Supplementary Information:

Figure S1 Sequential flow of biomarker discovery, prioritization, validation and testing.

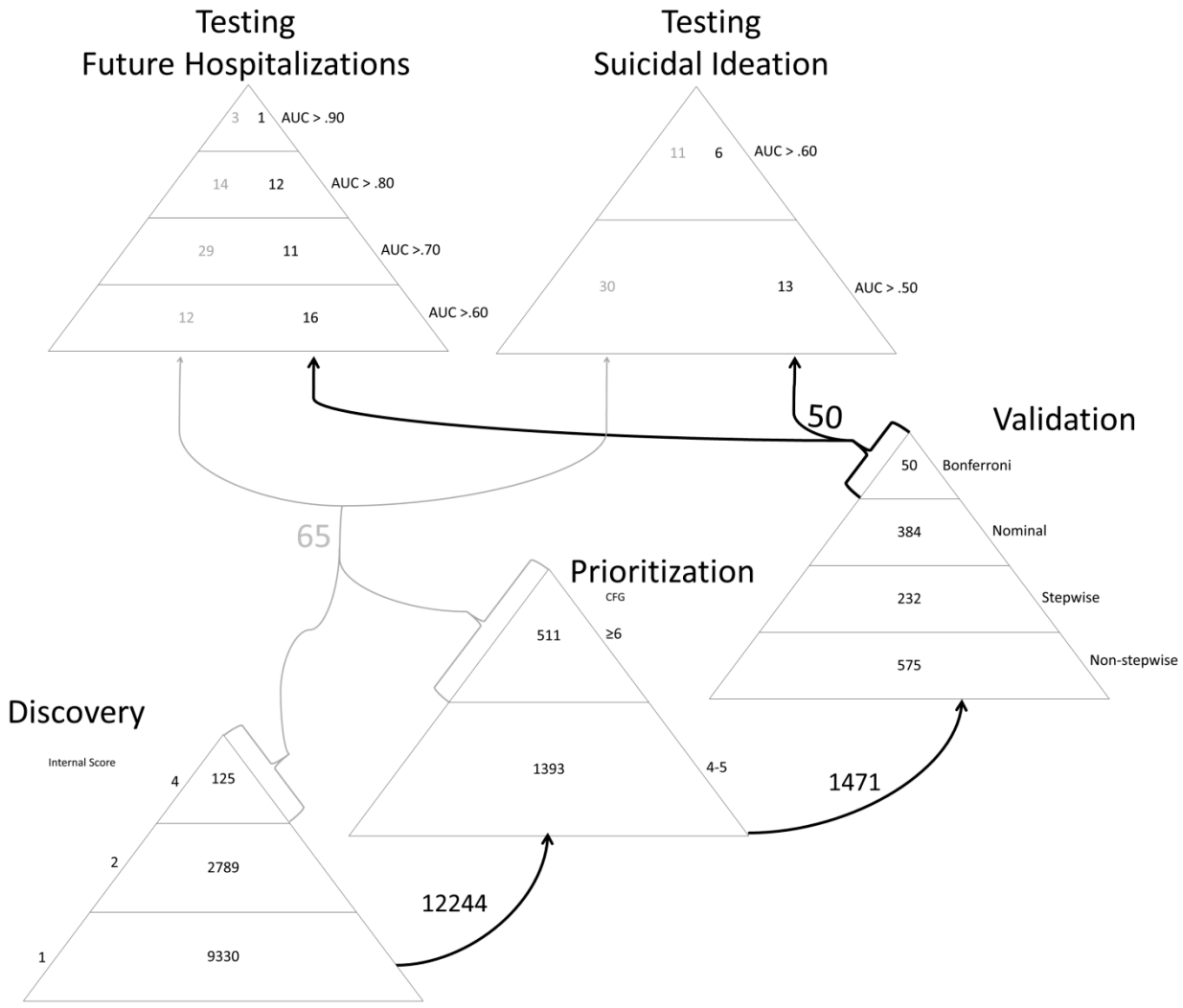


Figure S2. SASS and CFI-S questionnaires and apps.

Simplified Affective State Scale (SASS)
For each item, mark the scale with a vertical line where you think you are at this moment in time, compared to lowest and highest you ever remember being:

Mood Subscale

1) Mood

How good is your mood right now?

[----------]
Lowest Highest

2) Motivation to do things

How is your motivation, your drive, your determination to do things right now?

[----------]
Lowest Highest

3) Movement activity

How high is your physical energy and the amount of moving about that you feel like doing right now?

[----------]
Lowest Highest

4) Thinking activity

How high is your mental energy and thinking activity going on in your mind right now?

[----------]
Lowest Highest

5) Self-esteem

How good do you feel about yourself and your accomplishments right now?

[----------]
Lowest Highest

6) Interest in pleasurable activities

How high is your interest to do things that are fun and enjoyable right now?

[----------]
Lowest Highest

7) Appetite

How high is your appetite and desire for food right now?

[----------]
Lowest Highest

Anxiety Subscale

1) Anxiety

How anxious are you right now?

[----------]
Lowest Highest

2) Uncertainty

How uncertain about things do you feel right now?

[----------]
Lowest Highest

3) Fear

How frightened about things do you feel right now?

[----------]
Lowest Highest

4) Anger

How angry about things do you feel right now?

[----------]
Lowest Highest

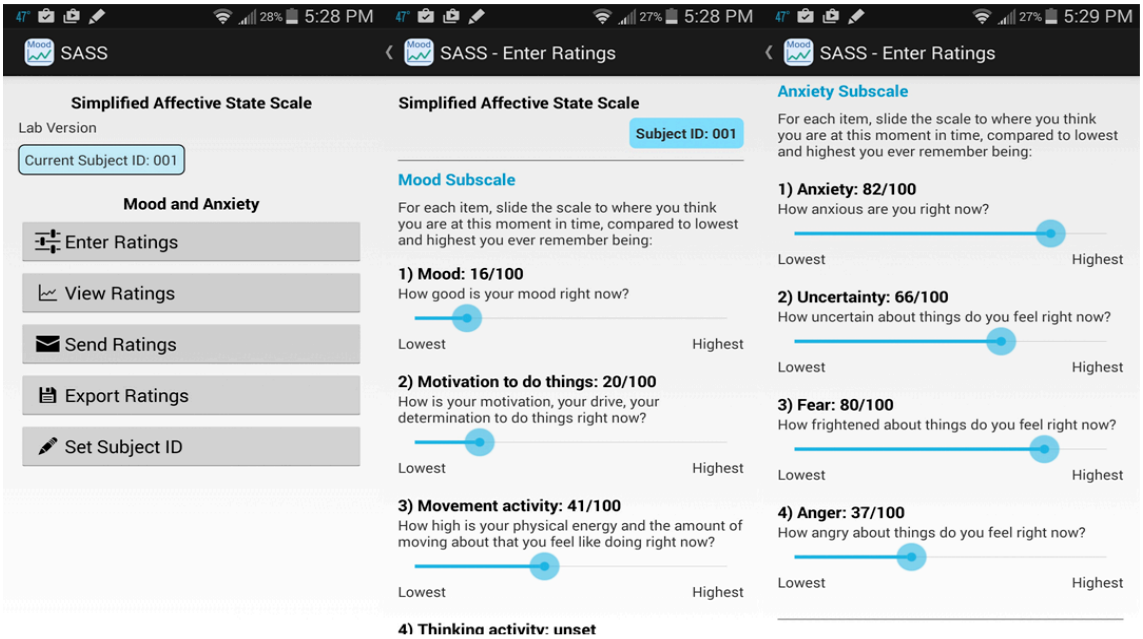
Comments (optional):
Describe events or actions that you think are influencing how you feel now. Describe any additional feelings you might have at this moment in time:

Convergent Functional Information for Suicide (CFI-S) Scale. Items are scored 1 for Yes, 0 for No. Total Score has a maximum possible of 22. Final Score (normalized) is Total Score divided by number of items that were scored, as for some items information might not be available (NA), so they are not scored.

Items	Yes	No	NA	Domain	Type Increased Reasons (IR) Decreased Barriers (DB)
1. Psychiatric illness diagnosed and treated				Mental Health	IR
2. With poor treatment compliance				Mental Health	DB
3. Family history of suicide in blood relatives				Mental Health	IR
4. Personally knowing somebody who committed suicide				Cultural Factors	DB
5. History of abuse: physical, sexual, emotional, neglect				Life Satisfaction	IR
6. Acute/severe medical illness, including acute pain ("I just can't stand this pain anymore.") (within last 3 months)				Physical Health	IR
7. Acute stress: Losses, grief (within last 3 months)				Environmental Stress	IR
8. Chronic stress: perceived uselessness, not feeling needed, burden to extended kin.				Environmental Stress	IR
9. History of excessive introversion, conscientiousness (including planned suicide attempts)				Mental Health	IR
10. Dissatisfaction with life at this moment in time				Life Satisfaction	IR
11. Lack of hope for the future				Life Satisfaction	IR
12. Current substance abuse				Addictions	DB
13. Past history of suicidal acts/gestures				Mental Health	DB
14. Lack of religious beliefs				Cultural Factors	DB
15. Acute stress: Rejection (within last 3 months)				Environmental Stress	IR
16. Chronic stress: lack of positive relationships, social isolation				Environmental Stress	DB
17. History of excessive extroversion and impulsive behaviors (including rage, anger, physical fights, seeking revenge)				Mental Health	DB
18. Lack of coping skills when faced with stress (cracks under pressure)				Mental Health	DB
19. Lack of children. If has children, not in touch /not helping take care of them.				Life Satisfaction	DB

20. History of command hallucinations of self-directed violence				Mental Health	IR
21. Age: Older >60 or Younger <25				Age	IR
22. Gender: Male				Gender	DB

