

**Supplementary Table 1 | Genome-wide studies on genes contributing to suicidal behaviour**

<b>Study</b>	<b>Phenotype</b>	<b>Subjects</b>	<b>Methodology</b>	<b>Major findings</b>
<b>Linkage Studies</b>				
<b>Zubenko et al. 2004<sup>1</sup></b>	Recurrent early-onset MDD with suicide attempt included as a covariate	81 families 516 family members included in the analysis - 55 of which made a suicide attempters	Affected Relative Pairs linkage Microsatellite genotyping (9cM)	Genome-wide significant linkage with two loci: 5q31-q33; 11q25. Suggestive evidence of linkage with four other loci: 2p12; 6q12; 8p22-p21; Xq25-26.1
<b>Hesselbrock et al. 2004<sup>2</sup></b>	Suicide attempts or a quantitative suicidality index in alcohol dependent families	2,282 individuals Suicide attempt: 59 affected sibling pairs Suicidality: 1,366 sibling pairs and 705 independent sibling pairs	Affected sib pair linkage Microsatellite markers (10.5cM)	Genome-wide significant linkage on Chromosome 2 (D2S1790; LOD score = 4.2) with suicide attempts. No significant LOD scores with the quantitative phenotype: Chromosome 3 (D3S2398; LOD=1.8) and chromosome 1 (D1S1602; LOD=1.5).
<b>Cheng et al. 2006<sup>3</sup></b>	BD, psychosis, suicidal behaviour, panic disorder	154 families with 1,060 individuals 267 suicidal behaviour cases	Multiplex family linkage Microsatellite genotyping (9cM)	No genome-wide significant evidence of linkage found. 5 loci with suggestive evidence of linkage to suicidal behaviour: 2q24.1 (0.05); 4p16.1 (0.05); 6q24.3 (0.05); 6q25.2 (0.01); 10q25.3 (0.05)
<b>Willour et al. 2007<sup>4</sup></b>	BD with suicide attempt included as a covariate	162 families Narrow definition of BD: 417 subjects 122 suicide attempters with definite intent Broad definition of BD: 555 subjects	Multiplex family linkage Microsatellite genotyping (9cM)	Strongest linkage with D2S1777 (2p12). Suicide attempt accounted for a significant increase in evidence of linkage at this locus (LOD score increased from 1.56 to 3.82). LOD scores at D6S1277 also increased significantly (from 0 to 3.04) with inclusion of suicide attempt as a covariate.
<b>Butler et al. 2010<sup>5</sup></b>	Suicidality in MDD	1,714 MDD cases Quantitative measure of suicidality based on two items	Affected sib pair linkage Microsatellite genotyping (3.3cM)	No genome-wide significant evidence of linkage found. Suggestive linkage found for 5 loci (p<0.01): 3p14, 18q22.1, 9p24.3, 15q23, 2p12

of the SCAN interview				
<b>Genome-Wide Association Studies</b>				
<b>Laje et al. 2009<sup>6</sup></b>	Treatment-emergent suicidal ideation (TESI) in MDD	1,953 total patients in STAR*D 90 with increased SI 90 without increased SI	Illumina Human-1 BeadChip	Genome-wide significant association with rs11628713 and suggestive evidence for rs10903034
<b>Perlis et al. 2010<sup>7</sup></b>	Suicide attempts in mood disorder (MDD and BD)	BD discovery cohort: 1,295 Suicide attempt 1,822 No suicide attempt BD replication cohort: 1,201 suicide attempt 1,497 no suicide attempt MDD discovery cohort: 176 Suicide attempt 1,097 no suicide attempt MDD replication cohort: 133 suicide attempt 1,516 no suicide attempt	SNP genotyping (diverse methodologies)	One SNP (rs2576377) provided genome-wide evidence of association in the MDD discovery cohort, but no nominal evidence of association in the replication cohort. Several other SNPs identified in both BD and MDD samples provided suggestive evidence of association with suicide attempt. None was significant in the replication cohorts. Analysis of pooled sample (N=8,737) identified 4 SNPs with meeting suggestive evidence of association.
<b>Schosser et al. 2011<sup>8</sup></b>	Suicidality in MDD	2,023 total patients Two phenotypes analysed: Quantitative measure of suicidality based on two items of the SCAN interview Qualitative measure based on serious suicide attempts (N=251)	SNPs analysed by Illumina Human Hap610-Quad BeadChip	No variant reached genome-wide statistical significance Strongest nominal evidence of association with a SNP in <i>GFRA1</i> for the quantitative phenotype Strongest nominal evidence of association with SNPs in <i>KIAA1244</i> and <i>RGS18</i> for the qualitative phenotype. No evidence of association in the replication samples
<b>Perroud et al. 2012<sup>9</sup></b>	TESI in MDD	706 total patients 244 with TESI	Illumina Human 610-Quad BeadChip	No variant reached genome-wide statistical significance Strongest association with TESI found in a region downstream of guanine deaminase gene (rs11143230), 9q21.13

<b>Menke et al. 2012<sup>10</sup></b>	TESI in MDD	397 total patients 32 with TESI 329 no increased SI 79 never had SI	Discovery sample: SNPs analysed by Illumina SNP arrays Replication sample: MALDI-TOF mass spectrometer	No variant reached genome-wide statistical significance Fourteen of the top 79 SNPs identified in the discovery sample showed nominal evidence of association with the same risk allele in the replication sample
<b>Willour et al. 2012<sup>11</sup></b>	Suicide attempts in BD	Initial sample: 1201 BP + suicide attempts 1497 BP w/out suicide attempt 1201 BP unknown attempt status Replication sample: 1295 BP attempters 1822 BP non-attempters Brain samples: 20 BP non suicides 14 BP suicides	Variation study: Affymetrix array Illumina array  Expression study: mRNA from BA 46 Affymetrix HGU133a microarray	2,507 SNPs with nominal p-value evidence of association in the initial sample No genome wide-scale statistical significance on replication sample Combined analysis of initial + replication sample identified a genome-wide statistically significant signal for a SNP on 2p25, close to <i>ACPI</i> gene Expression level of 2p25 gene product, <i>ACPI</i> , significantly upregulated in post-mortem brains of BP suicides compared to BP non-suicides
<b>Perlis et al. 2012<sup>12</sup></b>	Suicide attempts in MDD	189 MDD + attempted suicide 1,073 MDD with no attempted suicide	Investigation of CNVs using Affymetrix SNP arrays	No difference between suicide attempters and non-suicide attempters in CNV burden. CNVs in <i>SNTG2</i> and <i>MACROD</i> , two brain-specific genes previously linked to psychopathology, found among suicide attempters. However, these reached no genome-wide statistical significance.
<b>Galfalvy et al. 2013<sup>13</sup></b>	Suicide completers	SNP study: 68 suicide completers 31 non-suicides mRNA study: 19 subjects	DNA and mRNA from prefrontal cortex SNP – GeneChip 50K array mRNA expression - Affymetrix U133 Plus 2.0 array	58 SNPs identified 22 mapped to 19 genes 7 of the 19 genes with altered expression in the prefrontal and the anterior cingulate cortex

**BA:** Brodmann area; **BD:** Bipolar disorder; **CNV:** Copy number variation; **LOD:** Logarithm of odds; **MDD:** Major depressive disorder; **SNP:** Single nucleotide polymorphism; **TESI:** Treatment-emergent suicidal ideation.

## References for supplementary table 1

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