Jason Bourne
DOB: 03/15/1985
Gender: Male
Ethnicity: White

Ordering Provider
Mark Smith
Downtown Medical Center
Date Ordered: 01/14/2024

Sample
Blood
Barcode: 1234567
Date Collected: 01/15/2024
Date Received: 01/16/2024

Test
BrightKaire

BrightKaire Report

This report consists of the BrightKaire Xcell results and the BrightKaire Pharmacogenetics (PGx) results.

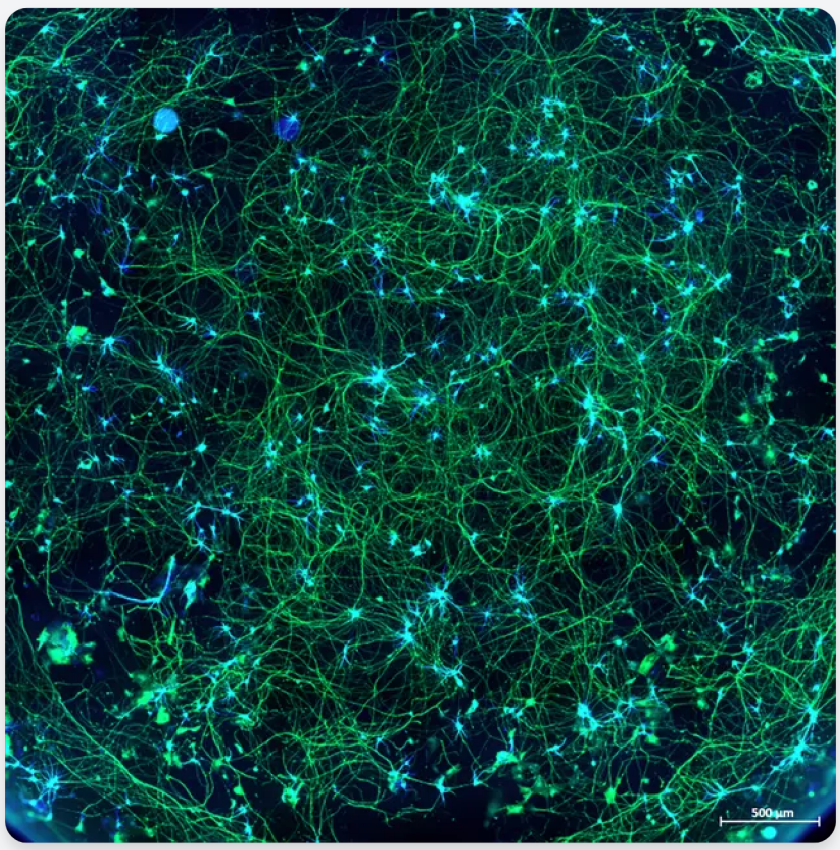
The BrightKaire Xcell results provide a profile of biological, pharmacogenetic, and clinical dimensions of your patient.

Section A provides metrics of neuronal plasticity induced by individual antidepressants on your patient's derived-neurons.

Section B focuses on patient scores on depression questionnaires and potential association with overall likelihood of drug response.

The BrightKaire PGx results assess interactions between your patient's genes and various drugs, supporting the clinician in making informed evidence-based treatment decisions.

The information provided in this report is intended as a guide only. The final choice of medications and/or dosage is at the discretion of the treating clinician and should account for all patient related information.



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BrightKaire Xcell Results

A. Neuroplasticity-based Drug Ranking

Research demonstrates that neuroplasticity may be associated with depression and with the response to antidepressants (e.g. Duman et al., Nature Medicine, 2016; Harmer et al., Lancet Psychiatry, 2017; Magraggia et al. Neurobiol Lean Mem, 2021).