SASS App



CFI-S App

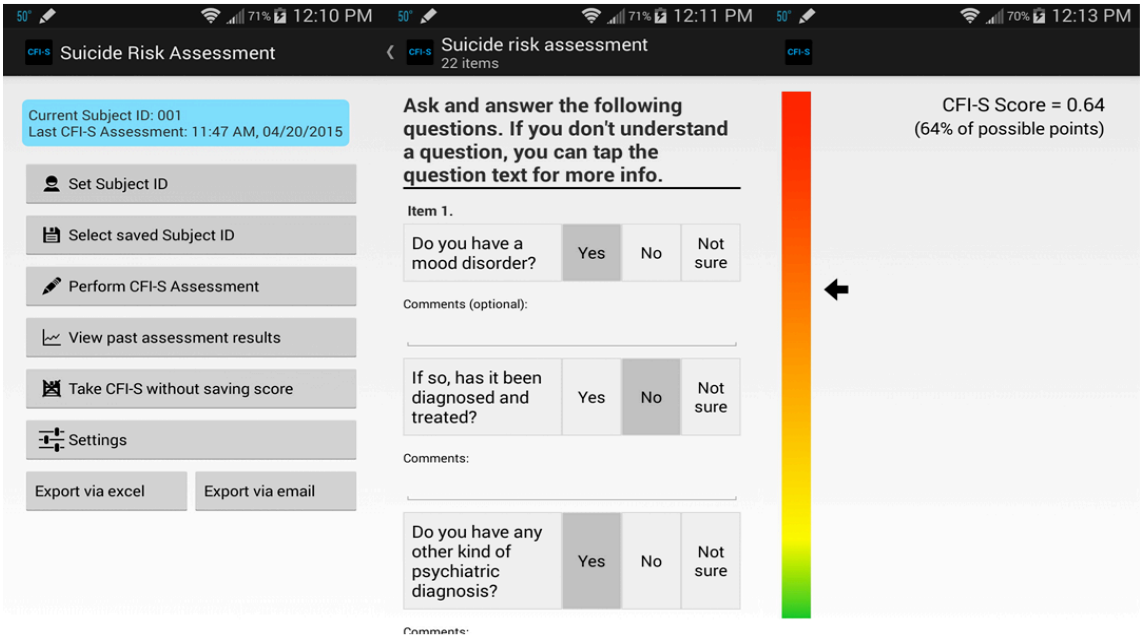


Table S1. Detailed Demographics

Cohort 1: Discovery Cohort (n=12) (31 visits)						
Participant ID visit	Veteran Status	Diagnosis	Age	Gender	Ethnicity	HAMD SI
phchp034v1	NON-VA	BP	51	F	Asian American	0
phchp034v2	NON-VA	BP	52	F	Asian American	3
phchp043v1	NON-VA	BP	30	F	Caucasian	2
phchp043v2	NON-VA	BP	31	F	Caucasian	0
phchp043v3	NON-VA	BP	31	F	Caucasian	0
phchp055v1		BP	46	F	Caucasian	4
phchp055v2		BP	46	F	Caucasian	0
phchp055v3		BP	46	F	Caucasian	0
phchp097v1	NON-VA	SZA	25	F	Caucasian	0
phchp097v2	NON-VA	SZA	26	F	Caucasian	2
phchp131v1		SZ	54	F	African American	3
phchp131v3		SZ	56	F	African American	0
phchp170v1	NON-VA	MDD	26	F	Caucasian	2
phchp170v2	NON-VA	MDD	26	F	Caucasian	0
phchp170v3	NON-VA	MDD	26	F	Caucasian	0
phchp223v1	NON-VA	SZA	60	F	Caucasian	2
phchp223v2	NON-VA	SZA	60	F	Caucasian	0
phchp223v3	NON-VA	SZA	61	F	Caucasian	0
phchp318v1		MDD	57	F	Caucasian	2
phchp318v2		MDD	57	F	Caucasian	0
phchp328v1		MDD	37	F	Caucasian	3
phchp328v2		MDD	38	F	Caucasian	2
phchp328v3		MDD	38	F	Caucasian	0
phchp332v1		SZA	47	F	African American	4
phchp332v2		SZA	48	F	African American	0
phchp332v3		SZA	48	F	African American	0
phchp334v1		BP	50	F	Caucasian	4
phchp334v2		BP	50	F	Caucasian	0
phchp334v3		BP	51	F	Caucasian	0
phchp340v1		MDD	51	F	Caucasian	2
phchp340v2		MDD	51	F	Caucasian	0

Coroner's Office Validation Cohort –Toxicology

Cohort 2: Coroner's Office Validation Cohort -gene expression data (n=6)					
Subject ID visit	Psych [1]Dx	Age	Gender	Ethnicity	Cause of Death
INBRAIN020	Depression	55	F	Caucasian	Single GSW to chest
INBRAIN026	None	57	F	Caucasian	Single GSW to head
INBRAIN029	PTSD	36	F	Caucasian	Asphyxiation (duct tape)
INBRAIN032	Bipolar	44	F	Caucasian	Single GSW to head
INBRAIN034	Depression	50	F	Caucasian	Single GSW to chest
INBRAIN050	Depression	19	F	African American	Single GSW under chin

Coroner's Office Validation Cohort - Toxicology	
Subject ID visit	Toxicology
INBRAIN020	clonazepam 6.7 7-aminoclonazepam 32.9 duloxetine 68.7 trazodone 0.21
INBRAIN026	CAFFEINE POSITIVE
INBRAIN029	NA
INBRAIN032	CAFFEINE POSITIVE
INBRAIN034	Oxazepam 54.5 Temazepam 395 Gabapentin 1 Zolpidem 571 Temazepam >2500 Oxazepam>2500 Hydrocodone 88 Hydromorphine 161
INBRAIN050	NA

Cohort 3: Test Cohort for Suicidal Ideation (n=33) (74 visits)						
Participant ID visit	Veteran Status	Diagnosis	Age	Gender	Ethnicity	HAMD SI
phchp018v1	NON-VA	SZA	54	F	Caucasian	0
phchp028v1	NON-VA	BP	50	F	Asian	1
phchp028v2	NON-VA	BP	50	F	Asian	1
phchp035v1	NON-VA	BP	36	F	Caucasian	0
phchp035v2	NON-VA	BP	37	F	Caucasian	0
phchp035v3	NON-VA	BP	37	F	Caucasian	0
phchp037v1	NON-VA	BP	52	F	Caucasian	0
phchp063v1	NON-VA	SZ	46	F	African American	0
phchp071v1	NON-VA	SZA	50	F	African American	0
phchp074v1		SZA	46	F	African American	0
phchp074v2		SZA	46	F	African American	0
phchp074v3		SZA	46	F	African American	0
phchp076v1		SZA	41	F	African American	2
phchp076v2		SZA	41	F	African American	1
phchp076v3		SZA	41	F	African American	1
phchp084v1		BP	49	F	Caucasian	0
phchp084v2		BP	49	F	Caucasian	0
phchp084v3		BP	50	F	Caucasian	0
phchp106v1		BP	28	F	Mixed	0
phchp106v2		BP	28	F	Mixed	0
phchp106v3		BP	29	F	Mixed	0
phchp130v1		MDD	42	F	Caucasian	0
phchp130v2		MDD	42	F	Caucasian	0
phchp130v3		MDD	42	F	Caucasian	0
phchp141v1		BP	47	F	Caucasian	1
phchp141v2		BP	47	F	Caucasian	0
phchp141v3		BP	47	F	Caucasian	1
phchp156v1		BP	35	F	Caucasian	2
phchp160v1	NON-VA	SZA	41	F	Caucasian	0
phchp160v2	NON-VA	SZA	41	F	Caucasian	0
phchp160v3	NON-VA	SZA	41	F	Caucasian	0
phchp164v1		MDD	48	F	Caucasian	0
phchp164v2		MDD	49	F	Caucasian	0
phchp164v3		MDD	49	F	Caucasian	0
phchp172v1	NON-VA	BP	24	F	Caucasian	0

phchp172v2	NON-VA	BP	24	F	Caucasian	0
phchp172v3	NON-VA	BP	25	F	Caucasian	0
phchp177v1		SZ	39	F	Caucasian	0
phchp177v2		SZ	39	F	Caucasian	0
phchp180v1	NON-VA	BP	47	F	Caucasian	0
phchp180v2	NON-VA	BP	47	F	Caucasian	0
phchp180v3	NON-VA	BP	47	F	Caucasian	0
phchp181v1	NON-VA	BP	28	F	Caucasian	0
phchp181v3	NON-VA	BP	28	F	Caucasian	0
phchp181v4	NON-VA	BP	29	F	Caucasian	0
phchp204v1	NON-VA	BP	49	F	Caucasian	0
phchp204v2	NON-VA	BP	49	F	Caucasian	0
phchp204v3	NON-VA	BP	49	F	Caucasian	0
phchp232v1	NON-VA	SZA	38	F	Caucasian	0
phchp232v2	NON-VA	SZA	38	F	Caucasian	0
phchp232v3	NON-VA	SZA	38	F	Caucasian	0
phchp239v1	NON-VA	SZA	54	F	African American	0
phchp239v2	NON-VA	SZA	54	F	African American	0
phchp239v3	NON-VA	SZA	54	F	African American	0
phchp240v1		MDD	55	F	Caucasian	0
phchp240v2		MDD	55	F	Caucasian	0
phchp240v3		MDD	56	F	Caucasian	0
phchp254v1		MDD	49	F	Caucasian	0
phchp254v2		MDD	49	F	Caucasian	0
phchp254v3		MDD	50	F	Caucasian	0
phchp258v1		BP	52	F	Caucasian	0
phchp258v2		BP	52	F	Caucasian	0
phchp285v1		BP	56	F	Caucasian	0
phchp285v2		BP	56	F	Caucasian	1
phchp291v1		BP	45	F	Caucasian	0
phchp291v2		BP	46	F	Caucasian	0
phchp291v3		BP	47	F	Caucasian	0
phchp294v1	NON-VA	BP	20	F	Caucasian	2
phchp307v1		MDD	53	F	Caucasian	2
phchp330v1		BP	45	F	Caucasian	3
phchp338v1		BP	51	F	Caucasian	0
phchp338v2		BP	51	F	Caucasian	0
phchp353v1		MDD	45	F	Caucasian	2
phchp355v1		MDD	50	F	Caucasian	3

