured on the positive and negative syndrome scale, PANSS - excitement subscale) when compared with T/T patients. Study size: 128 schizophrenic patients. Study population: Chinese.

dbSNP: rs6277 Genecard: DRD2 chromosome 11 SNPedia: rs6277(T;T)

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★ rs27072(C;T) good:2.07 32.60% **Lower risk of alcohol withdrawal seizures, and perhaps lower odds of ADHD.**

Alcoholics with this are less likely to have seizures during alcohol withdrawal.
rs27072, a SNP in the dopamine transporter SLC6A3 gene, has been associated with more severe symptoms upon alcohol withdrawal, such as seizures, in a study of 250 Caucasian alcohol-dependent patients. Two haplotypes appear to be tagged by this SNP and a neighbor, rs27048. The rs27072 polymorphism has been shown to be significantly associated with ADHD in clinical samples of Canadian children aged 6 to 16 [Feng et al., 2005] and the significant association was also reported by Ouellet-Morin et al. in a Canadian twin study, 2008 (Am. J. of Medical Genetics Part B, 147B:1442-1449 (2008).

The interaction between the dopamine transporter gene and age at onset in relation to tobacco and alcohol use among 19-year-olds.

Association of promoter variants of human dopamine transporter gene with schizophrenia in Han Chinese.

Dopamine Transporter Gene Variant Affecting Expression in Human Brain is Associated with Bipolar Disorder.

Sequence variation in the 3'-untranslated region of the dopamine transporter gene and attention-deficit hyperactivity disorder (ADHD).

Association of the dopamine transporter gene and ADHD symptoms in a Canadian population-based sample of same-age twins.

Candidate gene studies of ADHD: a meta-analytic review.

Association between polymorphism of the dopamine transporter gene and early smoking onset: an interaction risk on nicotine dependence.

Gene and gene by sex associations with initial sensitivity to nicotine in nonsmokers.

Financial and psychological risk attitudes associated with two single nucleotide polymorphisms in the nicotine receptor (CHRNA4) gene.

Haplotypes of dopamine and serotonin transporter genes are associated with antisocial personality disorder in alcoholics.

Pharacogenetic effects of dopamine transporter gene polymorphisms on response to chlorpromazine and clozapine and on extrapyramidal syndrome in schizophrenia.

The role of dopamine transporter (SLC6A3) and dopamine D2 receptor/ankyrin repeat and kinase domain containing 1 (DRD2/ANKK1) gene polymorphisms in personality traits.

Alcohol Dependence

Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · seizures(5.00) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · bipolar disorder(1.00) · brain(1.00) · antisocial personality disorder(1.00) · nicotine(1.00) · alcohol dependence(1.00) · nicotine dependence(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

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Relevant papers and external links:

PMID 18070248
OMIM 143465
OMIM 126455
PMID 19740369
PMID 19879111
PMID 21525861
PMID 16082693
PMID 18165969
PMID 19506906
PMID 14685824
PMID 18690117
PMID 19693267
PMID 20505557
PMID 20580759
PMID 21354244

dbSNP: rs27072 Genecard: SLC6A3 chromosome 5 SNPedia: rs27072(C;T)

★ rs6323(G;-) info:2.09 14.07% **Increased monoamine oxidase A activity**

rs6323 (R297R / Arg297Arg) is a SNP in the MAOA (monoamine oxidase A) gene. Monoamine oxidase A degrades serotonin, dopamine, epineprine, and norepinephrine. The G allele encodes for the higher activity form of the enzyme.

Subjects with major depressive disorder with the highest activity form of the enzyme (G or G/G) had a significantly lower magnitude of placebo response.