Increase standard dose Decrease standard dose More info Warnings

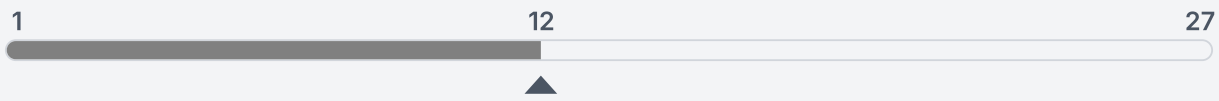
The icons above indicate pharmacogenetic interactions corresponding to the PGx results. In this section, only Tier 1 and Tier 2 interactions are displayed

B. Clinical Assessment

01/15/2024

PHQ-9

The PHQ-9 (Patient Health Questionnaire-9) is a self-reported questionnaire used to assess the severity of depressive symptoms.



Questionnaire Highlights

About thoughts of death or suicide, check the one response that best describes you in the past seven days.

Answer: 2 - I think of suicide or death several times a week for several minutes.

In the past week, how would you rate your level of satisfaction with your vision, in terms of your ability to do work or hobbies?

Answer: 5 - Very Good

12

Total Score

BrightKaire Pharmacogenetics (PGx) Results

The BrightKaire PGx report provides patient-specific drug information and is divided into four sections. Section A provides the drug impact overview, which allows the physician to determine if there are specific recommendation for the patient for any of the listed drugs. Any clinical information provided by the physician and/or by the patient is noted in Section B, followed by the patient genotype results in Section C. Detailed information on gene-drug interactions for the patient can be found in Section D, alongside the references for the interactions and any interpretation or recommendation for those interactions that are included in drug guidelines.

The results are categorized based on the supporting evidence:

1. **TIER 1** CPIC/DPWG/FDA drug label recommendations
2. **TIER 2** FDA pharmacogenetic interaction table/PharmGKB level 2
3. **TIER 3** Emerging evidence: PharmGKB level 3

A. Drug Impact Overview

This section presents a breakdown of medication options tailored to the patient's specific genetic profile, based on their BrightKaire PGx test. Healthcare providers can use these results to support informed treatment decisions, with detailed information provided in the subsequent parts of this report. The interpretation provided in this report is intended as a guide only. The final choice of medications and/or dosage is at the discretion of the treating physician and should account for all patient-related information.

Use as directed
No significant gene-drug interaction was identified impacting medication administration.

Dosage considerations
Evidence demonstrates a gene-drug interaction that may warrant a dose change. Refer to Gene-Drug Interactions table for detailed information and references.

Other considerations & warnings
An identified gene-drug interaction is associated with efficacy considerations, contraindications, or warnings. Refer to Gene-Drug Interactions table for detailed information and references.

Use as Directed	Dosage Considerations	Other Considerations & Warnings
ANTIDEPRESSANTS		
Selective Serotonin Reuptake Inhibitors (SSRIs)		
Fluoxetine (Prozac®) Fluvoxamine (Luvox®) Paroxetine (Paxil®)	Citalopram (Celexa®) ↓ 1 Escitalopram (Lexapro®) ↓ 1 Sertraline (Zoloft®) ↓ 1	
Norepinephrine-dopamine Reuptake Inhibitors (NDRI)		
	Bupropion (Wellbutrin®) ⓘ 2	
Selective Norepinephrine Reuptake Inhibitors (SNRIs)		
Desvenlafaxine (Pristiq®) Duloxetine (Cymbalta®) Levomilnacipran (Fetzima®) Milnacipran (Savella®) Venlafaxine (Effexor®)		
Tricyclic Antidepressants (TCAs)		
Amitriptyline (Elavil®) Amoxapine (Asendin®) Clomipramine (Anafranil®) Desipramine (Norpramin®) Doxepin (Sinequan®) Imipramine (Tofranil®) Nortriptyline (Pamelor®) Protriptyline (Vivactil®) Tianeptine (Stablon®) Trimipramine (Surmontil®)		
Monoamine Oxidase Inhibitors (MAOIs)		
Isocarboxazid (Marplan®) Phenelzine (Nardil®) Selegiline (Emsam®) Tranylcypromine (Parnate®)		
Other Antidepressants		
Brexanolone (Zulresso®)		

