

Supplementary Table S1. Correlation of *ACTN4* gene status with clinicopathological characteristics (US cohort).

Characteristics	Total	<i>ACTN4</i> FISH		<i>P</i> value*
		NCN	CNI	
Total	261	238	23	
Age				
≤ 50	61	58	3	0.304
> 50	200	180	20	
Histology				
Invasive ductal carcinoma	235	213	22	0.487
Others	26	25	1	
Histological grade				
1 or 2	233	216	17	0.024
3	28	22	6	
Nuclear grade				
1 or 2	226	210	16	0.021
3	35	28	7	
Adjuvant chemotherapy				
Yes	24	23	1	0.705
No	237	215	22	
Hormone therapy				
Yes	87	75	12	0.062
No	174	163	11	

Abbreviations: FISH, fluorescence *in situ* hybridization; NCN, normal copy number; CNI, copy number increase.

*Fisher's exact test. *P* values of < 0.05 are shown in bold.

Supplementary Table S2. Cox proportional hazards model analysis of factors associated with recurrence (US cohort).

Characteristics	Univariate analysis			Multivariate analysis		
	Hazard Ratio	95% CI	<i>P</i> value*	Hazard Ratio	95% CI	<i>P</i> value*
Age						
≤ 50/> 50	0.77	0.34-1.76	0.53			
Histology						
IDC/others	1.12	0.34-3.71	0.86			
Histological grade						
1-2/3	1.34	0.46-3.89	0.59			
Nuclear grade						
1-2/3	1.07	0.37-3.09	0.9			
ACTN4 FISH						
NCN/CNI	2.73	1.03-7.24	0.04			

Abbreviations: IDC, intraductal carcinoma; FISH, fluorescence *in situ* hybridization; NCN, normal copy number; CNI, copy number increase; CI, confidence interval.

*Cox regression analysis. *P* values of < 0.05 are shown in bold.

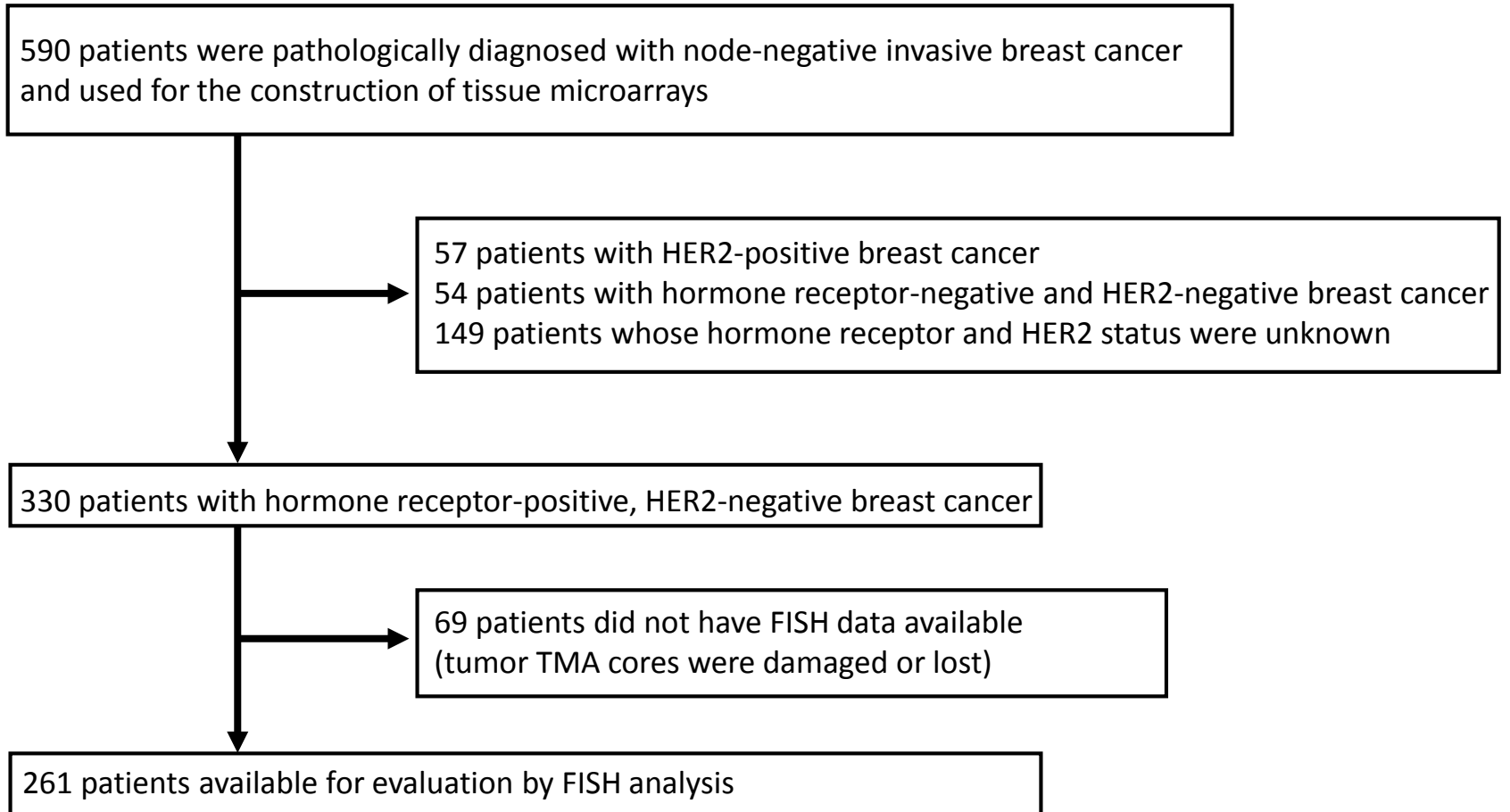
Supplementary Table S3. Cox proportional hazards model analysis of factors associated with death (US cohort).

