### Supplementary materials

**Table S1** Differentially expressed long noncoding genes in pancreatic ductal adenocarcinoma compared with normal pancreatic tissues

| Gene         | Smallest adjusted P-value | Log (FC) Up/Down |
|--------------|----------------------------|------------------|
| TRIM52-AS1   | 9.399968e-08               | -1.0354805 Down  |
| PITPNA-AS1   | 2.808495e-07               | -1.080543 Down   |
| LINC02352    | 3.530234e-07               | -0.8114819 Down  |
| PWAR5        | 4.686704e-06               | -1.152608 Down   |
| ZSCAN16-AS1  | 8.39662e-05                | -0.4721906 Down  |
| NDUVF2-AS1   | 0.0001000207               | -0.6264711 Down  |
| ZBED3-AS1    | 0.0001446375               | -0.4846355 Down  |
| CIRBP-AS1    | 0.0002131723               | -0.536308 Down   |
| PCBP1-AS1    | 0.0002247987               | -0.8636266 Down  |
| LINC01304    | 0.0002259213               | -0.3518953 Down  |
| MEG3         | 0.002217913                | -0.2342561 Down  |
| CLIP1-AS1    | 0.007525541                | -0.2447061 Down  |
| DUBR         | 4.732483e-11               | 1.4446612 Up     |
| CASC15       | 2.402067e-10               | 1.079979 Up      |
| ZEB1-AS1     | 5.05486e-09                | 1.07719 Up       |
| ANKRD10-IT1  | 1.087309e-08               | 1.318941 Up      |
| BLACAT1      | 2.582637e-07               | 2.405326 Up      |
| AFAP1-AS1    | 8.248845e-07               | 1.357795 Up      |
| THUMPD3-AS1  | 1.614973e-06               | 1.2725470 Up     |
| FAM111A-DT   | 1.699994e-06               | 1.160243 Up      |
| LINC01133    | 2.87819e-05                | 3.247532 Up      |
| RUSC1-AS1    | 0.008604316                | 0.6451321 Up     |
A microarray analysis was performed using the constructed normal control and MEG3 overexpression pancreatic ductal adenocarcinoma cell lines.

| Name           | P-value   | Log2 ratio | Up/Down |
|----------------|-----------|------------|---------|
| hsa-miR-575    | 0.021512  | 1.633021923| Up      |
| hsa-miR-758-5p | 0.031165  | 1.501874765| Up      |
| hsa-miR-660-5p | 0.000264  | 1.089782218| Up      |
| hsa-miR-34c-3p | 0.017906  | 1.464105941| Up      |
| hsa-miR-7856-5p| 0.026255  | 1.041659152| Up      |
| hsa-miR-422a   | 0.034919  | 1.249385605| Up      |
| hsa-miR-378a-3p| 0.034017  | 1.453833702| Up      |
| hsa-miR-4423-3p| 0.046857  | 1.084779057| Up      |
| hsa-miR-6509-5p| 0.048009  | 1.249385605| Up      |
| hsa-miR-4428   | 0.04401   | 1.527293274| Up      |
| hsa-miR-3120-3p| 0.031732  | 1.160711181| Up      |
| hsa-miR-4476   | 0.030771  | 1.000794592| Up      |
| hsa-miR-130b-3p| 0.010843  | 1.0648644  | Up      |
| hsa-miR-5008-3p| 0.032333  | −1.57723   | Down    |
| hsa-miR-526b-5p| 0.044232  | −1.01641   | Down    |
| hsa-miR-625-3p | 0.017976  | −1.01295   | Down    |
| hsa-miR-3158-3p| 0.017772  | −1.52853   | Down    |
| hsa-miR-4704-3p| 0.029385  | −1.50174   | Down    |
| hsa-miR-6719-3p| 0.021194  | −2.05628   | Down    |
| hsa-miR-6806-3p| 0.043104  | −2.34648   | Down    |
| hsa-miR-3975   | 0.017284  | −1.11221   | Down    |
| hsa-let-7c-5p  | 0.022587  | −1.17341   | Down    |

Continued:

| Name           | P-value   | Log2 ratio | Up/Down |
|----------------|-----------|------------|---------|
| hsa-miR-4699-3p| 0.027858  | −2.43855   | Down    |
| hsa-miR-3613-3p| 0.046182  | −1.93161   | Down    |
| hsa-miR-3118   | 0.005871  | −1.58821   | Down    |
| hsa-miR-4775   | 0.048858  | −2.16352   | Down    |
| hsa-miR-1296-5p| 0.018411  | −1.0925    | Down    |
| hsa-miR-374a-5p| 0.040316  | −5.61353   | Down    |
| hsa-miR-3611   | 0.019591  | −5.34521   | Down    |
| hsa-miR-93-3p  | 0.008226  | −1.2408    | Down    |
| hsa-miR-4785   | 0.017286  | −1.20483   | Down    |
| hsa-miR-4455   | 0.015509  | −1.21161   | Down    |
| hsa-miR-4694-5p| 0.019766  | −2.79507   | Down    |
| hsa-miR-3672   | 0.01518   | −1.28064   | Down    |
| hsa-miR-4701-3p| 0.004724  | −1.0486    | Down    |
| hsa-miR-5587-5p| 0.017929  | −1.18744   | Down    |
| hsa-miR-4700-3p| 0.046985  | −1.31126   | Down    |
### Table S3  Associations between MEG3/miR-374a-5p expression and clinicopathological characteristics in pancreatic cancer

