

D Ren, et al. Brain adaptive CSCs in TNBC brain metastases

Supplementary Fig 1. A. Gene expressions of the 16 genes in normal human tissue. Red arrows indicate brain nucleus. Ref: Neurogenetics 2006/05/01. 353 samples. B. Gene expressions of PCDH family members in tumorspheres and corresponding brain seeking cells. C-D. Kaplan–Meier curve showing the bone (C) and lung (D) metastasis-free survival of patients with high or low PCDH7 expression in the combined cohort of 368 breast cancer patients, $P=0.89$ and 0.72 , respectively, determined by log rank test.

Supplementary Fig 2. A. shRNA knockdown (shRNA1 and shRNA2) and rescue of PCDH7 in tumorspheres from MB231-Br and CN34-Br xenograft models. B. Overexpression of PCDH7 in MB231 and CN34 parental cell lines. C. *In vivo* mammary tumor growth of injecting indicated cell lines. D. *In vivo* lung colonies growth of tail vein-inoculated cells. $n=6$ mice per group. E-F. *In vitro* cell proliferation of indicated cell lines. Data are the average of triplicate determinations \pm s.d..

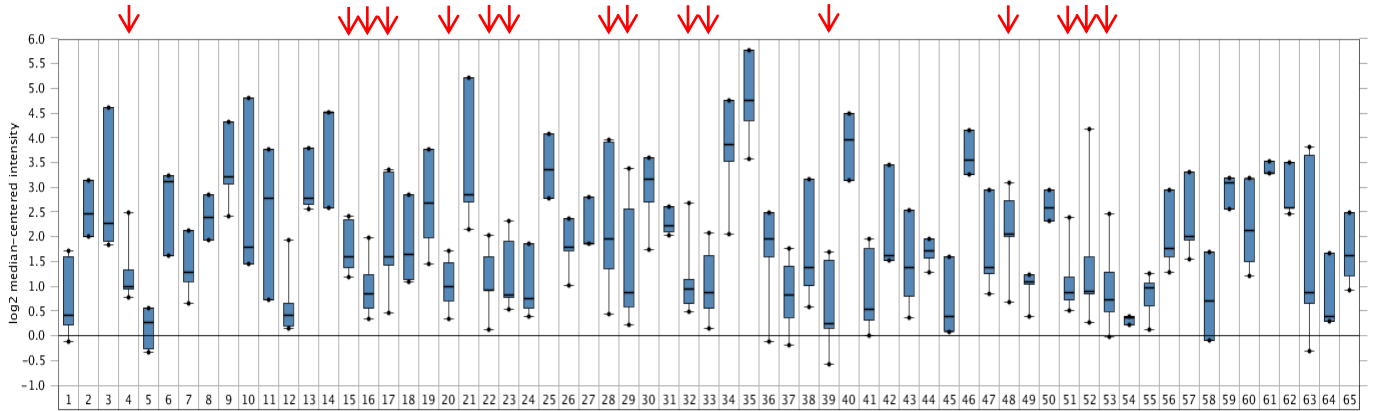
Supplementary Fig 3. **A.** Gene expression of PCDH7, calcium channel-regulated genes, pro-survival and pro-apoptosis genes in 231-P cells when co-culturing with astrocytes for 72 hours. Data were shown for quadruplets (1-4), and has been normalized to control (231-P cells co-cultured with normal fibroblasts). **B.** A representative whole section montage image showing reactive astrocytes surround tumor cells. **C.** Transduction of full-length (FL-PCDH7) or extracellular domain (EC-PCDH7) of PCDH7 gene into parental MB231 cells. **D.** Number of reactive astrocytes, five days after carotid artery injection of indicated cell lines, quantified within the $150\mu\text{m}$ distance from cancer cells (cancer cell associated) and within the corresponding region of the contralateral hemisphere that lacks cancer cells (normal control). $n=6$ mice per cell line. **E.** Expression of PCDH7 and PLC β 1 in cell nucleus (N), cytoplasm (C) and membrane (M). Histone 3, PTEN and N-cadherin were served as control proteins expressed in N, C and M. **F.** Comparison of amino acid sequence of β -catenin binding domain of mouse E-cadherin with an amino acid sequence in the C-terminal region of PCDH7 suggests the potential for a β -catenin binding domain on PCDH7. **G.** Western blot of β -catenin immunoprecipitates to detect co-precipitation of the PCDH7 protein. **H.** Fluorescent immuno-staining image showing no obvious nucleus translocation of β -catenin in 231-Br and MB231-tumorsphere cells when co-cultured with astrocytes. **I.** Immuno blot of phosphorylated or total β -catenin showing no difference between parental and brain metastatic tumorspheres. **J.** No significant changes of the expression of transcriptional factors of canonical Wnt pathway, i.e. *lef-1* and *tcf-4*, in the parental and brain metastatic tumorspheres.

Supplementary Fig 4. **A-B.** *In vitro* second tumorsphere formation efficiency of ET-18-OCH3 treatment on patient-derived tumorsphere BM-TS1. **C-D.** Expressions of pPLC β and PCDH7 in the ET-18-OCH3 treated BM-TS1 by Western blot.

Fig. S1

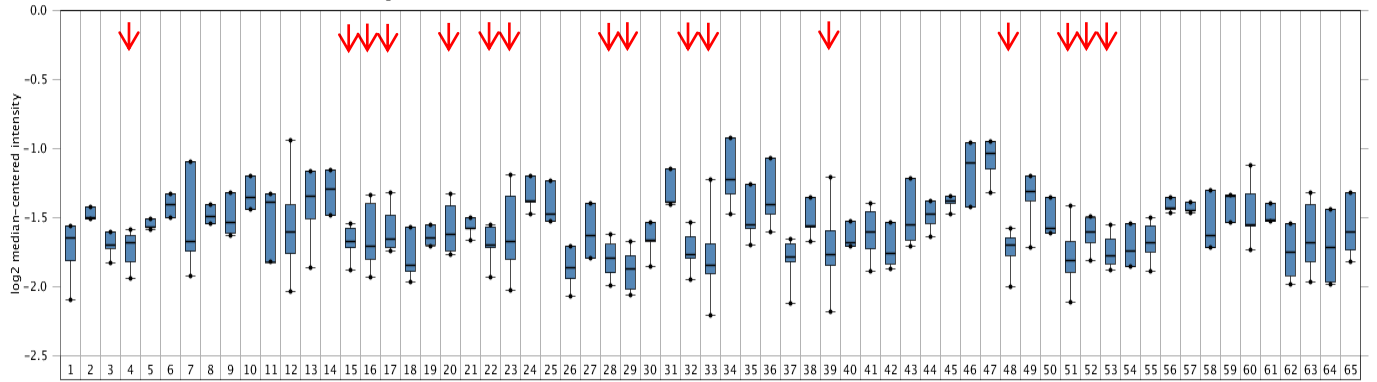
ADAMTS1 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 205476_at



