

SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 1/15/2020

Test Details				
Gene	Genotype	Phenotype	Alleles Tested	
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17	
CYP2D6	*1/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41	
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9	
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22	
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A	
CYP4F2	*1/*1	Normal Function	*2, *3	
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11	
CYP2B6	*1/*1	Normal Metabolizer	*6, *9	
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W	
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G	
CFTR	G551D/R553X	Positive	Numerous	
DPYD	*2A/*2A	Poor Metabolizer	Numerous	
TPMT NUDT15	*1/*2 *1/*2	Intermediate Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9	

UGT1A1 \*1/\*28 Intermediate Metabolizer \*6, \*27, \*28, \*36, \*37, \*60, \*80 G6PD Mexico City or Mexico City/ Deficient Numerous Mexico City

# Additional Test Results (added to this original report)

ŀ	ILA-B*15:02
ŀ	ILA-B*57:01
ŀ	ILA-B*58:01

CY CY VК CY CY CY CY

Positive negative/positive negative/negative Negative

negative/negative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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Genetic Test Results For Patient 00000



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

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 1/4/2020

 REPORT DATE:
 1/15/2020

T	est	<b>Details</b>	
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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*1/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*2A/*8	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*28	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-00021** 

## Additional Test Results (added to this original report)

HLA-B*15:02
HLA-B*57:01
HLA-B*58:01

negative/negative Negative negative/negative Negative negative/negative Negative

HLA-A\*31:01 negative/negative Negative

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Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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Gene	Genotype
	11 (10)

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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*1/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	R553X/R553X	Negative	Numerous
DPYD	c.[ = ];[ = ]	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*28/*28	Poor Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-10461** 

## Additional Test Results (added to this original report)

HLA-B*15:02	
HLA-B*57:01	
HLA-B*58:01	

negative/negative Negative negative/negative Negative negative/negative Negative

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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Genetic Test Results For Patient 10461



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**Alleles Tested** 

 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 1/15/2020

Test Details	
Genotype	Phenotype
*1/*1	Normal Metabolize
*1/*1	Normal Metabolize
	Genotype *1/*1 *1/*1

CYP2CI9	*1/*1	Normal Metabolizer	^2, ^3, ^4, ^4B, ^5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*3/*4	Poor Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/R553X	Positive	Numerous
DPYD	*2A/c.2846A>T	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A–/Orissa	Deficient	Numerous

**REPORT NUMBER-10866** 

## Additional Test Results (added to this original report)

HLA-B\*15:02negative/negative Negative HLA-B\*57:01negative/negative Negative HLA-B\*58:01negative/negative Negative

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HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

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Genetic Test Results For Patient 10866



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 1/15/2020

T	est	<b>Details</b>	

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	R553X/R553X	Negative	Numerous
DPYD	c.[85T>C];[ = ]	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-12279** 

## Additional Test Results (added to this original report)

HLA-B 13.02 positive/positive Positive HLA-A 31.01 negative/ HLA-B*57:01 negative/negative Negative HLA-B*58:01 negative/positive Positive	ive/negative Negative
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Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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Test Details				
Gene	Genotype	Phenotype	Alleles Tested	
CYP2C19	*1/*7	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17	
CYP2D6	*1/*3	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41	
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9	
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22	
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A	
CYP4F2	*1/*1	Normal Function	*2, *3	
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11	
CYP2B6	*6/*6	Poor Metabolizer	*6, *9	
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W	
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G	
CFTR	R553X/R553X	Negative	Numerous	
DPYD	c.[=];[ = ]	Normal Metabolizer	Numerous	
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9	
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80	

**REPORT NUMBER-12700** 

### Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative

B or B/Sao Boria

G6PD

Negative Negative

Normal

HLA-A\*31:01 negative/positive Positive

Numerous

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 Buccal Swab

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\*2, \*3, \*4, \*4B, \*5, \*6, \*7, \*8, \*9, \*17

**Alleles Tested** 

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Gene	Genotype	Phenotype
CYP2C19	*2/*7	Poor Metabolizer
CYP2D6	*4/*10	Intermediate Metabolizer
CYP3A5	*3/*3	Poor Metabolizer

CYP2D6	*4/*10	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	R553X/R553X	Negative	Numerous
DPYD	c.[=];[ = ]	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-12815** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/negativ
HLA-B*57:01	negative/positive
HLA-B*58:01	negative/negativ

ive/negative Negative ive/positive Positive ive/negative Negative

re Negative HLA-A\*31:01 negative/negative Negative Positive re Negative

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Genetic Test Results For Patient 12815



SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 1/15/2020

Test Details	
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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*2/*2	Poor Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/F508del	Positive	Numerous
DPYD	c.[=];[ = ]	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*2	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-13730** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative

Negative Negative HLA-A\*31:01 negative/negative Negative

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Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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Test Details

\*29,

SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 1/15/2020

Gene	Genotype	Phenotype	Alleles Tested	
CYP2C19	*1/*3	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17	
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17 *35, *41	
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9	
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22	
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A	
CYP4F2	*1/*3	Decreased Function	*2, *3	
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11	
CYP2B6	*1/*6	Intermediate Metabolizer	*6, *9	
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W	
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G	
CFTR	G551D/G551D	Positive	Numerous	
DPYD	*2A/*2A	Poor Metabolizer	Numerous	
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9	
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80	
G6PD	A- or B/A–	Deficient or Variable	Numerous	

**REPORT NUMBER-14075** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative

Negative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 1/15/2020

### Test Details

Gene	(	Genotype	Phenotype	Alleles Tested
CYP2C1	9 *	*2/*7	Poor Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	5 *	*1/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	5 *	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	<b>1</b> *	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC	1 -	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*	*1/*3	Decreased Function	*2, *3
CYP2C9	) *	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	÷	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B	i <b>1</b> 5	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F	508del/R553X	Negative	Numerous
DPYD	*	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT1	5 *	*1/*3A *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Bangkok or E Bangkok	Bangkok/	Deficient with CNSHA	Numerous

**REPORT NUMBER-15148** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative Negative

Negative

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*7	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*3	Decreased Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/F508del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-15871** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Ν
HLA-B*57:01	negative/negative	Ν
HLA-B*58:01	negative/positive	P

ative Negative ative Negative itive Positive HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*2/*17	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*3	Decreased Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*6	Intermediate Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/508del	Positive	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*2	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-16714** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/nega
HLA-B*57:01	negative/nega
HLA-B*58:01	negative/nega

ative Negative ative Negative ative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



Genetic Test Results For Patient 16714



SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 2/3/2020

#### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	G551D/G551D	Positive	Numerous
DPYD	*1/*1	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*3 *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-16714** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative

Negative Negative HLA-A\*31:01 negative/positive Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*3/*3	Poor Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-20391** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*3A/*3A *1/*1	Poor Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*28/*28	Poor Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Sao Boria or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-20563** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negativ
HLA-B*57:01	negative/negativ
HLA-B*58:01	negative/negativ

ve Negative ve Negative ve Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 2/3/2020

### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*1D/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1C/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*3A *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-21354** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative

Negative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

Negative

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*2/*2	Poor Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*10/*10	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1C/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*2A/*2A	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*3	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Bangkok or Bangkok/Villeurbanne	Deficient with CNSHA	Numerous

**REPORT NUMBER-21566** 

### Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative
HLA-B*57:01	negative/negative	Negative
HLA-B*58:01	negative/positive	Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

HLA-A\*31:01 negative/negative

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 2/3/2020

### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*36/*37	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Bangkok or Bangkok/Villeurbanne	Deficient with CNSHA	Numerous

**REPORT NUMBER-21576** 

#### Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative

Negative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 2/3/2020

### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*3	Decreased Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*2	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-21687** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 positive/positive HLA-B\*57:01 negative/negative Negative HLA-B\*58:01 negative/negative Negative

Positive

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 2/3/2020

### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*35	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*3	Decreased Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR rs75	527207 G/G	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-21742** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative HLA-B\*58:01 negative/negative Negative

Negative

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

## **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*17/*17	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*3	Decreased Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-22937** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive		5 5	5
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/4/2020 REPORT DATE: 2/3/2020

## Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	9 *1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*9	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G
CFTR	R553X/R553X	Negative	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*2/*4 *1/*1	Poor Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Bangkok or Bangkok/Villeurbanne	Deficient with CNSHA	Numerous

**REPORT NUMBER-23559** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/negative Negative HLA-B\*58:01 negative/positive Positive

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	R553X/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*37	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-24007** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/
HLA-B*57:01	negative/
HLA-B*58:01	negative/

negative Negative negative Negative negative Negative HLA-A\*31:01 negative/positive Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1C	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/F508del	Positive	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*2	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-25330** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/nega
HLA-B*57:01	negative/nega
HLA-B*58:01	negative/nega

tive Negative tive Negative tive Negative

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/4/2020

 REPORT DATE:
 2/3/2020

Т	est	Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*35	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/F508del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*37	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/Orissa	Deficient	Numerous