Characteristics	Univariate analysis			Multivariate analysis		
	Hazard Ratio	95% CI	<i>P</i> value*	Hazard Ratio	95% CI	<i>P</i> value*
Age						
≤ 50/> 50	0.7	0.24-2.00	0.5			
Histology						
IDC/others	1.36	0.31-5.99	0.68			
Histological grade						
1-2/3	1.87	0.53-6.58	0.33			
Nuclear grade						
1-2/3	1.45	0.41-5.11	0.56			
ACTN4 FISH						
NCN/CNI	4.01	1.29-12.49	0.016			

Abbreviations: IDC, intraductal carcinoma; FISH, fluorescence *in situ* hybridization; NCN, normal copy number; CNI, copy number increase; CI, confidence interval.

*Cox regression analysis. *P* values of < 0.05 are shown in bold.

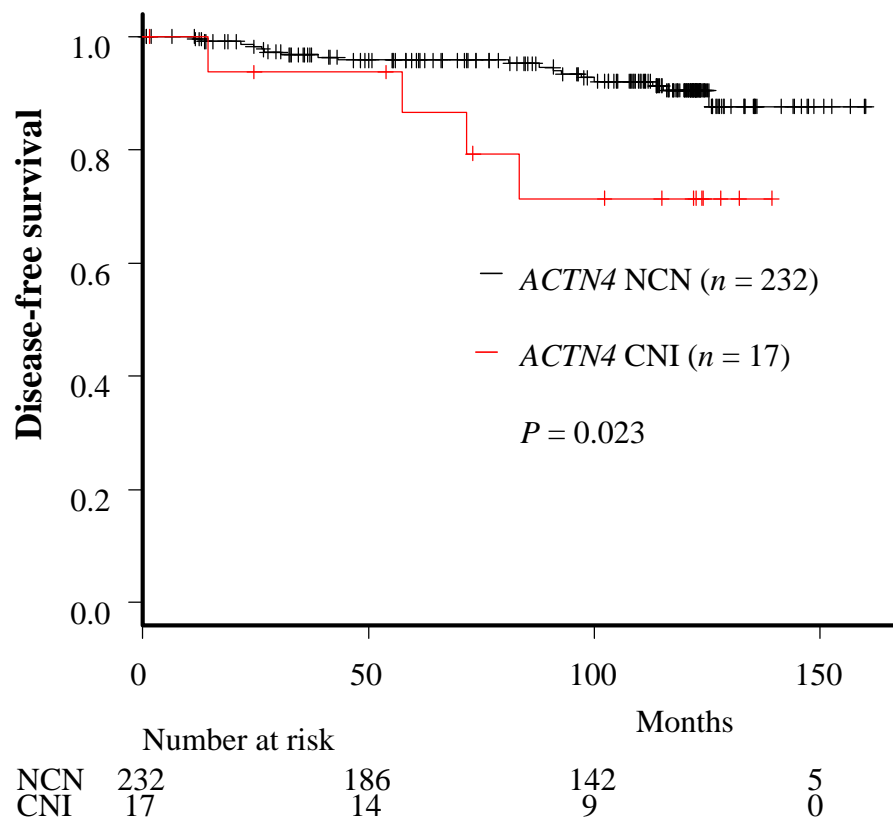
Supplementary Figure S1



Supplementary Figure S2

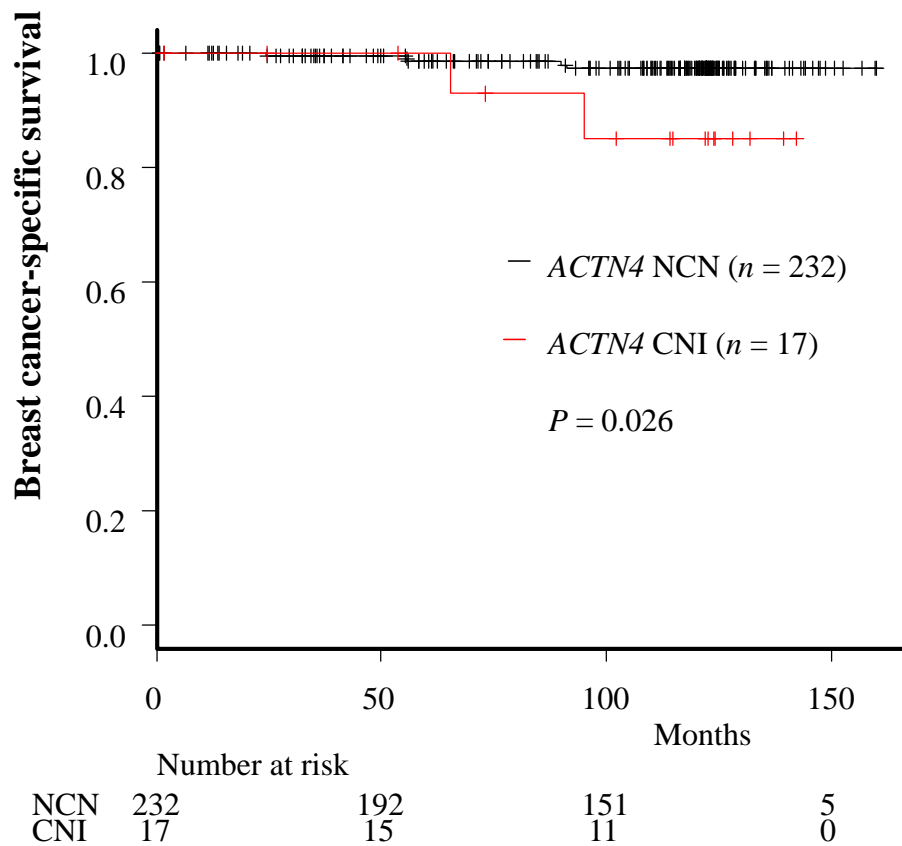
A

Pathological stage I



B

