Supplementary figure legends

Supplementary Figure S1. Validation of SIK1 knockdown by sh*SIK1s*.

(A) The knockdown efficiencies of sh*SIK1s* were analyzed by co-transfecting 293T cells with SIK1 and sh*SIK1*s or sh*Luc* as a control as indicated. Vinculin was used as a loading control. (**B**) Expression levels of SIK1 in tHMEC-P expressing sh*SIK1s* were determined by real-time RT- PCR and sh*Luc* was given as a control. Results are shown as the means ± SD for 3 independent experiments.

Supplementary Figure S2. SIK1 knockdown does not alter p53 mRNA levels. The expression levels of p53 in tHMEC-P cells expressing various constructs as indicated were analyzed by real-time RT-PCR using TaqMan Gene Expression Assay (Applied Biosystems). Knockdown of p53 in cells expressing sh*p53* was validated and sh*Luc* was used as a control. Results are shown as the means ± SD for 3 independent experiments.

Supplementary Figure S3. Loss of SIK1 results in AI colony growth. Colony formation assays of tHMEC-P cells expressing SIK1-WT, SIK1-KD, sh*SIK1#1* or vector control as indicated. The means ± SD for 3 independent experiments are shown.

Supplementary Figure S4. Low expression level of SIK1 correlates with high malignant potential in ovarian cancer. The relative levels of *SIK1* expression in patient groups with low malignant potential (Grade 0, n=10), and high malignant potential (Grade 1-2, n=7; Grade 3, n=6) are shown as boxplots. The median for each group is indicated by the black center line, the first and third quantiles are the edges of the grey area, which is known as

inter-quantile range (IQR). The extreme values (within 1.5 times the inter-quantile range (IQR) from the upper or lower quantile) are the ends of the lines extending from the IQR. The difference in $\log_2$ expression ratios between low and high malignant potential samples was tested with Welch's t-test, $P < 0.05$.

Table S1 Kinase hits from a Kinome-wide shRNA screen

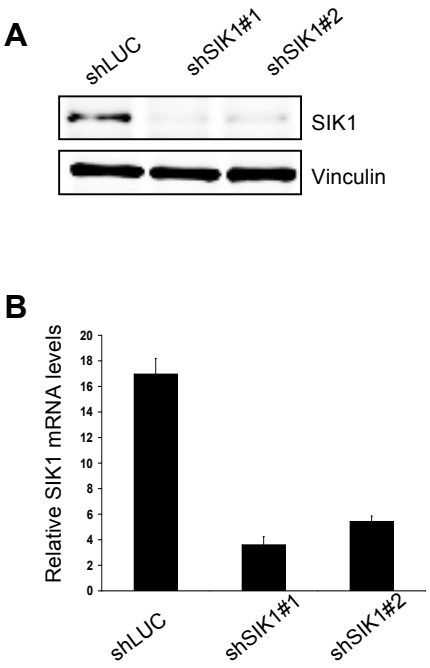
Gene	Description	Score frequency
p53*	tumor protein p53 (Li-Fraumeni syndrome)	18
SIK1	salt-inducible kinase 1	23
CAMKIIa	calcium/calmodulin-dependent protein kinase II alpha	8
BRD2	bromodomain containing 2	7
DAPK3	death-associated protein kinase 3	7
DRAK2	DAP kinase-related apoptosis-inducing protein kinase	6
BRDT	bromodomain testis-specific protein	5
LATS1	large tumor suppressor, homolog 1	5
PRKDC	protein kinase, DNA-activated, catalytic polypeptide	5
DYRK1A	dual specificity tyrosine-phosphorylation-regulated kinase 1A	5

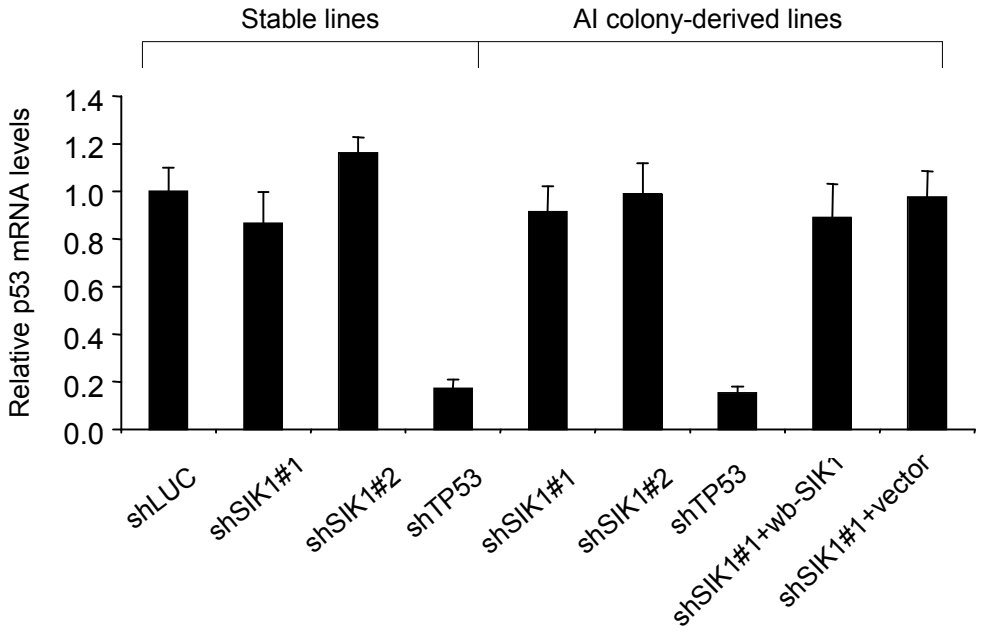
This table lists 9 unique gene targets scored 5 times or more in ~300 AI colonies isolated from screen. Note, shRNA targeting p53 (marked with an asterisk) was included as a control for the screening.