**REPORT NUMBER-25634** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/nega
HLA-B*57:01	negative/nega
HLA-B*58:01	negative/nega

tive Negative tive Negative tive Negative

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/27/2020

 REPORT DATE:
 2/6/2020

T	est	De	tai	s

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/F508del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-25803** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/negative	Negative			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/27/2020

 REPORT DATE:
 2/6/2020

Т	est	Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	G551D/G551D	Positive	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/3A *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-26066** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive
HLA-B*58:01	negative/positive	Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

HLA-A\*31:01 negative/negative Negative

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab COLLECTION DATE: 1/3/2020 RECEIVED DATE: 1/27/2020 REPORT DATE: 2/6/2020

Test De	Fest Details				
Gene	Genotype	Phenotype	Alleles Tested		
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17		
CYP2D6	*1/*10	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41		
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9		
CYP3A4	*1/*22	Intermediate Metabolizer	*1B, *2, *3, *12, *17, *22		
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A		
CYP4F2	*1/*1	Normal Function	*2, *3		
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11		
CYP2B6	*1/*1	Normal Metabolizer	*6, *9		
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W		
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G		
CFTR	G551D/G551D	Positive	Numerous		
DPYD	*1/*2A	Intermediate Metabolizer	Numerous		
TPMT NUDT15	*1/3C *1/*2	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9		

**REPORT NUMBER-27063** 

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UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/neg
HLA-B*57:01	negative/posi
HLA-B*58:01	negative/neg

Positive itive ative Negative

ative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



Genetic Test Results For Patient 27063



Bangkok or

Bangkok/Bangkok

Test Details

Numerous

 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/27/2020

 REPORT DATE:
 2/6/2020

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*2/*2	Poor Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2xN	Ultrarapid Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*1D/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1L	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/1 *1/*2	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*28/*28	Poor Metabolizer	*6, *27, *28, *36, *37, *60, *80

**REPORT NUMBER-27522** 

## Additional Test Results (added to this original report)

Deficient with CNSHA

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



G6PD



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/27/2020

 REPORT DATE:
 2/6/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/1 *1/*2	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-28775** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/posi
HLA-B*57:01	negative/posi
HLA-B*58:01	negative/nega

itive Positive itive Positive ative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/27/2020

 REPORT DATE:
 2/6/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*17/*17	Ultrarapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	Indeterminate	Unknown Phenotype	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	rs75527207 G/G	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/3A *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*28	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-29929** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 1/27/2020

 REPORT DATE:
 2/6/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*17/*17	Ultrarapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*28/*28	Poor Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-31074** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 2/14/2020

 REPORT DATE:
 2/17/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*2	Intermediate Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-31169** 

## Additional Test Results (added to this original report)

HLA-B\*15:02negative/negativeNegativeHLA-B\*57:01negative/negativeNegativeHLA-B\*58:01negative/positivePositive

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 2/14/2020

 REPORT DATE:
 2/17/2020

Т	est	Details	

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*17/*17	Ultrarapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	c.[190511G>A];[190511G>A]	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*2	Intermediate Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-31177** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 1/3/2020

 RECEIVED DATE:
 2/14/2020

 REPORT DATE:
 2/17/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*2/*17	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*6	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/G551D	Positive	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*2	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Sao Boria or Sao Boria/Sao Boria	Normal	Numerous

**REPORT NUMBER-32703** 

#### Additional Test Results (added to this original report)

HLA-B*15:02	negative/pos
HLA-B*57:01	negative/pos
HLA-B*58:01	negative/nec

sitive Positive sitive Positive gative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

Test De	est Details					
Gene	Genotype	Phenotype	Alleles Tested			
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17			
CYP2D6	*4/*17	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41			
CYP3A5	*1/*1	Normal Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9			
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22			
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A			
CYP4F2	*1/*1	Normal Function	*2, *3			
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11			
CYP2B6	*1/*1	Normal Metabolizer	*6, *9			
CYP1A2	*1L/*1L	Unknown Phenotype	*1C, *1D, *1F, *1K, *1L, *1V, *1W			
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G			
CFTR	F508del/R553X	Negative	Numerous			
DPYD	*1/*1	Normal Metabolizer	Numerous			
	*1/*1	Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2 *2 *4 *5 *6 *7 *8 *0			

**REPORT NUMBER-33169** 

NUDT15	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.





