

ABBREVIATIONS AND ACRONYMS

ABC	Approximate Bayesian computation
CMP	Common myeloid progenitor
CRC	Colorectal cancer
DBS	Doublet base substitution
GMP	Granulocyte macrophage progenitor
HDP	Hierarchical Dirichlet process
HPC	Haematopoietic progenitor cell
HSC	Haematopoietic stem cell
HSPC	Haematopoietic stem or progenitor cell
ID	Insertion or deletion (indel)
LCM	Laser capture microdissection
LOH	Loss of heterozygosity
MEP	Megakaryocyte erythroid progenitor
MRCA	Most recent common ancestor
NNMF	Non-negative matrix factorisation
PCAWG	Pan cancer analysis of whole genomes
SBS	Single base substitution
SV	Structural variant
TCGA	The Cancer Genome Atlas
VAF	Variant allele fraction
WGS	Whole genome sequencing

APPENDIX A

MYELOID LEUKAEMIA AND CLONAL HAEMATOPOIESIS MUTATION HOTSPOT LOCI INCLUDED IN BAIT-SET FOR TARGETED SEQUENCING OF PERIPHERAL BLOOD

Gene	Mutation	Position
NRAS	Q61	1:115256530-115256531
NRAS	G12	1:115258748-115258748
CD58	G210	1:117078587-117078587
GNB1	K57	1:1747229-1747229
MPL	W515	1:43815009-43815009
CBL	Y371	11:119148892-119148892
CBL	C381	11:119148922-119148922
CBL	R420	11:119149251-119149251
PTPN11	A72	12:112888199-112888200
PTPN11	G503	12:112926888-112926888
KRAS	G12	12:25398285-25398285
FLT3	D835	13:28592642-28592642
FLT3	N676	13:28602341-28602341
IDH2	R172	15:90631839-90631839
IDH2	R140	15:90631935-90631935
CREBBP	R1446	16:3788618-3788618
STAT3	D661	17:40474420-40474420
STAT3	Y640	17:40474482-40474482
PPM1D	S468	17:58740498-58740498
PPM1D	Q520	17:58740655-58740655
CD79B	Y196	17:62006799-62006799
SRSF2	P95	17:74732960-74732960
TP53	R273C	17:7577121-7577121
TP53	R248Q	17:7577539-7577540
TP53	R175G	17:7578407-7578407
TP53	H168R	17:7578428-7578428
RPS15	P131	19:1440415-1440415
JAK3	R657	19:17945970-17945970
JAK3	A572	19:17948010-17948010
JAK3	M511	19:17949108-17949108

CNOT3	E20	19:54646887-54646887
CNOT3	E70	19:54647435-54647435
SF3B1	K700	2:198266834-198266834
SF3B1	K666	2:198267361-198267361
IDH1	R132	2:209113113-209113113
DNMT3A	P904	2:25457177-25457177
DNMT3A	R882	2:25457243-25457243
DNMT3A	W860	2:25458595-25458595
DNMT3A	R771	2:25463182-25463182
DNMT3A	S770	2:25463184-25463184
DNMT3A	F752	2:25463239-25463239
DNMT3A	R749	2:25463248-25463248
DNMT3A	R736	2:25463287-25463287
DNMT3A	F732	2:25463299-25463299
DNMT3A	R729	2:25463308-25463308
DNMT3A	S714	2:25463541-25463541
DNMT3A	I705	2:25463569-25463569
DNMT3A	G699	2:25463587-25463587
DNMT3A	G685	2:25464460-25464460
DNMT3A	R635	2:25466800-25466800
DNMT3A	R598	2:25467083-25467083
DNMT3A	L547	2:25467436-25467436
DNMT3A	G543	2:25467449-25467449
DNMT3A	P385	2:25469614-25469614
DNMT3A	W330	2:25470484-25470484
DNMT3A	R326	2:25470498-25470498
DNMT3A	R320	2:25470516-25470516
DNMT3A	P307	2:25470554-25470554
ASXL1	R404	20:31021211-31021211
ASXL1	R417	20:31021250-31021250
ASXL1	Y591	20:31022288-31022288
ASXL1	G642	20:31022439-31022439
ASXL1	R693	20:31022592-31022592
GNAS	R201	20:57484422-57484422
U2AF1	Q157	21:44514777-44514777
U2AF1	S34	21:44524456-44524456
SF3A1	E75	22:30742471-30742471
EP300	D1399	22:41565529-41565529
STAG2	R305	23:123184056-123184056
BCORL1	R784	23:129149098-129149098

