

**Supplementary Fig. 5 – Rac1 shRNA knockdown reverses the effects of HACE1 loss (a)** Decreased Rac1 after Doxycycline (DOX) induction of Rac1 shRNA in MCF12A-HACE1 knockdown cells (shHACE1 (1) and shHACE1 (2)) and MCF12A shNSC cells. **(b)** Soft agar colony formation of MCF12A shHACE1 (1), MCF12A shHACE1 (2), and MCF12A shNSC cells with and without DOX induction of Rac1 shRNA (\*\*P < 0.001 between groups, Student's t-test). Data are expressed as mean ± SEM of three separate experiments. **(c)** *in vitro* migration (20 h) of MCF12A shHACE1 (1 & 2) and MCF12A shNSC cells with and without DOX induction of Rac1 shRNA as determined by Boyden chamber. 100 ng/ml EGF and 10 ng/ml HRG was used chemotractant (\*P < 0.01 between groups, Student's t-test).