Gene related topics:

PSYCH(3.00) · antisocial personality disorder(3.00) · bp major depressive(2.00) · personality disorders(1.12) · aggressive behavior(1.00) · mood disorder(0.60) · UNKNOWN(0.56) · sudden infant death(0.56) · CHEMDEPENDENCY(0.51) · smoking behavior(0.51) · personality traits(0.47) · suicide(0.32) · panic disorder(0.31) · depression(0.30) · personality(0.25) · major depressive disorder(0.24) · alcoholism(0.24) · bipolar disorder(0.24) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · smoking(0.21) · alcohol abuse(0.17) · adhd(0.15) · NEUROLOGICAL(0.13) · restless legs syndrome(0.13) · autism(0.12) · parkinson s disease(0.12) · migraine(0.11) · depressive disorder major(0.10) · mood disorders(0.10) · obsessive compulsive disorder(0.06) · dementia(0.04)

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Relevant papers and external links:

PMID 19593178

dbSNP: rs6323 Genecard: MAOA chromosome X SNPedia: rs6323(G;G)

★ rs6311(C;T) good:2.42 49.36% **Normal risk of sexual dysfunction when taking SSRI Antidepressants.**

rs6311 (-1438A>G / A-1438G or -1438G>A / G-1438A) is a SNP located upstream (and within the promoter region of) HTR2A.

Multiple Regulatory Variants Modulate Expression of 5-Hydroxytryptamine 2A Receptors in Human Cortex. The minor A allele of rs6311 reduces expression of a previously unannotated extension of the 5' untranslated region of HTR2A mRNA. rs6311 together with rs6314 have a modest effect on depression severity, when examined in the Sequenced Treatment Alternatives to Relieve Depression (STAR*D) study.

Three (rs643627-rs594242-rs6311: A-C-T), two (rs594242-rs6311: C-T) and a single functional (rs6311: T) marker were protective against suicidal behavior.
The complementary markers (rs594242-rs6311: G-C and rs6311: C) were associated with increased

risk for non-violent and impulsive suicidal behavior.
Furthermore, CC-homozygotes for the functional SNP rs6311 reported more anger- and aggression-related behavior.

This SNP has also been reported to be part of a haplotype associated with risk for rheumatoid arthritis. In this report, the risk allele is rs6311(C).

may effect promoter activity (in the presence of a SV40 enhancer, promoter activity was significantly higher with the A allele than a G allele, but only in cell lines expressing endogenous HTR2A)

-1438 A allele creates a consensus binding site for Th1/E47, a transcription factor implicated in development of the nervous system

Polymorphisms in the serotonin receptor gene HTR2A are associated with quantitative traits in panic disorder.

Gene related topics:

PSYCH(3.00) · anorexia nervosa(3.00) · anorexia nervosa bulimia(3.00) · PHARMACOGENOMIC(2.00) · impulsive behavior(2.00) · olanzapine(2.00) · response to clozapine(2.00) · schizophrenia affective disorder(2.00) · schizophrenia(1.64) · arthritis(1.00) · rheumatoid arthritis(1.00) · quantitative traits(1.00) · bulimia(0.94) · major depression(0.80) · suicidal behavior(0.69) · major depressive disorder(0.68) · depression(0.67) · obsessive compulsive disorder(0.58) · neuroleptic malignant syndrome(0.57) · schizophrenia tardive dyskinesia(0.57) · suicide(0.56) · personality disorders(0.50) · personality traits(0.47) · cognitive function(0.33) · depressive disorder major(0.29) · autism(0.28) · adhd(0.26) · mood disorders(0.23) · panic disorder(0.21) · adhd attention deficit hyperactivity disorder(0.21) · attention deficit hyperactivity disorder(0.21) · tourette syndrome(0.21) · bipolar disorder(0.20) · personality(0.14) · CHEMDEPENDENCY(0.13) · heroin abuse(0.13) · NEUROLOGICAL(0.11) · migraine(0.11) · tardive dyskinesia(0.11) · smoking behavior(0.09) · CARDIOVASCULAR(0.05) · blood pressure determination(0.05) · alcohol abuse(0.04)

