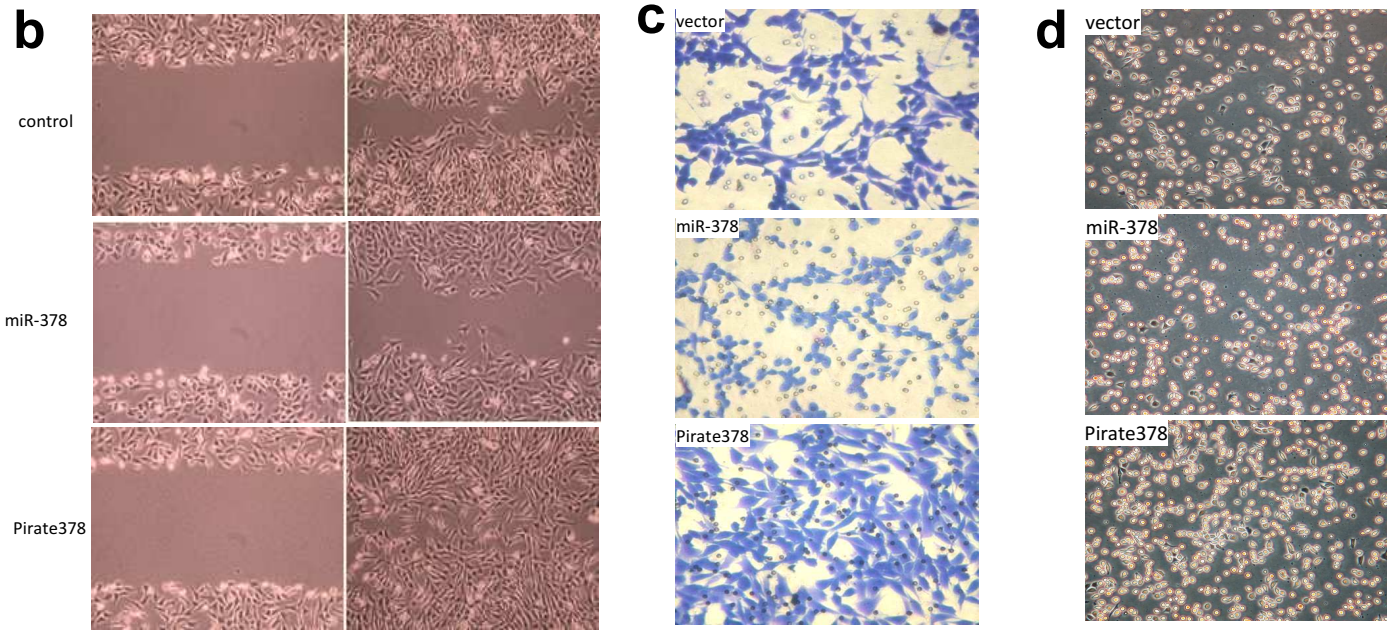
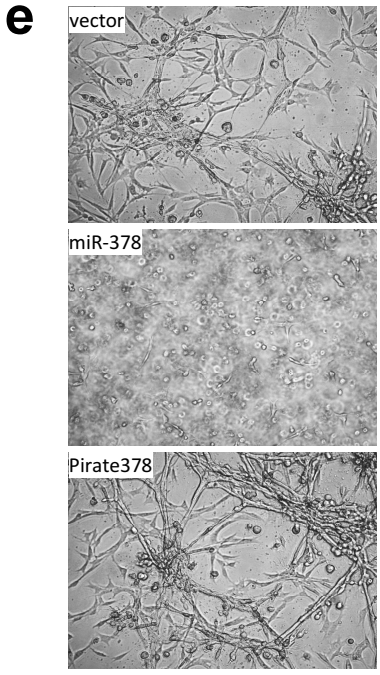
a

primers	sequences
mu-integrinb3-R378-SacI	5′ cc **gagctc** ggcttaggtggtgggagtacagtag
mu-integrinb3-R378-MluI	5′ cc **acgcgt** ctt cct gttg tcct ca ga ca gaga
mu-integrinb3-R378-MluI-mut	5′cc**acgcgt**cttcctgttgtcctcagacagagagaccaccg
Pre-miR378F	5′ agggctcctgactccagg
Pre-miR378R	5′ agg ccttc tg ac tcc aag
hsa-miR-378	5′ ctcctgactccaggtcctgtgt
miR-378N	5′ **agatct** agggctcctgactcc
miR-378C	5′ agg cct tct gac tcc aag tcc
anti-mir-378	5′ggtaacacacaggacctg
miR378-truncated	5′ tccaggtcctgtgtgttaccta
mo-Gapdh1F	5′ atg gtg aag gtc tgt gtg atc atc
mo-Gapdh250R	5′ tgg gtt ctc act cct gga aga agg





Three dimensional endothelial tube formation assay. *In vitro* collagen matrix based three dimensional endothelial lumen formation was performed as previously described by George Davis's lab [Koh, W, Stratman, AN, Sacharidou, A, and Davis, GE (2008) *Methods in enzymology* **443**: 83-101]. In brief, HUVEC cells were suspended to obtain a concentration of 10^7 cells/mL. Collagen type I (GIBCO) at a concentration of 3 mg/mL was mixed with dH_2O, 1N NaOH and 10x PBS according to the manufacturer's instructions. 100 μL of HUVEC cells were added to the collagen solution for a final concentration of 10^6 cells/mL and slowly pipetted into 48-well plate. The plate was incubated in a 37 °C, 95% humidity incubator for 30 minutes to allow collagen to polymerize. NIH3T3 cells transfected with different constructs were resuspended in 200 μL DMEM media for a density of 10^6 cells/mL and added into each well as feeding cells providing secreted molecules. Tube formation was examined by light microscopy at 12, 24 and 48 hours.

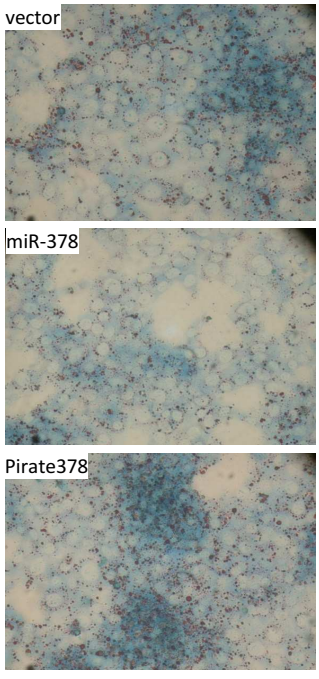


Fig S1. Effects of miR-378a on cell activities. (a) Primers used in this study. (b) In scratch wound healing test, overexpression of miR-Pirate378a increased cell migration while overexpression of miR-378a-5p inhibited cell motility. (c) In transwell migration test, more miR-Pirate378a-transfected cells migrated through the membrane than the other two groups. (d) NIH/3T3 cells were incubated on Petri-dish for two hours to test adhesion. The miR-378a cells adhered slower while the miR-Pirate378a cells adhered faster than the control. (e) In tube-like structure formation assay, tube formation was suppressed in the miR-378a-transfected cells but promoted by transfection with miR-Pirate378a. (f) In differentiation assay for cells stained with Oil-Red-O, transfection with miR-378a inhibited cell differentiation while overexpression of miR-Pirate378a promoted differentiation.