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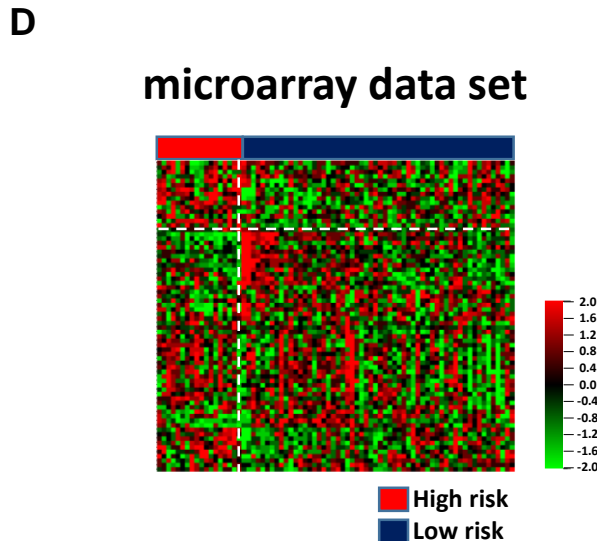
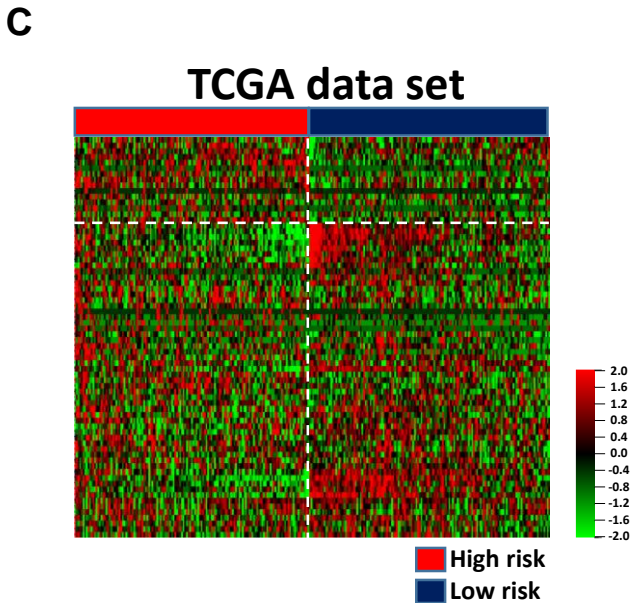
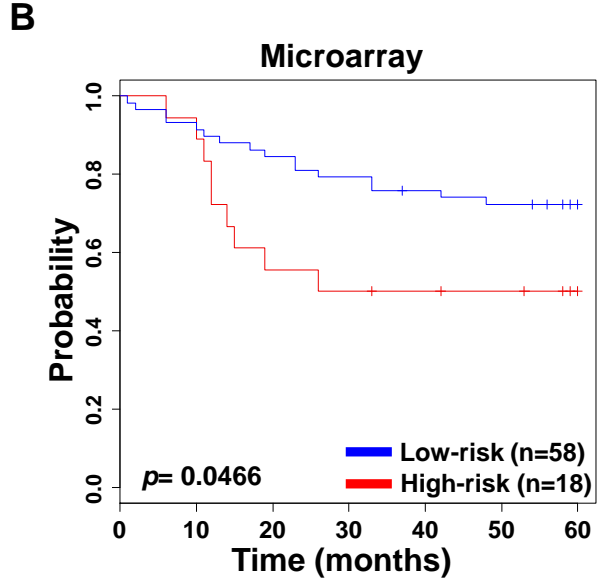
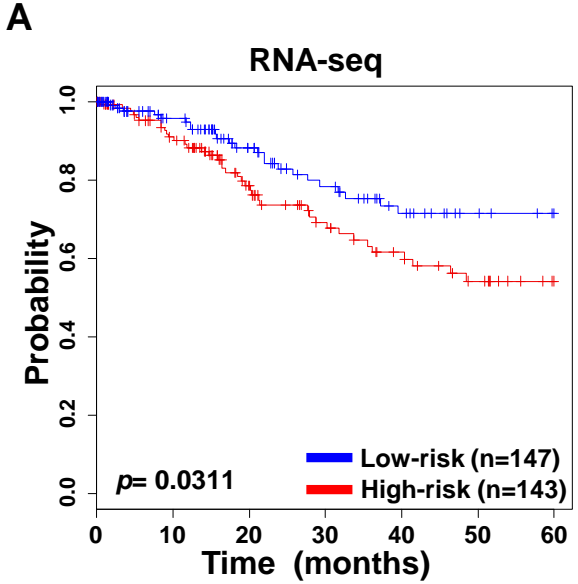
**Supplemental Information**