 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

T	est	Details	

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	rs75527207 G/G	Negative	Numerous
DPYD	*2A/*3	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*3A *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-33782** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	<b>9</b> *2/*2	Poor Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*22	Intermediate Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *2/*2	Normal Metabolizer Poor Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Bangkok or Bangkok/Bangkok	Deficient with CNSHA	Numerous

**REPORT NUMBER-35168** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			
HLA-B*58:01	negative/positive	Positive			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

T	est	Detai	ils

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1K	Intermediate Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Poor Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-35962** 

## Additional Test Results (added to this original report)

HLA-B*15:02	
HLA-B*57:01	
HLA-B*58:01	

Positive negative/positive negative/negative Negative

negative/negative Negative HLA-A\*31:01 negative/positive Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

**Alleles Tested** 

Test Deta	115	
Gene	Genotype	Phenotype
CYP2C19	*1/*17	Rapid Metabo
CYP2D6	*1/*1	Normal Metal

CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	c.868A>G/c.868A>G	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*28/*28	Poor Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-36194** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Negative

# **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	G551D/G551D	Positive	Numerous
DPYD	c.868A>G/c.868A>G	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*3A *2/*2	Intermediate Metabolizer Poor Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*/*28	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-36223** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative
HLA-B*57:01	negative/positive	Positive		
HLA-B*58:01	negative/negative	Negative		

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

Gene	Genotype	Phenotype	
CYP2C19	*1/*1	Normal Metabolizer	ł
CYP2D6	*4/*10	Intermediate Metabolizer	r r
CYP3A5	*3/*3	Poor Metabolizer	ł
CYP3A4	*1/*1	Normal Metabolizer	ł
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-

## **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*10	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-37235** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test	Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*41	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1V/*1V	Unknown Phenotype	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-37343** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

Test Details	
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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*41	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*6	Intermediate Metabolizer	*6, *9
CYP1A2	*1A/*1V	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	c.[ 5 ];[ 5 ]	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-37712** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/positive	Positive
HLA-B*57:01	negative/positive	Positive
HLA-B*58:01	negative/negative	Negative

HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test	Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2xN	Ultrarapid Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*1/*7	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1B/*1B	Intermediate Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*6/*6	Poor Metabolizer	*6, *9
CYP1A2	*1F/*1V	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-38789** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

**Alleles Tested** 

Test Details				
Gene	Genotype	Phenotype		
CYP2C19	*1/*1	Normal Metal		
CVD2DC	+1 /+1	NI		

CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*7	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*3	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Sao Boria or B/Sao Boria	Normal	Numerous

**REPORT NUMBER-39012** 

## Additional Test Results (added to this original report)

HLA	\-B*15:02	)
HLA	A-B*57:0	1
HLA	A-B*58:0	

Positive negative/positive negative/negative Negative

negative/negative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



Genetic Test Results For Patient 39012



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*6	Intermediate Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/F508del	Positive	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-41418** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Ne
HLA-B*57:01	negative/positive	Ро
HLA-B*58:01	negative/positive	Ро

ative Negative tive Positive tive Positive HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

SPECIMEN DETAILS

# Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Normal Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*6	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	rs75527207 G/G	Negative	Numerous
DPYD	*8/*8	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

## **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*1/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-42211** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test	Details	

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*41	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	rs75527207 A/A	Positive	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*2/*2 *1/*1	Poor Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-42488** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

#### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*1/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*3/*3	Poor Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	rs75527207 A/G	Positive	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*2 *1/*2	Intermediate Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-42670** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE: 2/22/2020** RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*2/*17	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	rs199826652 del/del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*2	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*37	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD Medite	rranean or	Deficient	Numerous

**REPORT NUMBER-45794** 

Mediterranean/Mediterranean

## Additional Test Results (added to this original report)

HL	A-B*15:02
HL	A-B*57:01
HL	A-B*58:01

Positive negative/positive negative/negative Negative

negative/negative Negative HLA-A\*31:01 negative/positive Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software

(www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



Genetic Test Results For Patient 45794



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

## **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	rs199826652 del/del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*3	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A or A-/A-	Deficient	Numerous

**REPORT NUMBER-46717** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

### **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*41	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*1/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	c.1774C>T/c.557A>G	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-47610** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Τ	est	Details	