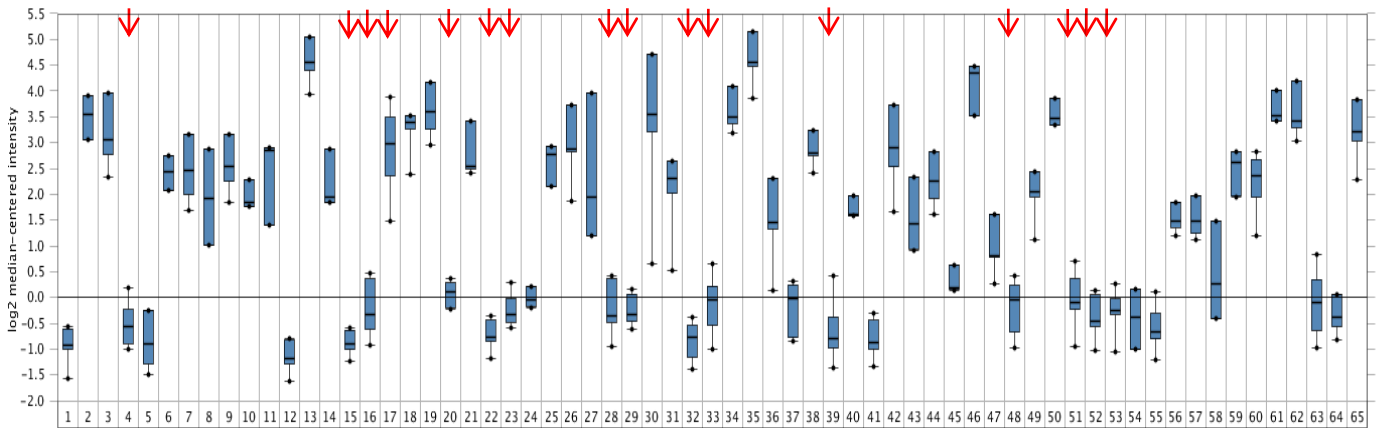
ARHGAP29 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 208200_at



COL12A1 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 202388_at

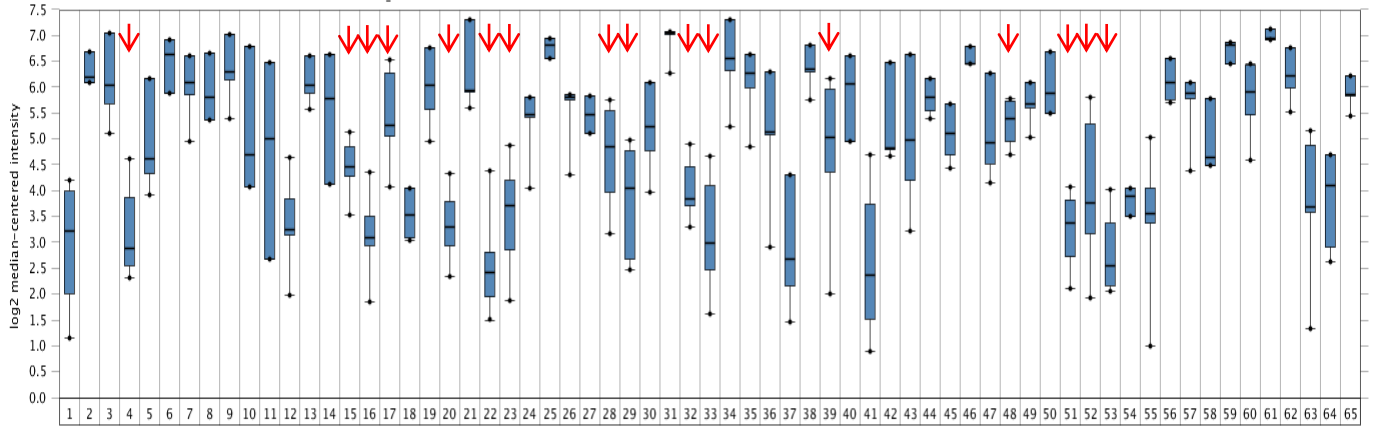


Supplementary Fig 1A.

Fig. S1

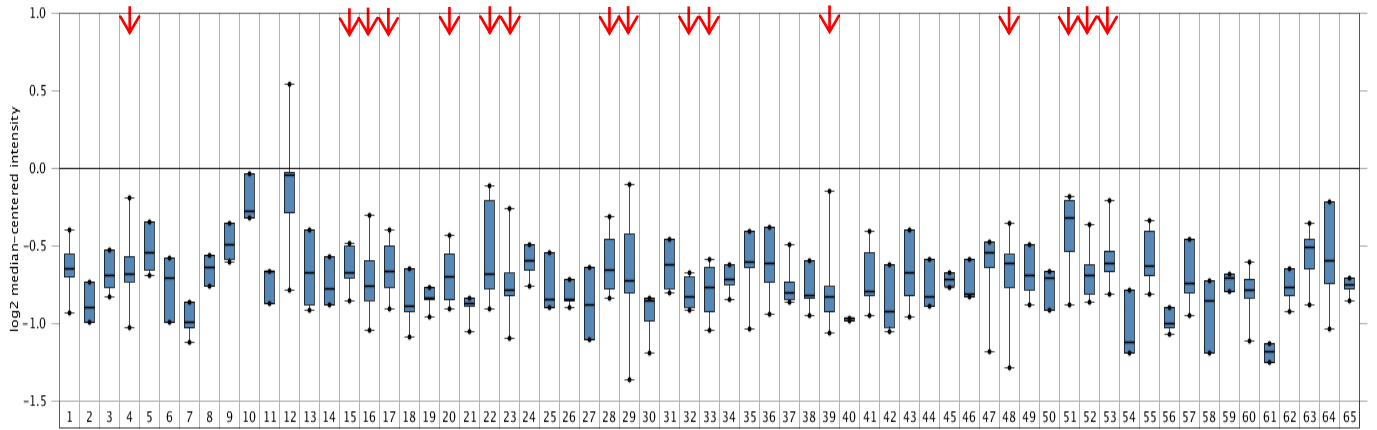
DUSP1 Expression in Roth Normal
Grouped by Normal Tissue Type