PHF6	R274	23:133549137-133549137
STAG1	A116	3:136287655-136287655
PIK3CA	H1047	3:178952086-178952086
MYD88	L265	3:38182641-38182641
TET2	R550	4:106156747-106156747
TET2	Q916	4:106157845-106157845
TET2	W954	4:106157961-106157961
TET2	R1261	4:106164914-106164914
TET2	G1288	4:106180835-106180835
TET2	Y1337	4:106182972-106182972
TET2	A1381	4:106190863-106190863
TET2	R1465	4:106193931-106193931
TET2	S1486	4:106193995-106193995
TET2	I1873	4:106197285-106197285
FBXW7	R505	4:153247289-153247289
FBXW7	R479	4:153247367-153247367
FBXW7	R465	4:153249385-153249385
KIT	V559	4:55593610-55593610
KIT	D816	4:55599322-55599322
NPM1	L287	5:170837543-170837545
BRAF	V600	7:140453137-140453137
EZH2	Y646	7:148508728-148508728
CARD11	R1092	7:2946461-2946461
CARD11	E626	7:2963931-2963931
CARD11	D401	7:2976811-2976811
CARD11	D230	7:2979559-2979559
RAD21	A480	8:117864217-117864217
JAK2	V617	9:5073772-5073772

APPENDIX B

COLORECTAL CANCER GENES INCLUDED IN BAIT-SET FOR TARGETED SEQUENCING OF COLONIC CRYPTS

Gene

ACVR1B
ACVR2A
APC
ARID1A
ARID2
ASXL1
ATM
ATR
ATRX
AXIN2
BCOR
BRAF
BRCA2
CARD11
CBL
CDC73
CDH1
CDK12
CREBBP
CTNNB1
EGFR
ELF3
EP300
ERBB2
ERBB3
EZH2
AMER1
FBXW7
FGFR1
FGFR2

FLT1
GATA3
GNAS
H3F3A
H3F3B
JAK2
KDM6A
KDR
KIT
KRAS
MET
MGA
MLH1
KMT2D
KMT2C
MSH2
MSH6
NF1
NF2
NRAS
PDGFRA
PIK3CA
PIK3R1
POLE
PTCH1
PTEN
PTPN11
RB1
RBM10
RET
RNF43
SETD2
SMAD2
SMAD4
SOX9
STAG2
STK11
TBX3
TCF7L2
TGFBR2

TP53
TSHR
VHL
WT1
AKT1
AXIN1
B2M
CDKN1B
CSF1R
CUX1
GRIN2A
MAP2K1
MAP2K4
MAX
QKI
RAD21
ROBO2
SRC
TBL1XR1
UBR5

APPENDIX C

CHARACTERISTICS OF INFORMATIVE CRYPTS

crypt	site	patient	sex	age	VAF	Depth	cancer.pt
HLS_1C_30_B5	Right	HLS	female	60	0.44	12	No
HLS_1C_30_D5	Right	HLS	female	60	0.41	10	No
HLS_1C_30_G5	Right	HLS	female	60	0.43	12	No
HLS_1C_30_H5	Right	HLS	female	60	0.45	9	No
HLS_2C_30_D6	Right	HLS	female	60	0.46	8	No
HLS_2C_30_E6	Right	HLS	female	60	0.45	9	No
PD28690bx_2_a5	Right	PD28690	male	79	0.4	17	No
PD28690bx_2_d5	Right	PD28690	male	79	0.44	18	No
PD28690cb_2_g1	Transverse	PD28690	male	79	0.38	17	No
PD28690cb_2_g3	Transverse	PD28690	male	79	0.44	16	No
PD28690cb_2_h1	Transverse	PD28690	male	79	0.33	17	No
PD28690cb_2_h3	Transverse	PD28690	male	79	0.42	19	No
PD34199a_c17	Right	PD34199	male	67	0.42	19	No
PD34199a_c22	Right	PD34199	male	67	0.32	16	No
PD34199a_c27	Right	PD34199	male	67	0.39	17	No
PD34199a_c28	Right	PD34199	male	67	0.31	18	No
PD34199a_c3	Right	PD34199	male	67	0.38	19	No
PD34199a_c31	Right	PD34199	male	67	0.36	18	No
PD34199a_c5	Right	PD34199	male	67	0.33	19	No
PD34199a_c7	Right	PD34199	male	67	0.38	19	No
PD34199a_s13	Left	PD34199	male	67	0.4	18	No
PD34199a_s16	Left	PD34199	male	67	0.32	18	No
PD34199a_s2	Left	PD34199	male	67	0.38	18	No
PD34199a_s27	Left	PD34199	male	67	0.32	17	No
PD34199a_s31	Left	PD34199	male	67	0.4	16	No
PD34199a_s4	Left	PD34199	male	67	0.38	18	No
PD34199a_t14	Transverse	PD34199	male	67	0.36	20	No
PD34199a_t16	Transverse	PD34199	male	67	0.42	17	No
PD34199a_t18	Transverse	PD34199	male	67	0.41	18	No
PD34199a_t22	Transverse	PD34199	male	67	0.37	19	No
PD34199a_t24	Transverse	PD34199	male	67	0.42	17	No
PD34199a_t28	Transverse	PD34199	male	67	0.35	17	No
PD34199a_t31	Transverse	PD34199	male	67	0.4	18	No

