**Supplement Table 1 Main findings of miRNAs dysregulation contribute to CAFs phenotype and functions.**

| Author | Ref. | Fibroblasts source | Studies purpose relate to CAFs | Main findings about miRNAs desregulation in CAFs |
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| Au Yeung et al., 2016 | [40] | Ovarian cancer normal ovaries | Identify miRNA signatures in exosomes isolated from ovarian cancer-associated fibroblasts (CAFs) and mechanisms by which miRNAs modulate the malignant phenotypes | 1.Exosomes from CAFs show high level of miR-21 compared to normal fibroblasts |
| | | | | 2.Exosome miR-21 from CAFs transferred into cancer cell and stimulate mobility, invasion and chemoresistance by targeting APAF1 |
| J.Li et al., 2016 | [66] | Lung cancer Normal lung tissue | | 1.CAFs from lung cancer patient promoted resistance to cisplatin in the lung cancer cell lines A549 and 95D in a paracrine manner. |
| | | | | 2.SDF-1 from CAFs facilitated drug resistance via the CXCR4-mediated signaling pathway |
| | | | | 3.Mir-1 negatively regulated the expression level of SDF-1 in the CAFs |
| J.Zhang et al., 2015 | [71] | Lung cancer Normal lung tissue | Find differential miRNAs in NFs and CAFs from lung cancer and the target genes | 1.MiR-101 was identified as the most downregulated miRNA in CAFs compared with NFs |
| | | | | 2.MiR-101 overexpression in CAFs impaired their ability to stimulate tumor cell proliferation, sphere formation migration and invasion, and enhanced apoptosis by |

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| | | | targeting CXCL12 |
| Al-Ansari et al., 2015 [36] | Breast cancer Normal breast tissue | Identify miR-146b-5p as a downstream effector of p16 and investigate its tumor suppressive functions | 1.MiR-146b-5p inhibition activate breast stromal fibroblasts, ectopic expression of miR-146b-5p in active fibroblasts abrogated their pro-carcinogenic effects |
| | | | 2.MiR-146–5p-defective breast stromal fibroblasts promote EMT in breast cancer cells |
| | | | 3.Treatment of active breast stromal fibroblasts with curcumin increased miR-146b-5p expression |
| Shah et al., 2015 [72] | Basal cell breast cancer | Investigate the role of microRNAs secreted by CAFs in ER expression in breast cancer cells. | CAFs from ER-negative phenotype of breast cancer secreted hMAPK-miRNAs miR-221/222 leads to MAPK activation and repression of ER in breast cancer cells |
| Vivacqua et al., 2015 [54] | Breast cancer | Investgate the effect of estrogenic GPER signaling in CAFs in breast cancer | GPER mediates the up-regulation of miR144 and the reduction of Runx1 induced by E2 and G-1 in CAFs. |
| Pang et al., 2015 [67] | Mouse pancreat | Verify whether PaC cells can secrete microvesicles containing miRNA to impact tumor-adjacent normal fibroblasts | 1.NF treated with PaC-derived microvesicles containing miR-155 convert into CAF-like cells |
| | | | 2.TP53INP1 is a target of miR-155 in fibroblasts and its downregulation contribute to the fibroblasts' activation. |
| Ali et al., 2015 [73] | Pancreatic cancer | Evaluate the aberrant expression of miRNAs in CAF from pancreat cancer | Inhibite miR-221 in CAFs decreased cell migration, invasion, and the expression of |