Cohort 4: Testing cohort for future hospitalizations for suicidality (n=24) (59 chips)									
Participant ID visit	Diagnosis	Age	Gender	Ethnicity	Years Followed	Number of All Future Hospitalizations Due to Suicidality		Hospitalizations Frequency Due to Suicidality	
						SI	SA	SI	SA
phchp055v1	BP	46	F	Caucasian	3.482192	0	1	0	0.287175
phchp055v2	BP	46	F	Caucasian	3.175342	0	0	0	0
phchp055v3	BP	46	F	Caucasian	2.893151	0	0	0	0
phchp074v1	SZA	46	F	African American	1.882192	0	0	0	0
phchp074v2	SZA	46	F	African American	1.583562	0	0	0	0
phchp074v3	SZA	46	F	African American	1.326027	0	0	0	0
phchp076v1	SZA	41	F	African American	7.490411	2	0	0.267008	0
phchp076v2	SZA	41	F	African American	7.210959	1	0	0.138678	0
phchp076v3	SZA	41	F	African American	6.991781	1	0	0.143025	0
phchp084v1	BP	49	F	Caucasian	7.032877	0	0	0	0
phchp084v2	BP	49	F	Caucasian	6.835616	0	0	0	0
phchp084v3	BP	50	F	Caucasian	6.567123	0	0	0	0
phchp106v1	BP	28	F	Mixed	5.446575	0	0	0	0
phchp106v2	BP	28	F	Mixed	5.205479	0	0	0	0
phchp106v3	BP	29	F	Mixed	4.961644	0	0	0	0
phchp130v1	MDD	42	F	Caucasian	4.939726	0	0	0	0
phchp130v2	MDD	42	F	Caucasian	4.641096	0	0	0	0
phchp130v3	MDD	42	F	Caucasian	4.386301	0	0	0	0
phchp131v1	SZ	54	F	African American	1.671233	0	0	0	0
phchp131v2	SZ	55	F	African American	1.358904	0	0	0	0
phchp131v3	SZ	56	F	African American	1.112329	0	0	0	0
phchp141v1	BP	47	F	Caucasian	4.60274	0	0	0	0
phchp141v2	BP	47	F	Caucasian	4.336986	0	0	0	0
phchp141v3	BP	47	F	Caucasian	4.090411	0	0	0	0
phchp156v1	BP	35	F	Caucasian	1.778082	0	0	0	0
phchp164v1	MDD	48	F	Caucasian	3.906849	0	0	0	0
phchp164v2	MDD	49	F	Caucasian	3.578082	0	0	0	0
phchp164v3	MDD	49	F	Caucasian	3.309589	0	0	0	0
phchp177v1	SZ	39	F	Caucasian	3.912329	0	0	0	0
phchp177v2	SZ	39	F	Caucasian	3.613699	0	0	0	0

phchp240v1	MDD	55	F	Caucasian	3.252055	0	0	0	0
phchp240v2	MDD	55	F	Caucasian	2.641096	0	0	0	0
phchp240v3	MDD	56	F	Caucasian	2.282192	0	0	0	0
phchp254v1	MDD	49	F	Caucasian	2.353425	0	0	0	0
phchp254v2	MDD	49	F	Caucasian	1.739726	0	0	0	0
phchp254v3	MDD	50	F	Caucasian	1.336986	0	0	0	0
phchp258v1	BP	52	F	Caucasian	2.863014	0	0	0	0
phchp258v2	BP	52	F	Caucasian	2.252055	0	0	0	0
phchp291v1	BP	45	F	Caucasian	2.468493	0	0	0	0
phchp291v2	BP	46	F	Caucasian	2.084932	0	0	0	0
phchp291v3	BP	47	F	Caucasian	0.391781	0	0	0	0
phchp318v1	MDD	57	F	Caucasian	2.369863	0	0	0	0
phchp318v2	MDD	57	F	Caucasian	0.660274	0	0	0	0
phchp328v1	MDD	37	F	Caucasian	1.30411	5	0	3.834034	0
phchp328v2	MDD	38	F	Caucasian	1.008219	4	0	3.967391	0
phchp328v3	MDD	38	F	Caucasian	0.613699	3	0	4.888393	0
phchp330v1	BP	45	F	Caucasian	1.2	0	0	0	0
phchp332v1	SZA	47	F	African American	0.871233	2	0	2.295597	0
phchp332v2	SZA	48	F	African American	0.619178	2	0	3.230088	0
phchp332v3	SZA	48	F	African American	0.561644	0	0	0	0
phchp334v1	BP	50	F	Caucasian	1.065753	2	0	1.876607	0
phchp334v2	BP	50	F	Caucasian	0.816438	2	0	2.449664	0
phchp334v3	BP	51	F	Caucasian	0.534247	0	0	0	0
phchp338v1	BP	51	F	Caucasian	0.89863	0	0	0	0
phchp338v2	BP	51	F	Caucasian	0.556164	0	0	0	0
phchp340v1	MDD	51	F	Caucasian	0.923288	0	0	0	0
phchp340v2	MDD	51	F	Caucasian	0.627397	0	0	0	0
phchp353v1	MDD	45	F	Caucasian	0.29863	0	0	0	0
phchp355v1	MDD	50	F	Caucasian	0.539726	0	0	0	0

Table S2. Top candidate biomarker genes -evidence for involvement in suicidality.

The top 49 genes (50 probesets) from validation (Bonferroni significant), as well as 65 genes that were top scoring in both discovery (internal score of 4) and prioritization (CFG score of 6 and above) but were non Bonferroni validated. Underlined gene symbol means co-directionality of the exact same probeset with biomarkers findings from our previous work in males (Niculescu et al. 2015)[2]. 82 out of 115 probesets were co-directional (71%). *Italic- nominally significant.* **Bold p-value is Bonferroni significant after validation in suicide completers.**

Gene Symbol/Gene Name	Probesets	Discovery (Change) Method/ Score	Prior human genetic evidence	Prior human Brain expression evidence	Prior human peripheral expression evidence	Prioritization Total CFG Score For Suicide	Validation ANOVA p-value
Validated Biomarkers (Bonferroni) (49 genes, 50 probesets)							
BCL2 B-cell CLL/Lymphoma 2	203684_s_at	(D) DE/2	Linkage [3]	(D) PFC [4]	(D) Blood[5]	9	**3.95E-06**
GSK3B glycogen synthase kinase 3 beta	226183_at	(D) DE/1	Suicide [6]	(D) PFC [7] [8]	(I) Blood[5]	9	**2.26E-05**
ALDH3A2 aldehyde dehydrogenase 3 family, member A2	202053_s_at	(D) DE/2		(I) BA4, BA44, THALAMUS [9]	(D) Blood[5]	8	**1.62E-06**
AP1S2 adaptor-related protein complex 1, sigma 2 subunit	203299_s_at	(D) DE/1	Linkage [10]	(I) BA 8/9 ; (D) BA 44, BA 11 Suicide [10]	(D) Blood[5]	8	**2.52E-05**
CAT catalase	238363_at	(D) DE/2		(D) BA47 [11]	(I) Blood[5]	8	**5.04E-07**
JUN jun proto-oncogene	201466_s_at 201465_s_at	(I) DE/2 DE/1		(D) HIP [12]	(I) Blood[5]	8 7	**1.14E-11** **1.72E-14**
C18orf54 chromosome 18 open reading frame 54	244324_at	(D) DE/1		(D) HIP [12]	(I) Blood[5]	7	**2.79E-06**
LINC00342 long intergenic non-protein coding RNA 342	1560661_x_at	(D) DE/2	Linkage [13]	(D) DLFPC [14]		7	**1.67E-06**
MOB3B MOB kinase activator 3B	229568_at	(D) DE/1		(I) ACC [14]	(I) Blood[5]	7	**4.69E-06**
NDRG1 N-myc downstream regulated 1	200632_s_at	(I) DE/1		(I) NAC [14]	(I) Blood[5]	7	**3.07E-07**
PER1 period circadian clock 1	202861_at	(I) DE/1		(D) DLFPC [14]	(D) Blood[5]	7	**5.32E-12**
RAPH1 Ras association (RalGDS	1552482_at	(I) DE/1		(I) BA11 [15]	(I) Blood[5]	7	**7.44E-10**
SPON1 spondin 1, extracellular matrix protein	213993_at	(I) DE/1		(D) PFC [16] (I) DLFPC [14]	(I) Blood[5]	7	**1.02E-05**
FOXP1 forkhead box P1	223937_at	(I) DE/4			(D) Blood[5]	6	**7.03E-07**
HAVCR2 hepatitis A virus cellular receptor 2	1555629_at	(I) DE/4			(D) Blood[5]	6	**1.69E-12**

PIP5K1B phosphatidylinositol-4-phosphate 5-kinase, type I, beta	205632_s_at	(D) DE/4			(I) Blood[5]	6	**1.83E-05**
ARHGAP15 Rho GTPase activating protein 15	1561489_at	(I) DE/1	Suicide [13]		(I) Blood[5]	5	**3.05E-06**
GJA1 gap junction protein, alpha 1, 43kDa	201667_at	(I) DE/1		(D) HIP [12] PFC [16 17]		5	**1.96E-06**
HES1 hes family bHLH transcription factor 1	203394_s_at	(I) AP/1		(D) DLPFC, AMY [18]		5	**7.65E-10**
HTRA1 HtrA serine peptidase 1	201185_at	(I) AP/1		(I) NAC [14]		5	**3.17E-07**
PRCP prolylcarboxypeptidase (angiotensinase C)	242636_at	(D) DE/1		(D) HIP [12]		5	**2.36E-08**
TIMP1 TIMP metallopeptidase inhibitor 1	201666_at	(I) DE/1		(I) HIP [19] (D) PFC [16]		5	**7.00E-07**
CD200R1 CD200 receptor 1	1553395_a_at	(D) DE/2			(D) Blood[5]	4	**1.45E-05**
CD84 CD84 molecule	230391_at	(D) DE/2			(D) Blood[5]	4	**1.74E-05**
CEP44 centrosomal protein 44kDa	231850_x_at	(D) DE/4				4	**6.71E-08**
CROT carnitine O-octanoyltransferase	231102_at	(D) DE/2			(I) Blood[5]	4	**7.62E-06**
DCAF5 DDB1 and CUL4 associated factor 5	224696_s_at	(D) DE/2			(I) Blood[5]	4	**1.37E-05**
DTWD2 DTW domain containing 2	231277_x_at	(D) DE/2			(I) Blood[5]	4	**1.87E-09**
EPB41L5 erythrocyte membrane protein band 4.1 like 5	229292_at	(I) DE/1	Linkage [20]		(I) Blood [5]	4	**4.58E-14**
ERP27 endoplasmic reticulum protein 27	227450_at	(D) DE/2			(D) Blood [5]	4	**9.54E-08**
FAM173B family with sequence similarity 173, member B	225670_at	(D) DE/2			(D) Blood[5]	4	**2.25E-05**
GANC glucosidase, alpha; neutral C	235714_at	(D) DE/2			(I) Blood[5]	4	**1.40E-08**
GTF3C2 general transcription factor IIIC, polypeptide 2, beta 110kDa	210620_s_at	(D) DE/2			(D) Blood[5]	4	**1.68E-07**
IL1R1 interleukin 1	215561_s_at	(I) AP/1	Linkage [13]		(D) Blood[5]	4	**5.47E-08**

