

Table S1 Interobserver reproducibility of diffusion parameters (baseline) in different fitting models

Fitting Models	Parameters	CV (%)	P value
Mono-exponential DWI	ADC ₁	6.15	0.590
	ADC ₂	2.18	0.122
IVIM	D	18.62	0.855
	D*	15.65	0.284
	<i>f</i>	12.13	0.995
	<i>f</i> D*	22.74	0.423
SEM	DDC	3.33	0.796
	α	3.45	0.643
DKI	D _k	7.18	0.154
	K	8.65	0.132

CV, coefficient of variation; DWI, diffusion-weighted imaging; ADC, apparent diffusion coefficient; IVIM, intravoxel incoherent motion; SEM, stretched exponential model; DKI, diffusion kurtosis imaging; D, true diffusion coefficient; D*, pseudo-diffusion coefficient; *f*, perfusion fraction; *f*D*, relative perfusion (*f*×D*); DDC, distributed diffusion coefficient; α , the stretching exponent; D_k, the DKI-derived diffusion coefficient; K, kurtosis.

Table S2 Correlations between diffusion parameters and microvessel density

Fitting Model	Parameter	r value (P value)			
		Day 1	Day 3	Day 7	Day 14
Mono-exponential DWI	Δ ADC ₁	−0.150 (0.354)	−0.237 (0.236)	−0.029 (0.467)	0.343 (0.180)
	Δ ADC ₂	−0.234 (0.264)	−0.283 (0.195)	−0.429 (0.210)	−0.294 (0.213)
IVIM	Δ D	0.266 (0.200)	−0.288 (0.190)	0.700 (0.117)	−0.555 (0.060)
	Δ D*	0.559 (0.031 [†])	−0.556 (0.038 [†])	0.294 (0.175)	−0.600 (0.210)
	Δ <i>f</i>	−0.021 (0.478)	0.164 (0.314)	0.100 (0.475)	0.345 (0.180)
	Δ <i>f</i> D*	0.490 (0.055)	−0.428 (0.092)	0.200 (0.392)	0.244 (0.263)
SEM	Δ DDC	−0.583 (0.054)	−0.547 (0.433)	−0.143 (0.401)	−0.050 (0.443)
DKI	Δ D _k	−0.250 (0.260)	−0.320 (0.164)	−0.143 (0.401)	−0.840 (0.003 [†])

[†], P<0.05. DWI, diffusion-weighted imaging; ADC, apparent diffusion coefficient; IVIM, intravoxel incoherent motion; SEM, stretched exponential model; DKI, diffusion kurtosis imaging; D, true diffusion coefficient; D*, pseudo-diffusion coefficient; *f*, perfusion fraction; *f*D*, relative perfusion (*f*×D*); DDC, distributed diffusion coefficient; α , the stretching exponent; D_k, the DKI-derived diffusion coefficient; K, kurtosis.

