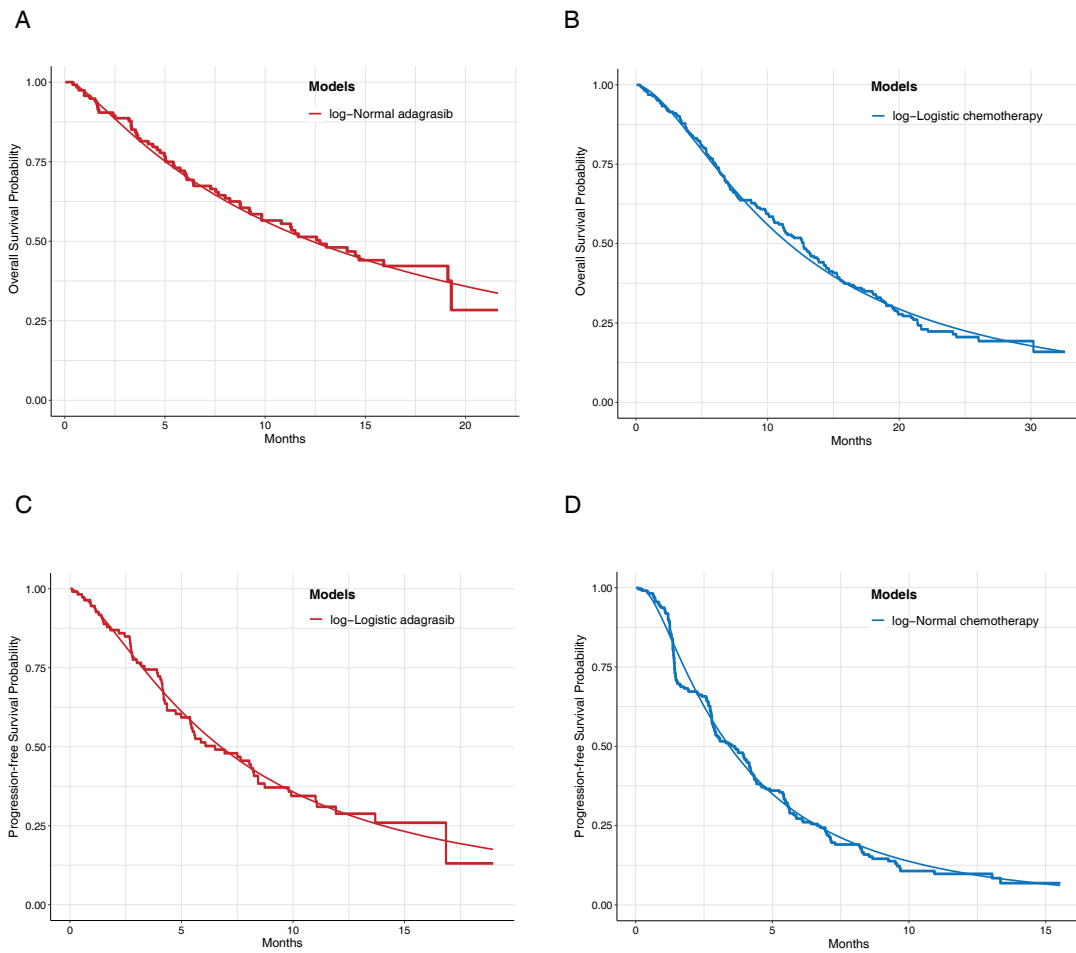


**Figure S1** The partitioned survival model simulated with three health states: progression-free survival, progressive disease and death.



**Figure S2** Estimated best-fitting survival curves for overall survival (A, B) and progression-free survival (C, D) derived from the clinical trials.

**Table S1** AIC and BIC statistics for alternate parametric survival distributions

Distribution	PFS				OS			
	Adagrasib group		Chemotherapy group		Adagrasib group		Chemotherapy group	
	AIC	BIC	AIC	BIC	AIC	BIC	AIC	BIC
Exponential	446.9978	449.7163	934.2212	937.6766	486.8410	489.5946	1272.833	1276.289
Gamma	446.7049	452.1419	922.5097	929.4203	487.9410	493.4482	1265.255	1272.165
Gengamma	448.0090	456.1645	909.9284	920.2944	488.3901	496.6508	1266.435	1276.801
Gompertz	448.7505	454.1875	936.0396	942.9503	488.7978	494.3050	1271.896	1278.807
Weibull	447.2120	452.6490	927.7849	934.6955	488.2065	493.7137	1266.513	1273.424
Log-logistic	445.4392	450.8762	909.4658	916.3765	487.1059	492.6131	1265.270	1272.180
Log-normal	449.4450	454.8820	907.9839	914.8946	486.6442	492.1513	1271.977	1278.888

**Table S2** Background mortality rate

Age	Background mortality rate	Age	Background mortality rate	Age	Background mortality rate
50	0.005308	67	0.017853	84	0.080609
51	0.005686	68	0.019122	85	0.089139
52	0.006118	69	0.020526	86	0.099586
53	0.006620	70	0.021919	87	0.111021
54	0.007184	71	0.023536	88	0.123484
55	0.007766	72	0.025372	89	0.137001
56	0.008369	73	0.027616	90	0.151584
57	0.009042	74	0.029889	91	0.167229
58	0.009795	75	0.033726	92	0.183913
59	0.010606	76	0.036933	93	0.201590
60	0.011467	77	0.041016	94	0.220190
61	0.012333	78	0.044758	95	0.239623
62	0.013173	79	0.049530	96	0.259772
63	0.013981	80	0.054120	97	0.280504
64	0.014798	81	0.059483	98	0.301662
65	0.015666	82	0.065401	99	0.323082
66	0.016726	83	0.072224	100	1

**Table S3** Comparison of mPFS and mOS: clinical trial observations *vs.* model estimates

Treatment	Model	Clinical trial	Difference	Accuracy (%)
Median progression-free survival (months)				
Adagrasib group	6.5	6.5	0	100
Chemotherapy group	3.6	3.6	0	100
Median overall survival (months)				
Adagrasib group	12.6	12.6	0	100
Chemotherapy group	12.3	12.3	0	100