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Use as Directed	Dosage Considerations	Other Considerations & Warnings
ANTIDEPRESSANTS		
Other Antidepressants		
Esketamine (Spravato®) Maprotiline (Ludiomil®) Mirtazapine (Remeron®) Nefazodone (Serzone®) Trazodone (Desyrel®) Vilazodone (Viibryd®) Vortioxetine (Trintellix®)		
ANXIOLYTICS		
Alprazolam (Xanax®) Buspirone (Buspar®) Chlordiazepoxide (Librium®) Clonazepam (Klonopin®) Clorazepate (Tranxene®) Diazepam (Valium®) Hydroxyzine (Vistaril®) Lorazepam (Ativan®) Oxazepam (Serax®) Propranolol (Inderal®)		
ANTIPSYCHOTICS		
Conventional Antipsychotics		
Chlorpromazine (Thorazine®) Fluphenazine (Prolixin®) Haloperidol (Haldol®) Loxapine (Loxitane®) Perphenazine (Trilafon®) Thiothixene (Navane®)		
Atypical Antipsychotics		
Aripiprazole (Abilify®) Asenapine (Saphris®)		

Standard dose | Increase standard dose | Decrease standard dose | More info | Warnings

Evidence tiers: 1 Guidlines | 2 FDA PGx Table/PharmGKB Level 2 | 3 Emerging Evidence

Use as Directed	Dosage Considerations	Other Considerations & Warnings
ANTIPSYCHOTICS		
Atypical Antipsychotics		
Brexpiprazole (Rexulti®) Cariprazine (Vraylar®) Clozapine (Clozaril®) Iloperidone (Fanapt®) Lumateperone (Caplyta®) Lurasidone (Latuda®) Olanzapine (Zyprexa®) Paliperidone (Invega®) Pimavanserin (Nuplazid®) Quetiapine (Seroquel®) Risperidone (Risperdal®) Ziprasidone (Geodon®)		
Other Antipsychotics		
Thioridazine (Mellaril®) Trifluoperazine (Stelazine®)		
ANTICONVULSANTS		
Brivaracetam (Briviact®) Clobazam (Onfi®) Epidiolex (Epidiolex®) Felbamate (Felbatol®) Gabapentin (Neurontin®) Lacosamide (Vimpat®) Lamotrigine (Lamictal®) Levetiracetam (Keppra®) Lithium (Lithobid®) Oxcarbazepine (Trileptal®) Perampanel (Fycompa®)	Fosphenytoin (Cerebyx®) ⓘ 1	Carbamazepine (Tegretol®) ⚠ 1

Use as Directed	Dosage Considerations	Other Considerations & Warnings
ANTICONVULSANTS		
Phenobarbital (Luminal®) Pregabalin (Lyrica®) Topiramate (Topamax®) Valproic acid (Depakote®) Zonisamide (Zonegran®)	Phenytoin (Dilantin®) ⓘ 1	
ADHD		
Dexmethylphenidate (Focalin®) Dextroamphetamine/Amphetamine (Adderall®) Guanfacine (Intuniv®) Lisdexamfetamine (Vyvanse®) Methylphenidate (Ritalin®) Viloxazine (Qelbree®)	Atomoxetine (Strattera®) ↑ 1	
PAIN MEDICATION		
Acetaminophen (Tylenol®) Celecoxib (Celebrex®) Codeine Dexmedetomidine (Precedex®) Dextropropoxyphene (Darvon®) Diclofenac (Voltaren®) Fentanyl (Duragesic®) Flurbiprofen (Ansaid®) Hydrocodone (Zohydro®) Ibuprofen (Advil®) Lornoxicam (Xefo®) Morphine (MS Contin®) Naloxone (Narcan®)	Meloxicam (Mobic®) ↓ 1 Methadone (Methadose®) ⓘ 2	