receptor, type I							
INO80D INO80 complex subunit D	227924_at	(D) DE/2			(D) Blood[5]	4	**6.58E-06**
INPP4A inositol polyphosphate-4-phosphatase, type I, 107kDa	235695_at	(D) DE/1	Linkage [13]		(D) Blood[5]	4	**1.79E-05**
ITLN1 intelectin 1 (galactofuranose binding)	223597_at	(I) DE/2			(I) Blood[5]	4	**6.69E-07**
JRK Jrk homolog (mouse)	37872_at	(D) AP/2			(D) Blood[5]	4	**4.25E-06**
KCTD5 potassium channel tetramerization domain containing 5	218474_s_at	(D) DE/2			(D) Blood[5]	4	**2.05E-07**
KIR2DL4 killer cell immunoglobulin-like receptor, two domains, long cytoplasmic tail, 4	208426_x_at	(I) DE/2			(D) Blood[5]	4	**1.61E-11**
METTL15 methyltransferase like 15	238773_at	(D) DE/2			(D) Blood[5]	4	**2.16E-06**
NUDT10 nudix (nucleoside diphosphate linked moiety X)-type motif 10	241596_at	(I) DE/2			(D) Blood[5]	4	**7.99E-07**
PDXDC1 pyridoxal-dependent decarboxylase domain containing 1	1560013_at	(I) DE/2			(I) Blood[5]	4	**1.03E-05**
PIK3C3 phosphatidylinositol 3-kinase, catalytic subunit type 3	232086_at	(D) DE/1	Suicide, Antidepressants [21]		(I) Blood[5]	4	**3.14E-08**
RBM48 RNA binding motif protein 48	232661_s_at	(D) DE/2			(I) Blood[5]	4	**7.89E-07**
SMARCA2 SWI/SNF Related, Matrix Associated, Actin Dependent Regulator of Chromatin, Subfamily A, Member 2	206543_at	(D) DE/1	Linkage [3]		(D) Blood[5]	4	**2.46E-05**
UCHL5 ubiquitin carboxyl-terminal hydrolase L5	1570145_at	(D) DE/2			(I) Blood[5]	4	**9.05E-11**
VPS53 vacuolar protein sorting 53 homolog (S. cerevisiae)	235882_at	(D) DE/2			(I) Blood[5]	4	**3.41E-09**

ZNF302 zinc finger protein 302	228392_at	(D) DE/2			(D) Blood[5]	4	**7.64E-06**
Top Discovery and Prioritization Biomarkers(Non Bonferroni Validated, 65 genes)							
CLTA clathrin, light chain A	216296_at	(I) DE/4		(I) PFC [22]	(I) Blood[5]	10	
FAM214A family with sequence similarity 214, member A	236237_at	(I) DE/4		(I) ACC [14]	(I) Blood[5]	10	
HSPD1 heat shock 60kDa protein 1 (chaperonin)	241716_at	(I) DE/4		(I) AMY [23]	(D) Blood[5]	10	*0.021922*
ZMYND8 zinc finger, MYND-type containing 8	214795_at	(I) AP/4		(I) ACC [14]	(I) Blood[5]	10	
AK2 adenylate kinase 2	212172_at	(I) AP/4	Suicide [24]		(D) Blood[5]	8	
CAPZA2 capping protein (actin filament) muscle Z-line, alpha 2	201238_s_at	(D) DE/4		(I) PFC [23]		8	0.116785
LRRC8B leucine rich repeat containing 8 family, member B	212976_at	(D) DE/4		(I) PFC [15]		8	0.231881
PPM1B protein phosphatase, Mg2+	209296_at	(D) DE/4		(I) NAC [14]		8	*0.002299*
ACTR3 ARP3 actin-related protein 3 homolog (yeast)	213102_at	(D) DE/4	Linkage [20]		(I) Blood[5]	7	*0.0045239*
AFF3 AF4/FMR2 family, member 3	244696_at	(I) AP/4	Linkage [13]		(D) Blood[5]	7	
MRPS5 mitochondrial ribosomal protein S5	237560_at	(I) AP/4	Linkage [3] {Willour, 2007 #37863}		(D) Blood[5]	7	
SH2D1A SH2 domain containing 1A	211211_x_at	(D) DE/4	Linkage [9] {Zubenko, 2004 #37861}		(D) Blood[5]	7	
AKT3 v-akt murine thymoma viral oncogene homolog 3	240568_at	(I) AP/4			(D) Blood[5]	6	
ALG13 ALG13, UDP-N-acetylglucosaminyltransferase subunit	205584_at	(D) DE/4			(I) Blood[5]	6	*0.046957*
ARHGAP35 Rho GTPase activating protein 35	229397_s_at	(D) DE/4			(D) Blood[5]	6	*0.00160014*
ARID4B AT rich interactive	221230_s_at	(D) DE/4			(I) Blood[5]	6	

domain 4B (RBP1-like)							
ASPH aspartate beta-hydroxylase	242037_at	(I) DE/4			(I) Blood[5]	6	*0.01087*
ATXN1 ataxin 1	1565804_at	(I) DE/4			(I) Blood[5]	6	
BRE Brain and reproductive organ-expressed (TNFRSF1A modulator)	1556817_a_at	(I) AP/4			(I) Blood[5]	6	
CHMP2B charged multivesicular body protein 2B	202538_s_at	(D) DE/4			(I) Blood[5]	6	*0.022703*
CLPB ClpB caseinolytic peptidase B homolog (E. coli)	1566581_at	(I) AP/4			(D) Blood[5]	6	*0.025268*
CSNK1A1 casein kinase 1, alpha 1	235464_at	(D) DE/4			(D) Blood[5]	6	
DPCD deleted in primary ciliary dyskinesia homolog (mouse)	226009_at	(I) DE/4			(D) Blood[5]	6	
ECSIT ECSIT signalling integrator	218225_at	(I) DE/4			(D) Blood[5]	6	
ENTPD1 ectonucleoside triphosphate diphosphohydrolase 1	243111_at	(I) AP/4			(I) Blood[5]	6	
EPHB4 EPH receptor B4	202894_at	(I) DE/4			(D) Blood[5]	6	
ETNK1 ethanolamine kinase 1	224453_s_at	(D) AP/4			(D) Blood[5]	6	
FANCI Fanconi anemia, complementation group I	213008_at	(I) DE/4			(I) Blood[5]	6	*0.000897*
FBXL3 F-box and leucine-rich repeat protein 3	225132_at	(D) DE/4			(I) Blood[5]	6	*0.00127*
GTF3C3 general transcription factor IIIC, polypeptide 3, 102kDa	1555439_at	(I) AP/4			(I) Blood[5]	6	NC
HERC4 **HECT and RLD** domain containing E3 ubiquitin protein ligase 4	225988_at	(D) DE/4			(D) Blood[5]	6	*0.042192*
ITIH5 inter-alpha-trypsin inhibitor heavy chain family, member 5	1553243_at	(I) AP/4			(I) Blood[5]	6	
JMJD1C	221763_at	(D)			(I)	6	0.191525

jumonji domain containing 1C		DE/4			Blood[5]		
KLHL28 kelch-like family member 28	220374_at	(I) AP/4			(I) Blood[5]	6	
LARP4 La ribonucleoprotein domain family, member 4	214155_s_at	(D) DE/4			(D) Blood[5]	6	*0.014911*
MBNL1 muscleblind-like splicing regulator 1	201153_s_at	(D) DE/4			(D) Blood[5]	6	*0.009769*
MEX3C mex-3 RNA binding family member C	222567_s_at	(D) DE/4			(D) Blood[5]	6	*0.00603*
MR1 major histocompatibility complex, class I-related	207566_at	(I) DE/4			(D) Blood[5]	6	
NUDT6 nudix (nucleoside diphosphate linked moiety X)-type motif 6	220183_s_at	(D) AP/4			(D) Blood[5]	6	
PHC3 polyhomeotic homolog 3 (Drosophila)	1552644_a_at	(D) DE/4 (I) DE/1			(I) Blood[5]	6	
PIAS1 protein inhibitor of activated STAT, 1	1558418_at	(I) DE/4			(I) Blood[5]	6	
PPHLN1 periphilin 1	234459_at	(I) DE/4			(I) Blood[5]	6	
PRDX3 peroxiredoxin 3	201619_at	(D) DE/4			(I) Blood[5]	6	*0.000225*
PVT1 Pvt1 oncogene (non-protein coding)	1562153_a_at	(D) DE/4			(D) Blood[5]	6	*0.000433*
RAB22A RAB22A, member RAS oncogene family	218360_at	(D) DE/4			(I) Blood[5]	6	
RDH13 retinol dehydrogenase 13 (all-trans/9-cis)	225449_at	(I) AP/4			(D) Blood[5]	6	
SBNO1 strawberry notch homolog 1 (Drosophila)	229528_at	(I) DE/4			(I) Blood[5]	6	
SLC35B3 solute carrier family 35 (adenosine 3'-phospho 5'-phosphosulfate transporter), member B3	231003_at	(D) DE/4			(I) Blood[5]	6	*3.34E-05*
SNRNP27 small nuclear	212440_at	(D) DE/4			(D) Blood[5]	6	

ribonucleoprotein 27kDa (U4							
SNX27 sorting nexin family member 27	244349_at	(I) AP/4			(I) Blood[5]	6	
SSBP2 single-stranded DNA binding protein 2	1557814_a_at	(I) AP/4			(I) Blood[5]	6	
STRN striatin, calmodulin binding protein	1569813_at	(I) AP/4			(I) Blood[5]	6	
TTC7A tetratricopeptide repeat domain 7A	224924_at	(I) DE/4			(I) Blood[5]	6	
UIMC1 ubiquitin interaction motif containing 1	233596_at	(I) DE/4			(I) Blood[5]	6	
USP6NL USP6 N-terminal like	204761_at	(D) DE/4			(D) Blood[5]	6	*0.007614*
WAC WW domain containing adaptor with coiled-coil	230154_at	(D) DE/4			(D) Blood[5]	6	*8.53E-05*
WAPAL wings apart-like homolog (Drosophila)	212267_at	(D) DE/4			(D) Blood[5]	6	*0.002521*
ZBP1 Z-DNA binding protein 1	208087_s_at	(I) DE/4			(D) Blood[5]	6	
ZFAND5 zinc finger, AN1-type domain 5	210275_s_at	(D) DE/4			(D) Blood[5]	6	*0.042362*
ZNF117 zinc finger protein 117	207605_x_at	(D) DE/4			(D) Blood[5]	6	
ZNF141 zinc finger protein 141	206931_at	(D) DE/4			(D) Blood[5]	6	
ZNF548 zinc finger protein 548	1553718_at	(D) DE/4			(D) Blood[5]	6	*0.000461*
ZNF596 zinc finger protein 596	240324_at	(I) AP/4			(I) Blood[5]	6	
AP3S2 adaptor-related protein complex 3, sigma 2 subunit	213215_at	(I) DE/4				4	
SSR1 signal sequence receptor, alpha	200890_s_at	(D) DE/4				4	*0.000923*

Table S3. Top candidate biomarker genes – evidence for involvement in other psychiatric and non-psychiatric disorders (aging, pain). Underlined gene symbol means concordant with findings from our previous mood and psychosis biomarker studies (mood-opposite direction, psychosis-same direction). Alc- alcoholism; BP- Bipolar; SZ- schizophrenia. ASD- Autism spectrum disorders; ALZ- Alzheimer; PTSD-Post Traumatic Stress Disorder.