PD34200a_c10	Right	PD34200	male	54	0.43	17	No
PD34200a_c14	Right	PD34200	male	54	0.47	14	No
PD34200a_c15	Right	PD34200	male	54	0.46	16	No
PD34200a_c17	Right	PD34200	male	54	0.46	17	No
PD34200a_c19	Right	PD34200	male	54	0.43	16	No
PD34200a_c23	Right	PD34200	male	54	0.45	17	No
PD34200a_c24	Right	PD34200	male	54	0.46	18	No
PD34200a_c26	Right	PD34200	male	54	0.42	19	No
PD34200a_c31	Right	PD34200	male	54	0.44	19	No
PD34200a_c32	Right	PD34200	male	54	0.44	18	No
PD34200a_c33	Right	PD34200	male	54	0.47	17.5	No
PD34200a_c35	Right	PD34200	male	54	0.46	15	No
PD34200a_c37	Right	PD34200	male	54	0.45	17	No
PD34200a_c41	Right	PD34200	male	54	0.39	17	No
PD34200a_c42	Right	PD34200	male	54	0.47	17	No
PD34200a_c43	Right	PD34200	male	54	0.44	17	No
PD34200a_c47	Right	PD34200	male	54	0.43	17	No
PD34200a_c5	Right	PD34200	male	54	0.44	17	No
PD34200a_c7	Right	PD34200	male	54	0.42	16	No
PD34200a_c8	Right	PD34200	male	54	0.42	15	No
PD34200a_i21	Ileum	PD34200	male	54	0.38	16	No
PD34200a_i22	Ileum	PD34200	male	54	0.43	15	No
PD34200a_i33	Ileum	PD34200	male	54	0.46	16	No
PD34200a_i36	Ileum	PD34200	male	54	0.43	17	No
PD34200a_i54	Ileum	PD34200	male	54	0.3	17	No
PD34200a_s10	Left	PD34200	male	54	0.41	17	No
PD34200a_s17	Left	PD34200	male	54	0.35	21	No
PD34200a_s18	Left	PD34200	male	54	0.33	20	No
PD34200a_s2	Left	PD34200	male	54	0.36	16	No
PD34200a_s20	Left	PD34200	male	54	0.38	18	No
PD34200a_s22	Left	PD34200	male	54	0.35	19	No
PD34200a_s27	Left	PD34200	male	54	0.33	19	No
PD34200a_s29	Left	PD34200	male	54	0.38	20	No
PD34200a_s3	Left	PD34200	male	54	0.4	18	No
PD34200a_s4	Left	PD34200	male	54	0.37	17	No
PD34200a_s8	Left	PD34200	male	54	0.41	18	No
PD34200a_t12	Transverse	PD34200	male	54	0.41	15	No
PD34200a_t14	Transverse	PD34200	male	54	0.41	20	No
PD34200a_t15	Transverse	PD34200	male	54	0.42	20	No

PD34200a_t16	Transverse	PD34200	male	54	0.43	18	No
PD34200a_t20	Transverse	PD34200	male	54	0.33	21	No
PD34200a_t23	Transverse	PD34200	male	54	0.41	20	No
PD34200a_t27	Transverse	PD34200	male	54	0.41	17	No
PD34200a_t28	Transverse	PD34200	male	54	0.38	19	No
PD34200a_t29	Transverse	PD34200	male	54	0.39	18	No
PD34200a_t3	Transverse	PD34200	male	54	0.4	18	No
PD34200a_t33	Transverse	PD34200	male	54	0.42	21	No
PD34200a_t37	Transverse	PD34200	male	54	0.39	21	No
PD34200a_t6	Transverse	PD34200	male	54	0.41	18	No
PD34201a_c1	Right	PD34201	male	38	0.42	15	No
PD34201a_c10	Right	PD34201	male	38	0.4	17	No
PD34201a_c18	Right	PD34201	male	38	0.41	16	No
PD34201a_c20	Right	PD34201	male	38	0.4	15	No
PD34201a_c22	Right	PD34201	male	38	0.4	18	No
PD34201a_c25	Right	PD34201	male	38	0.41	17	No
PD34201a_c27	Right	PD34201	male	38	0.35	16	No
PD34201a_c32	Right	PD34201	male	38	0.36	16	No
PD34201a_c35	Right	PD34201	male	38	0.41	16	No
PD34201a_c38	Right	PD34201	male	38	0.39	15	No
PD34201a_c4	Right	PD34201	male	38	0.37	17	No
PD34201a_c40	Right	PD34201	male	38	0.38	18	No
PD34201a_c41	Right	PD34201	male	38	0.35	16	No
PD34201a_c42	Right	PD34201	male	38	0.42	16	No
PD34201a_c44	Right	PD34201	male	38	0.44	17	No
PD34201a_c48	Right	PD34201	male	38	0.36	18	No
PD34201a_s1	Left	PD34201	male	38	0.36	15	No
PD34201a_s10	Left	PD34201	male	38	0.36	15	No
PD34201a_s11	Left	PD34201	male	38	0.35	15	No
PD34201a_s15	Left	PD34201	male	38	0.36	19	No
PD34201a_s18	Left	PD34201	male	38	0.41	17	No
PD34201a_s2	Left	PD34201	male	38	0.4	17	No
PD34201a_s20	Left	PD34201	male	38	0.38	16	No
PD34201a_s22	Left	PD34201	male	38	0.32	19	No
PD34201a_s24	Left	PD34201	male	38	0.36	17	No
PD34201a_s28	Left	PD34201	male	38	0.39	14	No
PD34201a_s31	Left	PD34201	male	38	0.39	24	No
PD34201a_s36	Left	PD34201	male	38	0.38	17	No
PD34201a_s4	Left	PD34201	male	38	0.36	18	No