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| | | | K-Ras and NF-κB |
| P. Li et al., 2015 | [34] | Gastric cancer Normal gastric tissue | Identify desregulated miRNAs in CAFs from GC and investigate the underlying mechanisms | 1.MiR-149 is a critical factor for the transformation of NFs into CAFs in GC. |
| | | | | 2.MiR-149 is an negative regulator of the pro-tumorigenesis activity of CAFs both in vitro and in vivo. |
| | | | | 3.H.P. activates the COX-2/ PGE2 pathway, leading to hypermethylation of the miR-149 promoter and repression of miR-149 in human and mouse fibroblasts in vitro and in vivo. |
| Tanaka et al., 2015 | [64] | Esophageal cancer | Examine the mechanism of miR27a/b-induced chemoresistance in esophageal cancer | MR-27a/b is involved in resistance to chemotherapy in esophageal cancer, through miR-27a/b-induced transformation of normal fibroblast into CAF |
| Josson et al., 2015 | [57] | Prostate cancer | Understand the role of miRNAs in the biology and function of cancer associated stroma in prostate cancer | 1.Ectopic expression of miR-409 in normal prostate stromal fibroblasts induces a CAF-like phenotype. |
| | | | | 2.Prostate stromal fibroblasts overexpressing miR-409 secrete EVs containing miR-409, taking up by cancer cells, and induces cancer cell proliferation and EMT in vitro and in vivo. |
| D.Zhang et al., 2015 | [20] | human foreskin colon cancer | Investigate role of miRNA in IDH3a mediate regulation of glycolysis in CAFs | MiR-424 promotes glycolysis in CAFs by downregulating IDH3a. |

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| | | tissue<br>melanoma | | |
| Yang et al., 2014 | [70] | gastric cancer<br>adjacent norm | Investigated differential expression of miRNAs in CAFs obtained from gastric cancer tissues versus matched normal gastric fibroblasts | 1.miRNA-106b levels are increased in CAFs compared with NFs established from patients with GC. |
| | | | | 2.High miR-106b stromal expression was associated with shorter overall survival |
| | | | | 3.Knockdown of miR-106b in fibroblasts inhibit its ability to promote migration and invasion of gastric cancer cell |
| Naito, Sakamoto, et al., 2014 | [43] | Scirrhous type gastric cancer<br>Adjacent normal gastric tissue | Identify novel miRNAs in scirrhous type GC and its function and target | 1.MiR-143 expression was higher in scirrhous type GC than in non-scirrhous types of GC |
| | | | | 2.In situ hybridization and quantitative RT-PCR analysis showed that miR-143 is expressed by stromal fibroblasts |
| Naito, Yasuno, et al., 2014 | [68] | Scirrhous type gastric cancer<br>Adjacent normal gastric tissue | Identify novel miRNAs in scirrhous type GC and its function and target | 1.MiR-145 was induced by treating TGF-β, scirrhous type gastric cancer and normal gastric tissue and it enhanced α-SMA expression in both NFs and CAFs |
| Taddei et al., 2014 | [35] | Benign prostatic hyperplasia | Investigated the senescent fibroblasts in prostate cancer, and effect of hypoxia associated miR-210 on fibroblasts | 1.Transfection of normal prostate fibroblasts with miR-210 caused increasedα-SMA and collagen type I expression |
| | | | | 2.CM from miR-210 transfected fibroblasts induced increased invasiveness and EMT in PC3 cancer cells |

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| | | | 3.MiR-210 expressing senescent fibroblasts a can produce L-lactate and ketone bodies to fuel tumor cell growth |
| | | | 4.MiR-210 expressing senescent fibroblasts affect the recruitment of EPCs and HUVEC capillary morphogenesis |
| Donahue et al., 2014 | [65] | pancreatic ductal carcinoma | Study the predictive value of miR−21 levels in CAFs for gemcitabine or 5−FU response in a cohort of PDAC patients from clinical trial. | 1. MiR−21 was strongly expressed in CAFs in pancreatic ductal adenocarcinoma |
| | | | | 2.MiR−21 expression in CAFs was associated with decreased OS in PDAC patients who received 5 - FU, but not gemcitabine. |
| Hu et al., 2014 | [62] | Human fibroblast induced by TGF-beta | Investigate what role HK2 plays in the glycolysis in CAFs and the underlying mechanism | 1.HK2, a major isozyme contributes to aerobic glycolysis, was upregulated in CAFs<br>2.MR-182 targets the 3′UTR of HK2 and regulate HK2 expression in CAFs |
| Morello et al., 2013 | [56] | Prostate cancer | Investigate differential miRNA expressed in extracellular vesicles released by prostate cancer cell and their effect on CAFs | MiR-1227 overexpressed by RWPE-2 cells transfer into CAFs by Large oncosomes, and enhance CAFs migration |
| Nouraee et al., 2013 | [69] | HGF-1 fibroblasts | Understand the effects of stromal miR-21 on esophageal malignant cells. | 1.MiR-21 is upregulated in esophageal cancer associated fibroblasts |
| | | | | 2.S100A4 expression in HGF-1 was upregulate when transfected with miR-21 and reduced when inhibiteded miR-21 |