Gene	Genotype	Phenotype	Alleles Tested	
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17	
CYP2D6	*2/*2	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41	
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9	
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22	
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A	
CYP4F2	*1/*1	Normal Function	*2, *3	
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11	
CYP2B6	*1/*1	Normal Metabolizer	*6, *9	
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W	
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G	
CFTR	F508del/R553X	Negative	Numerous	
DPYD	*1/*1	Normal Metabolizer	Numerous	
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9	
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80	
G6PD	B or B/B	Normal	Numerous	

**REPORT NUMBER-48085** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Positive

## **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*35	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*22	Intermediate Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*11	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	F508del/F508del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*3C *1/*1	Intermediate Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-48162** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/positive
HLA-B*57:01	negative/positive	Positive		
HLA-B*58:01	negative/negative	Negative		

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

## **Test Details**

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*17/*17	Ultrarapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*4/*4	Poor Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A A/A	High Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*2	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	G551D/F508del	Positive	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-49258** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	
HLA-B*57:01	negative/positive	ł
HLA-B*58:01	negative/positive	ł

ative Negative tive Positive tive Positive HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful



medical outcome.

Genetic Test Results For Patient 49258



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test Details
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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*41	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/G551D	Positive	Numerous
DPYD	*2A/*2A	Poor Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*3	Normal Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*27/*27	Poor Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	Kalyan-Kerala or	Deficient	Numerous

**REPORT NUMBER-49946** 

#### Orissa/Kalyan-Kerala

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



Genetic Test Results For Patient 49946



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

T	est	Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*41	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1A/*1A	Normal Metabolizer - Possible Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	G551D/G551D	Positive	Numerous
DPYD	*1/*2A	Intermediate Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-51783** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/posi
HLA-B*57:01	negative/posi
HLA-B*58:01	negative/nega

itive Positive itive Positive ative Negative HLA-A\*31:01 negative/negative Negative

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

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 3/2/2020

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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G
CFTR	rs199826652 del/del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer*2, *3A, *3B, *3C, *4Normal Metabolizer*2, *3, *4, *5, *6, *7, *8, *9	
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	A- or A-/A-	Deficient	Numerous

**REPORT NUMBER-54592** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/positive	Positive	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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B or B/B

Numerous

 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test Details					
Gene	Genotype	Phenotype	Alleles Tested		
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17		
CYP2D6	*2/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41		
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9		
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22		
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A		
CYP4F2	*1/*1	Normal Function	*2, *3		
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11		
CYP2B6	*1/*1	Normal Metabolizer	*6, *9		
CYP1A2	*1A/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W		
SLCO1B1	521T>C T/T	Normal Function	521T>C, 388A>G		
CFTR	F508del/R553X	Negative	Numerous		
DPYD	*1/*1	Normal Metabolizer	Numerous		
TPMT NUDT15	*2/*2 *1/*1	Poor Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9		
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80		

**REPORT NUMBER-69530** 

# Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/positive	Positive
HLA-B*57:01	negative/positive	Positive			
HLA-B*58:01	negative/negative	Negative			

Deficient

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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The pharmacogenetic assay involves use of reporting software and genotype-phenotype associations performed by Translational Software (www.translationalsoftware.com). The software has not been evaluated by the Food and Drug Administration. The software, and the report generated by the software, is not intended to diagnose, treat, cure, or prevent any disease. A qualified designee within the lab uses Translational Software to generate and subsequently review the report. The pharmacogenetic report is one of multiple pieces of information that clinicians should consider in guiding their therapeutic choice for each patient. It remains the responsibility of the health-care provider to determine the best course of treatment for a patient. Adherence to dose guidelines does not necessarily assure a successful medical outcome.



G6PD



 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test Details
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Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*2	Intermediate Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*4	Intermediate Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*3	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G
CFTR	F508del/R553X	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*2/*2 *1/*2	Poor Metabolizer Intermediate Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*36	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-72168** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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Test Details

SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*2/*10	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
CYP3A5	*3/*3	Poor Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
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**REPORT NUMBER-78945** 

CYPIAZ	^TA/^TF	Normal Metabolizer - Higher Inducibility	^TC, ^TD, *TF, *TK, *TL, *TV, *TW	
SLCO1B1	521T>C T/C	Decreased Function	521T>C, 388A>G	
CFTR	F508del/F508del	Negative	Numerous	
DPYD	*1/*1	Normal Metabolizer	Numerous	
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9	
UGT1A1	*1/*37	Intermediate Metabolizer	*6, *27, *28, *36, *37, *60, *80	
G6PD	B or B/B	Normal	Numerous	

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/negative	Negative	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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SPECIMEN TYPE: Buccal Swab **COLLECTION DATE:** 2/22/2020 RECEIVED DATE: 2/24/2020 REPORT DATE: 3/2/2020

