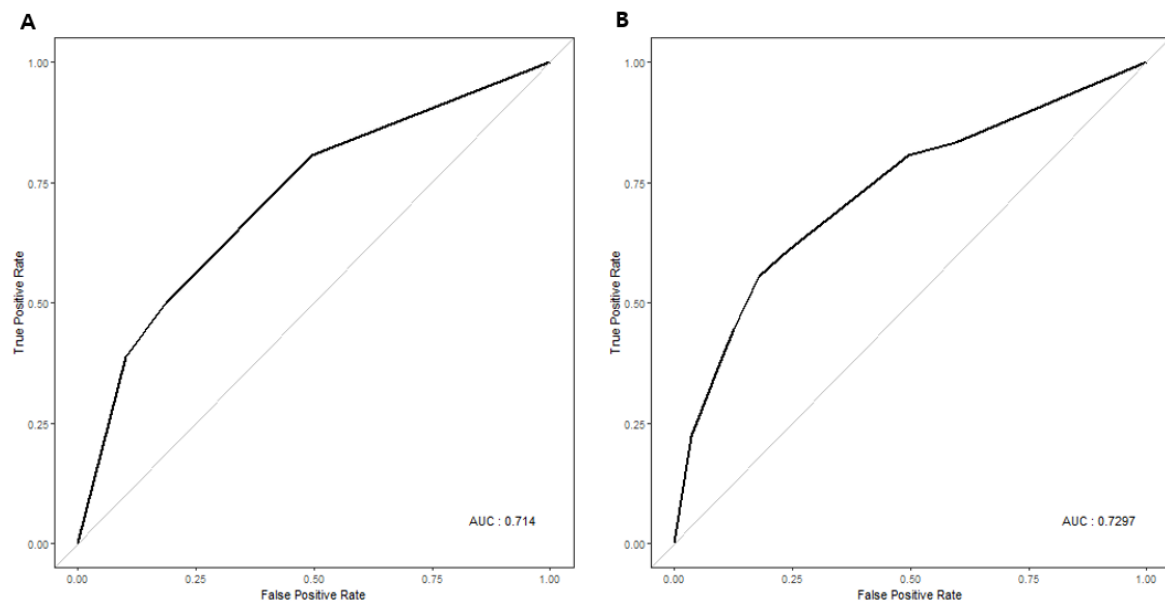**Supplementary Figure 1 Histopathological features indicating the aggressive biology of PCC-NOS compared to SRCC** A: PCC-NOS localized to the invasive front compared to centrally located SRCC in EGC; B: Prominent desmoplastic reaction around PCC-NOS

Supplementary Figure 2 ROC curves for predicting lymph node metastasis in EGC.
A: ROC curve for the baseline model including tumor size and ulceration as variables (AUC = 0.714); B: ROC curve for the model incorporating tumor size, ulceration, and SRCC proportion as variables (AUC = 0.7297). ROC: Receiver operating characteristics; AUC: Area under the curve.

Supplementary Table 1 SRCC rate according to AJCC pT stage, mean ± SD

	Total (N=1066)	T1a (N=435)	T1b (N=214)	T2 (N=86)	T3 (N=97)	T4a (N=205)	T4b (N=29)	[1]P value
SRCC rate (%) ([b])	58.22 ± 34.03	79.48 ± 25.27	54.35 ± 29.71	46.4 ± 32.97	39.07 ± 29.26	34.61 ± 30.84	33.97 ± 27	<0.001

[1]P value was calculated by ANOVA test.

Supplementary Table 2 SRCC rate according to pN stage

SRCC rate according to AJCC pN stage

	Total (N=1066)	N0 (N=764)	N1 (N=62)	N2 (N=74)	N3a (N=65)	N3b (N=101)	P value
SRCC rate (%) (mean± SD)	58.22 ± 34.03	66.37 ± 31.67	43.31 ± 32.84	38.11 ± 31.4	34.54 ± 31.23	35.69 ± 29.24	<0.001

SRCC rate according to Japanese pN stage

	Total	N0	1	2	3	P value	Total
	(N=1045)	(N=756)	(N=143)	(N=132)	(N=14)		
SRCC rate (%) (mean± SD)	58.22 ± 34.03	66.49 ± 31.57	36.96 ± 31.53	37.95 ± 29.83	41.79 ± 34.56	<0.001	58.22 ± 34.03

P value was calculated by ANOVA test.

Supplementary Table 3 SRCC rate according to AJCC pM stage

	Total (N=1066)	M0 (N=1039)	M1 (N=27)	P value
SRCC rate (%) (mean±SD[b])	58.22 ± 34.03	58.81 ± 33.87	35.56 ± 32.94	0.0012

P value was calculated by t-test.

Supplementary Table 4 SRCC rates according to the lymph nodal metastasis in EGC

Lymph nodal metastasis	Total (N=649)	absent (N=613)	present (N=36)	*P* value
SRCC rate (%) (mean±SD)	71.19 ± 29.29	71.93 ± 28.85	58.61 ± 34.01	0.0269

P value was calculated by t-test.

Supplementary Table 5 SRCC rates according to ulcer presence in EGC

	Total (N=649)	0 (N=516)	1 (N=133)	*P* value
SRCC rate (%) (mean±SD)	71.19 ± 29.29	73.25 ± 28.58	63.23 ± 30.71	<0.001

P value was calculated by t-test.

Supplementary Table 6 SRCC rates according to tumor size in EGC

	Total (N=1066)	≤2cm (N=392)	>2cm to ≤4cm (N=342)	>4cm (N=332)	P value
SRCC rate (%) (mean±SD)	58.22 ± 34.03	71.59 ± 30.27	58.61 ± 32.93	42.03 ± 32.42	<0.001

P value was calculated by ANOVA test.

Supplementary Table 7 Submucosal invasion depth according to SRCC group in pT1b EGC

	Total (N=214)	Gr 1 (N=10)	Gr 2 (N=79)	Gr 3 (N=93)	Gr 4 (N=32)	P value
Submucosal invasion depth (μm) (mean±SD)	1479.18 ± 1079.85	1760 ± 836.93	1747.47 ± 1052.41	1374.41 ± 1005.03	1033.59 ± 1255.98	0.0217

P value was calculated by ANOVA test.

Supplementary Table 8 Differences of SRCC rates according to submucosal invasion level.

	Total (N=214)	sm1 (N=41)	sm2 (N=173)	P value

SRCC rates (%) (mean±SD)	54.35 ± 29.71	73.66 ± 22.72	49.77 ± 29.37	<0.001

P value was calculated by t-test.