Supplementary Figure 1. Immune cell infiltration differences between low-risk groups and high-risk groups of MM in MMRF-COMMPASS. (**A**) Relative proportions of immune cells between different groups. (**B**) Vioplot visualization of significantly different proportions of immune cells between different groups (*<0.05, **<0.01, and ***<0.001).

A MMRF

	P-value	Hazard ratio
Age	<0.001	1.034(1.018−1.050)
Gender	0.037	1.428(1.022−1.996)
Stage	<0.001	1.973(1.600−2.433)
Signature	<0.001	1.277(1.228−1.327)

B MMRF

	P-value	Hazard ratio
Age	<0.001	1.030(1.014−1.047)
Gender	0.216	1.239(0.883−1.738)
Stage	<0.001	1.719(1.384−2.135)
Signautre	<0.001	1.275(1.222−1.329)

C GSE136337

	P-value	Hazard ratio
Age	<0.001	1.043(1.025−1.062)
Gender	0.113	0.788(0.586−1.058)
Stage	<0.001	1.663(1.386−1.995)
Signautre	<0.001	1.951(1.523−2.499)

D GSE136337

|	P-value	Hazard ratio
Age	<0.001	1.047(1.027−1.067)
Gender	0.150	0.802(0.594−1.083)
Stage	<0.001	1.481(1.230−1.782)
Signautre	<0.001	1.835(1.421−2.369)