**A 70-Gene Signature for Predicting Treatment**

**Outcome in Advanced-Stage Cervical Cancer**

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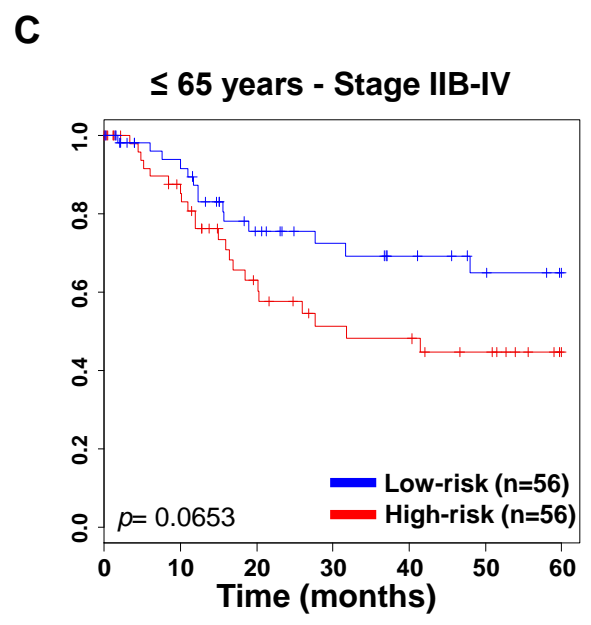
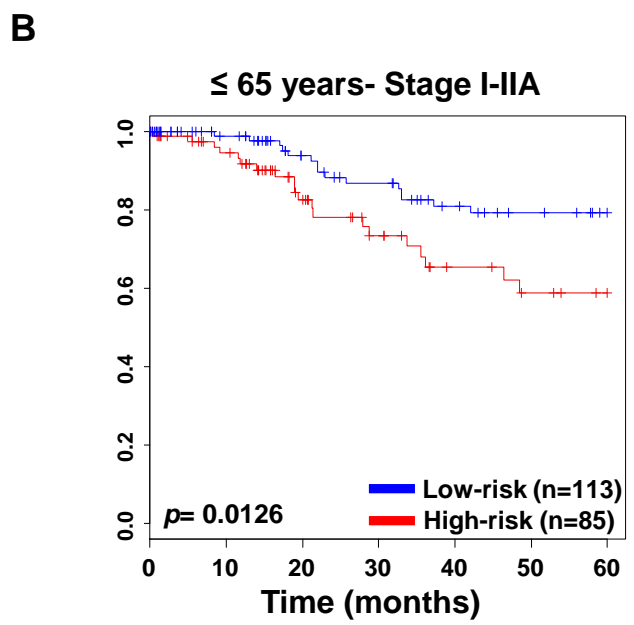
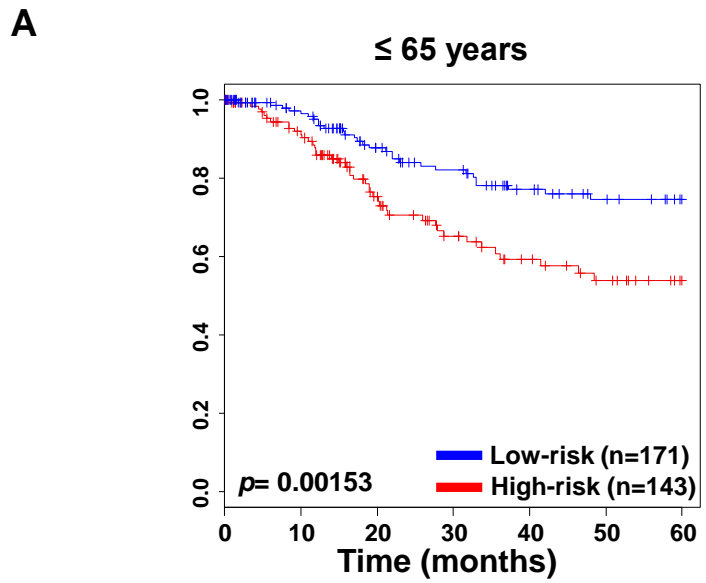
Figure S1.