Reporter: 201667_at



FGF5 Expression in Roth Normal
Grouped by Normal Tissue Type

Reporter: 224341_x_at



FRAS1 Expression in Roth Normal
Grouped by Normal Tissue Type

Reporter: 1562753_at

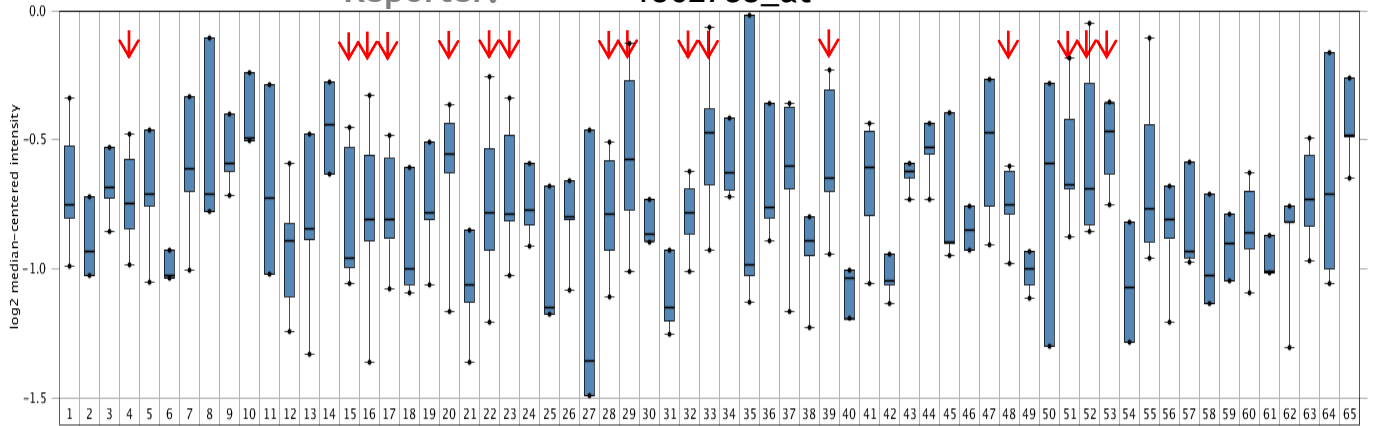
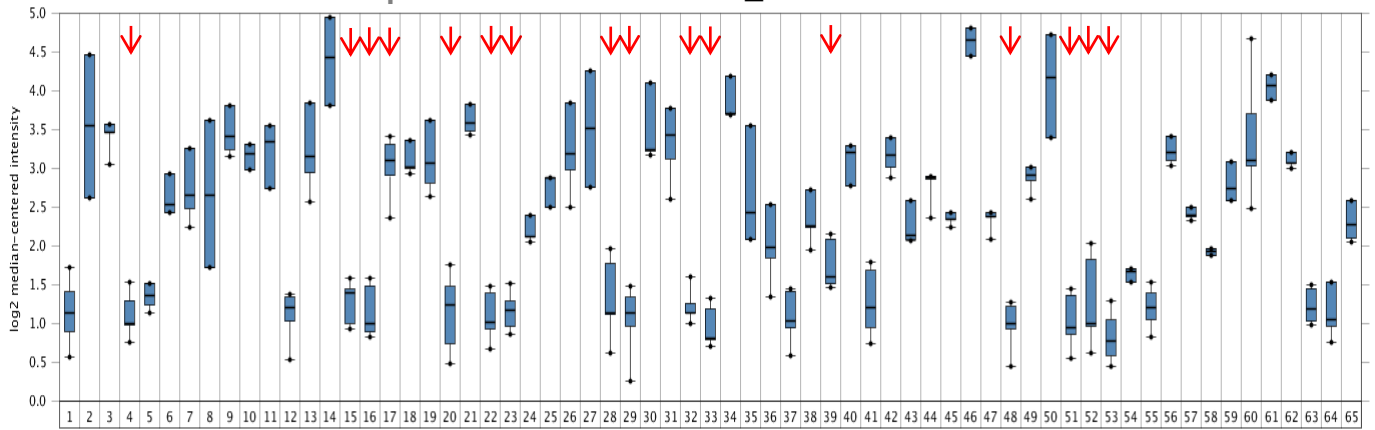


Fig. S1

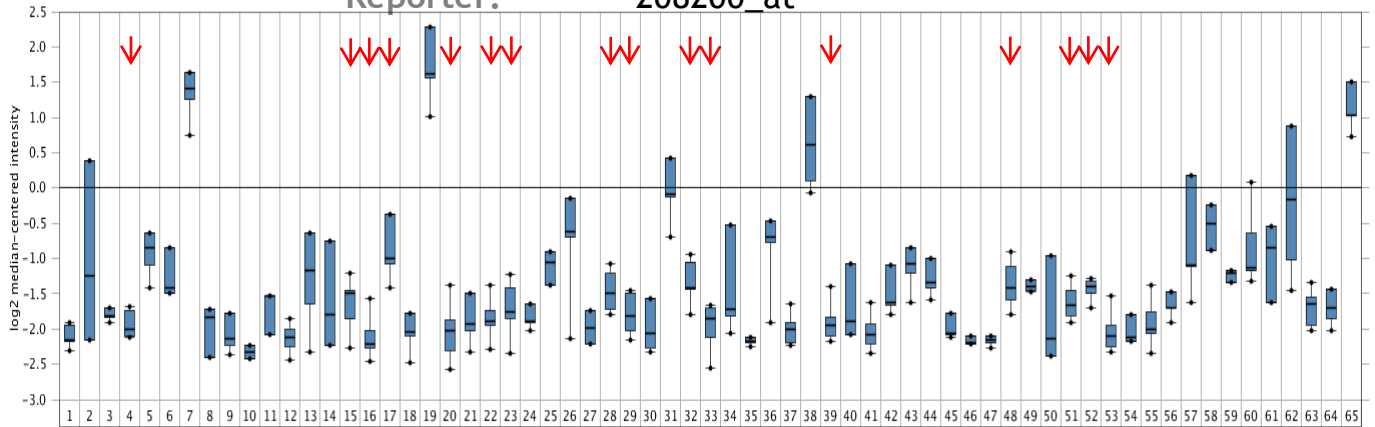
HSPG2 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 205476_at