Relevant papers and external links:

PMID 23158458

PMID 16814396

PMID 18006541

PMID 15364038

PMID 18079067

PHARMGKB PA165111369
Evidence: PubMed ID:19997080Risk or phenotype-associated allele: A Phenotype: Carriers of the A variant of HTR2A:(-1438)G>A had lower Autism Treatment Evaluation Checklist (ATEC) scores than GG homozygotes, indicating improved symptoms and response to risperidone. Study size: 45 Study population/ethnicity: Children with Autism receiving risperidone Significance metric(s): p = 0.019 Type of association: PD

PMID 17440930

PHARMGKB PA161145082

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Evidence: PubMed ID:17688403; PubMed ID:17804117Associated with anorexia and bulimia. The AA genotype was found to be a risk factor for tardive dyskinesia (TD).

PHARMGKB PA162190493
Evidence: PubMed ID:15364038; PubMed ID:18079067The A allele of -1438G/A is suggested to have increased promoter activity in functional in vitro studies. In silico analysis revealed that the -1438 A allele creates a consensus binding site for Th1/E47, a transcription factor implicated in the development of the nervous system. The SNP was also associated with Chronic fatigue syndrome together with rs 6313 and rs1923884.

dbSNP: rs6311 Genecard: HTR2A chromosome 13 SNPedia: rs6311(C;T)

★ rs460000(C;C) info:2.06 33.60% **Better response to amphetamine**

Individuals with the C/C genotype at rs460000 (N = 83) reported approximately twofold higher ratings of stimulation and euphoria relative to the A/A+A/C (N = 69) genotype group, at both the 10 and 20 mg doses.

[PMID 20091113]

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Gene related topics:

PSYCH(9.95) · attention deficit hyperactivity disorder(9.95) · adhd attention deficit hyperactivity disorder(3.41) · schizophrenia methamphetamine abuse(2.00) · CHEMDEPENDENCY(1.25) · smoking behavior(1.25) · perceptual disorders(1.00) · personality(0.98) · cocaine related disorders(0.67) · psychosis(0.60) · delirium(0.57) · impulsivity(0.57) · tourette syndrome(0.47) · adhd(0.40) · NEUROLOGICAL(0.40) · parkinson s disease(0.40) · REPRODUCTION(0.36) · prenatal exposure delayed effects(0.36) · schizophrenia(0.27) · substance related disorders(0.27) · heroin dependence(0.25) · bulimia(0.24) · alcohol(0.21) · dyslexia(0.19) · alcohol abuse(0.17) · alcoholism(0.16) · personality traits(0.12) · migraine disorders(0.08) · depression(0.07) · obsessive compulsive disorder(0.06) · autism(0.05) · smoking(0.05) · PHARMACOGENOMIC(0.02)

Relevant papers and external links:

dbSNP: rs460000 Genecard: SLC6A3 chromosome 5 SNPedia: rs460000(C;C)

★ rs12720071(A;A) good:1.00 82.84% **common in complete genomics**

Association of the cannabinoid receptor gene (CNR1) with ADHD and post-traumatic stress disorder.

Cannabinoid receptor 1 (CNR1) gene: impact on antidepressant treatment response and emotion processing in major depression.

Cannabinoid receptor 1 gene association with nicotine dependence.

Cannabinoid type-1 receptor gene polymorphisms are associated with central obesity in a Southern Brazilian population.

Evidence for association between polymorphisms in the cannabinoid receptor 1 (CNR1) gene and cannabis dependence.

Genetic variation in cannabinoid receptor 1 (CNR1) is associated with derangements in lipid homeostasis, independent of body mass index.

Candidate genes for cannabis use disorders: findings, challenges and directions.

The implication of CNR1 gene's polymorphisms in the modulation of endocannabinoid system effects.

Role of genetic variation in the cannabinoid type 1 receptor gene (CNR1) in the pathophysiology of human obesity.