PD34201a_s42	Left	PD34201	male	38	0.45	16	No
PD34201a_s43	Left	PD34201	male	38	0.39	18	No
PD34201a_s44	Left	PD34201	male	38	0.37	22	No
PD34201a_s45	Left	PD34201	male	38	0.39	20	No
PD34201a_s47	Left	PD34201	male	38	0.42	19	No
PD34201a_s6	Left	PD34201	male	38	0.43	17	No
PD34201a_s7	Left	PD34201	male	38	0.39	20	No
PD34201a_t18	Transverse	PD34201	male	38	0.42	17	No
PD34201a_t19	Transverse	PD34201	male	38	0.46	15	No
PD34201a_t20	Transverse	PD34201	male	38	0.43	16	No
PD34201a_t21	Transverse	PD34201	male	38	0.41	18	No
PD34201a_t22	Transverse	PD34201	male	38	0.43	18	No
PD34201a_t23	Transverse	PD34201	male	38	0.41	18	No
PD34201a_t28	Transverse	PD34201	male	38	0.42	19	No
PD34201a_t3	Transverse	PD34201	male	38	0.45	17	No
PD34201a_t30	Transverse	PD34201	male	38	0.41	19	No
PD34201a_t31	Transverse	PD34201	male	38	0.43	17	No
PD34201a_t32	Transverse	PD34201	male	38	0.4	14	No
PD34201a_t34	Transverse	PD34201	male	38	0.41	19	No
PD34201a_t35	Transverse	PD34201	male	38	0.43	18	No
PD34201a_t39	Transverse	PD34201	male	38	0.4	21	No
PD34201a_t41	Transverse	PD34201	male	38	0.4	18	No
PD34201a_t42	Transverse	PD34201	male	38	0.43	17	No
PD34201a_t44	Transverse	PD34201	male	38	0.42	19	No
PD34201a_t45	Transverse	PD34201	male	38	0.4	18	No
PD34201a_t46	Transverse	PD34201	male	38	0.41	19	No
PD34201a_t8	Transverse	PD34201	male	38	0.44	17	No
PD34202a_s12	Left	PD34202	male	13	0.35	18	No
PD34202a_s15	Left	PD34202	male	13	0.31	20	No
PD34202a_s27	Left	PD34202	male	13	0.36	12	No
PD34202a_s41	Left	PD34202	male	13	0.38	13	No
PD34202a_s43	Left	PD34202	male	13	0.3	17	No
PD34202a_s9	Left	PD34202	male	13	0.38	16	No
PD36719a_lo005	Left	OO13	male	60	0.42	12	No
PD36719a_lo008	Left	OO13	male	60	0.38	15	No
PD36719a_lo018	Right	OO13	male	60	0.42	20	No
PD36719a_lo022	Right	OO13	male	60	0.42	21	No
PD36719a_lo034	Transverse	OO13	male	60	0.47	13	No
PD36719a_lo048	Transverse	OO13	male	60	0.37	19	No

