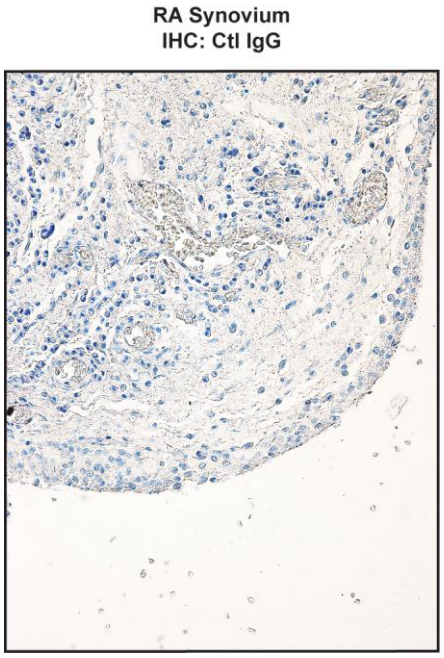
SUPPLEMENTAL FIGURES

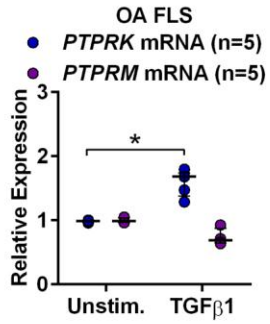
Supplemental Figure 1. RPTPκ is expressed in the RA synovium. Immunohistochemical staining of RA synovial section using control IgG antibody.

S.M. Stanford *et al*., Supplementary Figure 1



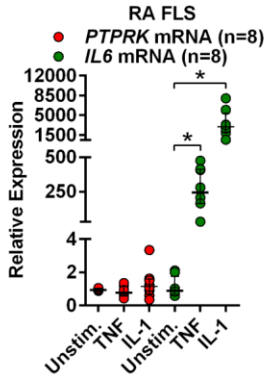
Supplemental Figure 2. *PTPRK* expression in OA FLS is induced by cell stimulation with TGFβ1. *PTPRK* and *PTPRM* mRNA expression in OA FLS was measured following cell stimulation with 50 ng/ml TGFβ1 for 24 hr. Median• }IQR is shown. *, $p<0.05$, Mann-Whitney test.

S.M. Stanford et al., Supplementary Figure 2



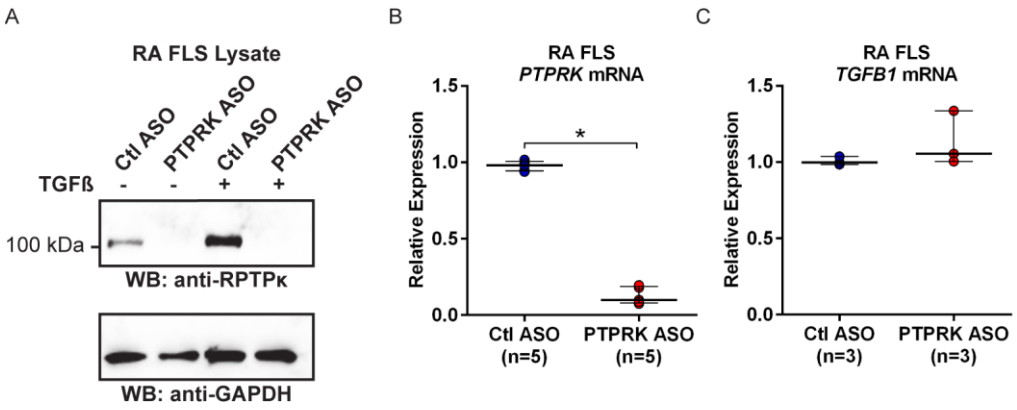
Supplemental Figure 3. *PTPRK* expression in RA FLS is not affected by cell stimulation with TNF or IL-1. The expression of *PTPRK* and as a positive control, *IL6*, was measured by qPCR in 8 RA and 8 OA FLS lines following cell stimulation with 50 ng/ml TNF or 2 ng/ml interleukin 1 (IL-1β) for 24 hr. Panel shows median• }IQR. Significance was calculated using the Wilcoxon matched-pairs signed rank test. *, $p<0.05$.

