**Supplementary Figure 1.** TGF-β1 leads to EMT induction in NSCLC.A, protein bands of TGF-β1, E-cadherin, N-cadherin, Vimentin, SMAD3, p-SMAD3, SMAD2 and p-SMAD2; B, the protein level of TGF-β1, E-cadherin, N-cadherin, Vimentin, SMAD3, p-SMAD3, SMAD2 and p-SMAD2 under TGF-β1 stimulation and inhibition determined by western blot analysis; \* *p* < 0.05; measurement data were expressed as mean ± standard deviation; differences among multiple groups were compared by one-way analysis of variance; the experiment was performed 3 times; EMT, epithelial-mesenchymal transition; NSCLC, non-small cell lung cancer; TGF, transforming growth factor; NC, negative control; GAPDH, glyceraldehyde-3-phosphate dehydrogenase.

**Supplementary Figure 2.** miR-422a overexpression or SULF2 silencing suppresses proliferation and promotes apoptosis of A549 cells. A, miR-422a and TGF-β1 expression detected by RT-qPCR; B and D, cell viability determined by EdU assay (200 ×, scale bar = 50 μm); C and E, cell colony-forming ability assessed by colony formation assay; F, cell cycle distribution measured by Annexin PI single staining; G, cell apoptosis evaluated by Annexin V-FITC/PI double staining; H and I, the protein level of Bax, cleaved caspase-3 and Bcl-2 determined by western blot analysis; \*, *p* < 0.05 *vs*. the NC mimic group; #, *p* < 0.05 *vs*. the NC inhibitor group; &, *p* < 0.05 *vs*. the si-NC group; $, *p* < 0.05 *vs*. the miR-422a inhibitor group; @, *p* < 0.05 *vs*. the si-SULF2 group; the mock group: cells without transfection; measurement data were expressed as mean ± standard deviation; differences among multiple groups were compared by one-way ANOVA; the experiment was conducted for 3 times. NSCLC, non-small cell lung cancer; EDU, 5-ethynyl-2’-deoxyuridine; PI, propidium iodide; FITC, fluorescein isothiocyanate; Bcl-2, B-cell lymphoma-2; Bax, Bcl-2 associated protein X; NC, negative control; siRNA, small interfering RNA; miR-442a, microRNA-442a; SULF2, sulfatase 2; ANOVA, analysis of variance.

**Supplementary Figure 3.** miR-422a overexpression or SULF2 silencing arrests H522 and A549 cells at the G0/G1 phase and promotes cell apoptosis. A, cell cycle of H522 cells determined by Annexin PI single staining; B, cell apoptosis of H522 cells detected by Annexin V-FITC/PI double staining; C, cell cycle of A549 cells measured by Annexin PI single staining; B, cell apoptosis of A549 cells evaluated by Annexin V-FITC/PI double staining; the mock group: cells without transfection; PI, propidium iodide; FITC, fluorescein isothiocyanate; NC, negative control; siRNA, small interfering RNA; SULF2, sulfatase 2; miR-442a, microRNA-442a.

**Supplementary Figure 4.** miR-422a overexpression or SULF2 silencing inhibits the invasion and migration of A549 cells. A and B, cell migration detected by scratch test (100 ×); C and D, cell invasion evaluated by Transwell assay (200 ×, scale bar = 50 μm); \*, *p* < 0.05 *vs*. the NC mimic group; #, *p* < 0.05 *vs*. the NC inhibitor group; &, *p* < 0.05 *vs*. the si-NC group; $, *p* < 0.05 *vs*. the miR-422a inhibitor group; @, *p* < 0.05 *vs*. the si-SULF2 group; the mock group: cells without transfection; measurement data were expressed as mean ± standard deviation; differences among multiple groups were compared by one-way ANOVA; the experiment was performed 3 times. NSCLC, non-small cell lung cancer; NC, negative control; siRNA, small interfering RNA; SULF2, sulfatase 2; miR-442a, microRNA-442a; ANOVA, analysis of variance.

**Supplementary Figure 5.** miR-422a overexpression or SULF2 silencing suppresses EMT of A549 cells. A, protein bands of EMT-related factors and TGF-β/SMAD signaling pathway-related factors determined by western blot analysis; B, protein level of EMT-related factors assessed by western blot analysis; C, protein level of the TGF-β/SMAD signaling pathway related factors evaluated by western blot analysis; \*, *p* < 0.05 *vs*. the NC mimic group; #, *p* < 0.05 *vs*. the NC inhibitor group; &, *p* < 0.05 *vs*. the si-NC group; $, *p* < 0.05 *vs*. the miR-422a inhibitor group; @, *p* < 0.05 *vs*. the si-SULF2 group; the mock group: cells without transfection; measurement data were expressed as mean ± standard deviation; differences among multiple groups were compared by one-way ANOVA; the experiment was conducted for 3 times. NSCLC, non-small cell lung cancer; EMT, epithelial-mesenchymal transition; TGF, transforming growth factor; NC, negative control; siRNA, small interfering RNA; SULF2, sulfatase 2; miR-442a, microRNA-442a; ANOVA, analysis of variance.