Gene Symbol/Gene Name	Probesets	Discovery (Change) Method/ Score	Prioritization CFG Score For Suicide	Validation ANOVA p-value	Circadian clock function	Prior human genetic evidence	Prior human Brain expression evidence	Prior human peripheral expression evidence	CFG Score For Other Disorders
Validated Biomarkers (Bonferroni) (49 genes, 50 probesets)									
BCL2 B-cell CLL/Lymphoma 2	203684_s_at	(D) DE/2	9.00	**3.95E-06**		**Anxiety**[25] **BP**[26 27] **BP, SZ**[28]	**(I) Aging** PFC [29] **(D) BP** FC [30] **PTSD** DLPFC [31]	**(I) Alc** Blood [32] **Pain** Vertebral disc [33] **(D) BP** lymphoblast [26] **Mood stabilizers** Blood [34]	8.00
GSK3B glycogen synthase kinase 3 beta	226183_at	(D) DE/1	9.00	**2.26E-05**	**Clock Immediate Input**	**BP** [35 36 37] **MDD** [38] **Mood Stabilizers** [39] **MDD**[40 41] **SZ**[42 43]	**(D) Alc** HTH [44] **BP** Brain [45] DLPFC [46 47] ACC [46] **SZ** HIP [48 49] DLPFC [50 43] Thalamus[51] Temporal Cortex [52] **(I) MDD** HTH (I) [44] ACC, DLPFC [46]	**(I) MDD** Fibroblast[53] **(D) Mood stabilizers** platelets[54] **Mild Cognitive Impairment** Blood [55] **BP** platelets[54]	8.00
ALDH3A2 aldehyde dehydrogenase 3 family, member A2	202053_s_at	(D) DE/2	8.00	**1.62E-06**			**(D) BP** Brain [45]		4.00
AP1S2 adaptor-related protein complex 1, sigma 2 subunit	203299_s_at	(D) DE/1	8.00	**2.52E-05**			**(D) BP** Brain [45 56] **SZ,SZA** DLPFC [57]		4.00
CAT catalase	238363_at	(D) DE/2	8.00	**5.04E-07**			**(I) Mood Disorders NOS** ACC [58] **PTSD** DLPFC BA46 [31] **BP**	**(I) BP** Plasma [59] **(D) SZ** Red Blood Cell[60] **SZ**	8.00

							ACC ,DLPFC[46] **(D)** **MDD** BA47 [11]; ACC,DLPFC [46]	Fibroblasts[61]	
JUN jun proto-oncogene	201466_s_at 201465_s_at,	(I) DE/2 DE/1	8.0 7.0	**1.14E-11** **1.72E-14**			**(I)** **MDD** BA2 [62] AMY [63] **SZ** cerebellar vermis [64] middle temporal gyrus [65] thalamus [66]	**SZ** Fibroblasts [67] **Neurological Pain** vertebral disc [33] **(D)** **Stress, Lithium** Leukocytes [68] **SZ** Blood [67]	6.00
C18orf54 chromosome 18 open reading frame 54	244324_at	(D) DE/1	7.00	**2.79E-06**					0.00
LINC00342 long intergenic non-protein coding RNA 342	1560661_x_at	(D) DE/2	7.00	**1.67E-06**					0.00
MOB3B MOB kinase activator 3B	229568_at	(D) DE/1	7.00	**4.69E-06**					0.00
NDRG1 N-myc downstream regulated 1	200632_s_at	(I) DE/1	7.00	**3.07E-07**	**Clock Distant Output**		**SZ** ACC (BA 24) [56] (I) **SZ** APFC [69]		4.00
PER1 period circadian clock 1	202861_at	(I) DE/1	7.00	**5.32E-12**	**Clock Core**	**ASD** [70] **Depression** [71] **Stress/Alc** [72]	**(Unspecified)** **MDD** DLPFC [73] **(D)** **BP** ACC [44] **(I)** **SZ** middle temporal gyrus [65]	**(I)** **BP** buccal mucosa cells [74] **MDD** leukocytes [75] **(D)** **SZ** Lymphocyte [76] **Alc** Blood [77]	8.00
RAPH1 Ras association (RalGDS	1552482_at	(I) DE/1	7.00	**7.44E-10**	**Clock Distant Output**		**(I)** **MDD** BA11 [15]	**(D)** **MDD** Blood [78] [79] **(I)** **(MDD)** Fibroblast	6.00

								[53]	
SPON1 spondin 1, extracellular matrix protein	213994_s_at	(D) DE/1	7.00	**1.02E-05**		**Antidepressants** [80]	**(D) SZ** PFC (BA 46/10) [16]	**(I) PTSD** Blood [81] **(D) SZ** Fibroblasts [61]	8.00
FOXP1 forkhead box P1	223937_at	(I) DE/4	6.00	**7.03E-07**	**Clock Immediate Output**	**Alc** [82] **ASD** [83] **BP** [84] **SZ** [85]	**(I) MDD** AMY and cingulate cortex [86]	**(D) Circadian Abnormalities** Blood [87]	8.00
HAVCR2 hepatitis A virus cellular receptor 2	1555629_at	(I) DE/4	6.00	**1.69E-12**				**(I) PTSD** Blood [81] **SZ** Blood [88]	2.00
PIP5K1B phosphatidylinositol-4-phosphate 5-kinase, type I, beta	205632_s_at	(D) DE/4	6.00	**1.83E-05**			**(D) BP** Brain [45]	**(D) Delusions** Blood [89] **(I) SZ** Fibroblasts [61]	6.00
ARHGAP15 Rho GTPase activating protein 15	1561489_at	(I) DE/1	5.00	**3.05E-06**		**ASD** [90] **SZ** [85] **Alcohol** [13]			2.00
GJA1 gap junction protein, alpha 1, 43kDa	201667_at	(I) DE/1	5.00	**1.96E-06**			**(I) Alc** PFC [91] frontal **(D) Alc** [92] **MDD** Locus coeruleus foreBrain [93] **SZ** PFC BA 46/10) [16] supragenual (BA24) ACC [94]	**(I) Neurological Pain** vertebral disc [33]	6.00
HES1 hes family bHLH transcription factor 1	203394_s_at	(I) AP/1	5.00	**7.65E-10**					0.00
HTRA1 HtrA serine peptidase 1	201185_at	(I) AP/1	5.00	**3.17E-07**	**Clock Distant Output**		**(D) Alc** FC [92]	**(I) SZ** Blood [95]	6.00
PRCP prolylcarboxypeptidase (angiotensinase C)	242636_at	(D) DE/1	5.00	**2.36E-08**				**(D) Chronic Stress** Blood monocytes [96] **SZ** Fibroblasts	2.00

								[61] Blood [88]	
TIMP1 TIMP metallopeptidase inhibitor 1	201666_at	(I) DE/1	5.00	**7.00E-07**			**(I) Alc** HIP [97] **ASD** cerebral cortex [98] **BP** FC [99] **MDD** HIP [19] DLPFC [100] **(D) BP** PFC BA 46/10 [16] **BP,MDD** Pituitary [101] **Alc** Frontal, motor cortex [102]	**(I) SZ** Plasma (I) [103] **(Unspecified) Antidepressants** BLOOD [104]	6.00
CD200R1 CD200 receptor 1	1553395_a_at	(D) DE/2	4.00	**1.45E-05**		**ASD, SZ** [105]			2.00
CD84 CD84 molecule	230391_at	(D) DE/2	4.00	**1.74E-05**				**(I) BP** Whole Blood [106] **Psychosis** Blood [89] **(D) ALZ** BMC [107] **Circadian abnormalities** Whole Blood [87]	2.00
CEP44 centrosomal protein 44kDa	231850_x_at	(D) DE/4	4.00	**6.71E-08**					0.00
CROT carnitine O-octanoyltransferase	231102_at	(D) DE/2	4.00	**7.62E-06**	**Clock Distant Output**	**Personality Disorder, Cynicism** [108]			2.00
DCAF5 DDB1 and CUL4 associated factor 5	224696_s_at	(D) DE/2	4.00	**1.37E-05**				**(D) Circadian abnormalities** Whole Blood [87]	2.00
DTWD2 DTW domain containing 2	231277_x_at	(D) DE/2	4.00	**1.87E-09**					0.00
EPB41L5 erythrocyte membrane protein band 4.1 like 5	229292_at	(I) DE/1	4.00	**4.58E-14**					0.00
ERP27 endoplasmic reticulum protein 27	227450_at	(D) DE/2	4.00	**9.54E-08**					0.00
FAM173B family with	225670_at	(D) DE/2	4.00	**2.25E-05**			**(D) Alcohol**		4.00

sequence similarity 173, member B							[97]		
GANC glucosidase, alpha; neutral C	235714_at	(D) DE/2	4.00	**1.40E-08**		**ASD** [109]			2.00
GTF3C2 general transcription factor IIIC, polypeptide 2, beta 110kDa	210620_s_at	(D) DE/2	4.00	**1.68E-07**			**(D)** **MDD** AMY, cingulate cortex [86]		4.00
IL1R1 interleukin 1 receptor, type I	215561_s_at	(I) AP/1	4.00	**5.47E-08**		**Alc** [110]	**(I)** **Alcohol** NAC [111] HIP [97] **BP** Brain [45] FC [112] **(D)** **BP,SZ** DLPFC [113] **SZ** PFC [114] **SZ** PFC [114]	**(I)** **SZ** serum [115] [116] **Psychological Distress** peripheral Blood cells [117] **Stress** Leukocyte [118] **MDD** [119] **(D)** **SZ** PBMC [120]	7.00
INO80D INO80 complex subunit D	227924_at	(D) DE/2	4.00	**6.58E-06**					0.00
INPP4A inositol polyphosphate-4-phosphatase, type I, 107kDa	235695_at	(D) DE/1	4.00	**1.79E-05**		**Bipolar Psychosis** [121]	**(D)** **BP** Brain [45] **(I)** **SZ** supragenual (BA24) ACC [94]	**(D)** **BP** Lymphocyte [122]	8.00
ITLN1 intelectin 1 (galactofuranose binding)	223597_at	(I) DE/2	4.00	**6.69E-07**					0.00
JRK Jrk homolog (mouse)	37872_at	(D) AP/2	4.00	**4.25E-06**					0.00
KCTD5 potassium channel tetramerization domain containing 5	218474_s_at	(D) DE/2	4.00	**2.05E-07**				**(I)** **BP** Whole Blood [106]	2.00
KIR2DL4 killer cell immunoglobulin-like receptor, two domains, long cytoplasmic tail, 4	208426_x_at	(I) DE/2	4.00	**1.61E-11**				**SZ** Blood [95] **(I)** **Delusions** Blood [89] **Tourette Syndrome** Blood [123]	2.00
METTL15	238773_at	(D) DE/2	4.00	**2.16E-06**					0.00