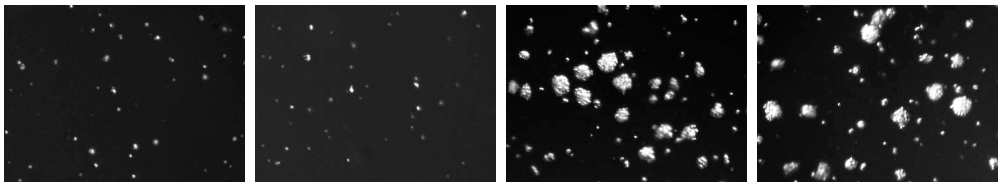
Table S2. Experimental metastasis assay

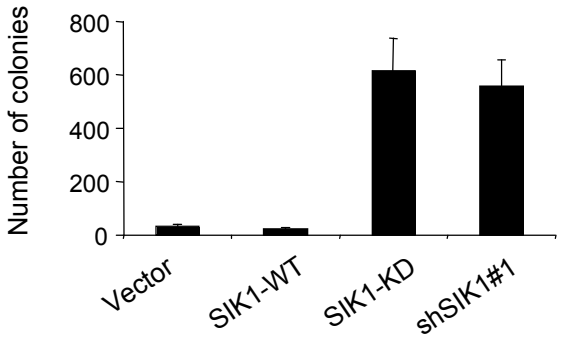
tHMEC-PR subline	Group A		Group B	
	Frequency	Lung diagnosis (6 weeks post injection)	Frequency	Lung diagnosis (16 weeks post injection)
Vector	0/8	No metastases	NA	NA
DDp53	8/8	Metastases	NA	NA
sh*TP53*	8/8	Metastases	NA	NA
sh*SIK1*	9/9	Micrometastases	6/9	Metastases
SIK1-KD	8/8	Micrometastases	8/9	Metastases

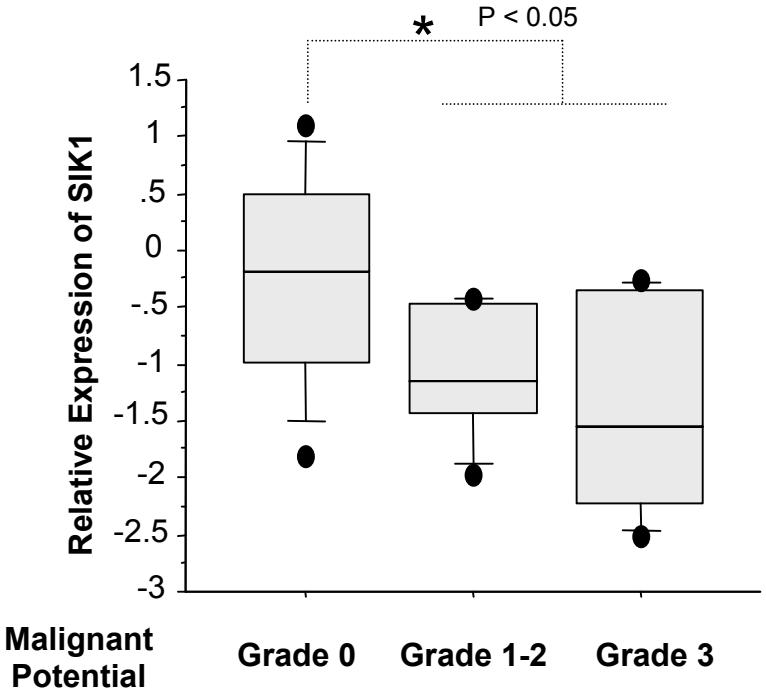
GFP-labeled tHMEC-PR cells expressing various constructs as indicated were injected into tail veins of NOD/SCID mice and lung metastasis was assessed 6 or 16 weeks post injection as described in Materials and methods.


A
shLUC
shSIK1#1
shSIK1#2
SIK1
Vinculin
B
Relative SIK1 mRNA levels
0
2
4
6
8
10
12
14
16
18
20
shLUC
shSIK1#1
shSIK1#2


Stable lines
AI colony-derived lines
Relative p53 mRNA levels
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
shLUC
shSIK1#1
shSIK1#2
shTP53
shSIK1#1
shSIK1#2
shTP53
shSIK1#1+wb-SIK1
shSIK1#1+vector


Vector
SIK1-WT
SIK1-KD
shSIK1#1


Number of colonies
800
600
400
200
0
Vector
SIK1-WT
SIK1-KD
shSIK1#1


*
P < 0.05
Relative Expression of SIK1
1.5
1
.5
0
-.5
-1
-1.5
-2
-2.5
-3
Malignant Potential
Grade 0
Grade 1-2
Grade 3