S.M. Stanford et al., Supplementary Figure 3



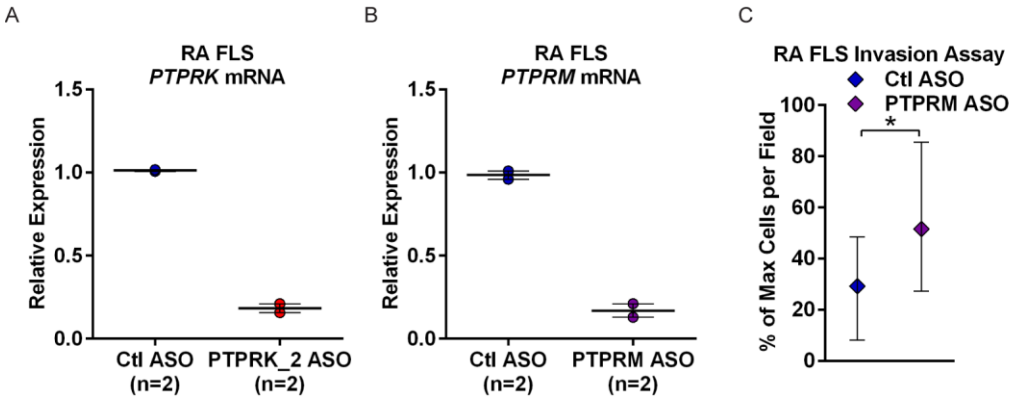
Supplemental Figure 4. Knockdown of PTPRK does not affect the expression of *TGFB1* in RA FLS. (A-B) Cell-permeable antisense oligonucleotide (ASO) enables efficient knockdown of *PTPRK* expression in RA FLS. RA FLS were treated with 2.5 BM control (Ctl) or PTPRK ASO for 7 days. (A) After 6 days of ASO treatment, cells were stimulated with 50 ng/ml TGFβ1, or left unstimulated, in the presence of ASO for 24 hr. Panels show Western blotting of lysates with anti-RPTP or anti-Glyceraldehyde 3-phosphate dehydrogenase (GAPDH) antibodies. Data is representative of 5 independent experiments in different FLS lines. (B) *PTPRK* expression was assessed by qPCR, normalized to the housekeeping gene *RPII*, and plotted relative to the *PTPRK* expression in Ctl ASO-treated cells. Data from 5 independent experiments in different FLS lines is shown. Significance was calculated using the Wilcoxon matched-pairs signed rank test. *, $p<0.05$. (C) *PTPRK* expression does not affect the expression of *TGFB1* in RA FLS. Following treatment of RA FLS for 7 days with 2.5 BM Ctl or PTPRK ASO, *TGFB1* expression was assessed by qPCR, normalized to the housekeeping gene *RPII*, and plotted relative to the *TGFB1* expression in Ctl ASO-treated cells. Panel shows median• }IQR. Data from 3 independent experiments in different FLS lines is shown.