methyltransferase like 15									
NUDT10 nudix (nucleoside diphosphate linked moiety X)-type motif 10	241596_at	(I) DE/2	4.00	**7.99E-07**				**(I) Hallucinations** Blood [89]	2.00
PDXDC1 pyridoxal-dependent decarboxylase domain containing 1	1560013_at	(I) DE/2	4.00	**1.03E-05**		**SZ** [124]			2.00
PIK3C3 phosphatidylinositol 3-kinase, catalytic subunit type 3	232086_at	(D) DE/1	4.00	**3.14E-08**		**BP** [125] **SZ** [126] **BP, SZ** [28, 127]	**(D) MDD** AMY, ACC [86]		6.00
RBM48 RNA binding motif protein 48	232661_s_at	(D) DE/2	4.00	**7.89E-07**					0.00
SMARCA2 SWI/SNF Related, Matrix Associated, Actin Dependent Regulator of Chromatin, Subfamily A, Member 2	206543_at	(D) DE/1	4.00	**2.46E-05**		**SZ** [128] [129] [130] **Aging** [131] *CNV* **SZ** [132]	**(I) BP** FC [99] **SZ** DLPFC [133] DLPFC BA46 [134] **(D) SZ** PFC [129] **BP** Brain [45]	**(I) BP** Lymphocyte [76]	8.00
UCHL5 ubiquitin carboxyl-terminal hydrolase L5	1570145_at	(D) DE/2	4.00	**9.05E-11**			**(D) BP** Brain [45]	**(I) Antidepressants** Blood [135]	5.00
VPS53 vacuolar protein sorting 53 homolog (S. cerevisiae)	235882_at	(D) DE/2	4.00	**3.41E-09**			**(D) BP** Brain [45]	**(I) MDD** Fibroblast [53]	6.00
ZNF302 zinc finger protein 302	228392_at	(D) DE/2	4.00	**7.64E-06**			**(D) MDD** AMY, cingulate cortex [86] **(I) SZ** DLPFC [136]		4.00
Top Discovery and Prioritization Biomarkers(Non Bonferroni Validated, 65 genes)									
CLTA clathrin, light chain A	216296_at	(I) DE/4	10.00				**(I) MDD** FC [22] **(D) BP** Brain [45]	**(D) ALZ** Blood [107]	6.00
FAM214A family with sequence similarity 214,	236237_at	(I) DE/4	10.00						0.00

member A									
HSPD1 heat shock 60kDa protein 1 (chaperonin)	241716_at	(I) DE/4	10.00	*0.021922*		**SZ** [137]	**(D) Alc** FC [92] **(I) BP** parietal cortex [138] **MDD** AMY and cingulate cortex [86] **PTSD** DLPFC [31]	**(I) Antidepressants** Blood [135] MNC [139] **(D) Circadian Abnormalities** Blood [87] **SZ** Blood [140] **Mood Disorder NOS** Fetal Brain cultured in cortisol treatment 3weeks [141]	8.00
ZMYND8 zinc finger, MYND-type containing 8	214795_at	(I) AP/4	10.00				**(I) SZ** DLPFC [136]		4.00
AK2 adenylate kinase 2	212172_at	(I) AP/4	8.00		**Clock Distant Output**		**(D) BP,SZ** PFC (BA46) [142]		4.00
CAPZA2 capping protein (actin filament) muscle Z-line, alpha 2	201238_s_at	(D) DE/4	8.00	0.116785			**(D) BP** ACC [56]; Brain [45] **SZ** Thalamus [51]	**(D) BP, MDD,SZ** CSF [143] **PTSD** Blood [81]	6.00
LRRC8B leucine rich repeat containing 8 family, member B	212976_at	(D) DE/4	8.00	0.231881			**(D) BP** Brain [45] **(I) MDD** BA11 [15] **SZ** DPFC (BA 46) [134]	**(D) Mood State** Blood [144]	6.00
PPM1B protein phosphatase, Mg2+	209296_at	(D) DE/4	8.00	*0.002299*	**Clock Immediate Input**		**(D) Alc** FC [145]		4.00
ACTR3 ARP3 actin-related protein 3 homolog (yeast)	213102_at	(D) DE/4	7.00	*0.004524*			**(I) BP** ACC (BA 24) [56]; Brain **SZ** ACC [146] **(D) BP** [45] PFC [147] **SZ,SZA** DLPFC [57] **SZA** APFC [69]	**(I) BP** Blood [106]	6.00
AFF3 AF4/FMR2 family, member 3	244696_at	(I) AP/4	7.00			**SZ** [85]	**(D) BP** Brain [45]	**(I) BP** Blood [106]	8.00

MRPS5 mitochondrial ribosomal protein S5	237560_at	(I) AP/4	7.00				**(D)** **Alc** HIP [97]	**(I)** **PTSD** Blood [81]	6.00
SH2D1A SH2 domain containing 1A	211211_x_at	(D) DE/4	7.00				**(I)** **BP** APFC [69]	**(I)** **PTSD** Blood [81] **Antidepressants** Blood [135]	6.00
AKT3 v-akt murine thymoma viral oncogene homolog 3	240568_at	(I) AP/4	6.00			**SZ** [148] [149] [137] **Longevity** [150]	**(D)** **BP** Brain [45]		6.00
ALG13 ALG13, UDP-N-acetylglucosaminyltransferase subunit	205584_at	(D) DE/4	6.00	*0.046957*			**(D)** **BP** Brain [45]	**(I)** **BP** Blood [106]	6.00
ARHGAP35 Rho GTPase activating protein 35	229397_s_at	(D) DE/4	6.00	*0.0016*					0.00
ARID4B AT rich interactive domain 4B (RBP1-like)	221230_s_at	(D) DE/4	6.00						0.00
ASPH aspartate beta-hydroxylase	242037_at	(I) DE/4	6.00	*0.01087*				**(I)** **MDD** Blood [151]	2.00
ATXN1 ataxin 1	1565804_at	(I) DE/4	6.00			**ADHD** [152] **Alc** [82] **BP** [153 154 84] **SZ** [155 156] [126 153 42]	**(D)** **Alc** Frontal, motor cortex [102]	**(I)** **Mood State** Blood [144] **Pain** vertebral disc [33] **Social Isolation** leukocytes [157] **(D)** **Delusions/ Hallucinations** Blood [89] **Chronic Stress** BLOOD monocytes [96]	6.00
BRE Brain and reproductive organ-expressed (TNFRSF1A modulator)	1556817_a_at	(I) AP/4	6.00			**BP** [158] **Longevity** [159]	**(D)** **BP** Brain [45]		6.00
CHMP2B charged multivesicular body protein 2B	202538_s_at	(D) DE/4	6.00	*0.022703*			**(I)** **MDD** AMY and cingulate cortex [86]		4.00
CLPB ClpB caseinolytic peptidase B homolog (E. coli)	1566581_at	(I) AP/4	6.00	*0.025268*					0.00
CSNK1A1 casein kinase 1, alpha 1	235464_at	(D) DE/4	6.00		**Clock Immediate Input**		**(D)** **Alc** temporal cortex [160] **(Unspecified)** **MDD**	**(I)** **Mood stabilizers** Human astrocyte-derived cells U-87 MG (I) [161]	6.00

							thalamus [51]	**(D) Mood State** Blood [144]	
DPCD deleted in primary ciliary dyskinesia homolog (mouse)	226009_at	(I) DE/4	6.00				**(D) BP** Brain [45]	**(I) PTSD** Blood [81] **(D) BP** Whole Blood [106]	6.00
ECSIT ECSIT signalling integrator	218225_at	(I) DE/4	6.00				**(D) BP** Brain [45]	**(I) BP** Blood [106]	6.00
ENTPD1 ectonucleoside triphosphate diphosphohydrolase 1	243111_at	(I) AP/4	6.00					**(I) SZ** Blood mononuclear cells [162]	2.00
EPHB4 EPH receptor B4	202894_at	(I) DE/4	6.00				**(I) BP** DPFC (BA 46) [163] **SZ** DLPFC (BA 46) [163]		4.00
ETNK1 ethanolamine kinase 1	224453_s_at	(D) AP/4	6.00				**(D) BP** Brain [45] **(I) MDD** AMY and cingulate cortex [86]		4.00
FANCI Fanconi anemia, complementation group I	213008_at	(I) DE/4	6.00	*0.000897*			**(D) MDD** DLPFC [164]	**(D) Delusions** Blood [89]	6.00
FBXL3 F-box and leucine-rich repeat protein 3	225132_at	(D) DE/4	6.00	*0.00127*	**Clock Immediate Input**		**(D) Alc** superior FC [145] **(I) Alz** Occipital lobe [165]	**(I) BP** Blood [106] **(D) SZ** Fibroblasts [61]	6.00
FGFR1OP2 FGFR1 oncogene partner 2	223262_s_at	(D) DE/4	6.00				**(D) BP** Brain [45]	**(I) BP** Blood [106]	6.00
GTF3C3 general transcription factor IIIC, polypeptide 3, 102kDa	1555439_at	(I) AP/4	6.00				**(I) SZ** PFC [166]	**(D) Circadian abnormalities** Blood [87]	6.00
HERC4 HECT and RLD domain containing E3 ubiquitin protein ligase 4	225988_at	(D) DE/4	6.00	*0.042192*			**(D) Alc** HIP [97]	**(D) Delusions** Blood [89] **(I) BP** Blood [106]	6.00
ITIH5 inter-alpha-trypsin inhibitor heavy chain family, member 5	1553243_at	(I) AP/4	6.00			**BP** [84] **Alc** [167]	**(D) BP** Brain [45]	**(I) PTSD** Blood [81]	8.00
JMJD1C jumonji domain containing 1C	221763_at	(D) DE/4	6.00	0.191525		**Anxiety, BP** [168]		**(I) BP** Blood [106] **(D) PTSD**	4.00