PD36719a_lo049	Left	0013	male	60	0.385	13	No
PD36719a_lo066	Right	0013	male	60	0.45	13	No
PD36719a_lo072	Right	0013	male	60	0.44	12	No
PD36813aa	Transverse	0094	female	66	0.46	12	No
PD36813aa11	Transverse	0094	female	66	0.45	14	No
PD36813aa12	Transverse	0094	female	66	0.36	17	No
PD36813aa16	Transverse	0094	female	66	0.35	16	No
PD36813aa2	Transverse	0094	female	66	0.4	14	No
PD36813aa7	Transverse	0094	female	66	0.33	15	No
PD36813ab10	Transverse	0099	male	66	0.39	18	No
PD36813ab4	Transverse	0099	male	66	0.41	15	No
PD36813ab5	Transverse	0099	male	66	0.47	15	No
PD36813ac15	Transverse	0251	female	71	0.43	18	No
PD36813ac18	Transverse	0251	female	71	0.39	18	No
PD36813ac2	Left	0251	female	71	0.43	31	No
PD36813ac4	Left	0251	female	71	0.43	28	No
PD36813ac7	Left	0251	female	71	0.4	31	No
PD36813ad17	Transverse	0189	female	62	0.44	22	No
PD36813ad2	Left	0189	female	62	0.38	33	No
PD36813ad8	Transverse	0189	female	62	0.44	17	No
PD36813ad9	Transverse	0189	female	62	0.43	18	No
PD36813ae	Transverse	0208	female	68	0.36	15	No
PD36813ae3	Transverse	0208	female	68	0.38	16	No
PD36813ae7	Transverse	0208	female	68	0.37	17	No
PD36813b4	Right	0251	female	71	0.45	12	No
PD36813b5	Right	0251	female	71	0.46	13	No
PD36813b6	Right	0251	female	71	0.44	13	No
PD36813c	Right	0208	female	68	0.44	13	No
PD36813c2	Right	0208	female	68	0.45	16	No
PD36813c3	Right	0208	female	68	0.45	13	No
PD36813d3	Right	0189	female	62	0.47	14	No
PD36813d5	Right	0189	female	62	0.47	14	No
PD36813e	Right	0187	female	60	0.47	14	No
PD36813e5	Right	0187	female	60	0.43	14	No
PD36813e6	Right	0187	female	60	0.47	14	No
PD36813g2	Right	0162	male	72	0.39	15	No
PD36813g4	Right	0162	male	72	0.42	18	No
PD36813h	Right	0132	female	67	0.47	14	No
PD36813h3	Right	0132	female	67	0.45	14	No

PD36813h5	Right	O132	female	67	0.47	15	No
PD36813i	Right	OO99	male	66	0.45	16	No
PD36813i4	Right	OO99	male	66	0.44	13	No
PD36813i6	Right	OO99	male	66	0.48	14	No
PD36813j	Right	OO94	female	66	0.46	12	No
PD36813j3	Right	OO94	female	66	0.44	12	No
PD36813j6	Right	OO94	female	66	0.5	11	No
PD36813k	Right	OO82	female	64	0.42	16	No
PD36813k3	Right	OO82	female	64	0.41	17	No
PD36813k5	Right	OO82	female	64	0.44	16	No
PD36813l	Right	OO35	male	66	0.41	17	No
PD36813l7	Right	OO35	male	66	0.46	13	No
PD36813l8	Right	OO35	male	66	0.47	15	No
PD36813m3	Right	OO23	male	66	0.46	14	No
PD36813m5	Right	OO23	male	66	0.44	15	No
PD36813m8	Right	OO23	male	66	0.33	17	No
PD36813n	Left	OO23	male	66	0.44	16	No
PD36813o2	Left	OO82	female	64	0.3	17	No
PD36813o9	Left	OO82	female	64	0.4	17	No
PD36813p	Left	OO94	female	66	0.43	17	No
PD36813q11	Left	OO99	male	66	0.35	17	No
PD36813q14	Left	OO99	male	66	0.38	17	No
PD36813r12	Left	O132	female	67	0.46	13	No
PD36813r14	Left	O132	female	67	0.44	16	No
PD36813s12	Left	O162	male	72	0.31	19	No
PD36813t20	Left	O187	female	60	0.39	15	No
PD36813u2	Transverse	O132	female	67	0.43	20	No
PD36813v4	Transverse	O162	male	72	0.32	21	No
PD36813x15	Transverse	O187	female	60	0.44	18	No
PD36813x16	Transverse	O187	female	60	0.46	18	No
PD36813y13	Transverse	OO39	male	68	0.42	16	No
PD36813y15	Transverse	OO39	male	68	0.47	16	No
PD36813y6	Transverse	OO39	male	68	0.47	14	No
PD36813y7	Transverse	OO39	male	68	0.5	12	No
PD36813z15	Transverse	OO82	female	64	0.42	16	No
PD36813z4	Transverse	OO82	female	64	0.4	15	No
PD36813z5	Transverse	OO82	female	64	0.43	15	No
PD36813z6	Transverse	OO82	female	64	0.45	15	No
PD36813z7	Transverse	OO82	female	64	0.35	15	No