S.M. Stanford et al., Supplementary Figure 4



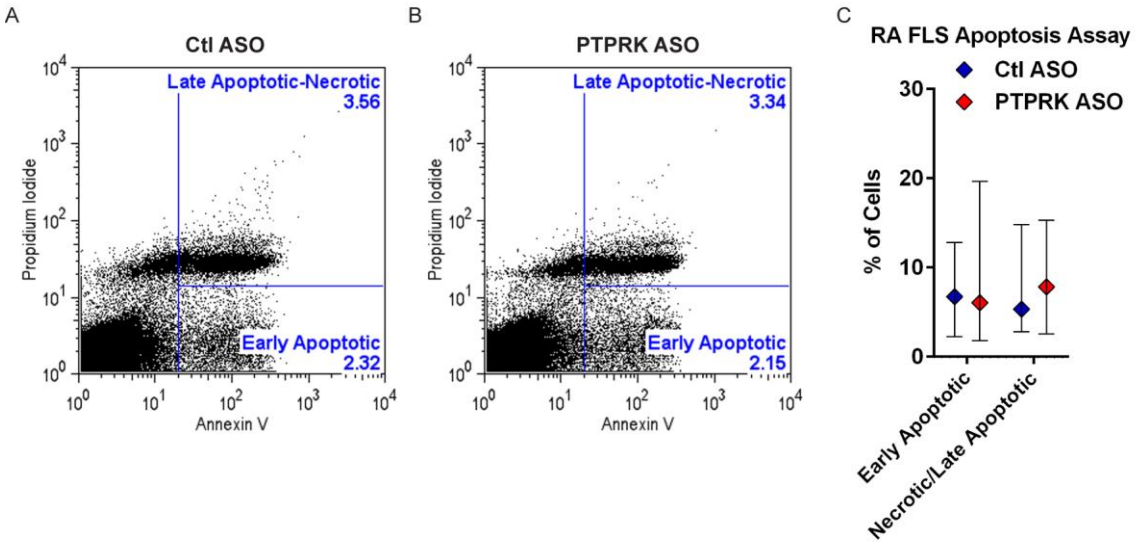
Supplemental Figure 5. Knockdown of RPTP| , but not RPTPμ, reduces RA FLS invasiveness. (A) PTPRK_2 ASO enables efficient knockdown of RPTP| . RA FLS were treated with 2.5 BM Ctl or PTPRK_2 ASO for 7 days. *PTPRK* expression was assessed by qPCR, normalized to the housekeeping gene *RPII*, and plotted relative to the *PTPRK* expression in Ctl ASO-treated cells. Panel shows mean• }range. Data from 2 independent experiments in different FLS lines is shown. (B) PTPRM ASO enables efficient knockdown of *PTPRM*. RA FLS were treated with 2.5 BM Ctl or PTPRM ASO for 7 days. *PTPRM* expression was assessed by qPCR, normalized to the housekeeping gene *RPII*, and plotted relative to the *PTPRM* expression in Ctl ASO-treated cells. Panel shows mean• }range. Data from 2 independent experiments in different FLS lines is shown. (C) Following treatment with 2.5 BM Ctl or PTPRM ASO for 7 d, RA FLS were allowed to invade through Matrigel-coated transwell chambers in response to 50 ng/ml PDGF-BB for 24 hr. Graph shows median• }IQR % maximum number of cells per field. Data from 3 independent experiments in different FLS lines is shown. Significance was calculated using the Mann-Whitney test. *, $p<0.05$.