Are endocannabinoid type 1 receptor gene (CNR1) polymorphisms associated with obesity and metabolic syndrome in postmenopausal Polish women?

A common variation in the cannabinoid 1 receptor (CNR1) gene is associated with pre-eclampsia in the Central European population.

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Gene related topics:

adhd(1.00) · stress(1.00) · body mass(1.00) · metabolic syndrome(1.00) · nicotine(1.00) · METABOLIC(1.00) · major depression(1.00) · body mass index(1.00) · obesity(1.00) · depression(1.00) · nicotine dependence(1.00) · CHEMDEPENDENCY(0.67) · marijuana abuse(0.67)

Relevant papers and external links:

PMID 18213623
PMID 18579347
PMID 18606954
PMID 18776593
PMID 19016476
PMID 19018721
PMID 19335651
PMID 19886064
PMID 20415562
PMID 20838400
PMID 21129839

dbSNP: rs12720071 Genecard: CNR1 chromosome 6 SNPedia: rs12720071(A;A)

★ rs1052576(A;G) good:1.41 48.56% **0.8x reduced risk of multiple myeloma, general reduced risk of cancer**

A number of studies with lowish p-values but low heterogeneity across studies show a reduced risk of multiple myeloma, greater in homozygotes, for the A allele. There is also a generalized reduction in cancer risk. B-cell neoplasms may be particularly affected.
also known as Q221R

rs1052576 is located on chromosome 1p36.21 in the coding region of CASP9. The CAG to CGG transition results in the allele Q221R. This SNP is associated with ADHD, general cancer risk, multiple myeloma, non-small cell lung cancer and non-Hodgkin lymphoma .Generally the A allele confers protection from a variety of cancers.

An intact apoptotic pathway is essential for many cellular processes including development, immune response and prevention of cellular transformation. Caspases are cysteinyl aspartate proteases involved in signal transduction cascades that result in programmed cell death. CASP9 is an initiator caspase and part of the intrinsic pathway, which is an evolutionarily conserved apoptotic pathway. It is responsible for cleaving and activating the executioner caspases CASP3, CASP6, CASP7, leading to nuclear membrane breakdown, DNA fragmentation and apoptosis.

In their 2014 study, Lee et al performed an ADHD GWAS meta-analysis to identify casual SNPS in ADHD by focusing on SNPs in coding regions as well as a secondary analysis for pathway enrichement . They identified 11 candidate SNPS, three in the CASP9 gene, rs1052576, rs1052571, rs1820204. This GWAS was performed on a dataset that contained 428,074 SNPS from a publicly available database. This data set is derived from the IMAGE project which comprises of 924 trios of European decent, either an affected child and both parents or an affected child and one sibling and one parent. Patients in this study had to meet stringent criteria as well as live with one biological parent and one full sibling to control for environmental factors. The authors identified SNPS using two approaches. The first approach filtered SNPs by linkage disequilibrium analysis followed by a second approach to that enriched for SNPs using pathway based analysis algorithm called i-GSEA. The authors used a $p<0.05$ threshold as well as an FDR cutoff of 0.1 to correct for the multiple testing conditions. For rs1052576 $p=0.042$. Odds ratio could not be determined from the data provided in the manuscript.

In another recent study, Yan et al performed a meta-analysis of the rs1052576 SNP in CASP-9 . Seven case-control studies with a total of 1668 cancer cases and 2294 healthy controls were analyzed. Six types of cancer were studied: gastric cancer, lymphoma, lung cancer, colon cancer, myeloma and liver cancer. Four studies were performed in China, two in the USA and one in Russia. The “A” allele carriers of rs1052576 had overall reduced risk for cancer: the "A" allele conferred an OR=0.72(0.58-0.89) $p=0.003$. However, these data were only statistically significant in Asian populations: rs1052576-A resulted in an OR=0.60 with a 95% confidence interval 0.44-0.81 and a $p<0.001$, in Asians irrespective of the national origin of the study. Caucasian carriers of rs1052576-A did trend towards a lower OR, however, these data did not reach statistical significance and may warrant further studies: OR=0.85(0.70-1.04), $p=0.11$.