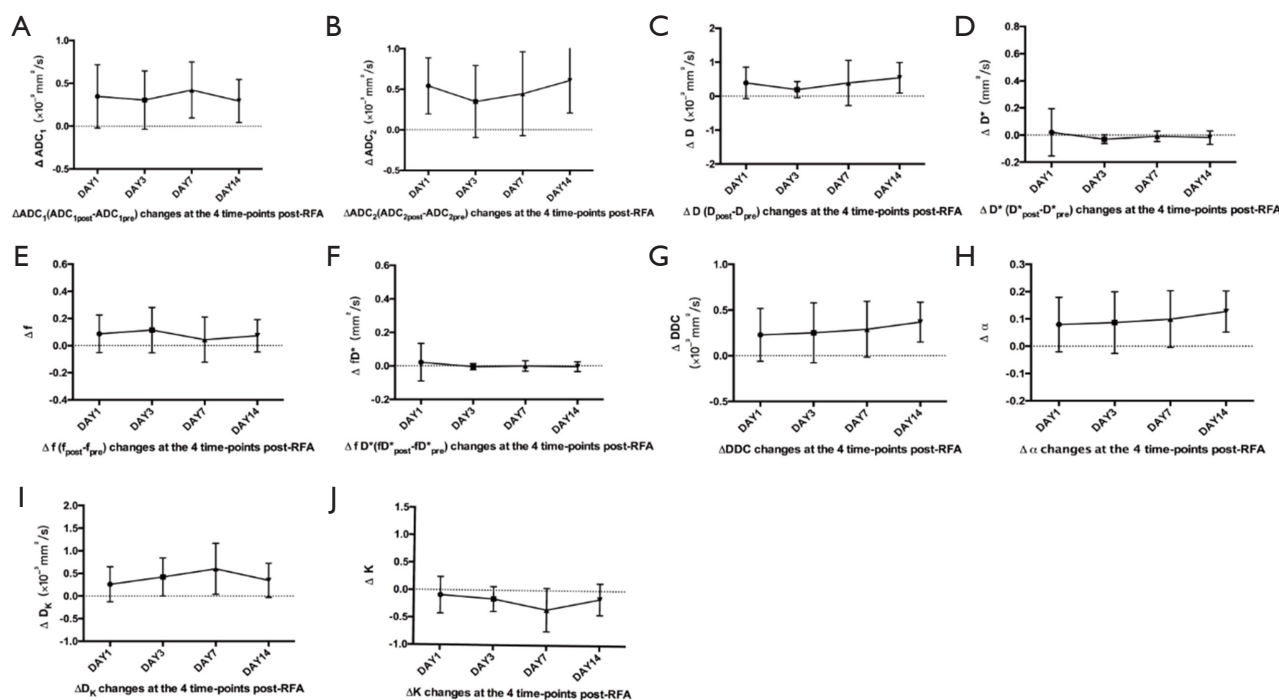


Figure S1 Post-RFA temporal profiles (days 1, 3, 7 and 14) of diffusion parameters including (A) ΔADC_1 ($b=0$, 800 s/mm^2), (b) ΔADC_2 ($b=0$, 500 s/mm^2), (C) ΔD , (D) ΔD^* , (E) Δf , (F) ΔfD^* , (G) ΔDDC , (H) $\Delta \alpha$, (I) ΔD_k , (J) ΔK in a rabbit VX2 lung tumor model. ADC, apparent diffusion coefficient; D, true diffusion coefficient; D^* , pseudo-diffusion coefficient; f , perfusion fraction; fD^* , relative perfusion ($f \times D^*$); DDC, distributed diffusion coefficient; α , the stretching exponent; D_k , the DKI-derived diffusion coefficient; K , kurtosis.

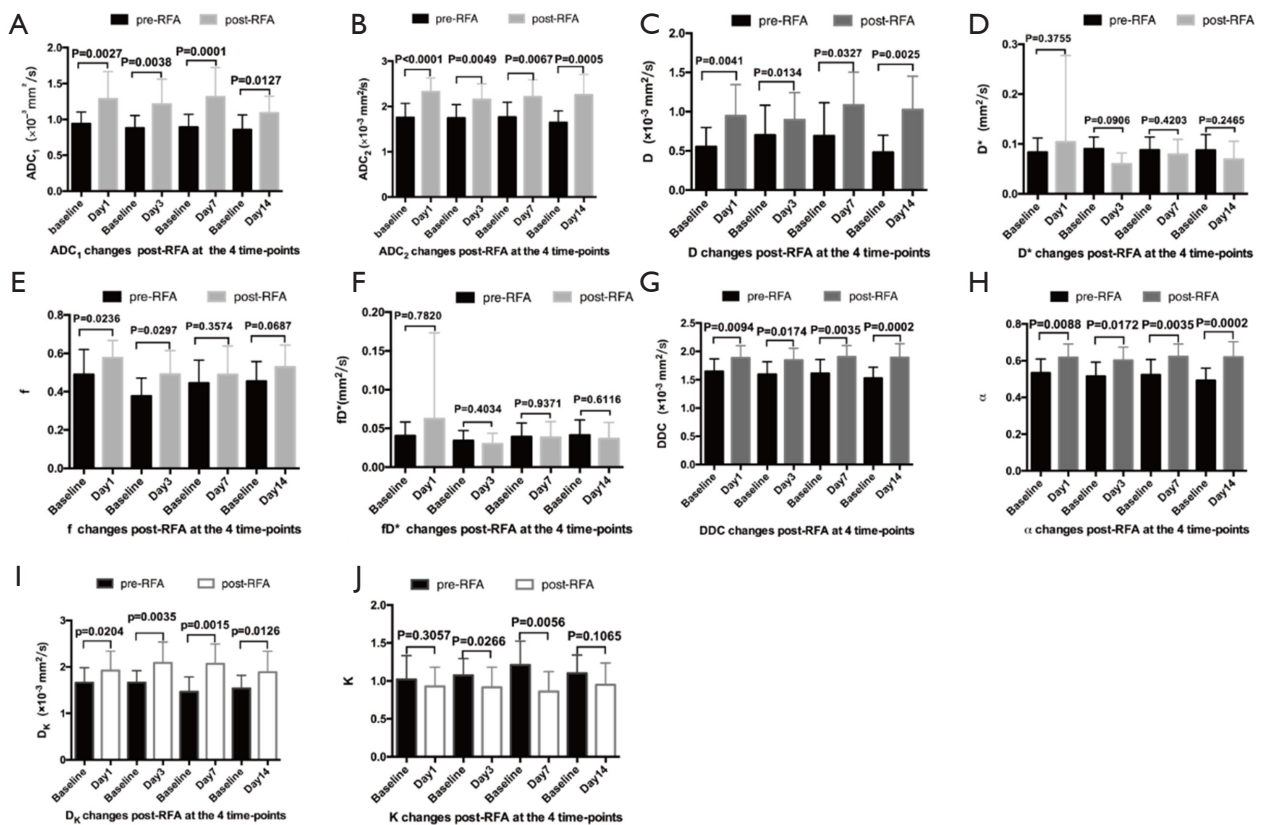


Figure S2 Column graphs showing the pre- and post-RFA changes of diffusion parameters including (A) ADC₁ ($b=0$, 800 s/mm^2), (B) ADC₂ ($b=0$, 500 s/mm^2), (C) D, (D) D*, (E) f , (F) fD^* , (G) DDC, (H) α , (I) D_k, (J) K in rabbit VX2 lung tumors across four time-points (days 1, 3, 7 and 14). ADC, apparent diffusion coefficient; D, true diffusion coefficient; D*, pseudo-diffusion coefficient; f , perfusion fraction; fD^* , relative perfusion ($f \times D^*$); DDC, distributed diffusion coefficient; α , the stretching exponent; D_k, the DKI-derived diffusion coefficient; K, kurtosis.