S.M. Stanford *et al.*, Supplementary Figure 5



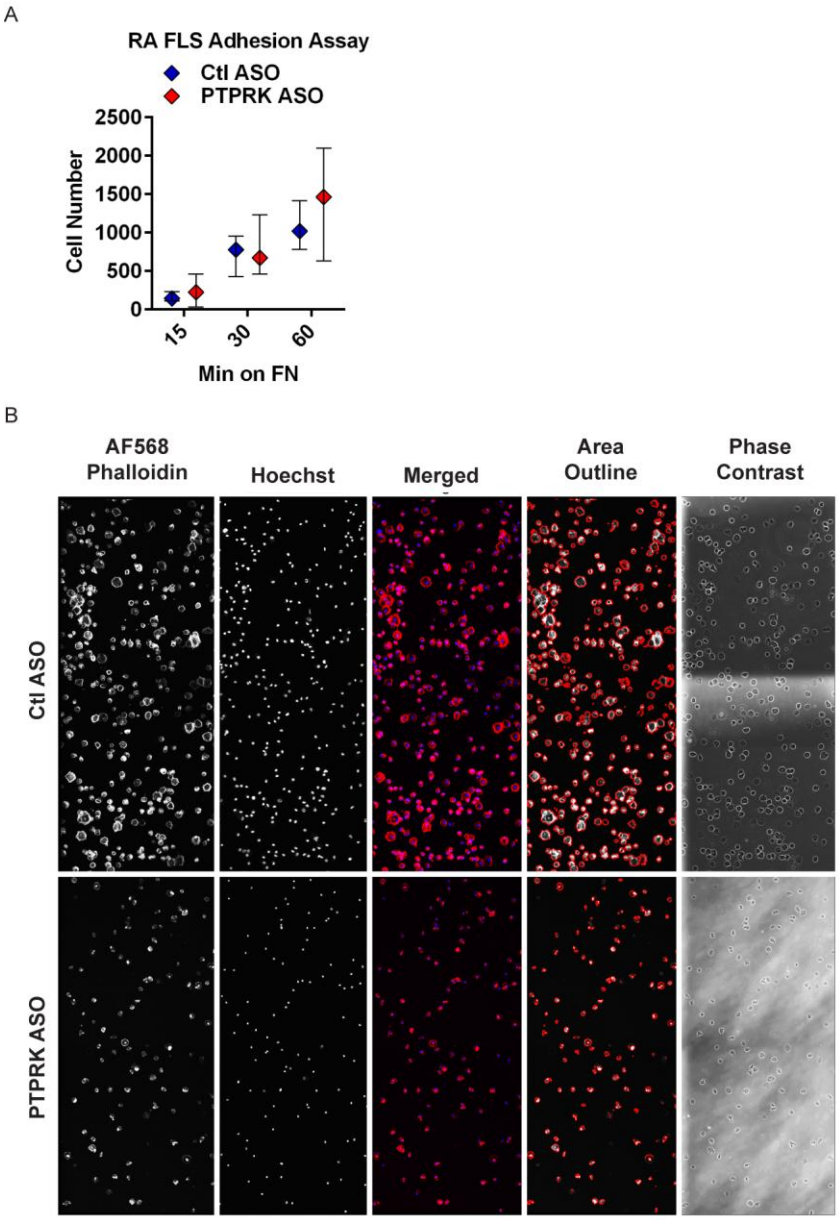
Supplemental Figure 6. RPTPκ knockdown does not affect RA FLS survival. Following treatment with Ctl or PTPRK ASO and cell synchronization, RA FLS were serum-starved (FLS medium with 0.1% FBS) for an additional 24 hr. Cells were collected and stained with Annexin V and PI, and cell fluorescence was assessed by FACS. (A-B) Graphs show gating strategy to detect early apoptotic (Annexin V^+PI^-) and necrotic/late apoptotic (Annexin V^+PI^+) cells following treatment with Ctl (A) or PTPRK (B) ASO. (C) Graph shows median• }IQR percentage of early apoptotic (Annexin V^+PI^-) and necrotic/late apoptotic (Annexin V^+PI^+) cells. Data from 5 independent experiments in different FLS lines is shown. Significance was calculated using the Wilcoxon matched-pairs signed rank test.