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In 2009, Andrew et al identified SNPs to predict bladder cancer susceptibility and survival . They performed a case-controlled study with 832 bladder cancer cases and 1,191 controls using a population of New Hampshire residents; 95% of this cohort was of Caucasian origin. SNPs that modulated bladder cancer survival were selected using an FDR threshold of <0.5. They found that the rs1052576-G allele reduced survival time for carriers with bladder cancer and increased risk of death due to bladder cancer OR=1.4 (0.8-2.4) and p=0.003.

Hosgood, et al performed a population based case control study of 128 cases of women with multiple myeloma and 516 controls all from Connecticut . rs1052576-AG conferred a decreased risk of multiple myeloma OR=0.8 (0.5-1.3) p=0.41, rs1052576-AA OR=0.5 (0.3-0.9)p=0.02, p=0.02 for the trend. These data need to be considered with care, as the rs1052576-AA odds ratio was the only value that reached near statistical significance on its own. Apoptosis is particularly important in the development of B-lymphocytes. A role for CASP9 in these B-cell lymphomas is likely to be of mechanistic importance.

In 2006, Lan et al investigated the effect of SNPs in CASP3 [Ex8-280C>A (rs6948) and Ex8+567T>C (rs1049216)], CASP8 Ex14-271A>T (rs13113), casp9 Ex5+32G>A (rs1052576) and CASP10 Ex3-171A>G (rs3900115) in the risk of Non-Hodgkin Lymphoma. Genotyping was performed by real-time PCR. rs1052576-AA genotype had an OR=0.7 (0.5-1.0) p=0.044 for all Non-Hodgkin's lymphomas. In addition, there were protective effects for the rs1052576-A allele in B-cell lymphomas specifically: rs1052576-AA OR=0.7 (0.5-1.0) p=0.040. The protective effect of the rs1052576-A allele was not statistically significant in T cell lymphomas. This may reflect a small sample size or an inherent difference in the biology of the two cell types. Finally, B-cell lymphomas were further divided into three subtypes: Diffuse large B cell lymphoma, Follicular lymphoma, and marginal zone lymphoma and B cell chronic lymphocytic leukemia. The rs1052576-AG conferred an OR=0.6 (0.4-1.0) p=0.039 for follicular lymphoma. It is likely that the rs1052576-AA genotype is protected, however the numbers were small of this genotype and did not reach statistical significance.

CASP9 is an important member of the apoptotic pathway and has clear mechanistic importance in the regulation of apoptosis. rs1052576 -G confers an increased risk of cancer in numerous studies. There does seem to be a dose dependent effect, however, this remains to be confirmed with more studies.

A allele associated with lower odds of Non-Hodgkin Lymphoma (OR(AA+AG) = 0.6, 95% CI, 0.4-1.0) among 996 women located in Connecticut (461 cases, 535 controls)

A allele associated with lower odds of Multiple myeloma (OR(AG) = 0.8, 95% CI = 0.5-1.3; OR(AA) = 0.5, 95% CI = 0.3-0.9; p-trend = 0.02) among 664 women located in Connecticut (128 cases, 516 controls)

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Gene related topics:

multiple myeloma(5.00) · cancer(5.00) · gastric cancer(1.00) · adhd(1.00) · survival(1.00) · lymphoma(1.00) · liver cancer(1.00) · cancer susceptibility(1.00) · bladder cancer(1.00) · IMMUNE(1.00) · neoplasms(1.00) · lung cancer(1.00) · leukemia(1.00) · lymphocytes(1.00) · CANCER(0.05) · lymphoma non hodgkin(0.05)

Relevant papers and external links:

PMID 24531918
PMID 23251262
PMID 18381704
PMID 17285546
PMID 17071630
PMID 24531918
PMID 23251262
PMID 19252927
PMID 18381704
PMID 17071630
PMID 18381704

dbSNP: rs1052576 Genecard: CASP9 chromosome 1 SNPedia: rs1052576(A;G)

★ rs11246226(A;C) good:1.81 49.90% **decreased risk of schizophrenia in limited study**

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Associated with schizophrenia in a study of Croatians. Due to the limited number and diversity of the studied population, more study is needed to confirm any link. The C allele was associated with an decreased risk of schizophrenia.

Gene related topics:

PSYCH(21.00) · novelty seeking(21.00) · attention deficit hyperactivity disorder(9.95) · adhd(4.13) · OTHER(3.00) · behavior problems(3.00) · temperament(3.00) · personality traits(2.58) · disorganized attachment behavior(2.00) · major psychoses(1.80) · personality disorders(1.53) · impulsivity(1.29) · CHEMDEPENDENCY(1.20) · heroin abuse(1.20) · adhd attention deficit hyperactivity disorder(1.16) · bipolar disorder depression(1.00) · methamphetamine abuse(1.00) · schizophrenia(0.90) · mood disorder(0.60) · METABOLIC(0.53) · body mass(0.53) · NEUROLOGICAL(0.42) · tardive dyskinesia(0.42) · alcohol abuse(0.38) · cognitive function(0.33) · alcoholism(0.29) · psychosis(0.27) · bmi(0.25) · heroin dependence(0.25) · migraine(0.24) · mood disorders(0.23) · weight gain(0.23) · dyslexia(0.19) · smoking behavior(0.16) · obsessive compulsive disorder(0.15) · personality(0.14) · cognitive ability(0.11) · PHARMACOGENOMIC(0.04)

Relevant papers and external links:

PMID 19673036

PHARMGKB PA164892188
Evidence: PubMed ID:19238168This variant along with 3 other SNPs near DRD4 (4 SNP haplotype: rs3758653; rs916457; rs762502; rs11246226) is associated with tardive dyskinesia in male schizophrenia patients.

dbSNP: rs11246226 Genecard: DRD4 chromosome 11 SNPedia: rs11246226(A;C)

★ rs13316193(C;T) info:0.95 48.05%

The oxytocin receptor (OXTR) contributes to prosocial fund allocations in the dictator game and the social value orientations task.

Evidence that genetic variation in the oxytocin receptor (OXTR) gene influences social cognition in ADHD.

The association between oxytocin receptor gene (OXTR) polymorphisms and affective temperaments, as measured by TEMPS-A.

Gene related topics:

adhd(1.00) · PSYCH(0.28) · autism(0.28)

Relevant papers and external links:

PMID 19461999
PMID 20347913
PMID 20488544

dbSNP: rs13316193 Genecard: OXTR chromosome 3 SNPedia: rs13316193(C;T)

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★ rs363050(A;G) info:2.21 50.00% **The (A;G) genotype averages 2.8 PIQ points higher than the (G;G), but averages 2.84 PIQ points lower than (A;A) genotype**

The (A;G) genotype averages 2.8 PIQ points higher than the (G;G), but averages 2.84 PIQ points lower than (A;A) genotype
SNPs in the SNAP25 gene were initially linked to intelligence but have failed to replicate .

While now suspect, the original work can be found in .

The (A;A) genotype averaged 2.84 PIQ points higher than the (A;G) genotype, which averages 2.8 PIQ points higher than the (G;G) genotype (p=0.0002). Variance in this SNP may account for 3.4% of the phenotypic variance in PIQ.

rs363050 is in close linkage with rs353016, with r2 = 0.98, such that the rs363050(A) allele typically is linked to the rs353016(T) allele. For SNPs rs363039 - rs363043 - rs353016, respectively, the haplotype C-T-T is most associated with higher intelligence in children, whereas the haplotype C-C-T is most associated in adults (SNPs oriented as in dbSNP).