**Figure S1. Validation of the 70-gene signature in independent data sets. (A-B)**

Incorporation of 70-gene signature into patients with RNA-seq of TCGA (A), microarray of GSE39001 and GSE52904 (B). Each group was classified by 70-gene signature into low- and high-risk, and evaluated by Kaplan-Meier analysis. The  $p$  values were computed by the log-rank test. (C). Heatmap of median centered 70-gene expression profiles between high- and low-risk groups in TCGA data sets (red, relative high expression; green, relative low expression). (D). Heatmap of median centered 70-gene expression profiles between high- and low-risk groups in TCGA data sets (red, relative high expression; green, relative low expression).

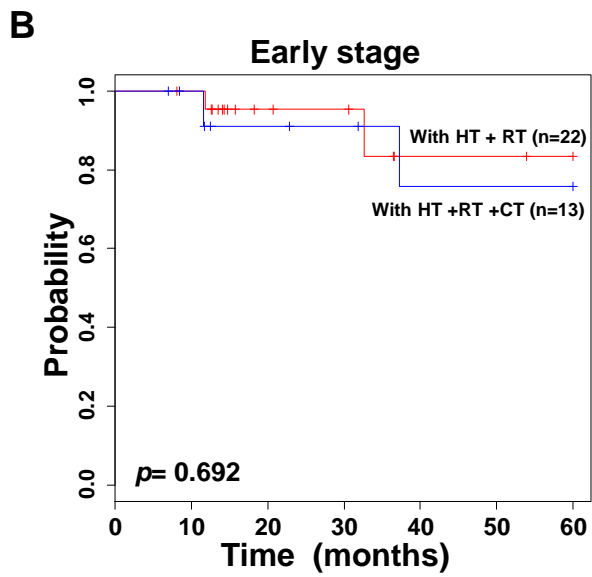
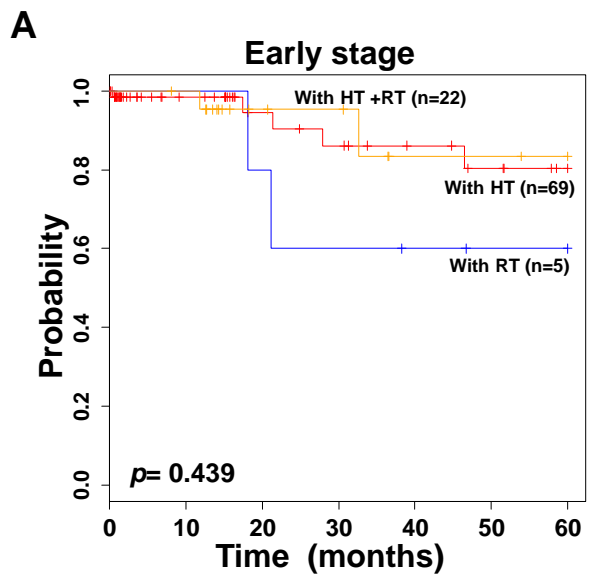
Figure S2.



**Figure S2. Survival analysis of patients under 65 years old by the 70-gene signature. (A-C)**

The 70-gene signature was applied to patients under 65 years old (A), early-stage (B), advanced-stage (C). Each group was classified by 70-gene signature into low- and high-risk, and evaluated by Kaplan-Meier analysis. The  $p$  values were computed by the log-rank test.

Figure S3.