								Blood [81]	
KLHL28 kelch-like family member 28	220374_at	(I) AP/4	6.00				**(D) Alc** HIP [97]	**(I) BP** Blood [106]	6.00
LARP4 La ribonucleoprotein domain family, member 4	214155_s_at	(D) DE/4	6.00	*0.014911*				**(D) Mood State** Blood [144] **Circadian abnormalities** Blood [87]	2.00
MBNL1 muscleblind-like splicing regulator 1	201153_s_at	(D) DE/4	6.00	*0.009769*		**BP** [169]	**(I) MDD** AMY and cingulate cortex [86] **SZ** DLPFC - BA 46 [170]	**(D) BP** Blood [106] **MDD** Blood [151] **(I) Longevity** [171]	8.00
MEX3C mex-3 RNA binding family member C	222567_s_at	(D) DE/4	6.00	*0.00603*				**(I) Alc** Blood [32] **PTSD** Blood [81] **(D) BP** Blood [106]	2.00
MIER1 mesoderm induction early response 1, transcriptional regulator	225475_at	(D) DE/4	6.00	*0.031445*					0.00
MR1 major histocompatibility complex, class I-related	207566_at	(I) DE/4	6.00						0.00
NUDT6 nudix (nucleoside diphosphate linked moiety X)-type motif 6	220183_s_at	(D) AP/4	6.00					**(I) SZ** serum [172]	2.00
PHC3 polyhomeotic homolog 3 (Drosophila)	1552644_a_at	(D) DE/4	6.00						0.00
PIAS1 protein inhibitor of activated STAT, 1	1558418_at	(I) DE/4	6.00		**Clock Distant Output**		**(D) MS** Subcortical,periventricular,medial subcortical white matter [173]	**(D) Alc** Blood [32]	6.00
PPHLN1 periphilin 1	234459_at	(I) DE/4	6.00					**(D) BP** Whole Blood [106]	2.00
PRDX3 peroxiredoxin 3	201619_at	(D) DE/4	6.00	*0.000225*			**(I) SZA** APFC [69] **SZ** PFC [174]	**(D) Chronic Stress** Blood monocytes [96]	6.00

							(D) **Alc** Superior Frontal Gyrus [175] **BP** Brain [45] **MDD** Pituitary [101] **BP, MDD** APFC [69]		
PVT1 Pvt1 oncogene (non-protein coding)	1562153_a_at	(D) DE/4	6.00	*0.000433*		**Psychosis** [176] **SZ,BP** [177]			2.00
RAB22A RAB22A, member RAS oncogene family	218360_at	(D) DE/4	6.00						0.00
RDH13 retinol dehydrogenase 13 (all-trans/9-cis)	225449_at	(I) AP/4	6.00				**(D)** **PTSD** DLPFC BA46 [31]		4.00
SBNO1 strawberry notch homolog 1 (Drosophila)	229528_at	(I) DE/4	6.00			**SZ** [178] [137]	**(I)** **Alc** superior FC [145]	**(I)** **SZ** Fibroblasts [61]	8.00
SLC35B3 solute carrier family 35 (adenosine 3'-phospho 5'-phosphosulfate transporter), member B3	231003_at	(D) DE/4	6.00	*3.34E-05*	**Clock** **Distant** **Output**		**(I)** **BP** Brain [45]	**(D)** **Delusions** Blood [89]	6.00
SNRNP27 small nuclear ribonucleoprotein 27kDa (U4	212440_at	(D) DE/4	6.00				**(I)** **MDD** AMY, cingulate cortex [86]		4.00
SNX27 sorting nexin family member 27	244349_at	(I) AP/4	6.00				**(D)** **Alc** HIP [97] **SZ** STG [179]	**(I)** **Delusions/** **Hallucinations** Blood [89] **(D)** **BP** Blood [106]	6.00
SSBP2 single-stranded DNA binding protein 2	1557814_a_at	(I) AP/4	6.00				**(D)** **BP** Brain [45] **(I)** **MDD** AMY and cingulate cortex [86]	**(D)** **Mood State** Blood [144]	6.00
STRN striatin, calmodulin binding protein	1569813_at	(I) AP/4	6.00				**(D)** **Alc** HIP [97]	**(I)** **MDD** leukocytes [180]	6.00
TTC7A tetratricopeptide repeat domain 7A	224924_at	(I) DE/4	6.00			**MDD** [40]			2.00
UIMC1 ubiquitin	233596_at	(I) DE/4	6.00						0.00

interaction motif containing 1									
USP6NL USP6 N-terminal like	204761_at	(D) DE/4	6.00	*0.007614*				**(D) Mood State** Blood [144]	2.00
WAC WW domain containing adaptor with coiled-coil	230154_at	(D) DE/4	6.00	*8.53E-05*		**ASD** [83]	**(Unspecified) BP** ACC (BA 24) [56]		6.00
WAPAL wings apart-like homolog (Drosophila)	212267_at	(D) DE/4	6.00	*0.002521*				**(I) Mood stabilizers** SK-N-AS cells [181]	2.00
ZBP1 Z-DNA binding protein 1	208087_s_at	(I) DE/4	6.00				**(I) Alc** HIP [97]	**(I) SZ** LCLs [182] Blood leukocytes (Stress, PTSD, Post-Traumatic Stress Disorder) 0	6.00
ZFAND5 zinc finger, AN1-type domain 5	210275_s_at	(D) DE/4	6.00	*0.042362*					0.00
ZNF117 zinc finger protein 117	207605_x_at	(D) DE/4	6.00				**(I) MDD** FC [183]		4.00
ZNF141 zinc finger protein 141	206931_at	(D) DE/4	6.00						0.00
ZNF548 zinc finger protein 548	1553718_at	(D) DE/4	6.00	*0.000461*					0.00
ZNF596 zinc finger protein 596	240324_at	(I) AP/4	6.00					**(D) Mood State** Blood [144]	2.00

Table S4. Top candidate biomarker genes - drugs that modulate these markers in the opposite direction. FC- frontal cortex. HIP-Hippocampus. AMY- amygdala. VT-ventral tegmentum. Underlined-potential pharmacogenomics marker.

Gene Symbol/ Gene Name	Discovery (Change) Method/ Score	Prioritization Total CFG Score For Suicide	Validation ANOVA p-value	Modulated by Omega-3	Modulated by Lithium	Modulated by Clozapine	Other Drugs
Out of Validated Biomarkers (Bonferroni) (49 genes, 50 probesets)							
BCL2 B-cell CLL	(D) DE/2	9.00	**3.95E-06**		**(I)** FC [184] **(I)** cerebellar granule cells [185] **(I)** **Human Blood** [34] **(I)** Astrocyte [186] **(I)** HIP [187] **(I)** Dentate gyrus, HIP [188]	**(I)** Hip [189]	oblimersen,rasagiline,(-)-gossypol,navitoclax,gemcitabine/paclitaxel,bortezomib/paclitaxel,ABT-199,paclitaxel/trastuzumab,paclitaxel/pertuzumab/trastuzumab,lapatinib/paclitaxel,doxorubicin/paclitaxel,epirubicin/paclitaxel,paclitaxel/topotecan,paclitaxel
GSK3B glycogen synthase kinase 3 beta	(D) DE/1	9.00	**2.26E-05**		**(I)** FC [190]		enzastaurin
CAT catalase	(D) DE/2	8.00	**5.04E-07**		BP **(I)** Plasma [59]		fomepizole
JUN jun proto-oncogene	(I) DE/2 DE/1	8.00	**1.14E-11** **1.72E-14**		**(D)** leukocytes [68]	**(D)** FC [191]	
MOB3B MOB kinase activator 3B	(D) DE/1	7.00	**4.69E-06**	**(I)** PFC (females) [192]			
NDRG1 N-myc downstream regulated 1	(I) DE/1	7.00	**3.07E-07**	**(D)** Blood [192]			
SPON1 spondin 1, extracellular matrix protein	(D) DE/1	7.00	**1.02E-05**			**(I)** VT [193]	
FOXP1 forkhead box P1	(I) DE/4	6.00	**7.03E-07**	**(D)** Blood [192]			
HAVCR2 hepatitis A virus cellular receptor 2	(I) DE/4	6.00	**1.69E-12**			**(D)** PFC [194]	
GJA1 gap junction protein, alpha 1, 43kDa	(I) DE/1	5.00	**1.96E-06**	**(D)** HIP (females) [192]		**(D)** VT [193]	
CD84 CD84	(D) DE/2	4.00	**1.74E-05**			**(I)** Blood	

molecule						[193]	
DCAF5 DDB1 and CUL4 associated factor 5	(D) DE/2	4.00	**1.37E-05**			**(I)** VT [193]	
GANC glucosidase, alpha; neutral C	(D) DE/2	4.00	**1.40E-08**				miglitol
IL1R1 interleukin 1 receptor, type I	(I) AP/1	4.00	**5.47E-08**				anakinra
INPP4A inositol polyphosphate -4- phosphatase, type I, 107kDa	(D) DE/1	4	**1.79E-05**			**(I)** VT [193]	
JRK Jrk homolog (mouse)	(D) AP/2	4.00	**4.25E-06**	**(I)** Brain [195]			
PDXDC1 pyridoxal-dependent decarboxylase domain containing 1	(I) DE/2	4.00	**1.03E-05**			**(D)** VT [193]	
SMARCA2 SWI/SNF Related, Matrix Associated, Actin Dependent Regulator of Chromatin, Subfamily A, Member 2	(D) DE/1	4.00	**2.46E-05**	**(I)** HIP (males) [192]			
Out of Top Discovery and Prioritization Biomarkers(Non Bonferroni Validated, 65 genes)							
CLTA clathrin, light chain A	(I) DE/4	10.00				**(D)** FC [191]	
PPM1B protein phosphatase, Mg2+	(D) DE/4	8.00	*0.002299*			**(I)** VT [193]	
AFF3 AF4/FMR2 family, member 3	(I) AP/4; (I) DE/1	7.00		**(D)** Blood [192]			
WAC WW domain containing adaptor with coiled-coil	(D) DE/4	7.00	*8.53E-05*			**(I)** VT [193]	
AKT3 v-akt murine thymoma viral oncogene homolog 3	(I) AP/4	6.00					enzastaurin
ARID4B AT rich interactive domain 4B (RBP1-like)	(D) DE/4	6.00		**(I)** HIP (males) [192]			
ATXN1 ataxin 1	(I) DE/4	6.00		**(D)** Blood [192]			
BRE Brain and reproductive	(I) AP/4	6.00				**(D)** VT [193]	

