

Genes	Function	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
RB1	Cell cycle																																						
CDKN2A	Cell cycle																																						
EGFR	Proliferation																																						
TP53	Cell cycle																																						
ATR	Cell cycle																																						
TERT	Proliferation																																						
PIK3CB	Proliferation																																						
NOTCH1	Tumorigenesis																																						
KRAS	Proliferation																																						
CDK6	Cell cycle																																						
CDK4	Cell cycle																																						
MSH2	DNA repair																																						
RET	Tumorigenesis																																						
AKT3	Proliferation																																						
SMAD4	Proliferation																																						
APOBEC3B	Cell cycle																																						
BRCA2	DNA repair																																						
MYC	Proliferation																																						
ALK	Tumorigenesis																																						
APC	Tumorigenesis																																						
POLE	DNA repair																																						
RICTOR	Proliferation																																						
MET	Tumorigenesis																																						
PICTOR	Proliferation																																						
mTOR	Proliferation																																						
KMT2A	Epigenetics																																						
ERBB3	Proliferation																																						
ARID1A	Epigenetics																																						
LRP1B	Cell cycle																																						
MLH1	DNA repair																																						
KIT	Proliferation																																						
ATM	DNA repair																																						
STK11	Tumorigenesis																																						
NTRK1	Proliferation																																						
PTEN	Proliferation																																						
ZNF141	DNA repair																																						
KDR	Proliferation																																						
BRD3	Epigenetics																																						
EPHA3	Tumorigenesis																																						
SMO	Tumorigenesis																																						
ABL2	Tumorigenesis																																						
PTCH1	Tumorigenesis																																						
ZNF563	DNA repair																																						
ERBB4	Proliferation																																						
HRAS	Proliferation																																						
EPPK1	Immunology																																						
ARAF	Proliferation																																						
NF1	Tumorigenesis																																						
KRT32	Proliferation																																						

Supplementary Figure S1. Forty-nine genetic alterations in brain metastasis samples which were analyzed by Next-Generation Sequencing and fluorescent activity of 5-ALA.