PD36813z8	Transverse	O082	female	64	0.33	16	No
PD36814b2	Right	O007	male	64	0.38	11	Yes
PD36814b7	Right	O007	male	64	0.46	15	Yes
PD36814c2	Right	O008	female	64	0.45	13	Yes
PD36814c3	Right	O008	female	64	0.46	13	Yes
PD36814c4	Right	O008	female	64	0.45	11	Yes
PD36814d5	Right	O010	female	60	0.45	13	Yes
PD36814d6	Right	O010	female	60	0.43	13	Yes
PD36814d7	Right	O010	female	60	0.45	11	Yes
PD36814d8	Right	O010	female	60	0.46	13	Yes
PD36814e5	Right	O174	female	66	0.41	14	Yes
PD36814e6	Right	O174	female	66	0.4	14	Yes
PD36814e7	Right	O174	female	66	0.45	13	Yes
PD36814e8	Right	O174	female	66	0.45	13	Yes
PD36814f4	Right	O176	female	68	0.46	13	Yes
PD36814f8	Right	O176	female	68	0.45	14	Yes
PD36814g4	Right	O193	female	71	0.43	12	Yes
PD36814g7	Right	O193	female	71	0.47	14	Yes
PD36814g8	Right	O193	female	71	0.45	14	Yes
PD36814h2	Right	O225	male	66	0.5	9	Yes
PD36814h4	Right	O225	male	66	0.45	12	Yes
PD36814i	Right	O232	male	62	0.47	13	Yes
PD36814i3	Right	O232	male	62	0.45	12	Yes
PD36814i4	Right	O232	male	62	0.46	13	Yes
PD36814k2	Right	O244	male	68	0.45	16	Yes
PD36814k6	Right	O244	male	68	0.47	14	Yes
PD36814k7	Right	O244	male	68	0.47	14	Yes
PD36814k8	Right	O244	male	68	0.5	14	Yes
PD36814l2	Right	O333	female	68	0.5	13	Yes
PD36814l4	Right	O333	female	68	0.47	10	Yes
PD36814l7	Right	O333	female	68	0.47	13	Yes
PD36814l8	Right	O333	female	68	0.5	13	Yes
PD36814m5	Right	O337	male	66	0.45	10	Yes
PD36814m8	Right	O337	male	66	0.45	11	Yes
PD37226b5	Left	O008	female	64	0.4	12	Yes
PD37226b6	Left	O008	female	64	0.39	12	Yes
PD37226c5	Left	O010	female	60	0.45	10	Yes
PD37226c6	Left	O010	female	60	0.46	13	Yes
PD37226c7	Left	O010	female	60	0.45	15	Yes

PD37226c8	Left	O010	female	60	0.44	12	Yes
PD37226d4	Left	O174	female	66	0.36	12	Yes
PD37226d5	Left	O174	female	66	0.33	11	Yes
PD37226d6	Left	O174	female	66	0.38	11	Yes
PD37226e4	Left	O176	female	68	0.39	12	Yes
PD37226e5	Left	O176	female	68	0.42	12	Yes
PD37226f5	Left	O193	female	71	0.42	11	Yes
PD37226f6	Left	O193	female	71	0.38	11	Yes
PD37226f7	Left	O193	female	71	0.33	14	Yes
PD37226g5	Left	O225	male	66	0.41	10	Yes
PD37226g6	Left	O225	male	66	0.44	12	Yes
PD37226g7	Left	O225	male	66	0.42	12	Yes
PD37226h4	Left	O232	male	62	0.47	12	Yes
PD37226h7	Left	O232	male	62	0.43	16	Yes
PD37226h8	Left	O232	male	62	0.38	15	Yes
PD37226i5	Left	O333	female	68	0.45	11	Yes
PD37226i6	Left	O333	female	68	0.42	12	Yes
PD37226i7	Left	O333	female	68	0.43	13	Yes
PD37226i8	Left	O333	female	68	0.38	12	Yes
PD37226j4	Left	O337	male	66	0.31	12	Yes
PD37226j5	Left	O337	male	66	0.38	13	Yes
PD37226j6	Left	O337	male	66	0.45	11	Yes
PD37226j7	Left	O337	male	66	0.47	13	Yes
PD37226j8	Left	O337	male	66	0.38	16	Yes
PD37226k2	Left	O340	male	72	0.4	15	Yes
PD37226k5	Left	O340	male	72	0.37	15	Yes
PD37226k6	Left	O340	male	72	0.38	14	Yes
PD37226k8	Left	O340	male	72	0.37	17	Yes
PD37226l5	Left	O395	male	60	0.36	14	Yes
PD37226l6	Left	O395	male	60	0.42	14	Yes
PD37226l7	Left	O395	male	60	0.4	12	Yes
PD37226l8	Left	O395	male	60	0.4	14	Yes
PD37226m5	Left	O401	male	62	0.41	13	Yes
PD37226m7	Left	O401	male	62	0.42	14	Yes
PD37226m8	Left	O401	male	62	0.4	16	Yes
PD37226o4	Transverse	O337	male	66	0.36	26	Yes
PD37226o5	Transverse	O337	male	66	0.44	23	Yes
PD37226p7	Left	O337	male	66	0.48	19	Yes
PD37265b	Transverse	O007	male	64	0.47	14	Yes