| Clinicopathological parameters | No. of patients | MEG3 expression | P-value | miR-374a-5p expression | P-value |
|-------------------------------|----------------|-----------------|---------|------------------------|---------|
|                              |                | High (%)        | Low (%) | High (%)                | Low (%) |        |
| Cases                        | 70             | 35 (50.0)       | 35 (50.0) | 42 (60.0)              | 28 (40.0) |        |
| Age (years)                  |                |                 |         |                        |         |
| ≤ 60                         | 29             | 15 (53.6)       | 14 (46.4) | 0.812                  | 20 (69.0) | 9 (31.0) | 0.198 |
| > 60                         | 41             | 19 (47.9)       | 22 (52.1) | 0.044                  | 22 (53.7) | 19 (46.3) |        |
| Sex                          |                |                 |         |                        |         |
| Male                         | 44             | 20 (45.8)       | 24 (54.2) | 0.476                  | 28 (63.6) | 16 (36.4) | 0.419 |
| Female                       | 26             | 15 (57.1)       | 11 (42.9) | 0.585                  | 14 (53.8) | 12 (46.2) |        |
| Tumor location               |                |                 |         |                        |         |
| Head, neck                   | 51             | 28 (54.5)       | 23 (45.5) | 0.305                  | 35 (68.6) | 16 (31.4) | 0.016*|
| Body, tail                   | 19             | 7 (38.1)        | 12 (61.9) | 0.041                  | 7 (36.8) | 12 (63.2) |        |
| Tumor size (cm)              |                |                 |         |                        |         |
| ≤ 2                          | 26             | 12 (46.2)       | 14 (53.8) | 0.809                  | 16 (61.5) | 10 (38.5) | 0.84  |
| > 2                          | 44             | 23 (52.0)       | 21 (48.0) | 0.017                  | 26 (59.1) | 18 (40.9) |        |
| Invasion depth               |                |                 |         |                        |         |
| T1 + T2                      | 13             | 10 (81.5)       | 3 (18.5)  | 0.000                  | 2 (15.4) | 11 (84.6) | 0.000*|
| T3 + T4                      | 57             | 20 (32.7)       | 37 (67.3) |                       | 40 (70.2) | 17 (29.8) |        |
| LN metastasis                |                |                 |         |                        |         |
| N0 (negative)                | 19             | 13 (64.3)       | 6 (35.7) | 0.095                  | 7 (35.3) | 12 (64.7) | 0.023*|
| N1 (positive)                | 51             | 23 (41.7)       | 28 (58.3) | 0.001                  | 34 (66.7) | 17 (33.3) |        |
| Clinical stage               |                |                 |         |                        |         |
| Early stages (≤ II)          | 51             | 35 (66.7)       | 16 (33.3) | 0.000                  | 17 (33.3) | 34 (66.7) | 0.023*|
| Advanced stages (> II)       | 19             | 1 (5.3)         | 18 (94.7) | 0.005                  | 11 (64.7) | 6 (35.3) |        |
| Perineural invasion          |                |                 |         |                        |         |
| Negative                     | 22             | 7 (33.3)        | 15 (66.7) | 0.083                  | 9 (40.9) | 13 (59.1) | 0.027*|
| Positive                     | 48             | 28 (57.7)       | 20 (42.3) | 0.017                  | 33 (68.8) | 15 (31.2) |        |
Figure S2  MEG3 was associated with prognosis and inversely correlated with EZH2, HDAC3, Sp1, and miR-374a-5p. (A) Kaplan-Meier analysis of MEG3 in pancreatic ductal adenocarcinoma patients. Higher expression of MEG3 favored a better prognosis. (B) Kaplan-Meier analysis of miR-374a-5p in PDAC patients. Lower expression of miR-374a-5p favored a better prognosis. (C) A negative relationship between MEG3 and Sp1 was revealed by Pearson's correlation analysis. (D) A negative relationship between MEG3 and EZH2 was revealed by Pearson's correlation analysis. (E) A negative relationship between MEG3 and HDAC3 was revealed by Pearson's correlation analysis. (F) A negative relationship between MEG3 and miR-374a-5p was revealed by Pearson's correlation analysis.
Figure S3  MEG3 and miR-374a-5p expression in HPDE cells and normal pancreatic tissues. (A) MEG3 expression was detected by qRT-PCR in HPDE cells after MEG3 overexpression. (B, C) MEG3 overexpression promoted cell proliferation (B) migration, and invasion (C) in HDPE. (D) MEG3 overexpression in HPDE resulted in downregulation of miRNA-374a-5p. (E) MEG3 and miR-374a-5p were negatively correlated in normal pancreas tissues (*n = 70).
Figure S4  Relative miR-374a-5p expression in paired fresh normal and pancreatic ductal adenocarcinoma tissue samples ($n = 8$).