IL18 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 208200_at



LPAR1 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 202388_at

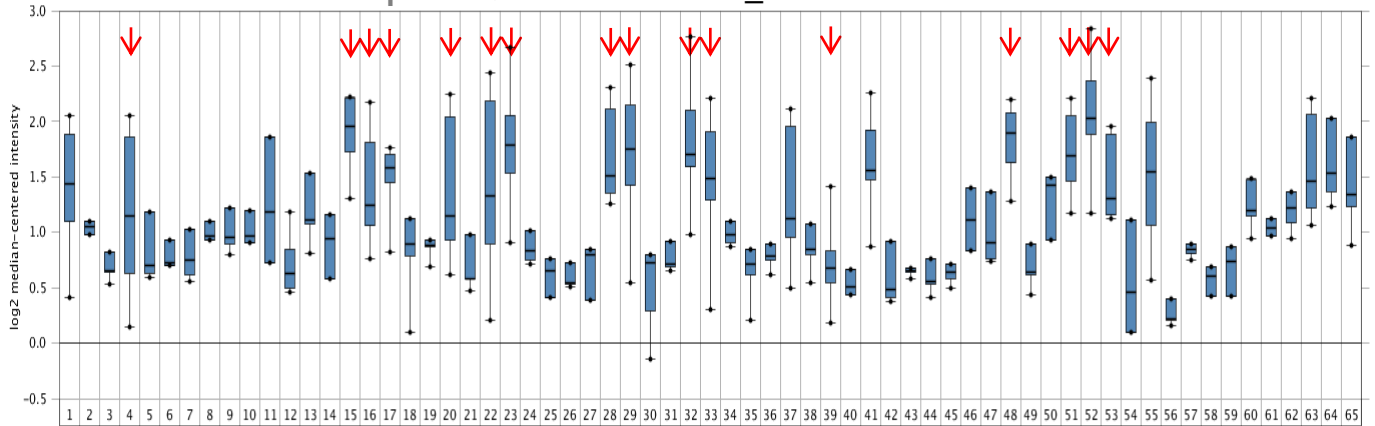
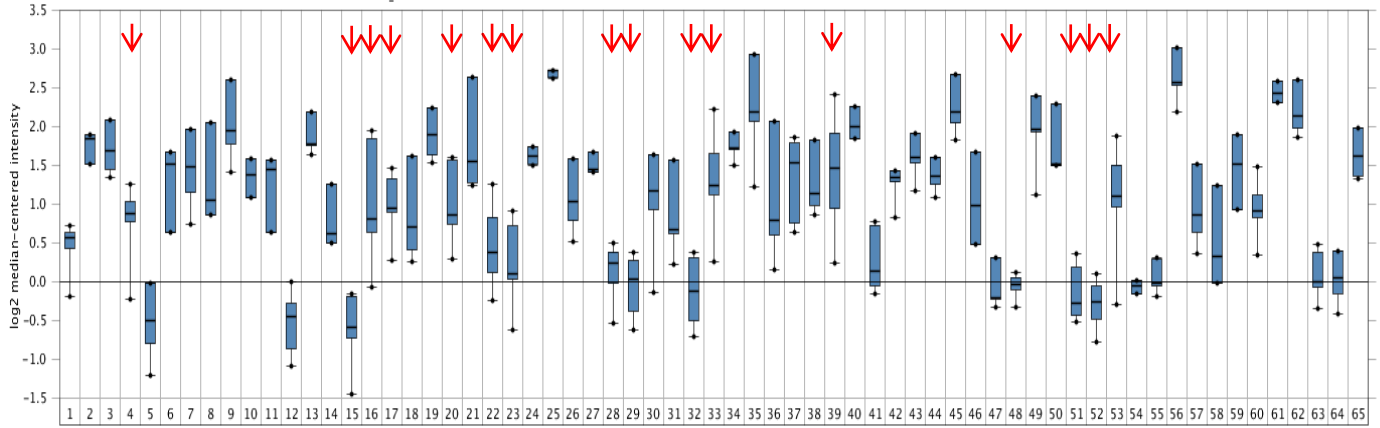


Fig. S1

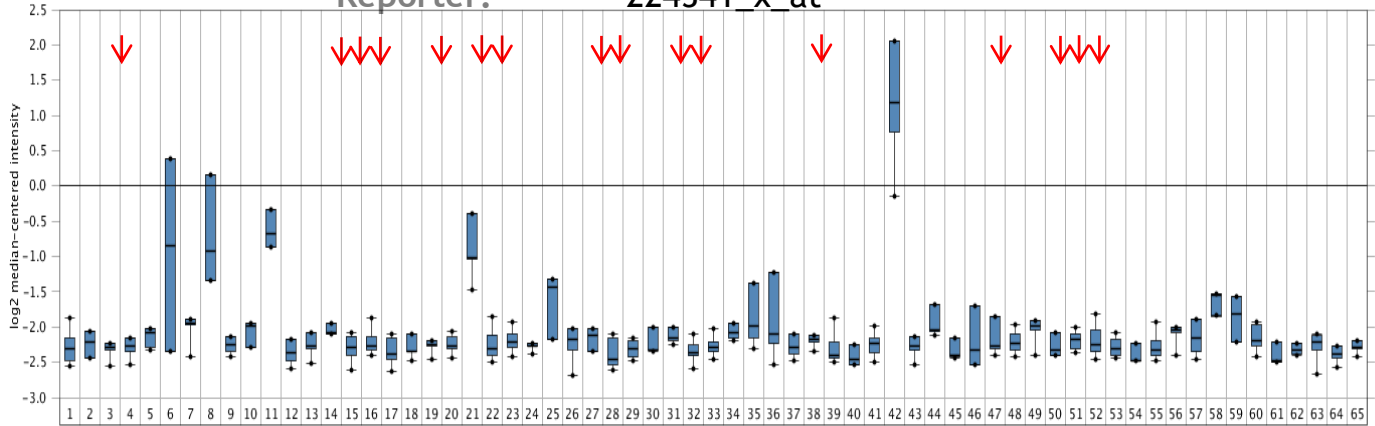
LPHN2 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 201667_at