PD37265b7	Transverse	0007	male	64	0.5	11	Yes
PD37265c2	Transverse	0008	female	64	0.42	11	Yes
PD37265c3	Transverse	0008	female	64	0.43	13	Yes
PD37265c5	Transverse	0008	female	64	0.45	16	Yes
PD37265d	Transverse	0010	female	60	0.44	14	Yes
PD37265d5	Transverse	0010	female	60	0.44	12	Yes
PD37265d8	Transverse	0010	female	60	0.5	11	Yes
PD37265e	Transverse	O174	female	66	0.43	14	Yes
PD37265e5	Transverse	O174	female	66	0.45	13	Yes
PD37265f	Transverse	O176	female	68	0.4	13	Yes
PD37265f2	Transverse	O176	female	68	0.45	13	Yes
PD37265f4	Transverse	O176	female	68	0.46	12	Yes
PD37265g6	Transverse	O193	female	71	0.42	14	Yes
PD37265g7	Transverse	O193	female	71	0.38	14	Yes
PD37265g8	Transverse	O193	female	71	0.42	12	Yes
PD37265h5	Transverse	O225	male	66	0.41	14	Yes
PD37265h6	Transverse	O225	male	66	0.44	14	Yes
PD37265h8	Transverse	O225	male	66	0.45	13	Yes
PD37265i2	Transverse	O232	male	62	0.46	10	Yes
PD37265i7	Transverse	O232	male	62	0.43	12	Yes
PD37265k	Transverse	O244	male	68	0.46	10	Yes
PD37265k2	Transverse	O244	male	68	0.45	10	Yes
PD37265k3	Transverse	O244	male	68	0.43	11	Yes
PD37265l2	Transverse	O333	female	68	0.46	12	Yes
PD37265l6	Transverse	O333	female	68	0.46	11	Yes
PD37265m3	Transverse	O337	male	66	0.37	12	Yes
PD37265m4	Transverse	O337	male	66	0.42	12	Yes
PD37266b_lo0004	Left	PD37266	female	67	0.35	20	No
PD37266b_lo0005	Left	PD37266	female	67	0.42	19	No
PD37266b_lo0006	Left	PD37266	female	67	0.38	18	No
PD37266b_lo0007	Left	PD37266	female	67	0.31	20	No
PD37266b_lo0008	Left	PD37266	female	67	0.39	22	No
PD37266b_lo0017	Left	PD37266	female	67	0.46	16	No
PD37266b_lo0023	Left	PD37266	female	67	0.38	13	No
PD37266c_lo0010	Ileum	PD37266	female	67	0.32	18	No
PD37266c_lo0012	Ileum	PD37266	female	67	0.41	19	No
PD37266c_lo0014	Ileum	PD37266	female	67	0.36	18	No
PD37266c_lo0016	Ileum	PD37266	female	67	0.43	19	No
PD37266c_lo0018	Ileum	PD37266	female	67	0.47	13	No

PD37266c_lo0023	Ileum	PD37266	female	67	0.47	7	No
PD37266d_lo0002	Right	PD37266	female	67	0.5	8	No
PD37266d_lo0010	Right	PD37266	female	67	0.47	11	No
PD37266d_lo0012	Right	PD37266	female	67	0.4	10	No
PD37266d_lo0014	Right	PD37266	female	67	0.43	11	No
PD37266e_lo0008	Transverse	PD37266	female	67	0.45	19	No
PD37266e_lo0010	Transverse	PD37266	female	67	0.46	7	No
PD37449c_lo0001	Transverse	PD37449	female	36	0.46	17	No
PD37449c_lo0009	Transverse	PD37449	female	36	0.44	18	No
PD37449c_lo0014	Transverse	PD37449	female	36	0.45	19	No
PD37449c_lo0017	Transverse	PD37449	female	36	0.43	16	No
PD37449d_lo0001	Left	PD37449	female	36	0.46	17	No
PD37449d_lo0002	Left	PD37449	female	36	0.44	17	No
PD37449d_lo0003	Left	PD37449	female	36	0.42	19	No
PD37449d_lo0006	Left	PD37449	female	36	0.36	19	No
PD37449d_lo0011	Left	PD37449	female	36	0.43	12	No
PD37449d_lo0012	Left	PD37449	female	36	0.39	9	No
PD37449d_lo0017	Left	PD37449	female	36	0.44	16	No
PD37449e_lo0001	Right	PD37449	female	36	0.45	8	No
PD37449e_lo0002	Right	PD37449	female	36	0.44	18	No
PD37449e_lo0003	Right	PD37449	female	36	0.44	19	No
PD37449e_lo0004	Right	PD37449	female	36	0.41	20	No
PD37449e_lo0006	Right	PD37449	female	36	0.46	7	No
PD37449e_lo0008	Right	PD37449	female	36	0.45	20	No
PD37449e_lo0010	Right	PD37449	female	36	0.42	18	No
PD37449e_lo0014	Right	PD37449	female	36	0.44	20	No
PD37449e_lo0015	Right	PD37449	female	36	0.4	8	No
PD37449f_lo0002	Ileum	PD37449	female	36	0.45	17	No
PD37449f_lo0006	Ileum	PD37449	female	36	0.38	17	No
PD37449f_lo0008	Ileum	PD37449	female	36	0.35	13	No
PD37449f_lo0010	Ileum	PD37449	female	36	0.39	17	No
PD37449f_lo0011	Ileum	PD37449	female	36	0.42	13	No
PD37449f_lo0016	Ileum	PD37449	female	36	0.44	16	No
PD37449f_lo0017	Ileum	PD37449	female	36	0.42	16	No
PD37449f_lo0019	Ileum	PD37449	female	36	0.43	16	No
PD37449f_lo0022	Ileum	PD37449	female	36	0.44	19	No
PD37449f_lo0023	Ileum	PD37449	female	36	0.43	15	No
PD37457b4	Right	O395	male	60	0.31	10	Yes
PD37457c4	Right	O401	male	62	0.46	12	Yes

