



Figure S1 Distribution and genomic breakpoints of different *RET* fusion types based on DNA-seq and RNA-seq. (A) Distribution of *RET* fusions and their genomic breakpoints at the 3' end based on DNA-seq. (B) Distribution of *RET* fusions and their genomic breakpoints based on WTS and targeted RNA-seq.

Table S1 Characteristic comparisons across three different fusion groups

Characteristics	Category	Overall (n=39)	Solitary 3' fusion (n=15)	Nonreciprocal fusion (n=13)	Reciprocal fusion (n=11)	P
Gender, n (%)	Female	27 (69.2)	10 (66.7)	9 (69.2)	8 (72.7)	>0.99
	Male	12 (30.8)	5 (33.3)	4 (30.8)	3 (27.3)	
Age (years), median (IQR)		53.0 (45.0, 60.5)	56.0 (51.0, 61.5)	45.0 (35.0, 53.0)	55.0 (51.5, 62.5)	0.03
Stages, n (%)	IA	32 (82.1)	12 (80.0)	11 (84.6)	9 (81.8)	>0.99
	IB	6 (15.4)	2 (13.3)	2 (15.4)	2 (18.2)	
	IIB	1 (2.6)	1 (6.7)	0 (0.0)	0 (0.0)	
Tumor size (cm), median (IQR)		1.5 (1.0, 2.0)	1.5 (1.2, 2.0)	1.1 (0.9, 1.7)	1.7 (1.2, 2.2)	0.19
Tumor cell content (proportion), median (IQR)		0.5 (0.5, 0.8)	0.5 (0.4, 0.8)	0.5 (0.4, 0.5)	0.7 (0.6, 0.8)	0.09
Smoking history, n (%)	No	34 (87.2)	13 (86.7)	12 (92.3)	9 (81.8)	0.94
	Yes	3 (7.7)	1 (6.7)	1 (7.7)	1 (9.1)	
Tumor site, n (%)	Left lung	13 (33.3)	4 (26.7)	7 (53.8)	2 (18.2)	0.18
	Right lung	26 (66.7)	11 (73.3)	6 (46.2)	9 (81.8)	
Pathological invasion, n (%)	AIS with minimal invasion	8 (20.5)	2 (13.3)	4 (30.8)	2 (18.2)	0.54
	Invasive adenocarcinoma	31 (79.5)	13 (86.7)	9 (69.2)	9 (81.8)	
Ki67, n (%)	High	7 (24.1)	3 (23.1)	2 (25.0)	2 (25.0)	0.19
	Mid	13 (44.8)	7 (53.8)	1 (12.5)	5 (62.5)	
	Low	9 (31.0)	3 (23.1)	5 (62.5)	1 (12.5)	

Table S2 Characteristics between nonreciprocal and other two groups

Characteristics	Category	Overall (n=13)	Nonreciprocal fusion (n=13)	Others (n=26)*	P
Gender, n (%)	Female	27 (69.2)	9 (69.2)	18 (69.2)	>0.99
	Male	12 (30.8)	4 (30.8)	8 (30.8)	
Age (years), median (IQR)		53.0 (45.0, 60.5)	45.0 (35.0, 53.0)	55.5 (50.5, 62.5)	0.01
Stages, n (%)	IA	32 (82.1)	11 (84.6)	21 (80.8)	>0.99
	IB	6 (15.4)	2 (15.4)	4 (15.4)	
	IIB	1 (2.6)	0 (0.0)	1 (3.8)	
Tumor size (cm), median (IQR)		1.5 (1.0, 2.0)	1.1 (0.9, 1.7)	1.6 (1.2, 2.0)	0.09
Tumor cell content (proportion), median (IQR)		0.5 (0.5, 0.8)	0.5 (0.4, 0.5)	0.6 (0.5, 0.8)	0.05
Smoking history, n (%)	No	34 (91.9)	12 (92.3)	22 (91.7)	>0.99
	Yes	3 (8.1)	1 (7.7)	2 (8.3)	
Tumor site, n (%)	Left lung	13 (33.3)	7 (53.8)	6 (23.1)	0.08
	Right lung	26 (66.7)	6 (46.2)	20 (76.9)	
Pathological invasion, n (%)	AIS with minimal invasion	8 (20.5)	4 (30.8)	4 (15.4)	0.40
	Invasive adenocarcinoma	31 (79.5)	9 (69.2)	22 (84.6)	
Ki67, n (%)	High	7 (24.1)	2 (25.0)	5 (23.8)	0.03
	Mid	13 (44.8)	1 (12.5)	12 (57.1)	
	Low	9 (31.0)	5 (62.5)	4 (19.0)	

* One patient in the solitary 5' fusion group was excluded from the analysis.