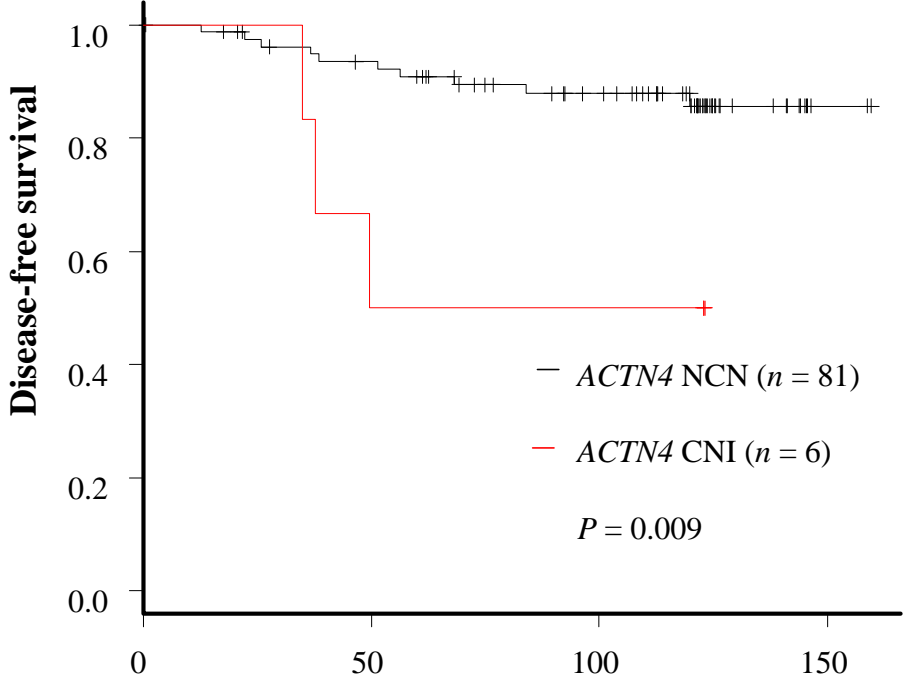
Pathological stage I



Supplementary Figure S3

A

Pathological stage II

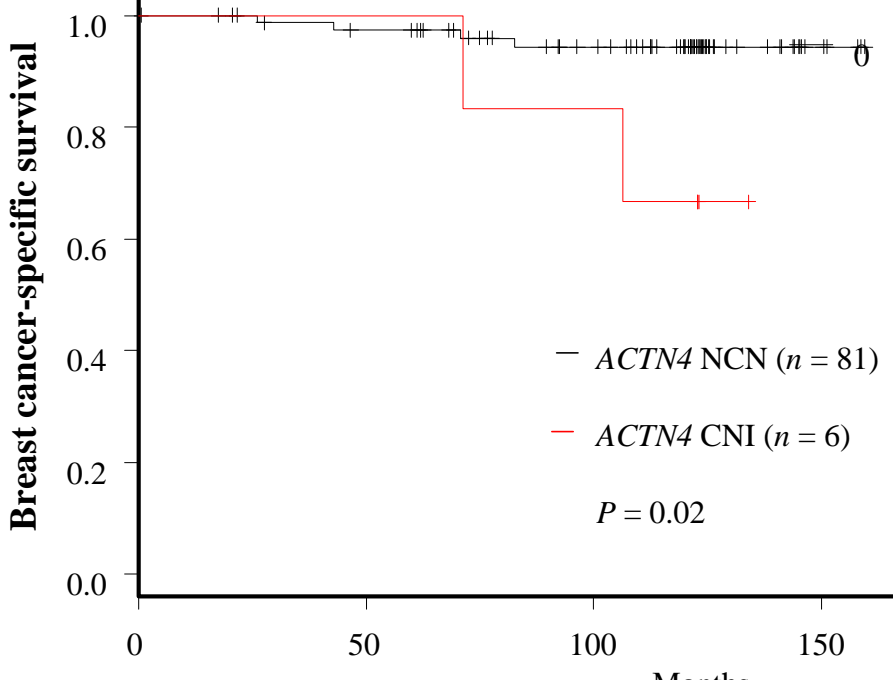


— *ACTN4* NCN (*n* = 81)
 — *ACTN4* CNI (*n* = 6)
P = 0.009

	Number at risk			
	0	50	100	150
NCN	81	70	53	2
CNI	6	3	3	0

B

Pathological stage II



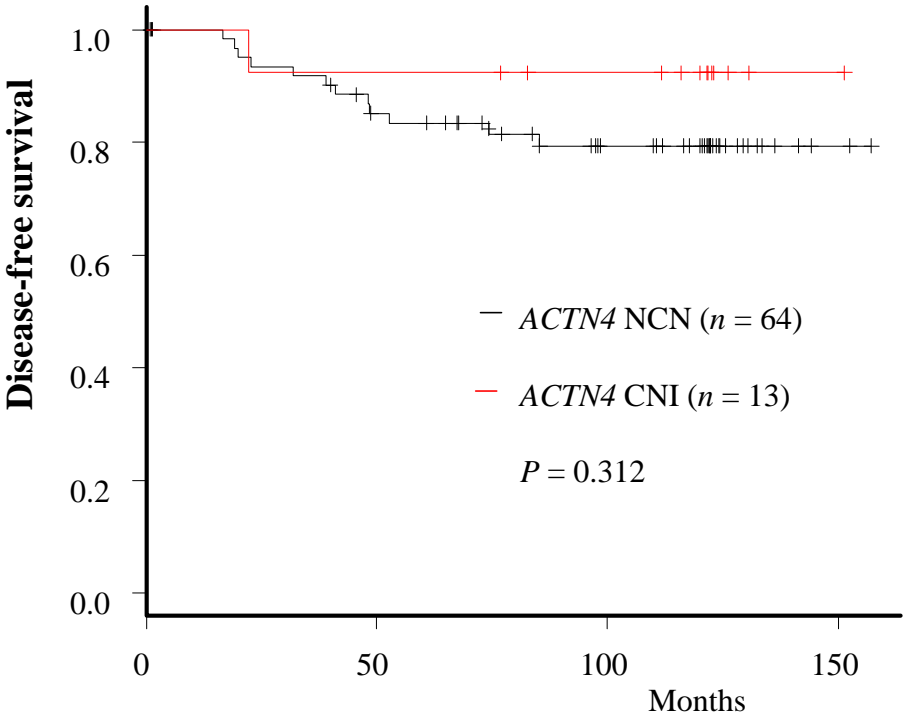
— *ACTN4* NCN (*n* = 81)
 — *ACTN4* CNI (*n* = 6)
P = 0.02

