## SUPPORTING INFORMATION

### Supplementary Table S1

#### Antibodies used for immunofluorescence

| Antigen | Type         | Product Number | Company                                      |
|---------|--------------|----------------|----------------------------------------------|
| NFL     | chicken polyclonal | ab72997        | Abcam, Cambridge, UK                         |
| CD133   | rabbit polyclonal | NB120-16518    | Novus Biologicals, Littleton, USA            |
| PDGFRβ  | rabbit monoclonal | ab32570        | Abcam, Cambridge, UK                         |
| MAP2    | rabbit polyclonal | sc-20172       | Santa Cruz Biotechnology, Dallas, USA        |
| CD73    | rat monoclonal   | BD TY/23       | BD Biosciences, Allschwil, Switzerland       |
| TOM20   | rabbit polyclonal | sc-17764       | Santa Cruz Biotechnology, Dallas, USA        |
| TUBB3   | mouse monoclonal | TUJ1           | Biolegend, San Diego, USA                   |
| SCA-1   | rat monoclonal   | ab51317        | Abcam, Cambridge, UK                         |
|         | Secondary goat antibodies coupled to Alexa 488 or 647 | Thermo Fisher Scientific, Waltham, USA.     |

#### Antibodies used for immunoblotting

| Antigen | Type         | Product Number | Company                                      |
|---------|--------------|----------------|----------------------------------------------|
| HIF-1α  | rabbit polyclonal | NB100-449      | Novus Biologicals, Littleton, USA            |
| HIF-2α  | rabbit polyclonal | PAB12124       | Abnova, Taipei, Taiwan                       |
| HIF-2α  | rabbit polyclonal | A-700-002-T    | Bethyl, Montgomery, TX, USA                  |
| α-tubulin| rabbit polyclonal | 2144           | Cell Signaling, Danvers, MA, USA             |
| Tbp     | mouse monoclonal | ab818          | Abcam, Cambridge, UK                         |
|         | Secondary goat anti-rabbit (HRP) | 31460        | Thermo Fisher Scientific, Waltham, USA.      |
|         | Secondary goat anti-mouse (HRP)  | 31430         | Thermo Fisher Scientific, Waltham, USA.      |
## Supplementary Table S2

### RT-qPCR primers

| Gene       | Forward Primer      | Reverse Primer      |
|------------|---------------------|---------------------|
| Acta2_fwd  | 5’-gactactgcccgacgcgtgag-3’ |                     |
| Acta2_rev  | 5’-gtcagcaatgcctgcctgctca-3’ |                     |
| Actb_fwd   | 5’-ccagccttccttcttggtat-3’ |                     |
| Actb_rev   | 5’-ctcctgcatcctgtcagc-3’ |                     |
| Eno2_fwd   | 5’-agcccctatcagcctcaggt-3’ |                     |
| Eno2_rev   | 5’-ctgacgcaatgtgctgctgatag-3’ |                     |
| Epo_fwd    | 5’-aatggaggtggaagacagg-3’ |                     |
| Epo_rev    | 5’-accgcagcagtagtagagta-3’ |                     |
| Hif1a_fwd  | 5’-acacagaaatgcccgctga-3’ |                     |
| Hif1a_rev  | 5’-ttcacaatcagcaccacg-3’ |                     |
| Hif2a_fwd  | 5’-ggacgctctgcctatgagtt-3’ |                     |
| Hif2a_rev  | 5’-cagcaccacacatacttcctgt-3’ |                     |
| L28_fwd    | 5’-gcaaaaggggctgtgtagtt-3’ |                     |
| L28_rev    | 5’-ttgctttgcaaggtgtgctgca-3’ |                     |
| Map2_fwd   | 5’-gccagcctcagaacacacaga-3’ |                     |
| Map2_rev   | 5’-aaggtctttgagagggaagac-3’ |                     |
| Nestin_fwd | 5’-tgcagggcaacgtgaaagtt-3’ |                     |
| Nestin_rev | 5’-aggttgtctgcaagccacaggt-3’ |                     |
| Ngf_fwd    | 5’-gcagtgaggctcatacgtgta-3’ |                     |
| Ngf_rev    | 5’-ctgtgtaaagggatgtcagta-3’ |                     |
| Pai1_fwd   | 5’-ccacactcttgagcatgtaaa-3’ |                     |
| Pai1_rev   | 5’-ctgcctgtgctcgaagact-3’ |                     |
| Pdk1_fwd   | 5’-gcgcggcttttgatgtggtat-3’ |                     |
| Pdk1_rev   | 5’-acccgatcggggggataacg-3’ |                     |
| Phd2_fwd   | 5’-gcaacggaacagctctgatgc-3’ |                     |
| Phd2_rev   | 5’-ctgtgctctgcatcataaa-3’ |                     |
| Phd3_fwd   | 5’-ccacctctccctgtctctca-3’ |                     |
| Phd3_rev   | 5’-gcgtggacttcagcttgatt-3’ |                     |
| Rest_fwd   | 5’-gtgcaactacacagggagag-3’ |                     |
| Rest_rev   | 5’-aaggggcggccttgtgctgt-3’ |                     |
| Sca1_fwd   | 5’-gttcttggtggcctactgtggtg-3’ |                     |
| Sca1_rev   | 5’-ggcagatggtgaagacaaaaa-3’ |                     |
| Sox2_fwd   | 5’-aaggggtcttgctggtgttt-3’ |                     |
| Sox2_rev   | 5’-agacacagaaaaacggctgg-3’ |                     |
| Vhl_fwd    | 5’-atccacagctacccagaggtca-3’ |                     |
| Vhl_rev    | 5’-ctccgcacacttgggtgtgat-3’ |                     |
Supplementary Figure S1. SCA-1 expression in REP cells in vivo. mRNA fluorescence in situ hybridization (mRNA-FISH) of Epo (red) and SCA-1 (green) in a kidney derived from a mouse exposed for 4 hours to 0.1% CO. Tubuli were visualized by their autofluorescence (white) and nuclei were stained with DAPI (blue). Yellow arrows indicate SCA-1 positive REP cells.
**Supplementary Figure S2. HIFα protein levels in REPD cells.** Immunoblotting of HIF-1α and HIF-2α using extracts of REPD cells cultured under conditions that have been found to specifically induce HIF-2α mRNA levels. Where indicated, HIFα induction in extracts of livers derived from mice exposed to 0.1% carbon monoxide for 4 hours (CO) vs. normoxic control mice (Nx) was used as positive control. (A) AB2-22 REPD cells were exposed to permissive (33°C) or non-permissive (37°C) conditions for 14 days, followed by exposure to 0.2% for 8 hours. α-Tubulin served as loading/blotting control. (B) AB2-22 REPD cells with shRNA-mediated knockdown of the indicated genes were exposed as above. Nuclei were isolated and nuclear extracts were immunoblotted. TATA-box-binding protein (Tbp) served as loading/blotting control. (C) AB2-22 REPD cells were cultured under control or neurotrophic conditions followed by treatment, extraction and immunoblotting as in B. Short and long exposure times are shown for the HIF-2α immunoblot, indicating treatment-independent faint normoxic background HIF-2α protein levels.