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| Bullock et al., 2013 [39] | MRC5 lung fibroblast<br>Primary colonic fibroblasts | Investigate the deregulated miR-21 expression in cancer stroma in CRC and its effect on cancer cells | 1.MiR-21 expression is four-fold increased in CRC stroma compared with normal tissue, and mainly localised in fibroblast |
| | | | 2.MiR-21 overepression in fibroblasts resulted in upregulated α-SMA expression |
| | | | 3.Conditioned medium from miR-21 overexpressing fibroblasts protected CRC cells from oxaliplatin induced apoptosis and increased their proliferative capacity |
| Mitra et al., 2012 [33] | Ovarian cancer<br>Adjacent normal ovarian tissue | Investigated whether miRNAs are involved in the reprogramming of normal fibroblasts to CAFs in ovarian cancer and their function | 1.Transfection of NFs with anti-miR-31, anti-miR-214, and pre-miR-155 enhanced fibroblast migration as well as the invasion and colony formation of cocultured cancer cells. |
| | | | 2.CCL5 was identified as a target of miR-214 and tumor promotion ablility of miRNA transfected CAFs was abolished by using anti-CCL5 |
| Bronisz et al., 2012 [51] | mammary stromal fibroblasts | To investigate miR-320 regulation in mammary stromal fibroblasts and its role in the communication between fibroblasts and other compartments of the tumor microenvironment | *Pten*-miR-320-*Ets2* tumor suppressor axis in stromal fibroblasts can modulates the inter-cellular communication within the tumor microenvironment |
| Musumeci et al., 2011 [50] | Prostate cancer | Study the role of miR-15 and miR-16 played in prostate cancer stroma and their target | 1.MiR-15 and miR-16 are downregulated in fibroblasts surrounding the prostate tumors |

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| | | Normal prostate tissue | | of the majority of 23 patients analyzed. |
| | | | | 2.Downregulation of miR-15 and miR-16 in CAFs promoted tumor growth and progression through reduced repression of Fgf-2 and its receptor Fgfr1, which act on both stromal and tumor cells |
| | | | | 3.Reconstitution of miR-15 and miR-16 in CAFs impaired tumor-supportive capability in vitro and in vivo. |
| Aprelikova et al., 2010 | [74] | Endometrial cancer<br>Normal endometrial tissue | Explore differential expression of regulatory microRNAs in the CAFs derived from human endometrial cancer and their target | MiR-31 downregulation in CAFs results in increased tumor cell motility, which is, in part, mediated by its direct targeting *SATB2*. |

**Abbreviations**: 5-FU, 5-fluorouracil; CAFs, cancer-associated fibroblasts; CM, conditioned media; COX-2, cyclooxygenase-2; E2, estrogen ER, estrogen receptor; EMT, Epithelial-Mesenchymal Transition; FGF, fibroblast growth factor; GC, gastric cancer; GPER, hMAPK, hyperactive MAPK signaling; HK2, Hexokinase 2; IDH3α, isocitrate dehydrogenase 3α; IL, interleukin; MAPK, mitogen activated protein kinase; miRNA, microRNA;NFs, normal fibroblasts; HPFs, human prostate fibroblasts; H.P., H pyloriinfection; OS, overall survival; PaC, pancreatic cancer; PDAC, pancreatic ductal carcinoma; PGE2, prostaglandin E2; TGF, transforming growth factor; α-SMA, alpha-smooth muscle actin; SDF-1, stromal cell-derived factor 1.