organ-expressed (TNFRSF1A modulator)							
CSNK1A1 casein kinase 1, alpha 1	(D) DE/4	6.00		**(I)** Blood[192]			
ENTPD1 ectonucleoside triphosphate diphosphohydrolase 1	(I) AP/4	6.00		**(D)** Blood[192]		**(D)** PFC[194]	
EPHB4 EPH receptor B4	(I) DE/4	6.00					tesevatinib
ETNK1 ethanolamine kinase 1	(D) AP/4	6.00		**(I)** PFC (males)[192]			
ITIH5 inter-alpha-trypsin inhibitor heavy chain family, member 5	(I) AP/4	6.00		**(D)** Blood[192]		**(D)** PFC[194]	
LARP4 La ribonucleoprotein domain family, member 4	(D) DE/4	6.00	*0.014911*			**(I)** VT[193]	
MBNL1 muscleblind-like splicing regulator 1	(D) DE/4	6.00	*0.009769*	**(I)** HIP (males) [192]		**(I)** Blood[193]	
MR1 major histocompatibility complex, class I-related	(I) DE/4	6.00					antiLymphocyte serum
PRDX3 peroxiredoxin 3	(D) DE/4	6.00	*0.000225*	**(I)** Blood[192]			
RAB22A RAB22A, member RAS oncogene family	(D) DE/4	6.00				**(I)** Blood[193]	
SNX27 sorting nexin family member 27	(I) AP/4	6.00				**(D)** AMY[193]	
SSBP2 single-stranded DNA binding protein 2	(I) AP/4	6.00		**(D)** Blood[192]		**(D)** VT[193]	
WAPAL wings apart-like homolog (Drosophila)	(D) DE/4	6.00	*0.002521*		**(I)** SK-N-AS cells (ATCC derived from a human neuroblastoma cell [181]	**(I)** VT[193]	

Table S5 Biological Pathways and Diseases. Suicidal ideation markers non-validated for behavior in completers (n=886) vs.

A.	Ingenuity Pathways	KEGG Pathways	GeneGO Pathways

suicidal ideation markers that were stepwise validated for behavior in completers (n=595).

	#	Top Canonical Pathways	P-Value	Ratio	Pathway Name	Ratio	Enrichment p-value	Process Networks	Ratio	p-value
Non-Validated Stepwise in Completers (n=882 genes) **Biomarkers for IDEATION only**	1	PI3K Signaling in B Lymphocytes	6.05 E-13	20.3 % 27/133	Amoebiasis	17/368	2.95E-05	Immune response_BCR pathway	30/137	5.123E-09
	2	B Cell Receptor Signaling	3.08 E-11	16.2 % 29/179	Glioma	15/300	3.69E-05	Cytoskeleton_Regulation of cytoskeleton rearrangement	33/183	1.357E-07
	3	Role of NFAT in Cardiac Hypertrophy	3.91 E-10	15.1 % 28/186	Pancreatic cancer	15/366	0.0003	Signal transduction_WNT signaling	31/177	6.413E-07
	4	Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis	1.05 E-09	11.9 % 36/302	Focal adhesion	24/771	0.000318	Signal transduction_Neuropeptide signaling pathways	28/155	1.189E-06
	5	Amyotrophic Lateral Sclerosis Signaling	2.78 E-09	18.7 % 20/107	Phosphatidylinositol signaling system	12/251	0.000324	Cell cycle_G1-S Growth factor regulation	32/195	1.875E-06
	#	Top Canonical Pathways	P-Value	Ratio	Pathway Name	Ratio	Enrichment p-value	Process Networks	Ratio	p-value
Validation Stepwise in Completers (n=589 genes) **Biomarkers for IDEATION and BEHAVIOR**	1	Glucocorticoid Receptor Signaling	2.86 E-06	7.8 % 22/281	Morphine addiction	9/249	0.0006493	Reproduction_Gonadotropin regulation	24/199	9.843E-07
	2	IGF-1 Signaling	7.18 E-06	12.1 % 12/99	Colorectal cancer	9/287	0.0016932	Reproduction_GnRH signaling pathway	20/166	8.256E-06
	3	Renin-Angiotensin Signaling	8.72 E-06	11.0 % 13/118	Cocaine addiction	6/155	0.0037291	Reproduction_Progesterone signaling	23/214	1.194E-05
	4	Protein Kinase A Signaling	1.02 E-05	6.5 % 26/398	Insulin signaling pathway	12/535	0.0047284	Signal transduction_NOTCH signaling	24/236	1.962E-05
	5	Melanocyte Development and Pigmentation Signaling	1.02 E-05	12.8 % 11/86	Inositol phosphate metabolism	6/193	0.0101986	Signal transduction_Androgen receptor signaling cross-talk	12/72	2.241E-05

B.		Ingenuity			GeneGO		
		Diseases and Disorders	**P-Value**	**# Molecules**	**Diseases**	**pValue**	**Ratio**
Non-Validated Stepwise in Completers	1	Cancer	1.33E-04E - 2.55E-23	440	Mental Disorders	1.44E-25	166/1610
	2	Organismal Injury and Abnormalities	1.33E-04E - 2.55E-23	440	Psychiatry and Psychology	3.23E-24	182/1904

(n=886 genes)	3	Gastrointestinal Disease	9.09E-05 - 2.12E-18	333	Central Nervous System Diseases	1.43E-22	247/3060
Biomarkers for IDEATION only	4	Reproductive System Disease	2.80E-05 - 7.72E-18	244	Neurodegenerative Diseases	1.98E-22	189/2087
	5	Infectious Diseases	3.72E-05 - 6.69E-15	109	Depressive Disorder, Major	1.31E-21	80/543
		Diseases and Disorders	**P-Value**	**# Molecules**	**Diseases**	**pValue**	**Ratio**
Validation Stepwise in Completers (n=592 genes)	1	Cancer	6.51E-04 - 6.47E-17	489	Breast Neoplasms	2.361E-15	359/8894
	2	Organismal Injury and Abnormalities	6.92E-04 - 6.47E-17	494	Breast Diseases	2.407E-15	359/8895
	3	Gastrointestinal Disease	6.27E-04 - 6.91E-10	354	Psychiatry and Psychology	3.842E-14	115/1904
Biomarkers for IDEATION and BEHAVIOR	4	Reproductive System Disease	2.60E-04 - 1.51E-08	237	Pathological Conditions, Signs and Symptoms	1.247E-13	208/4433
	5	Infectious Diseases	6.92E-04 - 9.45E-8	104	Mental Disorders	1.833E-13	101/1610

Table S6 Drugs that have similar and opposite gene expression profile to our suicide biomarkers.

Connectivity Map (cmap) (Broad/MIT)[196] results. Cmap comprises a collection of genome-wide transcriptional expression data from cultured human cells treated with bioactive small molecules and simple pattern-matching algorithms that together enable the discovery of functional connections between drugs, genes and diseases through the transitory feature of common gene-expression changes [196], [197]. Score of 1 means maximum similarity, score of -1 means maximum opposite effect. Red (most)/pink (other commonly used medications) that mimic effects of suicidality, i.e. may induce suicidality. **Green (most)/light green other commonly used medications) that do the opposite to suicide, i.e. may be tested for or used to generate leads to treat/prevent suicidality.** A. Validated Bonferroni biomarkers. B. Top biomarkers from validation, as well as discovery and prioritization (Table S2). C. Validated nominally significant biomarkers.

A. Validated Bonferroni Significant Biomarkers (49 Genes)

rank	batch	cmap name	dose	cell	score
1	683	lycorine	12 μM	PC3	1
3	645	lycorine	12 μM	HL60	0.947
6	726	digoxigenin	10 μM	MCF7	0.924
7	715	digoxin	5 μM	PC3	0.923
10	767	fluphenazine	10 μM	MCF7	0.914
12	506	thioridazine	10 μM	MCF7	0.9
14	504	felodipine	10 μM	MCF7	0.889
17	636	tamoxifen	7 μM	MCF7	0.86
22	502	felodipine	10 μM	MCF7	0.854
6081	622	mifepristone	9 μM	HL60	-0.797
6097	665	**lansoprazole**	11 μM	HL60	-0.888
6098	658	nafcillin	9 μM	HL60	-0.895
6100	665	betulin	9 μM	HL60	-1

B. Top Biomarkers (114 Genes)

rank	batch	cmap name	dose	cell	score
1	631	7-aminocephalosporanic acid	15 μM	HL60	1
7	647	methotrexate	9 μM	MCF7	0.902
9	661	ribavirin	16 μM	HL60	0.894
10	664	fluticasone	8 μM	HL60	0.888
15	1074	pioglitazone	10 μM	MCF7	0.859
20	659	ganciclovir	16 μM	HL60	0.834
21	645	flunisolide	9 μM	HL60	0.834
35	695	simvastatin	10 μM	MCF7	0.805
6049	650	troglitazone	10 μM	HL60	-0.8
6059	635	rifampicin	5 μM	HL60	-0.812
6061	732	ondansetron	12 μM	PC3	-0.813
6062	636	tetracycline	8 μM	MCF7	-0.817

6063	665	**lansoprazole**	11 μM	HL60	-0.821
6064	707	dicloxacillin	8 μM	MCF7	-0.824
6067	630	**buspirone**	9 μM	HL60	-0.83
6072	650	**estradiol**	100 nM	HL60	-0.839
6080	650	**acetylsalicylic acid**	100 μM	HL60	-0.868
6083	750	**LY-294002**	10 μM	HL60	-0.881
6092	694	minoxidil	19 μM	MCF7	-0.92
6097	650	**LY-294002**	10 μM	HL60	-0.96
6100	694	zalcitabine	19 μM	MCF7	-1

C. Validated Nominally Significant Biomarkers (396 genes)

rank	batch	cmap name	dose	cell	score
1	665	pivampicillin	9 μM	HL60	1
6	648	metoprolol	6 μM	HL60	0.902
18	630	cefalexin	11 μM	HL60	0.852
20	749	dexpropranolol	14 μM	HL60	0.843
23	750	valproic acid	200 μM	HL60	0.831

6079	634	**fluoxetine**	12 μM	HL60	-0.772
6082	602	haloperidol	10 μM	HL60	-0.791
6085	629	**diphenhydramine**	14 μM	HL60	-0.799
6091	630	prochlorperazine	7 μM	HL60	-0.832
6092	629	**metformin**	24 μM	HL60	-0.837
6095	665	**lansoprazole**	11 μM	HL60	-0.873
6098	631	corticosterone	12 μM	HL60	-0.919
6100	649	atractyloside	5 μM	HL60	-1

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