	Number at risk			
	0	50	100	150
NCN	81	73	57	5
CNI	6	6	5	0

Supplementary Figure S4

A

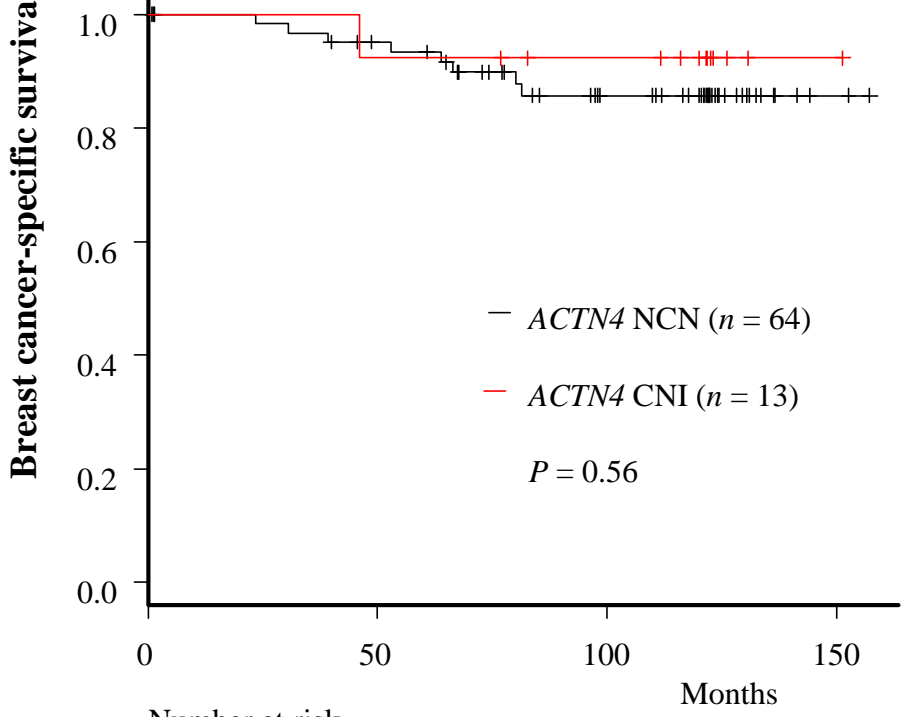
HER2-positive