S.M. Stanford *et al.*, Supplementary Figure 6



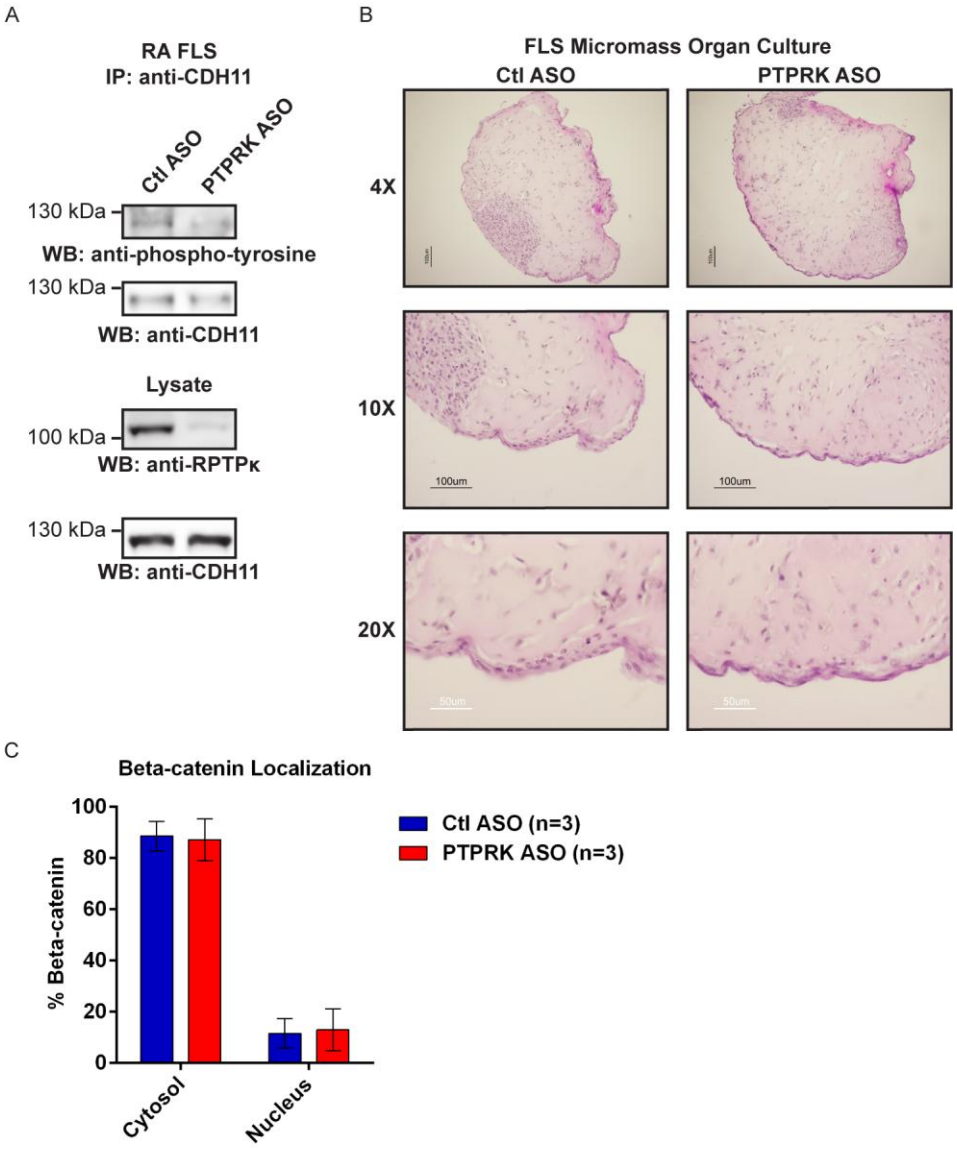
Supplemental Figure 7. RPTPκ knockdown inhibits RA FLS spreading but not adhesion on an extracellular matrix. (A) RPTPκ knockdown does not affect RA FLS adhesion on fibronectin (FN). Graph shows median• }IQR cell number of cells from Figure 2F. Data from 3 independent experiments in different FLS lines is shown. Significance was calculated using the Mann-Whitney test. (B) Panel shows representative images of cells from (A) and Fig. 2F 60 min after plating on FN.

