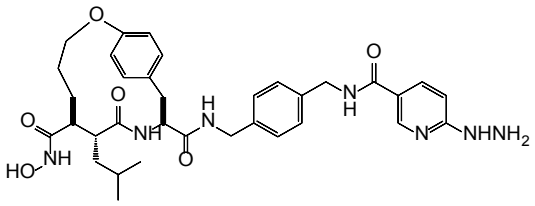
Supplemental Table 1. Ki values of RP805 precursor for a set of recombinant human (rh) MMPs. Values are the mean ± SD from three experiments.

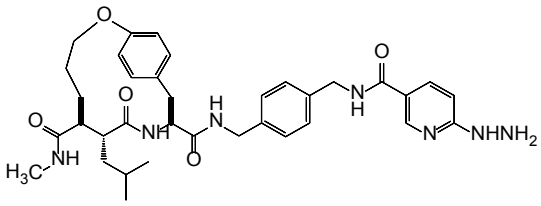
| | $K_i$ (nM) | | |
|---|---|---|---|
| | **rhMMP-2** | **rhMMP-9** | **rhMMP-12** |
| **RP805 precursor** | 19.1±3.1 | 19.2±3.8 | 4.6±0.5 |

Supplemental Fig. 1. Chemical structures of hydorxamic acid-containing RP805 precursor (A) and its N-methyl amide-containing, negative control analog (B).

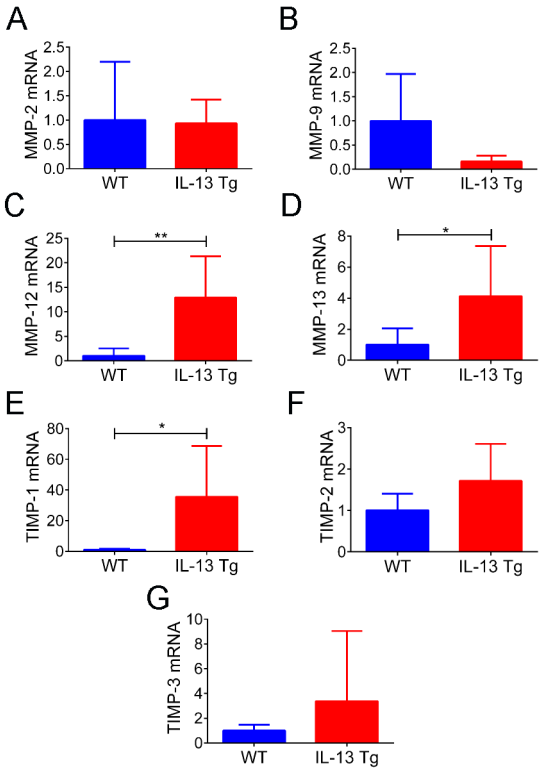
A



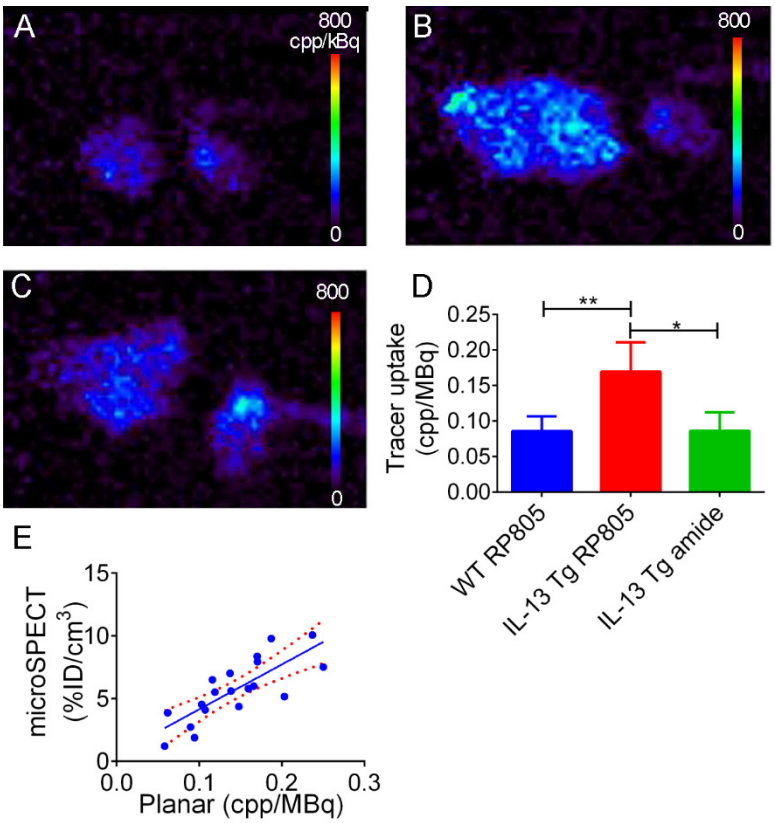
B



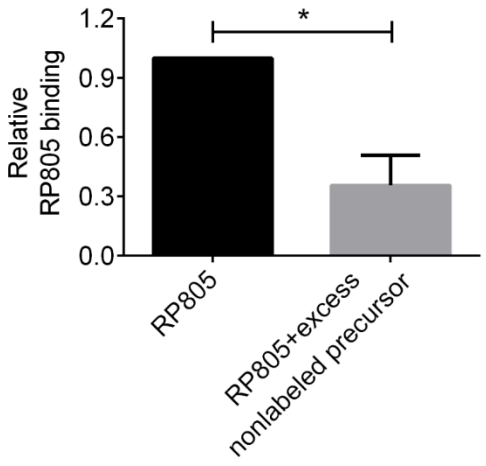
Supplemental Fig. 2. MMP and TIMP expression. (A-G) Real time RT-PCR analysis of MMP-2 (A), MMP-9 (B), MMP-12 (C), MMP-13 (D), TIMP-1 (E), TIMP-2 (F), TIMP-3 (G) gene expression in the lungs from wild type (n = 3-4) and CC10-IL-13 Tg (n = 7-9) mice. Data are normalized to mean expression in WT mice and reported as mean ± standard deviation based on RNA extracted from equal tissue volume. *: $P < 0.05$, **: $P < 0.01$. WT: wild type.



Supplemental Fig. 3. Ex vivo planar imaging of MMP activation. Examples (A-C) of ex vivo planar images of harvested lungs (arrows) and hearts (arrow heads), and quantification of the lung signal (D) in wild type mice injected with RP805 (A) and CC10-IL-13 Tg mice injected with RP805 (B) or its amide analog, control tracer (C). *: $P <$ 0.01, **: $P < 0.001$, n = 6, 13 and 5, respectively for wild type mice injected with RP805 and CC10-IL-13 Tg mice injected with RP805 or amide analog, (E) Correlation between microSPECT-derived and planar imaging-derived quantification of RP805 uptake. Dotted lines represent 95% confidence interval. WT: wild type, ID: injected dose, cpp: counts per pixel.



Supplemental Fig. 4. RP805 binding to IL-13 Tg lung tissue sections in the absence or presence of excess non-labeled precursor demonstrating its binding specificity, n=3, *: $P < 0.05$.



Supplemental Fig. 5. Correlation between microSPECT-derived quantification of RP805 uptake and MMP-12 mRNA in arbitrary units in the lungs from wild type and CC10-IL-13 Tg mice imaged with RP805. Dotted lines represent 95% confidence interval. ID: injected dose.