PD37457e6	Right	O340	male	72	0.45	14	Yes
PD37457f4	Transverse	O340	male	72	0.43	13	Yes
PD37457f7	Transverse	O340	male	72	0.4	9	Yes
PD37457g5	Transverse	O395	male	60	0.45	13	Yes
PD37457h2	Transverse	O401	male	62	0.4	10	Yes
PD37457h5	Transverse	O401	male	62	0.5	12	Yes
PD37457i4	Transverse	O438	female	62	0.47	13	Yes
PD37457i5	Transverse	O438	female	62	0.5	8	Yes
PD37457j7	Left	O438	female	62	0.33	17	Yes
PD37457j8	Left	O438	female	62	0.47	12	Yes
PD37509b8	Right	300	female	15	0.48	17	No
PD37509b9	Right	300	female	15	0.47	15	No
PD37510b4	Left	312	female	11	0.42	8	No
PD37510b7	Left	312	female	11	0.4	9	No
PD37510b8	Left	312	female	11	0.37	12	No
PD37512a11	Left	O311	male	68	0.44	18	No
PD37512a4	Transverse	O311	male	68	0.405	18	No
PD37512a5	Transverse	O311	male	68	0.44	17	No
PD37512b7	Right	O311	male	68	0.47	12	No
PD37513a13	Left	O325	male	62	0.33	14	No
PD37513a2	Transverse	O325	male	62	0.45	16	No
PD37513a20	Left	O325	male	62	0.45	14	No
PD37513a21	Left	O325	male	62	0.45	14	No
PD37513a3	Transverse	O325	male	62	0.44	17	No
PD37513b5	Right	O325	male	62	0.43	7	No
PD37513b7	Right	O325	male	62	0.44	12	No
PD37513b8	Right	O325	male	62	0.45	14	No
PD37514a	Transverse	O342	male	62	0.4	17	No
PD37514a2	Transverse	O342	male	62	0.43	16	No
PD37514a3	Transverse	O342	male	62	0.41	16	No
PD37514b3	Right	O342	male	62	0.47	11	No
PD37514b7	Right	O342	male	62	0.41	15	No
PD37514b8	Right	O342	male	62	0.45	9	No
PD37590b_lo0010	Right	PD37590	Female	55	0.45	25	No
PD37590b_lo0015	Right	PD37590	Female	55	0.43	23	No
PD37590b_lo0018	Right	PD37590	Female	55	0.43	32	No
PD37590b_lo0030	Right	PD37590	Female	55	0.34	28	No
PD37590b_lo0033	Right	PD37590	Female	55	0.45	16	No
PD37590b_lo0041	Right	PD37590	Female	55	0.41	22	No

PD37590b_lo0051	Right	PD37590	Female	55	0.42	25	No
PD37590b_lo0052	Right	PD37590	Female	55	0.36	25	No
PD37590b_lo0053	Right	PD37590	Female	55	0.44	23	No
PD37590b_lo0058	Right	PD37590	Female	55	0.41	24	No
PD37590b_lo0074	Right	PD37590	Female	55	0.45	25	No
PD37590b_lo0075	Right	PD37590	Female	55	0.42	31	No
PD37590b_lo0090	Right	PD37590	Female	55	0.43	33	No
PD37590b_lo0092	Right	PD37590	Female	55	0.45	15	No
PD37590b_lo0107	Right	PD37590	Female	55	0.39	32	No
PD37590b_lo0116	Transverse	PD37590	Female	55	0.43	23	No
PD37590b_lo0117	Transverse	PD37590	Female	55	0.42	18	No
PD37590c_lo0001	Transverse	PD37590	Female	55	0.41	27	No
PD37590c_lo0005	Transverse	PD37590	Female	55	0.41	27	No
PD37590c_lo0009	Transverse	PD37590	Female	55	0.43	20	No
PD37590c_lo0019	Right	PD37590	Female	55	0.46	25	No
PD37590c_lo0021	Transverse	PD37590	Female	55	0.45	26	No
PD37590c_lo0025	Transverse	PD37590	Female	55	0.42	23	No
PD37590c_lo0032	Transverse	PD37590	Female	55	0.44	21	No
PD37590c_lo0034	Transverse	PD37590	Female	55	0.35	28	No
PD37590c_lo0040	Transverse	PD37590	Female	55	0.41	26	No
PD37590c_lo0048	Transverse	PD37590	Female	55	0.41	23	No
PD37590d_lo0012	Left	PD37590	Female	55	0.4	26	No