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Use as Directed	Dosage Considerations	Other Considerations & Warnings
PAIN MEDICATION		
Oxycodone (OxyContin®) Sufentanil (Sufenta®) Tramadol (Ultram®)		Piroxicam (Feldene®) ⚠ 1 Tenoxicam (Mobiflex®) ⚠ 1
SLEEP MEDICATION AND ANESTHETICS		
Armodafinil (Nuvigil®) Daridorexant (Quviviq®) Eszopiclone (Lunesta®) Ketamine (Ketalar®) Lemborexant (Dayvigo®) Midazolam (Versed®) Modafinil (Provigil®) Ramelteon (Rozerem®) Suvorexant (Belsomra®) Temazepam (Restoril®) Triazolam (Halcion®) Zaleplon (Sonata®) Zolpidem (Ambien®)		
CNS DISEASES TREATMENT		
Deutetrabenazine (Austedo®) Dextromethorphan/Quinidine (Nuedexta®) Donepezil (Aricept®) Entacapone (Comtan®) Pimozide (Orap®) Tetrabenazine (Xenazine®) Valbenazine (Ingrezza®)	Siponimod (Mayzent®) ⓘ 1	
STATINS		
Atorvastatin (Lipitor®) Lovastatin (Mevacor®)	Fluvastatin (Lescol®) ⓘ 1	

Use as Directed	Dosage Considerations	Other Considerations & Warnings
STATINS		
Pitavastatin (Livalo®) Pravastatin (Pravachol®) Rosuvastatin (Crestor®) Simvastatin (Zocor®)		

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B. Clinical Information

This section contains clinical information provided by the physician and/or by the patient.

Prior medications

Medication	Dosage	Response	Start Date	End Date
Sertraline (Zoloft®)	50 mg	Not Responded	10/21/2023	01/07/2024

Current medications

Medication	Dosage	Response	Start Date

Medications under consideration

Medication	Dosage	Response
Citalopram (Celexa®)		
Escitalopram (Lexapro®)		

C. Genotype Results

This section provides patient genotypes for all tested genes and variants. Associated phenotypes are provided where applicable.

Pharmacokinetic Genes

Gene	Genotype	Phenotype
ABCG2	rs2231142 G/G	Normal Function
CYP2B6	*1/*7	Intermediate Metabolizer
CYP2C19	*1/*2	Intermediate Metabolizer
CYP2C9	*1/*12	Intermediate Metabolizer 1.5
CYP2D6	*1/*41	Normal Metabolizer
CYP3A4	*1/*1	Normal Metabolizer
CYP3A5	*3/*3	Poor Metabolizer
SLCO1B1	*1/*1	Normal Function
TPMT	*1/*1	Normal Metabolizer
UGT1A1	*1/*1	Normal Function
UGT1A4	*1/*3b	Decreased Function
UGT2B15	*1/*5 (rs4148269 G/G, rs1902023 C/A)	Decreased Function

Pharmacodynamic/Immunology Genes

Gene	Genotype
ABCB1	rs2032583 A/A
ADRA2A	rs1800544 C/C
BDNF	rs6265 C/C
CACNA1C	rs1006737 A/G
COMT	rs4680 G/G
CYP4F2	*1/*3
DPYD	*1/*1
HLA-A	*31:01 Positive
HTR2A	rs7997012 A/G
HTR2C	rs3813929 C
OPRM1	rs1799971 A/G
MTHFR	rs1801131 T/T
MTHFR	rs1801133 A/A

D. Gene-Drug Interactions

This section contains a list of gene-drug interactions specific to this patient. Drugs are listed in categories and classes and are ordered alphabetically. The publicly available source for each interaction is listed as well.

Drug	Genotype	Interpretation / Recommendation	Source
ANTIDEPRESSANTS			
Selective Serotonin Reuptake Inhibitors (SSRIs)			
Citalopram (Celexa®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose. Consider a slower titration and lower maintenance dose. (1)	CPIC; PMID 37032427
Escitalopram (Lexapro®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose. Consider a slower titration and lower maintenance dose. (1)	CPIC; PMID 37032427
Fluvoxamine (Luvox®)	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 37032427
Paroxetine (Paxil®)	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 37032427
Sertraline (Zoloft®)	CYP2B6 *1/*7	Initiate therapy with recommended starting dose. Consider a slower titration and lower maintenance dose. (1)	CPIC; PMID 37032427
	CYP2C19 *1/*2	Initiate therapy with recommended starting dose. Consider a slower titration and lower maintenance dose. (1)	CPIC; PMID 37032427
Norepinephrine-dopamine Reuptake Inhibitors (NDRI)			
Bupropion (Wellbutrin®)	CYP2B6 *1/*7	Dose considerations. (2)	PGKB level 2A ID 1445421156
Selective Norepinephrine Reuptake Inhibitors (SNRIs)			
Venlafaxine (Effexor®)	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 37032427
Tricyclic Antidepressants (TCAs)			
Amitriptyline (Elavil®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
Clomipramine (Anafranil®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040