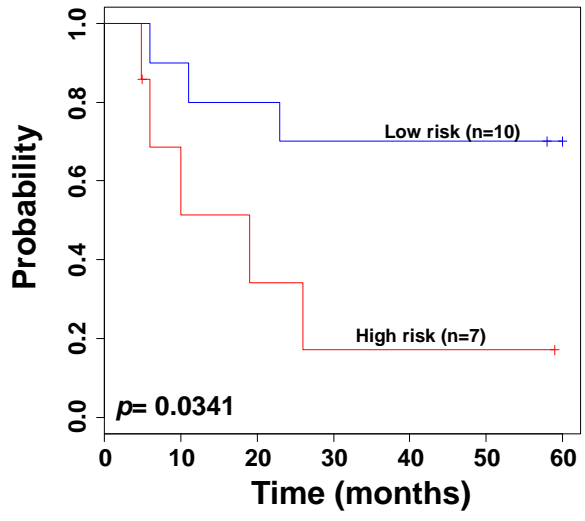


**Figure S3. Survival analysis by the treatment methods in patients with early-stage. (A)**

Patients were separated according to the conventional therapies; hysterectomy and/or radiotherapy. **(B)** Effect of additional chemotherapy with hysterectomy and radiotherapy. The  $p$  values were computed by the log-rank test. CT, chemotherapy; HT, hysterectomy; RT, radiotherapy

Figure S4.

