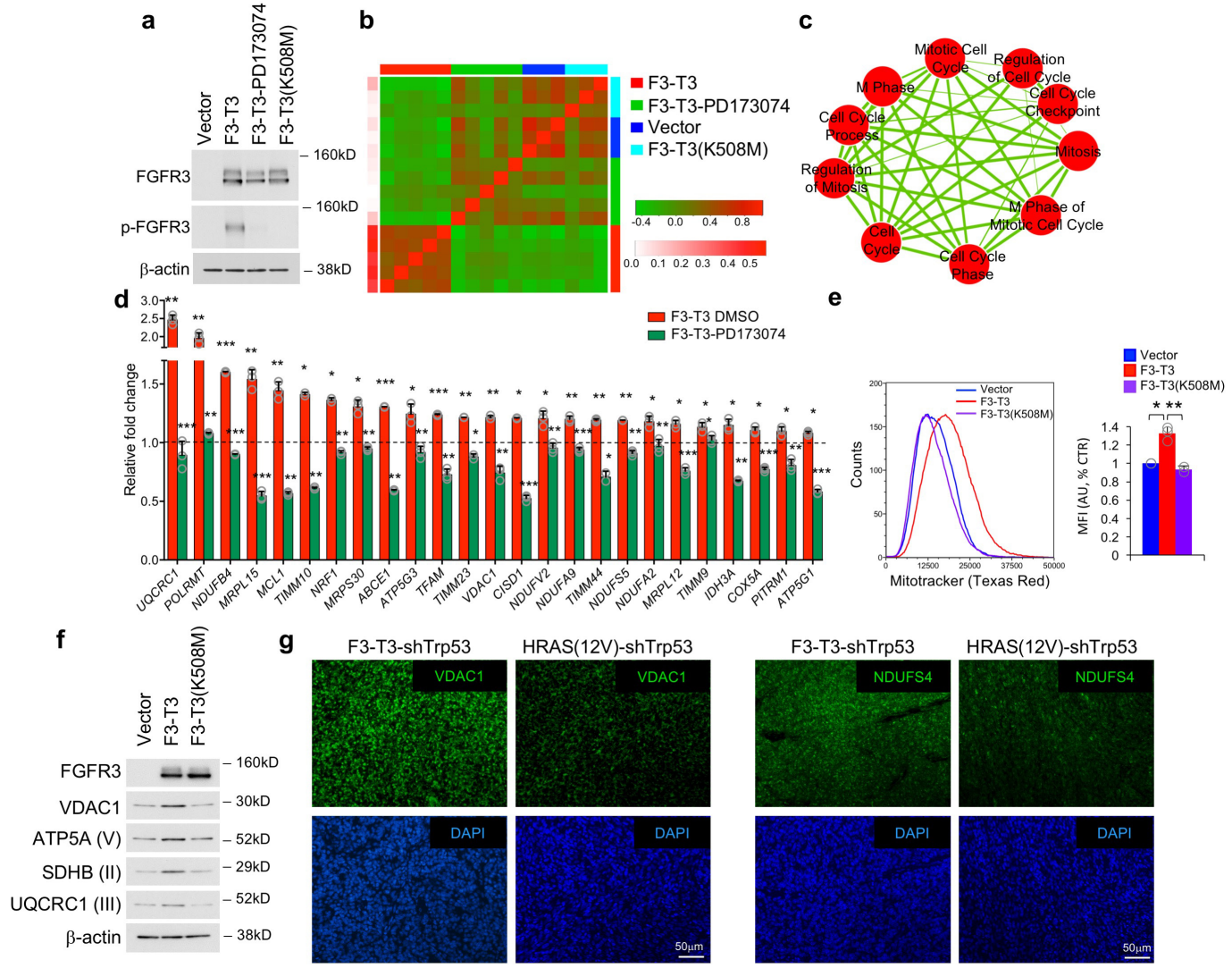

Extended Data Figure 1 | Activation of mitosis and mitochondria by F3–T3. a, Immunoblot analysis of FGFR3 and phospho-FGFR3 in F3–T3 human astrocytes treated with DMSO or PD173074, or human astrocytes expressing F3–T3(K508M) or vector. β-Actin is shown as a loading control. Experiment was repeated at least five times with similar results. **b**, Heat map of correlations among F3–T3 human astrocytes, F3–T3 human astrocytes treated with PD173074, and human astrocytes expressing vector or F3–T3(K508M). Top and right track colours represent sample type; left track colour scale represents correlation between each sample and the F3–T3 group. F3–T3 human astrocytes and F3–T3 human astrocytes treated with PD173074 ($n = 5$ biologically independent samples per group). Human astrocytes expressing vector or F3–T3(K508M) ($n = 3$ biologically independent samples per group). **c**, Enrichment map network of GO categories scoring as significant ($Q < 10^{-6}$ in each comparison) from three independent GSEAs (F3–T3 human astrocytes versus F3–T3 human astrocytes treated with PD173074; F3–T3- versus F3–T3(K508M)-expressing human astrocytes; F3–T3- versus vector-expressing human astrocytes). Nodes represent GO terms and lines indicate their connectivity. Size of nodes is proportional to enrichment significance and thickness of lines indicates the fraction of genes shared between the groups. **d**, RT–qPCR of vector- or F3–T3-expressing human astrocytes treated with vehicle (DMSO) or PD173074 for 12 h. Data are fold change relative to vector (dotted line) of one representative experiment out of two independent experiments (data are mean ± s.d., $n = 3$ technical replicates). *P* values were calculated using a two-tailed *t*-test with unequal variance; $*P < 0.05$, $**P < 0.01$, $***P < 0.001$. For a complete list of *P* values see Source Data. **e**, Left, analysis of mitochondrial mass by MitoTracker FACS analysis in human astrocytes expressing F3–T3, F3–T3(K508M) or vector. Right, quantification of mean fluorescence intensity (MFI). Data are mean ± s.d. of three (vector and F3–T3) and two (F3–T3(K508M)) independent experiments. $*P < 0.05$, $**P < 0.01$; two-tailed *t*-test with unequal variance. **f**, Immunoblot analysis of mitochondrial proteins in human astrocytes expressing F3–T3, F3–T3(K508M) and vector. Experiment was repeated independently three times with similar results. **g**, Representative micrographs of VDAC1 and NDUFS4 immunofluorescence (top, green) in F3–T3;shTrp53 and HRAS(12V);shTrp53 mGSCs. DAPI staining of nuclei is shown as an indication of cellular density (bottom, blue). Experiment was repeated independently twice with similar results. Molecular weights are indicated on all immunoblots.