Standard dose | Increase standard dose | Decrease standard dose | More info | Warnings

Evidence tiers: 1 Guidlines | 2 FDA PGx Table/PharmGKB Level 2 | 3 Emerging Evidence

Drug	Genotype	Interpretation / Recommendation	Source
ANTIDEPRESSANTS			
Tricyclic Antidepressants (TCAs)			
Desipramine (Norpramin®)	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
Doxepin (Sinequan®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
Imipramine (Tofranil®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
Nortriptyline (Pamelor®)	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
Trimipramine (Surmontil®)	CYP2C19 *1/*2	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 27997040
Other Antidepressants			
Vortioxetine (Trintellix®)	CYP2D6 *1/*41	Initiate therapy with recommended starting dose.	CPIC; PMID 37032427
ANTIPSYCHOTICS			
Conventional Antipsychotics			
Haloperidol (Haldol®)	CYP2D6 *1/*41	Standard use.	DPWG; PMID 37002327
Atypical Antipsychotics			
Aripiprazole (Abilify®)	CYP2D6 *1/*41	Standard use.	DPWG; PMID 37002327
Quetiapine (Seroquel®)	CYP3A4 *1/*1	Standard use.	DPWG; PMID:37002327

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Jason Bourne **Sample barcode: 1234567** **BrightKaire PGx**

Drug	Genotype	Interpretation / Recommendation	Source
ANTIPSYCHOTICS			
Atypical Antipsychotics			
Risperidone (Risperdal®)	CYP2D6 *1/*41	Standard use.	DPWG; PMID 37002327
ANTICONVULSANTS			
Carbamazepine (Tegretol®)	HLA-A *31:01 Positive	Carbamazepine-naïve patient: if alternative agents are available, do not use carbamazepine. If alternative agents are not available, consider the use of carbamazepine with increased frequency of clinical monitoring. Discontinue therapy at first evidence of a cutaneous adverse reaction. If the patient has previously used carbamazepine consistently for longer than three months without incidence of cutaneous adverse reactions, cautiously consider use of carbamazepine.	CPIC; PMID 29392710
Fosphenytoin (Cerebyx®)	CYP2C9 *1/*12	Dose considerations.	CPIC; PMID 25099164
Phenytoin (Dilantin®)	CYP2C9 *1/*12	Dose considerations.	CPIC; PMID 25099164
ADHD			
Atomoxetine (Strattera®)	CYP2D6 *1/*41	Initiate with a dose of 40mg/day and increase to 80mg/day after 3 days. If no clinical response and in the absence of adverse events after 2 weeks consider increasing dose to 100mg/day. If no clinical response after 2 weeks, consider obtaining a peak plasma concentration. If <200ng/ml, consider a proportional increase in dose to approach 400ng/ml. Dosages >100mg/day may be needed to achieve target concentrations.	CPIC; PMID 30801677
PAIN MEDICATION			
Celecoxib (Celebrex®)	CYP2C9 *1/*12	Initiate therapy with recommended starting dose.	CPIC; PMID 32189324
Codeine	CYP2D6 *1/*41	Standard use.	CPIC; PMID 33387367
Flurbiprofen (Ansaid®)	CYP2C9 *1/*12	Initiate therapy with recommended starting dose.	CPIC; PMID 32189324
Hydrocodone (Zohydro®)	CYP2D6 *1/*41	Standard use.	CPIC; PMID 33387367
Ibuprofen (Advil®)	CYP2C9 *1/*12	Initiate therapy with recommended starting dose.	CPIC; PMID 32189324
Lornoxicam (Xefo®)	CYP2C9 *1/*12	Initiate therapy with recommended starting dose.	CPIC; PMID 32189324
Meloxicam (Mobic®)	CYP2C9 *1/*12	Initiate therapy with 50% of the lowest recommended starting dose. Titrate dose upward to clinical effect or 50% of the maximum recommended dose with caution. Alternatively choose alternative medication.	CPIC; PMID 35152405