MMP1 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 224341_x_at



NMNAT2 Expression in Roth Normal Grouped by Normal Tissue Type

Reporter: 1562753_at

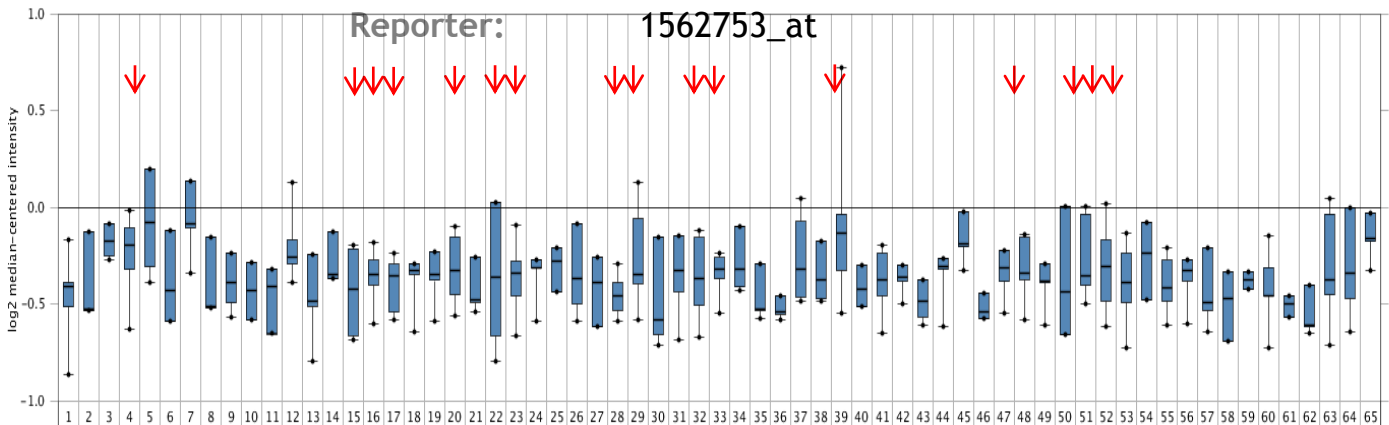
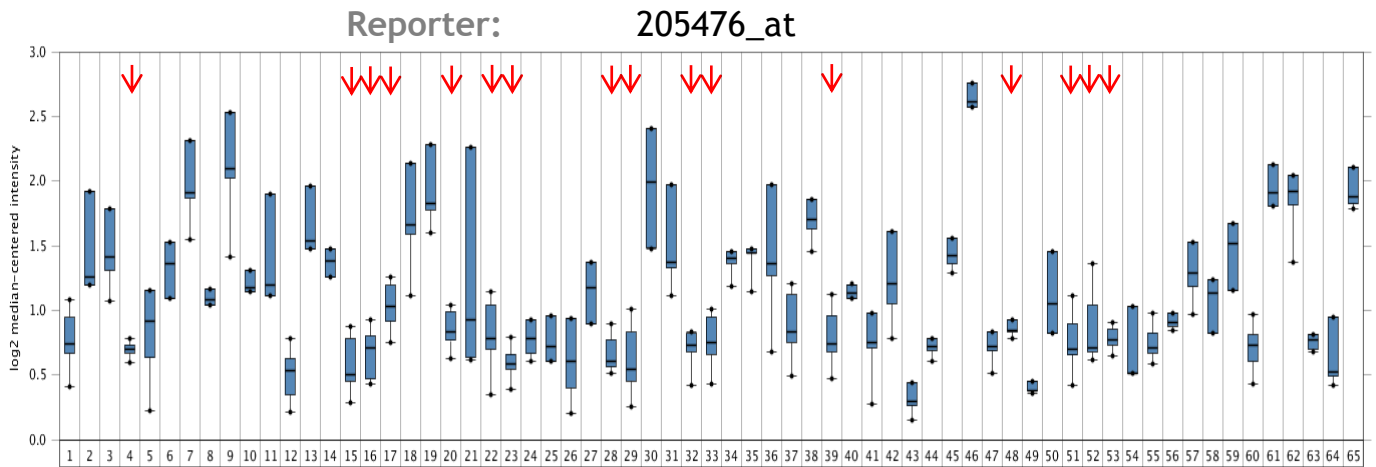
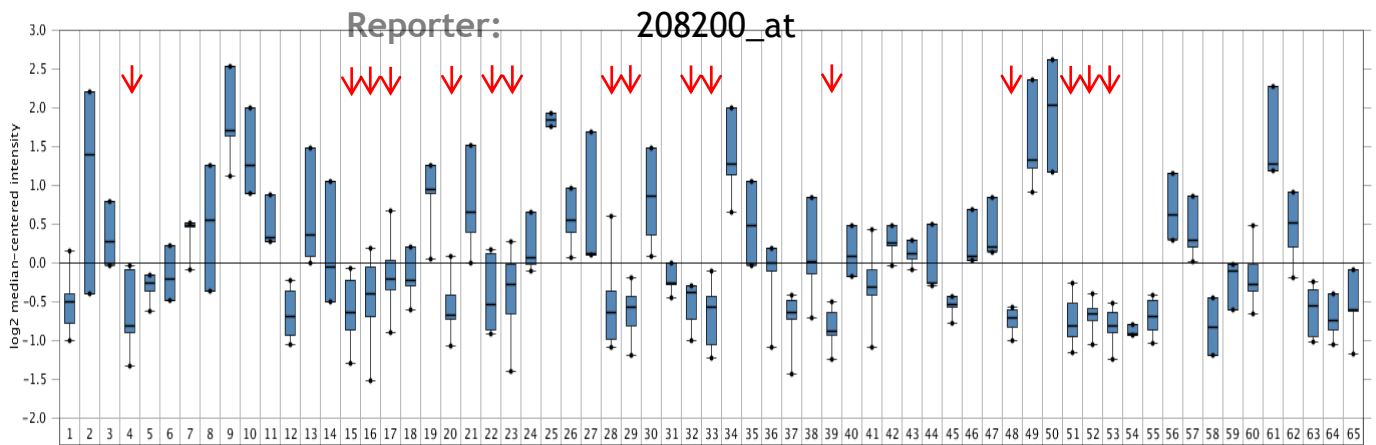


