

**Table S4.** Decision-tree marker panel for brain cancer and normal transcriptome classification.

Gene <i>i</i>		Gene <i>j</i>		Brain phenotype binary signature						
Gene symbol	Affymetrix Probe ID	Gene symbol	Affymetrix Probe ID	EPN	GBM	MDL	MNG	OLG	PA	normal
<i>PRPF40A</i>	218053_at	<i>PURA</i>	204021_s_at	1	1	1	1	1	1	0
<i>NRCAM</i>	204105_s_at	<i>ISLR</i>	207191_s_at	1	1	1	0	1	1	-
<i>SRI</i>	208920_at	<i>NBEA</i>	221207_s_at	1	1	0	-	1	1	-
<i>NUP62CL</i>	220520_s_at	<i>OR10H3</i>	208520_at	1	0	-	-	0	0	-
<i>DDX27</i>	215693_x_at	<i>KCNMA1</i>	221584_s_at	-	1	-	-	1	0	-
<i>FLNA</i>	214752_x_at	<i>TNKS2</i>	218228_s_at	-	1	-	-	0	-	-

For each classifier decision rule (i.e. Is Gene *i* > Gene *j* ?), 1 and 0 delineates ‘true’ and ‘false’, respectively, and ‘-’ denotes that the outcome is not used for classification. The vertical binary pattern under each class label corresponds to a phenotype-specific molecular signature.