Standard dose · Increase standard dose · Decrease standard dose · More info · Warnings

Evidence tiers: 1 Guidlines · 2 FDA PGx Table/PharmGKB Level 2 · 3 Emerging Evidence

Drug	Genotype	Interpretation / Recommendation	Source
PAIN MEDICATION			
Methadone (Methadose®)	CYP2B6 *1/*7	Dose considerations. ⓘ 2	PGKB level 2A ID 1448104189
Piroxicam (Feldene®)	CYP2C9 *1/*12	Choose other medication. ⚠ 1	CPIC; PMID 32189324
Tenoxicam (Mobiflex®)	CYP2C9 *1/*12	Choose other medication. ⚠ 1	CPIC; PMID 32189324
Tramadol (Ultram®)	CYP2D6 *1/*41	Standard use. ✓	CPIC; PMID 33387367
CNS DISEASES TREATMENT			
Pimozide (Orap®)	CYP2D6 *1/*41	Standard use. ✓	DPWG; PMID 37002327
Siponimod (Mayzent®)	CYP2C9 *1/*12	Dose considerations. ⓘ 1	FDA drug label recommendation
Tetrabenazine (Xenazine®)	CYP2D6 *1/*41	Standard use. ✓	FDA drug label recommendation
STATINS			
Atorvastatin (Lipitor®)	SLCO1B1 *1/*1	Standard use. ✓	CPIC; PMID 35152405
Fluvastatin (Lescol®)	CYP2C9 *1/*12	Prescribe ≤40mg per day as a starting dose and adjust doses of fluvastatin based on disease-specific guidelines. Otherwise choose alternative medication or combination. ⓘ 1	CPIC; PMID 32189324
	SLCO1B1 *1/*1	Standard use. ✓	CPIC; PMID 35152405
Lovastatin (Mevacor®)	SLCO1B1 *1/*1	Standard use. ✓	CPIC; PMID 35152405
Pitavastatin (Livalo®)	SLCO1B1 *1/*1	Standard use. ✓	CPIC; PMID 35152405

Drug	Genotype	Interpretation / Recommendation	Source
STATINS			
Pravastatin (Pravachol®)	SLCO1B1 *1/*1	Standard use.	CPIC; PMID 35152405
Rosuvastatin (Crestor®)	ABCG2 rs2231142 G/G	Standard use.	CPIC; PMID 35152405
	SLCO1B1 *1/*1	Standard use.	CPIC; PMID 35152405
Simvastatin (Zocor®)	SLCO1B1 *1/*1	Standard use.	CPIC; PMID 35152405

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Reference Information Disclaimer

The interpretations/recommendations noted in this report are based on publicly available information from CPIC or DPWG guidelines, FDA label recommendations, FDA table of pharmacogenetic associations and peer-reviewed publications also annotated in PharmGKB. The source and level of evidence for each interpretation/recommendation is annotated and an associated link provided. Before using this information in consideration of medication choice it is important to review and consider the evidence base. These references are not comprehensive, nor exhaustive, additional unknown associations can occur, and additional patient context may be relevant to consider. The results do not take into account interactions between drugs nor combination drugs, co-morbidities or combinatorial gene-drug interactions. Additional considerations beyond the patient's genotype and the pharmacogenetic analysis affect drug response, and treatment decisions, patient care and clinical monitoring should be based on the independent judgment of the physician using all information related to the patient. NeuroKaire is not liable for medical judgment in connection with test results. The test results and information in this report are current as of the date of the report, and updated reports will not be provided. Our team is available to discuss test results, however genetic counseling is not provided by NeuroKaire. The physician or patient are encouraged to contact a genetic counselor to discuss test results and implications.