	Number at risk			
	0	50	100	150
NCN	64	49	33	2
CNI	13	12	10	1

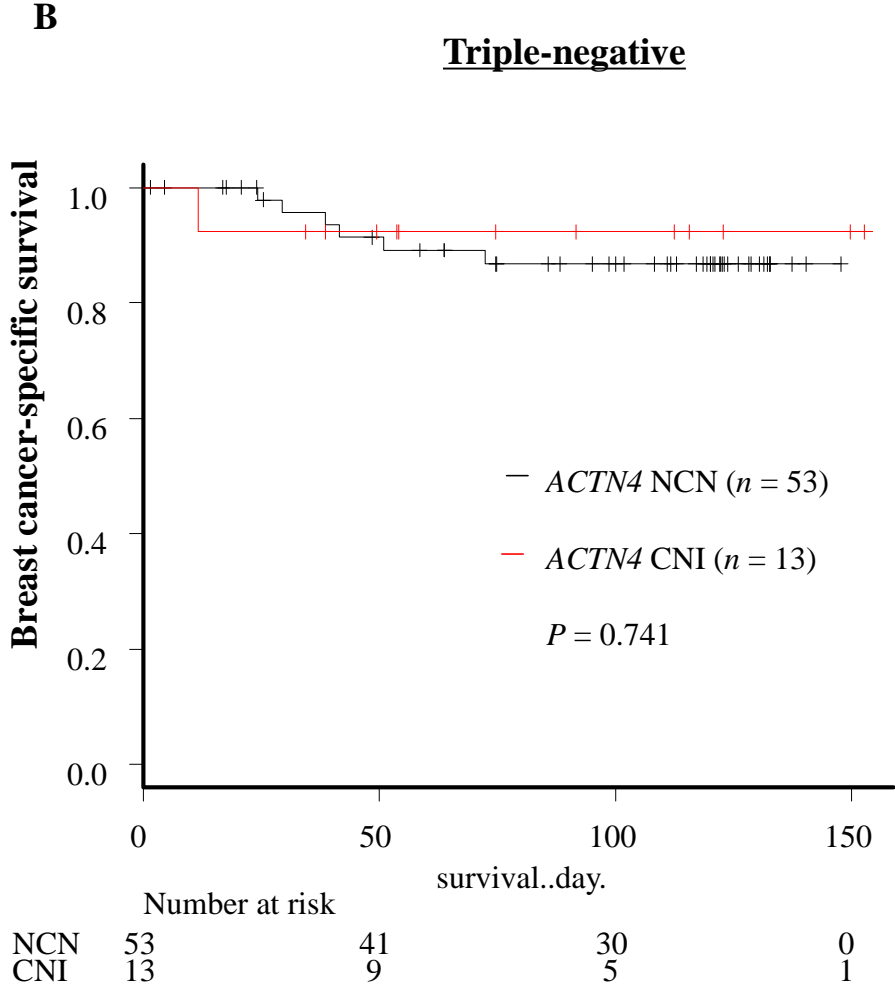
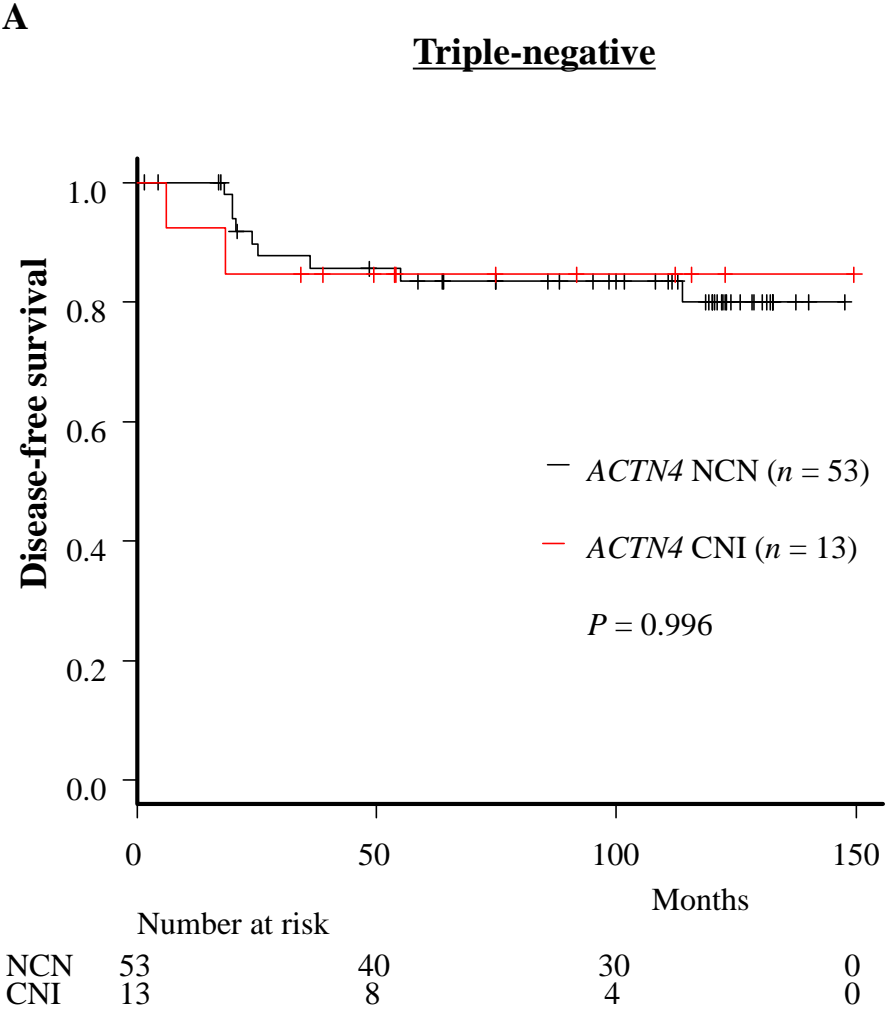
B