Fig. S1

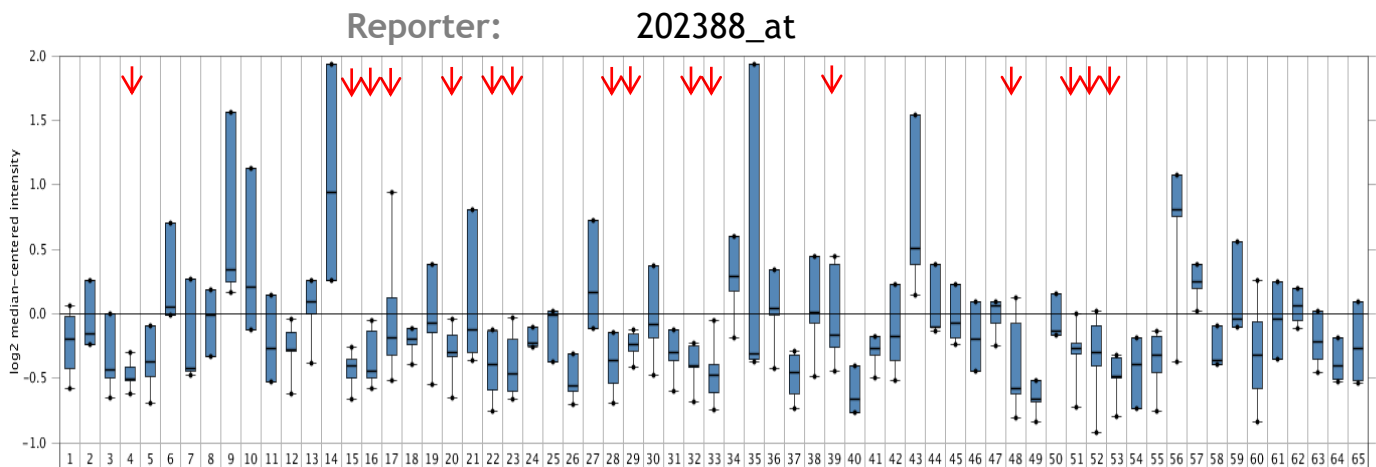
PTGFRN Expression in Roth Normal
Grouped by Normal Tissue Type



SDPR Expression in Roth Normal
Grouped by Normal Tissue Type



STC1 Expression in Roth Normal
Grouped by Normal Tissue Type

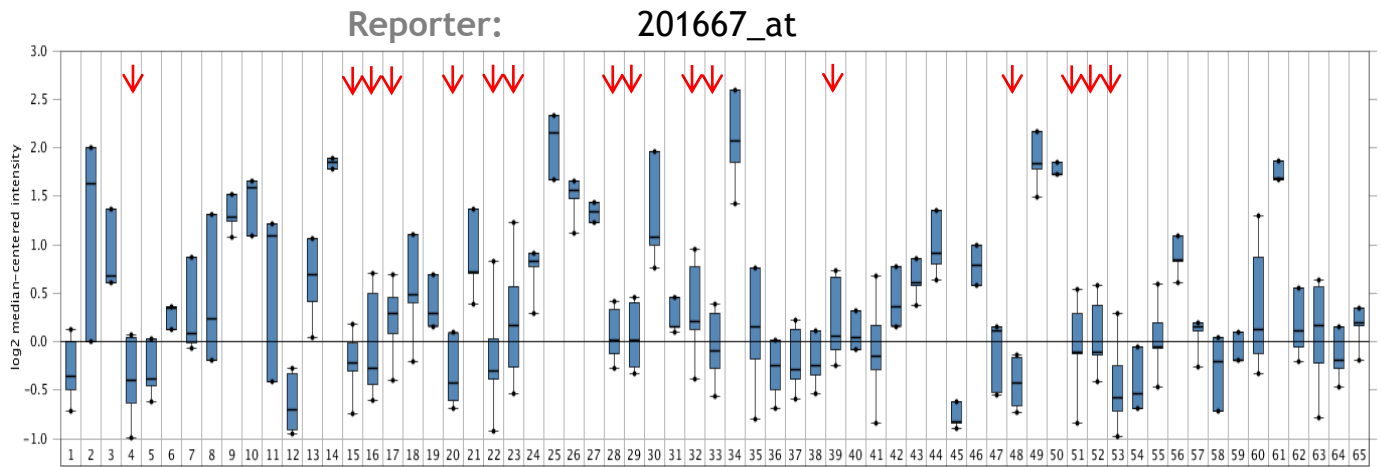


Supplementary Fig 1A.

Fig. S1

TIE1 Expression in Roth Normal

Grouped by Normal Tissue Type

**Legend**

1. Accumbens Nucleus (9) 2. Adipose Tissue (3) 3. Adrenal Cortex (4) 4. **Amygdala (8)** 5. Bone Marrow (5) 6. Bronchus (3) 7. Buccal Mucosa (4) 8. Gastric Cardia (3) 9. Cardiac Atrium (4) 10. Cardiac Ventricle (3) 11. Cecum (3) 12. **Cerebellum (9)** 13. Cervix Uteri (4) 14. Coronary Artery (3) 15. **Corpus Callosum (9)** 16. **Cerebral Cortex (9)** 17. **Dorsal Root Ganglion (8)** 18. Endometrium (4) 19. Esophagus (4) 20. **Frontal Lobe (9)** 21. Fundus of the Stomach (4) 22. **Hippocampus (9)** 23. **Hypothalamus (8)** 24. Liver (4) 25. Lung (3) 26. Lymph Node (4) 27. Mammary Gland (3) 28. **Medulla Oblongata (9)** 29. **Mesencephalon (9)** 30. Myometrium (5) 31. Nipple (4) 32. **Nodose Ganglion (8)** 33. **Occipital Lobe (8)** 34. Omental Adipose Tissue (4) 35. Ovary (4) 36. Papilla of the Tongue (4) 37. Parietal Lobe (9) 38. Pharyngeal Mucosa (4) 39. **Pituitary Gland (8)** 40. Prostate Gland (3) 41. Putamen (9) 42. Pylorus (4) 43. Renal Cortex (4) 44. Renal Medulla (4) 45. Salivary Gland (4) 46. Saphenous Vein (3) 47. Skeletal Muscle Tissue (5) 48. **Spinal Cord (8)** 49. Spleen (4) 50. Subcutaneous Adipose Tissue (3) 51. **Substantia Nigra (8)** 52. **Subthalamic Nucleus (8)** 53. **Temporal Lobe (8)** 54. Testis (3) 55. **Thalamus (8)** 56. Thyroid Gland (4) 57. Tongue (4) 58. Tonsil (3) 59. Trachea (3) 60. Trigeminal Ganglion (8) 61. Urethra (3) 62. Vagina (4) 63. Ventral Tegmentum (8) 64. Vestibular Nucleus (7) 65. Vulva (4)