List of Genes/Variants Tested

Gene	Variant/Star Allele Tested
ABCB1	rs2032583
ABCG2	rs2231142
ADRA2A	rs1800544
BDNF	rs6265
CACNA1C	rs1006737
CES1A1	rs71647871
COMT	rs4680
CYP2B6	*1, *4, *6, *7, *9, *18, *22, *34, *36
CYP2C19	*1, *2, *3, *4, *5, *6, *7, *8, *9, *10, *17, *19, *22, *24, *25, *26, *35
CYP2C9	*1, *2, *3, *4, *5, *6, *8, *11, *12, *13, *15, *27
CYP2D6	*1, *2, *3, *4, *5, *6, *7, *8, *9, *10, *11, *12, *15, *17, *18, *29, *31, *35, *41, *42, *56, *59, *69, *109
CYP3A4	*1, *13, *15, *22
CYP3A5	*1, *3, *6, *7, *9
CYP4F2	*1, *3
DPYD	*1, *2A, *13

List of Genes/Variants Tested

Gene	Variant/Star Allele Tested
HLA-A	*31:01 (rs1061235)
HTR2A	rs7997012
HTR2C	rs3813929
MTHFR	rs1801131, rs1801133
OPRM1	rs1799971
SLCO1B1	*1, *5, *15
TPMT	*1, *2, *3B, *3C, *3A, *4
UGT1A1	*1, *6
UGT1A4	*1, *3b
UGT2B15	*1, *2 (rs1902023), *5 (rs1902023, rs4148269)

Pharmacogenetics Report Disclaimer

Errors in testing (both false positives and false negatives) may occur for reasons that include but are not limited to specimen issues (e.g. inaccurately marked samples causing sample mix-up, DNA quality and quantity), rare genetic variants interfering with analysis, assay technical limitations, biological factors (e.g. recent blood transfusions, circulating hematolymphoid neoplasm, or history of bone marrow transplantation), and other technical issues.

This analysis will not detect novel pharmacogenetic variants, nor does it test for any possible DNA variants associated with drug response or toxicity since some of the variants are not included in the current panel or are unknown to be associated with drug response/toxicity at this time. It also does not test for all known pharmacogenetic variants associated with response to all known medications or medications included in this test.

If a specific pharmacogenetic variant is detected, the patient may be at risk for adverse drug response(s) and/or lack of treatment efficacy associated with that variant. If no variant is found, the patient may be at reduced risk for the adverse drug response(s) or lack of therapeutic efficacy tested for in the current panel. However, further testing may be necessary, since negative test results may reduce, but do not eliminate, the chance that the patient is at risk of having predisposition to adverse drug response(s) or not achieving treatment efficiency. In addition, other variant(s) or factors that are not included in our services may impact an individual's risk of adverse rug response(s) or lead to lack of treatment efficiency. Thus, this report does not provide definitive conclusions regarding the predicted drug response(s) and treatment benefits or risks. In consequence, a negative result on this test is risk reducing but not risk eliminating, and does not guarantee outcome. Thus, this report should be interpreted as only one part of a patient's complete clinical profile.

Disclaimer

This report reflects the analysis of an extracted DNA sample; and it does not constitute medical advice. This is not a diagnostic test, and thus it provides information on selected pharmacogenetics variants for selected medication, but it does not test for every possible drug response and toxicity associated variant. Any questions or concerns regarding the contents of this report or any prevention, cure, mitigation, or treatment of a medical condition or disease should be directed to a qualified clinical professional. This test was developed, and its performance characteristics determined by GenetikaPlus US Inc and Trudiagnostic laboratories. It has not been cleared or approved by the FDA. The FDA does not require this test to go through premarket FDA review. This test is used for clinical purposes. It should not be regarded as investigational or for research. This laboratory is certified under the Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high complexity clinical laboratory testing.