HER2-positive



	Number at risk			
	0	50	100	150
NCN	64	55	36	2
CNI	13	12	10	1

Supplementary Figure S5



Legends for Supplementary Figures

Supplementary Figure S1. Selection of eligible individuals (US cohort).

Supplementary Figure S2. Survival curves for stage I patients according to the copy number of *ACTN4* (Japanese cohort).

Kaplan-Meier estimation of DFS (**A**) and BCSS (**B**) of patients with HR-positive, HER2-negative, node-negative pathological stage I invasive breast cancer carrying (red) and not carrying (black) *ACTN4* CNI. Differences between the curves were assessed using the log-rank test.

Supplementary Figure S3. Survival curves for stage II patients according to the copy number of *ACTN4* (Japanese cohort).

Kaplan-Meier estimation of DFS (**A**) and BCSS (**B**) of patients with HR-positive, HER2-negative, node-negative pathological stage II invasive breast cancer carrying (red) and not carrying (black) *ACTN4* CNI. Differences between the curves were assessed using the log-rank test.

Supplementary Figure S4. Survival curves of patients with HER2-positive tumors according to the copy number of *ACTN4* (Japanese cohort).

Kaplan-Meier estimation of DFS (**A**) and BCSS (**B**) of patients with HER2-positive, node-negative invasive breast cancer carrying (red) and not carrying (black) *ACTN4* CNI. Differences between the curves were assessed using the log-rank test.

Supplementary Figure S5. Survival curves of patients with triple-negative tumors

according to the copy number of *ACTN4* (Japanese cohort).

Kaplan-Meier estimation of DFS (**A**) and BCSS (**B**) of patients with triple-negative, node-negative invasive breast cancer carrying (red) and not carrying (black) *ACTN4* CNI.

Differences between the curves were assessed using the log-rank test.