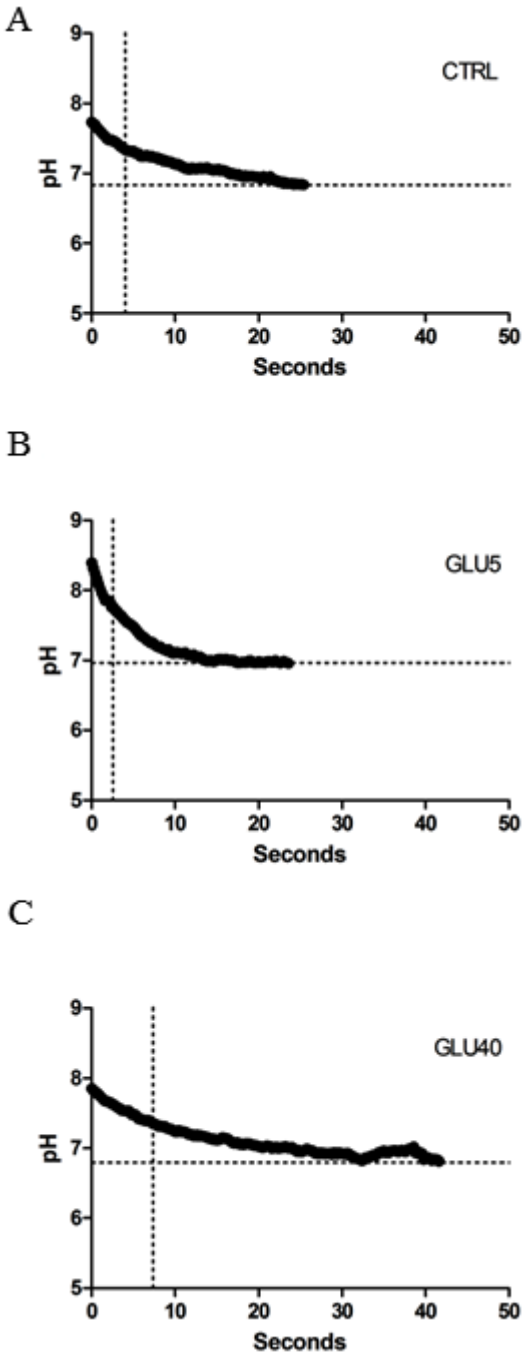
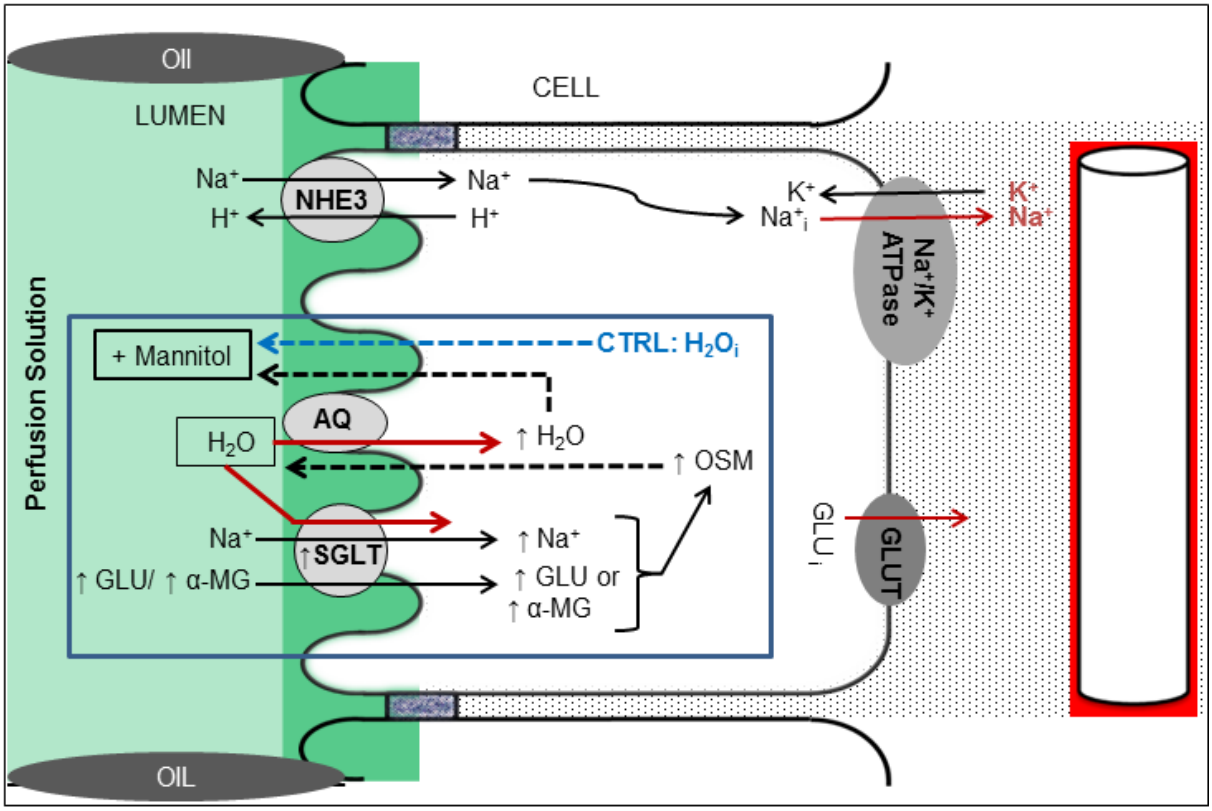
Supplemental Figure 1