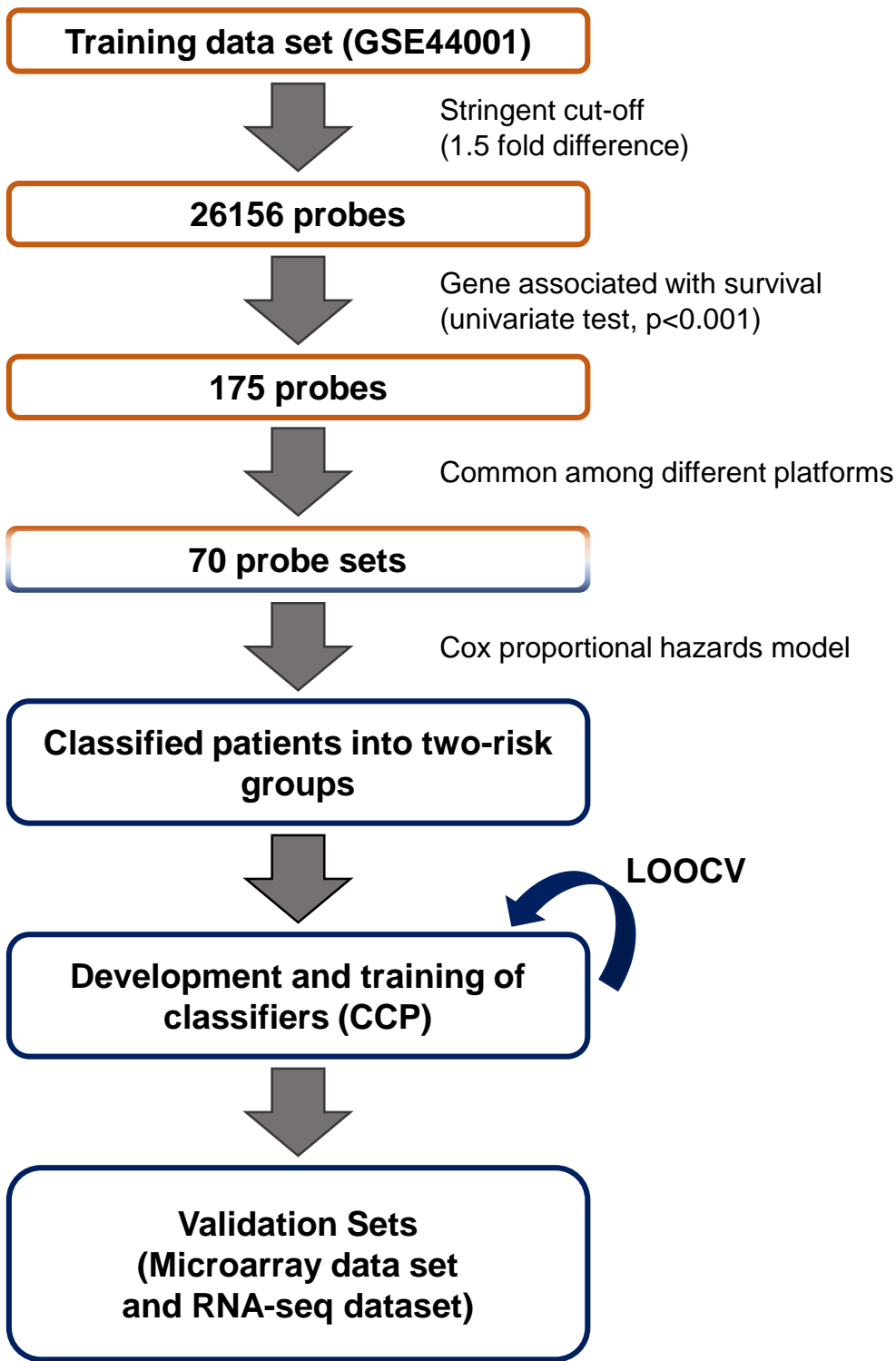
Advanced stage – chemoradation therapy





**Figure S4. Survival analysis of advanced-stage patients treated with chemoradiation therapy by the 70-gene signature.** Incorporation of 70-gene signature into patients with chemoradiation therapy. Each group was classified by 70-gene signature into low- and high-risk, and evaluated by Kaplan-Meier analysis. The  $p$  values were computed by the log-rank test.

Figure S5.



**Figure S5. Work flowchart of the applied analysis**

**Table S1. Univariate and multivariate Cox proportional hazard regression of prognosis with stage.**

Variables	Univariate			Multivariate		
	HR	95%CI	<i>p</i> value	HR	95%CI	<i>p</i> value
<b>Stage (Stage IIB-IV)</b>	3.547	2.466 – 5.103	<b>8.8e-12</b>	3.691	2.564 – 5.313	<b>2.2e-12</b>
<b>Signature (High risk)</b>	2.265	1.566 – 3.275	<b>1.4e-05</b>	2.369	1.637 – 3.428	<b>4.8e-06</b>

HR, Hazard Ratio; CI, Confidence Interval; the Wald test was used to estimate *p*-values. All statistical tests were two-sided.

**Table S2. Univariate and multivariate Cox proportional hazard regression analysis of prognosis with size.**

Variables	Univariate			Multivariate		
	HR	95%CI	<i>p</i> value	HR	95%CI	<i>p</i> value
<b>Size (≥4 cm)</b>	3.703	1.917 - 7.152	<b>9.7e-05</b>	2.724	1.397 – 5.311	<b>0.00326</b>
<b>Signature (High-risk)</b>	6.769	2.632 -17.409	<b>7.3e-05</b>	5.491	2.108 – 14.304	<b>0.00049</b>

HR, Hazard Ratio; CI, Confidence Interval; the Wald test was used to estimate *p*-values. All statistical tests were two-sided.

**Table S3. Univariate and multivariate Cox proportional hazard regression analysis of prognosis.**

Variables	Univariate			Multivariate		
	HR	95%CI	<i>p</i> value	HR	95%CI	<i>p</i> value
<b>Age under 65year (Advanced Stage)</b>	2.144	1.346-3.416	<b>0.0013</b>	2.048	1.284-3.265	<b>0.0033</b>
<b>Signature(high)</b>	2.134	1.328 -3.432	<b>0.0017</b>	2.095	1.303 – 3.368	<b>0.0023</b>

HR, Hazard Ratio; CI, Confidence Interval; the Wald test was used to estimate *p*-values. All statistical tests were two-sided.

**Table S5. Cervical cancer RNA expression data sets.**

<b>GEO Number</b>	<b>Origin /Year</b>	<b>Chip type</b>	<b>References</b>
<b>TCGA</b>		IlluminaHiSeq	
<b>GSE39001</b>	Mexico 2013	Affymetrix Human HG-Focus Target Array	Espinosa et al.
<b>GSE44001</b>	Korea 2013	Illumina HumanHT-12 WG-DASL V4.0 R2 expression beadchip	Lee et al.
<b>GSE52904</b>	Mexico 2015	Affymetrix Human Gene 1.0 ST Array [transcript (gene) version]	Medina-Martinez et al.