Methods

BrightKaire PGx uses DNA extracted from whole blood samples for microarray analysis of selected targeted variants using the genome-wide genotyping array Infinium Global Diversity Array (GDA) with Enhanced PGx Array version 8.1.0 by Illumina on Illumina's iScan instrument with DRAGEN pipeline analysis. Variant calling, secondary bioinformatic processes, variant annotation and interpretation are performed using GenetikaPlus US Inc in house bioinformatics pipeline V1.0 leveraging PharmCAT annotation tool version 2.9.0.

Wild type designations (*1) are applied when variants are not detected at the queried locations, and variants reported are based solely on the queried locations. Therefore, this test does not exclude the possibility of alternative diplotypes if those include unqueried locations.

In some instances, diplotypes cannot be differentiated without additional testing. In these cases, the report will list all possible diplotypes.

In rare cases, the test will not be able to report on specific genotypes (e.g. CYP2D6 *3 or *9) due to missing calls for variants key for determining the specific genotype. In such cases this is clearly noted in the genotype results section.

This test does not detect structural variants such as hybrid, tandem alleles and others. The reported CNVs are not confirmed by orthogonal analysis.

HTR2C is X-linked it will be reported as a single nucleotide in males.

DNA extraction, variant calling, secondary bioinformatic processes, variant annotation and interpretation are performed at GenetikaPlus US Inc CLIA laboratory #31D2303234 located at 78 John Miller Way, Suite 420, Kearny Point, NJ. Microarray analysis is performed at TruDiagnostic CLIA laboratory #18D2183496 located at 881 Corporate Drive, Lexington, KY 40503.

List of Drugs

Alprazolam, Amitriptyline, Amoxapine, Aripiprazole, Armodafinil, Asenapine, Atomoxetine, Atorvastatin, Brexanolone, Brexpiprazole, Bupropion, Buspirone, Carbamazepine, Cariprazine,Celecoxib, Chlordiazepoxide, Chlorpromazine, Citalopram, Clobazam, Clomipramine, Clonazepam, Clorazepate, Clozapine, Codeine, Daridorexant,Desipramine,Desvenlafaxine, Deutetrabenazine, Dexmethylphenidate,Dextroamphetamine/Amphetamine, Dextromethorphan/ Quinidine, Diazepam, Diclofenac,Doxepin,Duloxetine, Epidiolex, Escitalopram, Esketamine, Eszopiclone, Felbamate, Fentanyl,Fluoxetine,Fluphenazine, Flurbiprofen,Fluvastatin, Fluvoxamine, Gabapentin, Guanfacine,Haloperidol,Hydrocodone,Hydoxyzine,Iloperidone, Imipramine, Isocarboxazid, Lacosamide, Lamotrigine, Lemborexant,Levetiracetam,Levomilnacipran, Lisdexamfetamine, Lithium, Lorazepam, Loxapine, Lovastatin, Lumateperone, Lurasidone, Maprotiline, Meloxicam, Methadone, Methylphenidate, Milnacipran, Mirtazapine, Modafinil,Nefazodone,Nortriptyline, Olanzapine, Oxazepam, Oxcarbazepine, Oxycodone,Paliperidone,Paroxetine, Perampanel, Perphenazine, Phenelzine, Phenobarbital, Phenytoin, Pimavanserin, Pimozide, Piroxicam, Pitavastatin, Pravastatin, Pregabalin, Propranolol, Protriptyline, Quetiapine, Ramelteon, Risperidone, Rosuvastatin, Selegiline, Sertraline, Simvastatin,Suvorexant, Temazepam, Tetrabenazine, Thioridazine, Thiothixene, Topiramate, Tramadol, Tranylcypromine, Trazodone, Triazolam, Trifluoperazine, Trimipramine, Valbenazine, Valproicacid, Venlafaxine, Vilazodone, Viloxazine,Vortioxetine, Zaleplon, Ziprasidone, Zolpidem, Zonisamide

Recommendations

Review these results with your medical practitioner for interpretation and further clinical management purposes. Genetic consulting is recommended.