Roth Normal

Neurogenetics 2006/05/01 353 samples
 mRNA 19,574 measured genes
 Human Genome U133 Plus 2.0 Array

Fig. S1

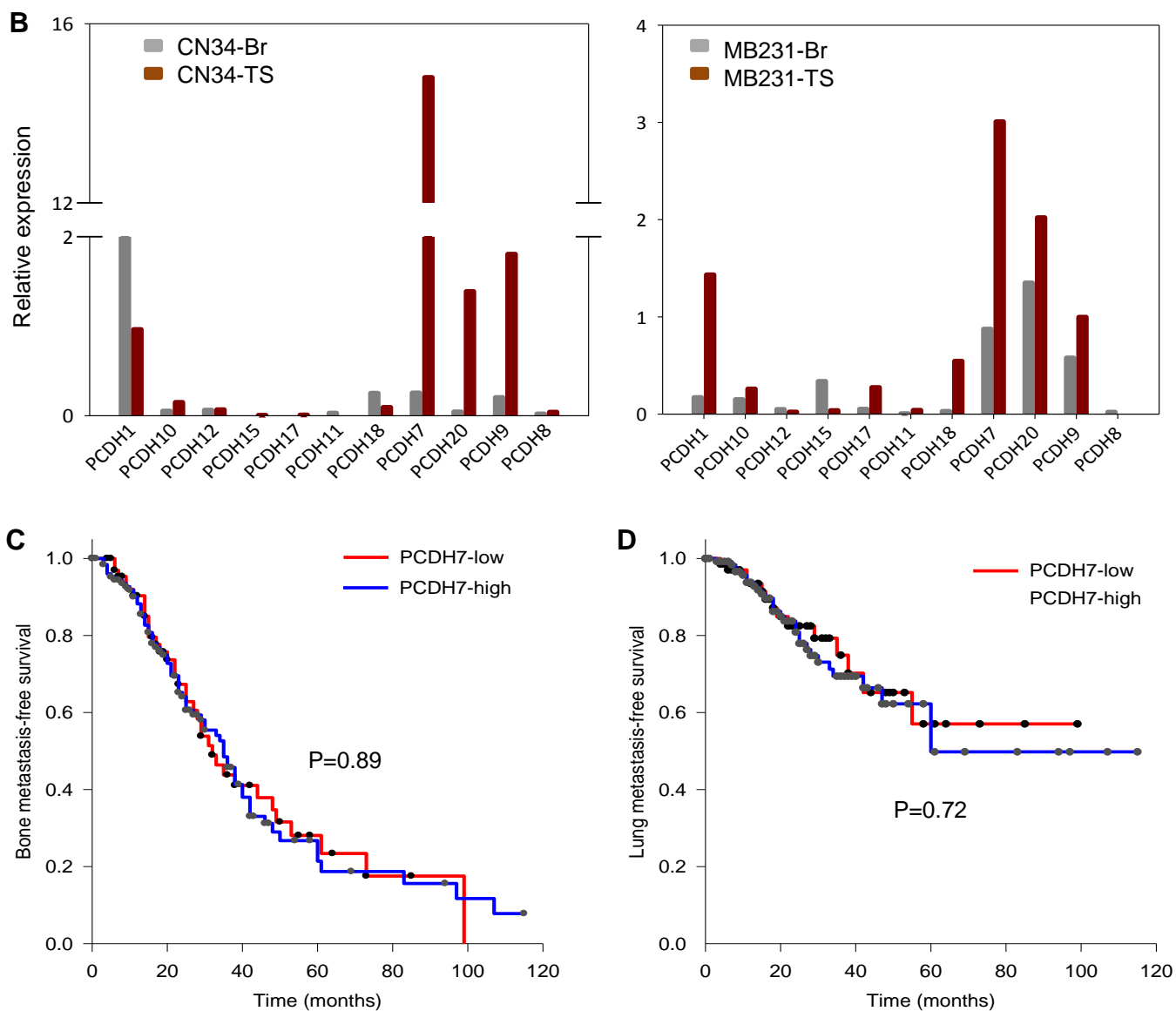


Fig. S2

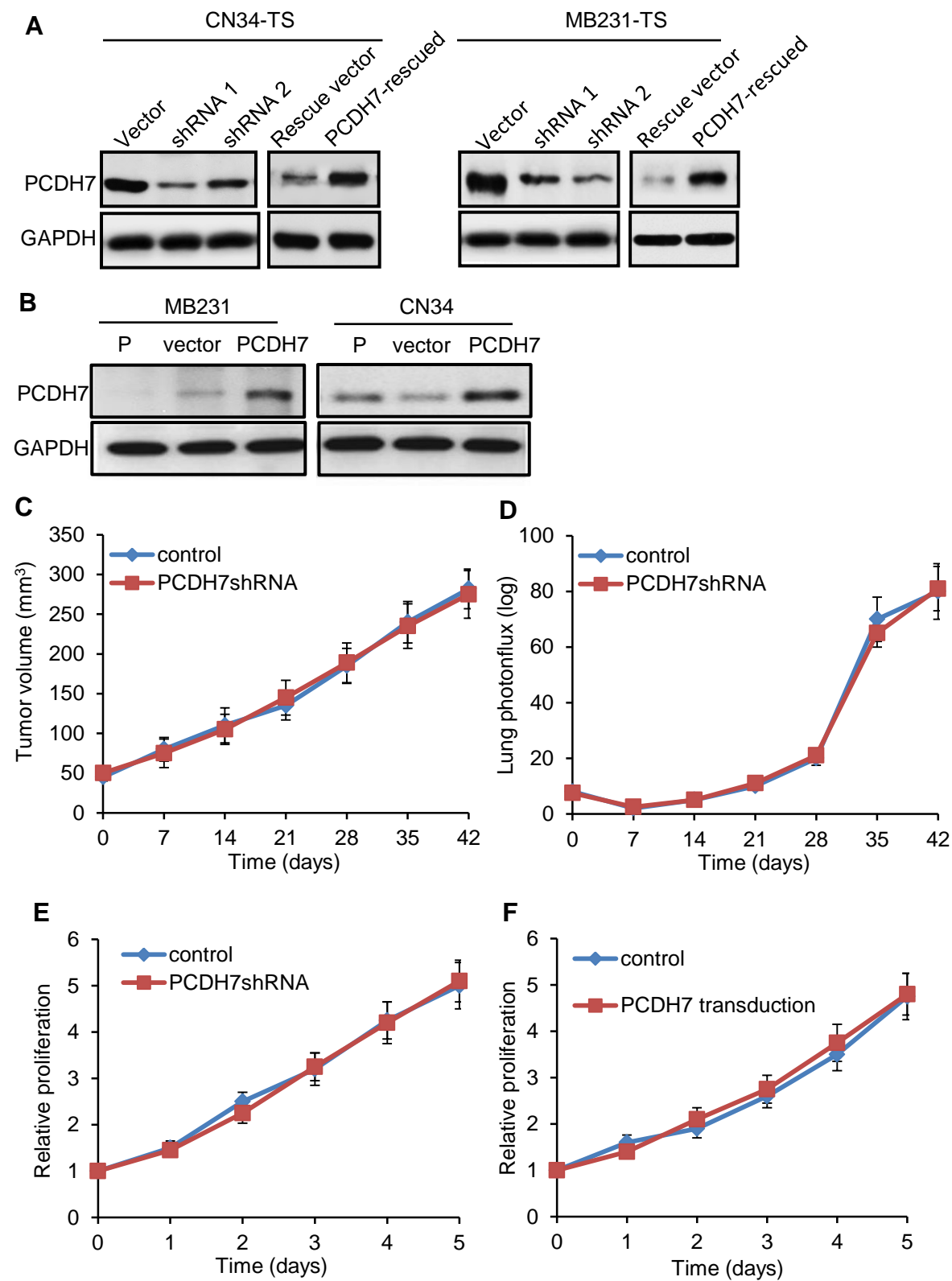


Fig. S3

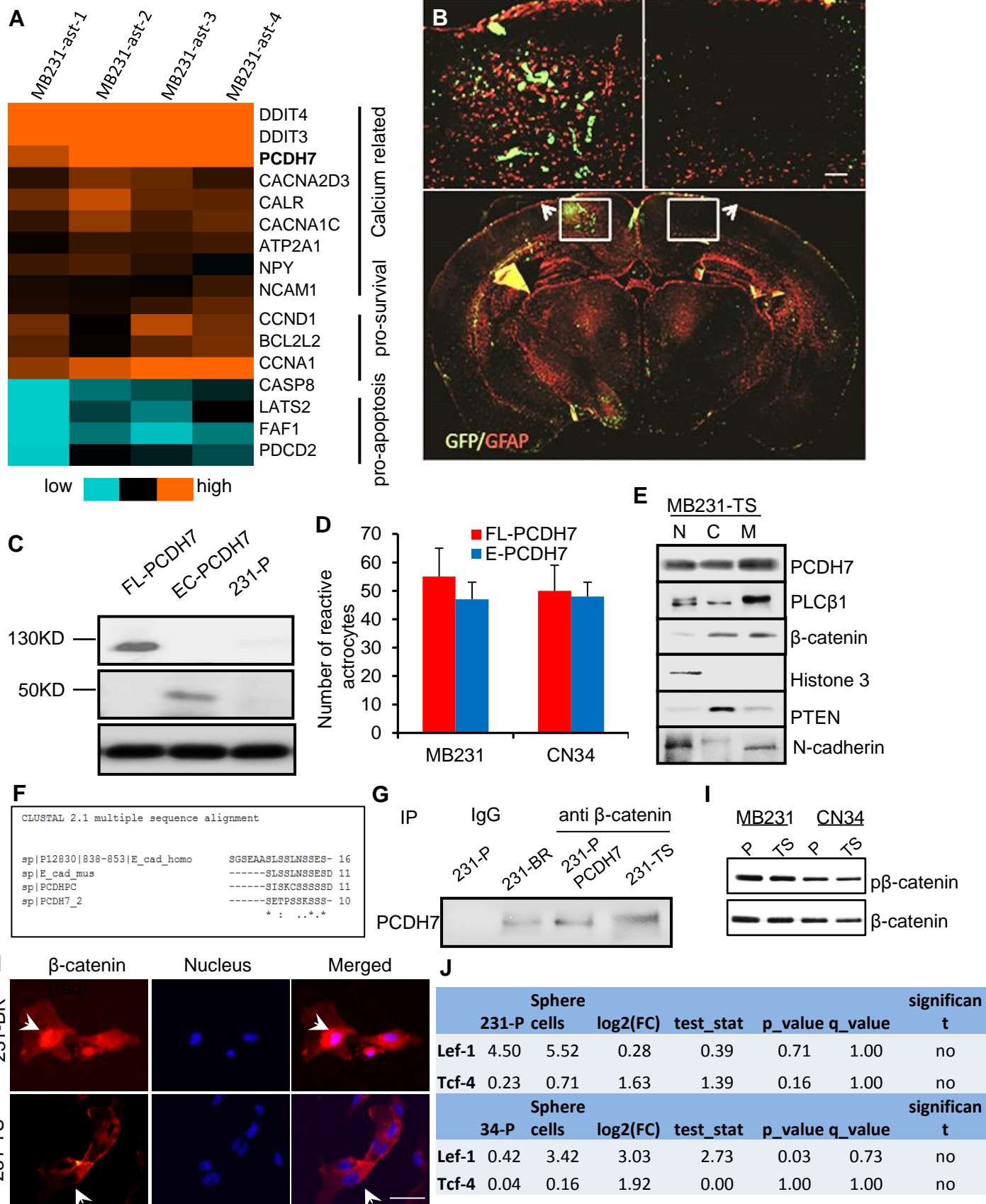


Fig. S4