Measures of Intelligence

Gene related topics:

intelligence(1.00) · PSYCH(0.29) · adhd attention deficit hyperactivity disorder(0.29) · attention deficit hyperactivity disorder(0.29) · adhd(0.26)

Relevant papers and external links:

PMID 17160701

PMID 19418213

PMID 16801949

PMID 16801949

PMID 17908175

dbSNP: rs363050 Genecard: SNAP25 chromosome 20 SNPedia: rs363050(A;G)

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★ rs1801260(C;T) info:3.06 35.38% **Normal risk of ADHD symptoms.**

This is one normal and one rare form of the CLOCK gene. In addition to possibly affecting evening preference, it has been linked to normal Attention Deficit Hyperactivity Disorder symptom scores. rs1801260, a SNP in the CLOCK gene known as 3111 T/C, has been reported to influence sleep and activity patterns in patients affected by bipolar depression.

From this article's abstract:

"Compared to T/T homozygotes, carriers of the C allele had a similar degree of severity of depression, but showed higher activity levels in the evening, a delayed sleep onset (mean 79 min later), and a reduced amount of sleep during the night (mean 75 min less)."

Allele frequencies of T3111C SNP of hClock were significantly different between schizophrenics and controls (chi(2) = 19.738, P < 0.05). Schizophrenics had a significantly higher frequency of the C allele compared with controls (OR = 2.613, 95% CI = 1.693-4.034). (Han Chinese population.)

There was a strong, significant association (P < 0.001) between both self-rating and interview-based adult ADHD assessments and the rs1801260 polymorphism with at least one T-mutation being the risk allele.

rs1801260 variations associated with weight loss while on Mediterranean diet. Carriers of the G allele displayed greater difficulty in losing weight than non-carriers.

CLOCK 3111 T/C SNP was associated with activity levels in the second part of the day, neuropsychological performance and BOLD fMRI correlates (interaction of genotype and moral valence of the stimuli).

Association between polymorphisms in the Clock gene, obesity and the metabolic syndrome in man.

Clock genes may influence bipolar disorder susceptibility and dysfunctional circadian rhythm.

Genetic differences in human circadian clock genes among worldwide populations.

Genome-wide association scan for five major dimensions of personality.

Circadian polymorphisms associated with affective disorders.

CLOCK is suggested to associate with comorbid alcohol use and depressive disorders.

ARNTL (BMAL1) and NPAS2 gene variants contribute to fertility and seasonality.

Genotyping sleep disorders patients.

Association between CLOCK 3111T/C and preferred circadian phase in Korean patients with bipolar disorder.

SIRT1 and CLOCK 3111T>C combined genotype is associated with evening preference and weight loss resistance in a behavioral therapy treatment for obesity.

"Circadian locomotor output cycles kaput (CLOCK) molecule plays major roles in circadian rhythmicity and regulates daily physiological processes including digestive activity. Therefore, we hypothesized that the CLOCK 3111T/C single nucleotide polymorphism (SNP) might have adverse effects on the regulation of gastric motility."

"The clock molecule plays major roles in circadian rhythmicity and regulating lipid and glucose metabolism in peripheral organs. Disruption of the circadian rhythm can lead to cardiometabolic disorders."

"Here, we find that cholecystokinin (Cck) is a direct transcriptional target of CLOCK and levels of Cck are reduced in the ventral tegmental area (VTA) of ClockΔ19 mice. Selective knockdown of Cck expression via RNA interference in the VTA of wild-type mice produces a manic-like phenotype"

" C genetic variants in CLOCK 3111 T/C are more obese and lose less weight in
a dietary and behavioral treatment for obesity than TT carriers and they are also more
evening-type subjects "

Attention-Deficit Hyperactivity Disorder

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