

**Supplementary Table S1:** T1 and T2 values from normal-appearing tissue and brain metastases

Tissue	T1 (ms)			T2 (ms)		
	Mean $\pm$ SD	Median [min, max]	CI (95%) [Upper, Lower]	Mean $\pm$ SD	Median [min, max]	CI [Upper, Lower]
<b>WM</b>	840 $\pm$ 42	842 [742, 919]	[864, 817]	78 $\pm$ 4	77 [73, 85]	[80, 75]
<b>GM</b>	1205 $\pm$ 31	1204 [1155, 1266]	[1223, 1188]	108 $\pm$ 11	107 [96, 132]	[114-103]
<b>CSF</b>	4233 $\pm$ 406	4190 [3610, 4990]	[4458, 4009]	442 $\pm$ 56	459 [355, 500]	[473, 411]
<b>BM-Untreated</b>	2035 $\pm$ 278	1957 [1792, 2435]	[2478, 1593]	168 $\pm$ 47	169 [110, 223]	[243, 92]
<b>BM-Treated</b>	2163 $\pm$ 258	2202 [1629, 2558]	[2296, 2030]	141 $\pm$ 40	136 [96, 226]	[161, 120]

**Supplementary Table S2:** Comparison of our MRF estimated T1 and T2 values from normal-appearing tissue and brain metastases with the published study.

Tissue	Metric	Current Study	MAGiC [59]	MRF [26]	MRF [32]	MRF [30]	MRF [36]	Other [24, 61–63]
<b>WM</b>	T1 (ms)	840±42	701±39	685±33	954±15.4	~800-1000	911±39	608-756
	T2 (ms)	78±4	64±4	65±4	39±1	~50-70	72±6	56-81
<b>GM</b>	T1 (ms)	1205±31	1143±28	1180±104	1372±13	~1200-1350	-	998-1304
	T2 (ms)	108±11	78±2	97±6	53±1	~60-120	-	78-98
<b>CSF</b>	T1 (ms)	4233±406	4206±226	4880±379	2330±70	~1800-2200	-	4103-5400
	T2 (ms)	442±56	390±93	550±251	214±23	~-110-240	-	1800-2460
<b>Untreated BM</b>	T1 (ms)	2035±278	1868±298	-	-	-	1324±273	-
	T2 (ms)	167±47	100±17	-	-	-	105±27	-
<b>Treated BM</b>	T1 (ms)	2163±218	2211±269	-	-	-	-	-
	T2 (ms)	140±40	114±20	-	-	-	-	-