Supplementary Figure 2. Identification of independent risk factors for MM based on univariate and multivariate analysis. (**A**) Univariate analysis for MMRF. (**B**) Multivariate analysis for MMRF. (**C**) Univariate analysis for GSE136377. (**D**) Multivariate analysis for GSE136377.
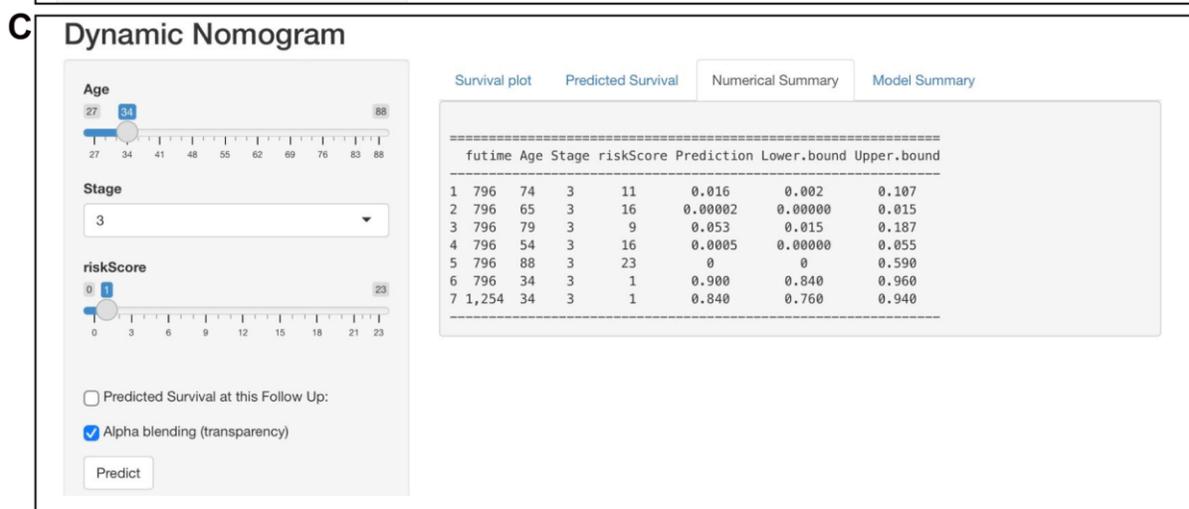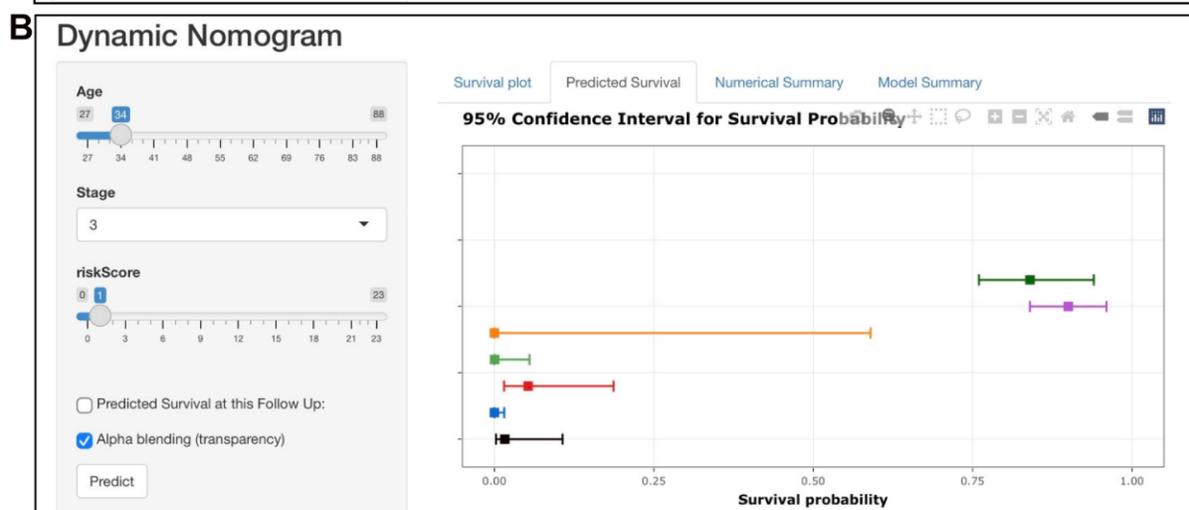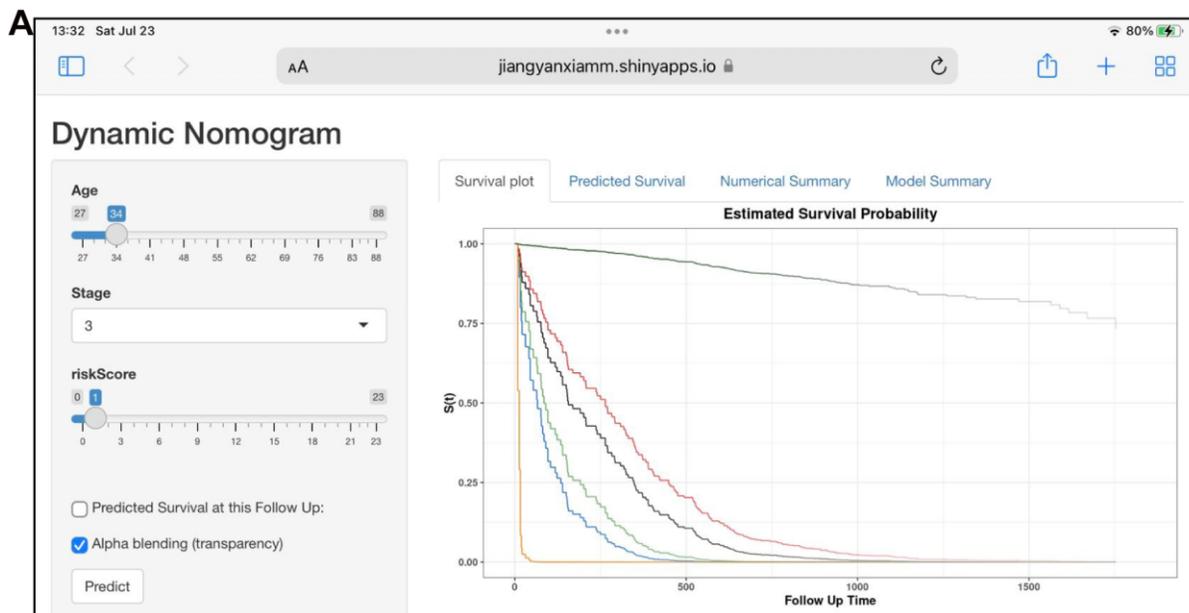
Supplementary Figure 3. Predicting OS of MM patients via a web-based dynamic nomogram (https://jiangyanxiamm.shinyapps.io/MMprognosis/). (**A**) Web survival rate calculator. (**B**) 95% confidence interval of the survival probability. (**C**) Numerical summary of different cases.