S.M. Stanford *et al.*, Supplementary Figure 7



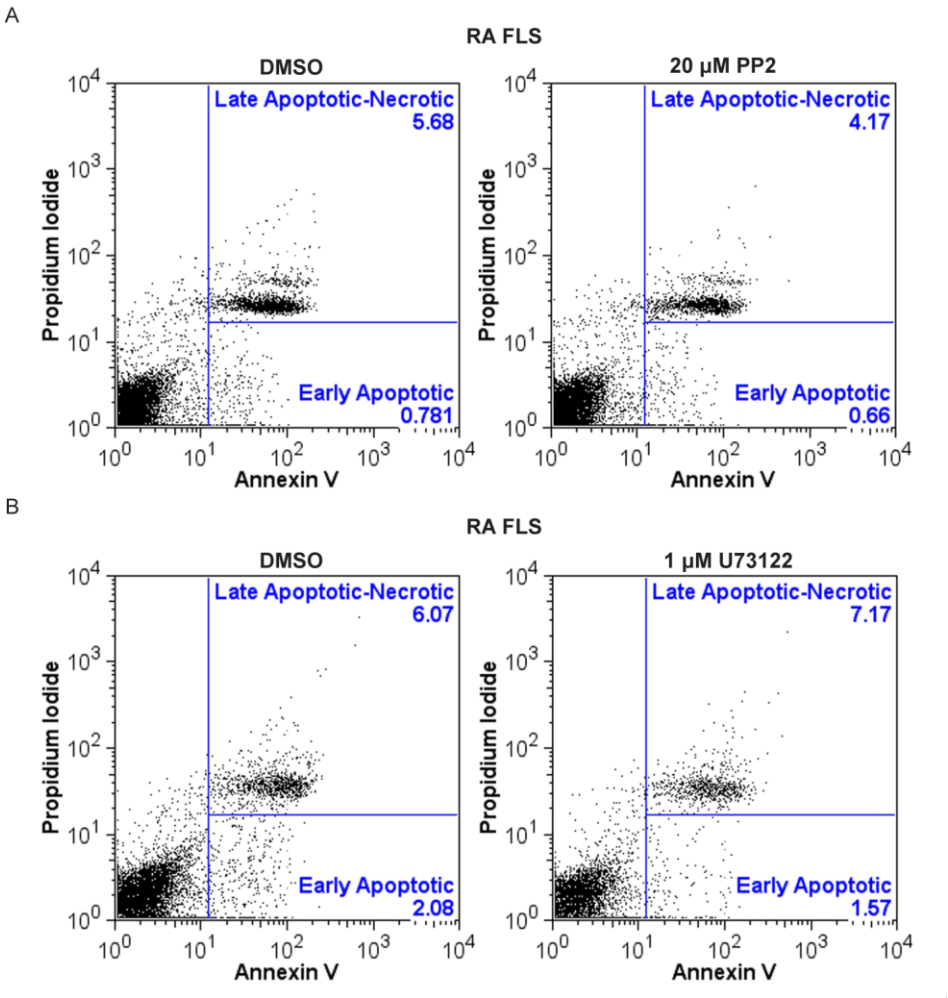
Supplemental Figure 8. Cadherin-11 and beta-catenin are not substrates of RPTPκ in RA FLS. (A) RPTPκ knockdown does not affect tyrosine phosphorylation of cadherin-11. Following treatment with 2.5 BM Ctl or PTPRK ASO for 7 days, RA FLS lysates were subjected to immunoprecipitation with anti-cadherin-11 (CDH11) antibody. Panels show Western blotting with the indicated antibodies. (B) RPTPκ knockdown does not affect formation of synovial lining in FLS micromass organ cultures. FLS micromass organ cultures were prepared in Matrigel as described in[3]. Two weeks after plating, cultures were treated with 2.5 BM Ctl or PTPRK ASO for an additional week. (B) Panels show histological images of micromasses stained with hematoxylin and eosin. (C) Following treatment with 2.5 BM Ctl or PTPRK ASO for 7 days, RA FLS were stained with anti-beta-catenin antibody, phalloidin and Hoechst and imaged by immunofluorescence microscopy. Graph shows proportions of beta-catenin in cytosolic and nuclear fractions. Data from 3 independent experiments in different FLS lines is shown. Significance was calculated using the Mann-Whitney test.

S.M. Stanford *et al.*, Supplementary Figure 8



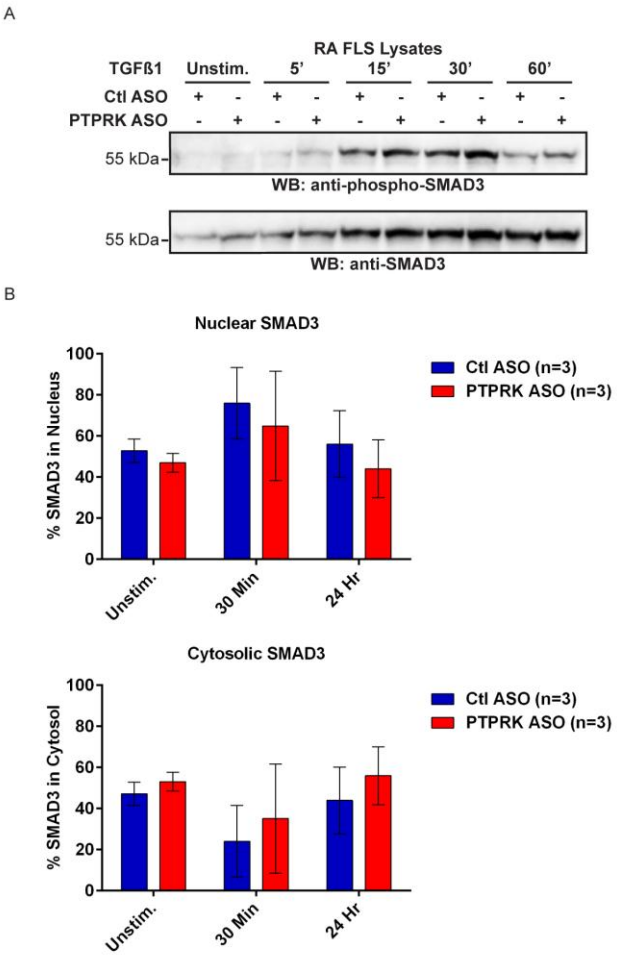
Supplemental Figure 9. Treatment of RA FLS with chemical inhibitors of SRC and PLCγ1 does not affect RA FLS survival. (A-B) RA FLS were synchronized and then serum-starved (FLS medium with 0.1% FBS) for an additional 24 hr in the presence of DMSO or 20 μM SRC inhibitor PP2 (A) or 1 μM PLCγ1 inhibitor U73122 (B). Cells were collected and stained with Annexin V and PI, and cell fluorescence was assessed by FACS. Graphs show gating strategy to detect early apoptotic (Annexin V^+PI^-) and necrotic/late apoptotic (Annexin V^+PI^+) cells.

