Supplementary table 1   Multivariate-adjusted HRs (95%CI) for a metachronous gastric cancer according to DNA methylation levels of the three genes (Q1-Q3 vs Q4)

Variable	Quartile of DNA methylation level	
	Q1-Q3	Q4 (highest)
No. of patients	587	195
Authentic metachronous gastric cancers		
miR-124a-3		
No. of events	44	22
HR* (95% CI)	1	1.95 (1.11-3.43)
P value		**0.021**
EMX1		
No. of events	45	21
HR* (95% CI)	1	1.50 (0.85-2.62)
P value		0.16
NKX6-1		
No. of events	45	21
HR* (95% CI)	1	1.42 (0.82-2.45)
P value		0.21
All metachronous gastric cancers		
miR-124a-3		
No. of events	57	24
HR* (95% CI)	1	1.62 (0.96-2.74)
P value		0.072
EMX1		
No. of events	55	26
HR* (95% CI)	1	1.52 (0.92-2.52)
P value		0.10
NKX6-1		
No. of events	58	23
HR* (95% CI)	1	1.25 (0.75-2.08)
P value		0.39

*Adjusted for hospital, gender, and age (<50, 50-59, 60-69, or ≥70), *H. pylori* infection before the enrollment (positive or negative), pepsinogen index, past history of endoscopic resection (0, 1, 2, or 3 times), pack-years of smoking (0, 1-39, or ≥40), and green vegetable intake (≤2 days per week, 3-4 days per week, or almost daily).

Supplementary table 2   Difference in methylation levels of three genes between patients with and without *H. pylori* infection before the enrollment

Variable	Median DNA methylation level					
	miR-124a-3	*P* for the difference*	*EMX 1*	*P* for the difference*	*NKX6-1*	*P* for the difference*
H. pylori infection before the enrollment						
Negative (n=385)	68.6	<0.0001	62.1	0.0040	68.5	<0.0001
Positive (n=397)	78.1		72.0		74.2	

*Wilcoxon rank sum test

Supplementary table 3   **Analysis stratified by *H. pylori* infection status before the enrollment for the risk of authentic metachronous gastric cancer according to *miR-124a-3* methylation level**

Variable	Quartile of *miR-124a-3* methylation level				*P* for trend
	Q1 (lowest)	Q2	Q3	Q4 (highest)	
H. pylori infection before the enrollment					
Negative					
No. of events	7	13	10	11	
HR* (95% CI)	1	1. 70 (0.61-4.71)	1. 38 (0.48-3.95)	2. 43 (0.81-7.32)	0.19
Positive					
No. of events	5	4	5	11	
HR* (95% CI)	1	0.36 (0.08-1.69)	0.73 (0.17-3.06)	1. 32 (0.37-4.77)	0.29

*Adjusted for center by stratification, gender, age (40-49, 50-59, 60-69, or ≥70), pepsinogen index, and past history of endoscopic resection (0, 1, 2, or 3 times), pack-years of smoking (0, 1-19, 20-39, or ≥40), and green vegetable intake (≤2 days per week, 3-4 days per week, or almost daily).

Supplementary table 4 Analysis stratified by the past history of ER and the years since the first ER to enrollment for the risk of authentic metachronous gastric cancer according to *miR-124a-3* methylation level

	Quartile of *miR-124a-3* methylation level				*P* for trend
Variable	Q1 (lowest)	Q2	Q3	Q4 (highest)	
Past history of ER					
<2 times					
No. of events	8	15	14	19	
HR* (95% CI)	1	1.89 (0.78-4.61)	1.47 (0.59-3.66)	2.55 (1.02-6.33)	0.09
≥2 times					
No. of events	4	2	1	3	
HR† (95% CI)	1	0.18 (0.002-18)	3.69 (0.02-731)	3.67 (0.02-712)	0.15
Years since the first ER					
> 5 years					
No. of events	4	4	5	9	
HR‡ (95% CI)	1	0. 38 (0.08-1.83)	0.80 (0.20-3.22)	1. 45 (0.36-5.86)	0.30
≤ 5 years					
No. of events	8	13	10	13	
HR‡ (95% CI)	1	1. 77 (0.68-4.68)	1. 51 (0.52-4.38)	2. 48 (0.86-7.11)	0.14

* Adjusted for center by stratification, gender, age (40-49, 50-59, 60-69, or ≥70), *H. pylori* infection before the enrollment (positive or negative), pepsinogen index, and past history of endoscopic resection (0 or 1 time), pack-years of smoking (0, 1-19, 20-39, or ≥40), and green vegetable intake (≤2 days per week, 3-4 days per week, or almost daily)

†Adjusted for center by stratification, gender, age (40-49, 50-59, 60-69, or ≥70), *H. pylori* infection before the enrollment (positive or negative), pepsinogen index, and past history of endoscopic resection (2 or 3 times), pack-years of smoking (0, 1-19, 20-39, or ≥40), and green vegetable intake (≤2 days per week, 3-4 days per week, or almost daily)

‡Adjusted for center by stratification, gender, age (40-49, 50-59, 60-69, or ≥70), *H. pylori* infection before the enrollment (positive or negative), pepsinogen index, and past history of endoscopic resection (0, 1, 2, or 3 times), pack-years of smoking (0, 1-19, 20-39, or ≥40), and green vegetable intake (≤2 days per week, 3-4 days per week, or almost daily).

Supplementary table 5   Years since the first ER to the enrollment according to quartiles of DNA methylation levels of three marker genes

Variable	Quartile of DNA methylation level			
	Q1 (lowest)	Q2	Q3	Q4 (highest)
Years since the first ER, median (IQR)				
miR-124a-3	2.6 (1.2-4.9)	2.1 (1.0-4.7)	2.7 (1.0-5.1)	2.9 (1.0-4.9)
EMX1	2.9 (1.2-5.0)	2.0 (1.0-4.3)	3.2 (1.0-5.3)	2.2 (0.8-4.6)
NKX6-1	2.5 (1.1-4.8)	2.7 (1.0-5.0)	2.3 (0.7-4.7)	2.9 (1.0-5.0)

IQR, interquartile range