### Test Details

Gene	Genotype	Phenotype	Alleles Tested
CYP2C19	*1/*1	Normal Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17
CYP2D6	*1/*1	Normal Metabolizer	*2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *14B, *17, *29, *35, *41
СҮРЗА5	*1/*3	Intermediate Metabolizer	*1D, *2, *3, *3B, *3C, *6, *7, *8, *9
CYP3A4	*1/*1B	Normal Metabolizer	*1B, *2, *3, *12, *17, *22
VKORC1	-1639G>A G/A	Intermediate Warfarin Sensitivity	-1639G>A
CYP4F2	*1/*1	Normal Function	*2, *3
CYP2C9	*1/*1	Normal Metabolizer	*2, *3, *4, *5, *6, *11
CYP2B6	*1/*1	Normal Metabolizer	*6, *9
CYP1A2	*1F/*1F	Normal Metabolizer - Higher Inducibility	*1C, *1D, *1F, *1K, *1L, *1V, *1W
SLCO1B1	521T>C C/C	Poor Function	521T>C, 388A>G
CFTR	F508del/F508del	Negative	Numerous
DPYD	*1/*1	Normal Metabolizer	Numerous
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80
G6PD	B or B/B	Normal	Numerous

**REPORT NUMBER-97517** 

## Additional Test Results (added to this original report)

HLA-B\*15:02 negative/negative Negative HLA-B\*57:01 negative/positive Positive HLA-B\*58:01 negative/positive Positive

HLA-A\*31:01 negative/positive Positive

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

Disclaimer: Manchester University developed the Genotype test. The performance characteristics of this test were determined by Manchester University. It has not been cleared or approved by the U.S. Food and Drug Administration.

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 SPECIMEN TYPE:
 Buccal Swab

 COLLECTION DATE:
 2/22/2020

 RECEIVED DATE:
 2/24/2020

 REPORT DATE:
 3/2/2020

Test	Details

Gene	Genotype	Phenotype	notype Alleles Tested		
CYP2C19	*1/*17	Rapid Metabolizer	*2, *3, *4, *4B, *5, *6, *7, *8, *9, *17		
CYP2D6	*1/*1	Normal Metabolizer         *2, *3, *4, *4M, *6, *7, *8, *9, *10, *12, *14A, *           *35, *41			
CYP3A5	*3/*3	Poor Metabolizer         *1D, *2, *3, *3B, *3C, *6, *7, *8, *9			
CYP3A4	*1/*1	Normal Metabolizer	*1B, *2, *3, *12, *17, *22		
VKORC1	-1639G>A G/G	Low Warfarin Sensitivity	-1639G>A		
CYP4F2	*1/*1	Normal Function	*2, *3		
CYP2C9	*1/*2	Intermediate Metabolizer	*2, *3, *4, *5, *6, *11		
CYP2B6	*1/*1	Normal Metabolizer	*6, *9		
CYP1A2	*1A/*1K	Intermediate Metabolizer - *1C, *1D, *1F, *1K, *1L, *1V, *1W Possible Inducibility			
SLCO1B1	521T>C T/T	Normal Function	I Function 521T>C, 388A>G		
CFTR	F508del/F508del	Negative	Numerous		
DPYD	*1/*1	Normal Metabolizer	Numerous		
TPMT NUDT15	*1/*1 *1/*1	Normal Metabolizer Normal Metabolizer	*2, *3A, *3B, *3C, *4 *2, *3, *4, *5, *6, *7, *8, *9		
UGT1A1	*1/*1	Normal Metabolizer	*6, *27, *28, *36, *37, *60, *80		
G6PD	A- or A-/A-	Deficient	Numerous		

**REPORT NUMBER-99185** 

## Additional Test Results (added to this original report)

HLA-B*15:02	negative/positive	Positive	HLA-A*31:01	negative/negative	Negative
HLA-B*57:01	negative/positive	Positive			-
HLA-B*58:01	negative/negative	Negative			

Limitation: This test will not detect all the known alleles that result in altered or inactive tested genes. This test does not account for all individual variations in the individual tested. Absence of a detectable gene mutation does not rule out the possibility that a patient has different phenotypes due to the presence of an undetected polymorphism or due to other factors such as drug-drug interactions, comorbidities and lifestyle habits.

Methodology: Array based assays detect listed alleles, including all common and most rare variants with known clinical significance at analytical sensitivity and specificity >99%.

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