S.M. Stanford et al., Supplementary Figure 9



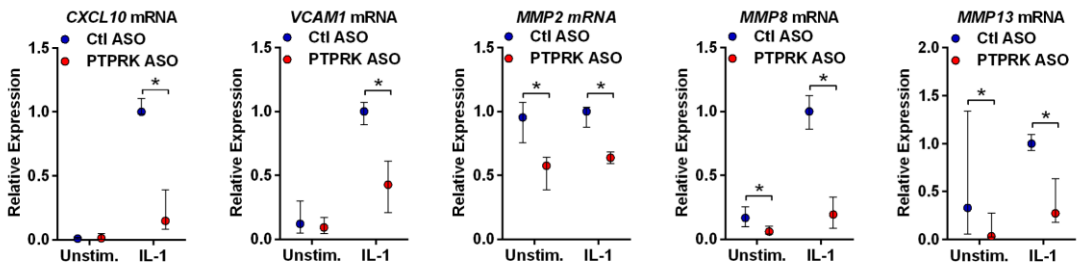
Supplemental Figure 10. TGFβ signaling in RA FLS is unaffected by knockdown of RPTPκ. Following treatment with Ctl or PTPRK ASO for 7 days, RA FLS were stimulated with 50 ng/ml TGFβ1 for 5, 15, 30 or 60 min, or left unstimulated. Panels show Western blotting of cell lysates with anti-phospho-SMAD3 and anti-SMAD3 antibodies. (B) Following treatment with Ctl or PTPRK ASO for 7 days, RA FLS were stimulated with 50 ng/ml TGFβ1 for 30 min, 24 hr, or left unstimulated. Cells were stained with anti-SMAD3 antibody, phalloidin and Hoechst and imaged by immunofluorescence microscopy. Graph shows proportions of SMAD3 in cytosolic and nuclear fractions. Data from 3 independent experiments in different FLS lines is shown. Significance was calculated using the Mann-Whitney test.

S.M. Stanford *et al.*, Supplementary Figure 10



Supplemental Figure 11. RPTPκ promotes IL-1 signaling in RA FLS. Following treatment with Ctl or PTPRK ASO for 7 days, RA FLS were stimulated with 2 ng/ml IL-1β for 24 h or left unstimulated. Graph shows median• }IQR mRNA expression levels relative to the Ctl ASOtreated, IL-1β-stimulated samples from the same FLS line. Data from 4 independent experiments in different FLS lines is shown. *, p<0.05, Mann-Whitney test.

S.M. Stanford *et al.*, Supplementary Figure 11



Supplemental Figure 12. FAK activity promotes JNK activation in RA FLS. RA FLS were pre-treated for 20 min with 5 μM FAK inhibitor PF573228 or DMSO, and then stimulated with 50 ng/ml TNFα for 15 min or left unstimulated. Western blotting of cell lysates in shown. Data is representative of 3 independent experiments in different FLS lines.

S.M. Stanford *et al.*, Supplementary Figure 12