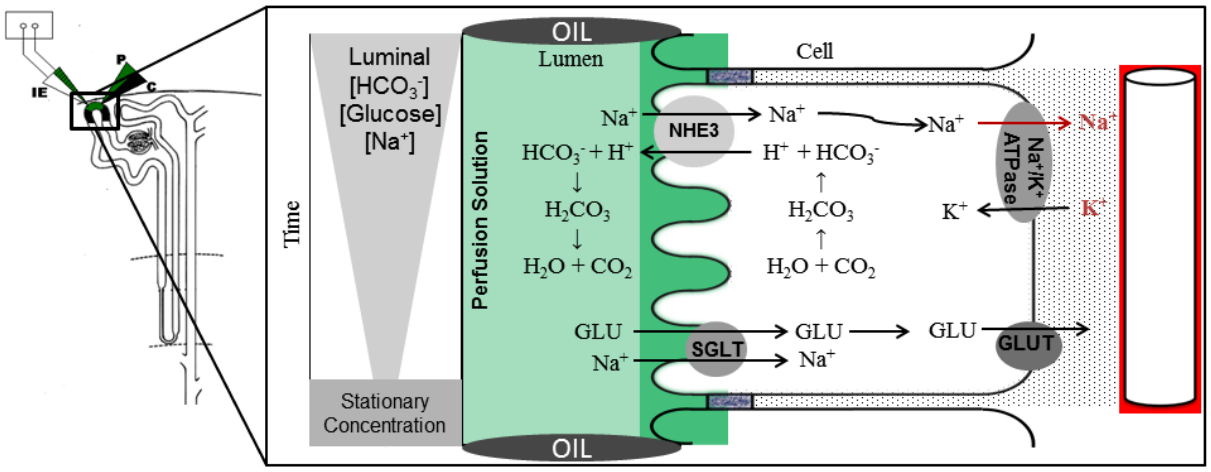
Supplemental Figure 1. Representative curves of pH decay during perfusion of CTRL solution (A), GLU5 (B) or GLU40 (C). The vertical line represents the half life of tubular acidification ($t^{1}/_{2}$) after the perfusion of the mentioned solutions. A deviation to the left and to the right of the vertical lines show the variation of the acidification rate during the perfusion of GLU5 (B) and GLU40 (C), compared to the perfusion of CTRL (A) The horizontal lines represents the stationary pH.

Supplemental Figure 2



Supplemental Figure 2. Model of the mannitol-mediated osmotic effect on Glu40-dependent water flow. The perfusion of a high glucose or α-MG concentration increases SGLT-mediated glucose/α-MG uptake. Water flows into the cell via SGLT or Aquaporin (AQ) due to an osmotic gradient generated by glucose uptake. In the presence of mannitol (box) water does not flow into the cell due to the osmotic effect of mannitol because this osmotic substance remains in the lumen. During perfusion of CTRL solution (absence of glucose) a cell decrease is expected due to water exit by the osmotic effect of mannitol.

Supplemental Figure 3



Supplemental Figure 3. Model for in vivo stationary microperfusion. **Left Panel:** Schematic nephron perfused with a double barreled micropipette. One barrel is filled with the colored perfusion solution (P) and the other barrel is filled with castor oil (C). The same perfused tubule can be visualized by the colored solution and then impaled with an asymmetric double barreled microelectrode. This microelectrode is filled with an H^+ ion exchanger resin (IE) in one barrel and with a reference solution (green) in the other barrel. **Right Panel:** schematics of the perfused tubule (electrode and pipet were suppressed). The perfusion solution (green) contains 24 mM HCO_3^-. The castor oil blocks the fluid flow and keeps the solution stationary. The HCO_3^-, Na^+ and glucose concentration decreases with time due to apical uptake. Na^+ concentration falls during microperfusion due to the presence of raffinose to correct osmolality. The HCO_3^- reaches a stationary value. The basolateral membrane is not manipulated during the experiment.

Supplemental Table 1

Variable	Vehicle	Plz
Body Weight (g)	296.9±6.63	294.6±7.52
Food intake (g per day)	20.86±0.96	17.29±0.91*
Water intake (ml per day)	68.86±9.97	91.43±9.22
24-h urine volume (ml)	12.36±1.47	36.53±1.97*
Plasma glucose (mg/dL)	130±4.64	125±11.07
Urinary potassium (mmol per day) [a]	1.071±0.060	1.169±0.097
GFR (ml / min) [a]	0.415±0.029	0.562±0.019*

Values are the mean ±SEM, [a] corrected for 100 g of body weight
*P<0,05