Supplement

Oligonucleotides used for the generation of the variants Pf*Pdx1,* Pf*Pdx1*$_{\Delta 270\text{-}301}$, Pf*Pdx1*$_{\Delta 273\text{-}301}$, Pf*Pdx1*$_{\Delta 279\text{-}301}$ *and* Pf*Pdx1*$_{\Delta 287\text{-}301}$

For the generation of *Pf*Pdx1, *Pf*Pdx1$_{\Delta 270\text{-}301}$, *Pf*Pdx1$_{\Delta 273\text{-}301}$, *Pf*Pdx1$_{\Delta 279\text{-}301}$ and *Pf*Pdx1$_{\Delta 287\text{-}301}$ the following primer pairs were used: *Pf*Pdx1 (*Pf*Pdx1.fwd (5'-GAAGAAGGATCCATATGGAAAATCATAAAGATGATGCAG-3'/ PfPdx1_stop_XhoI.rev (5'-CGGCGGCTCGAGTTATTGTGGTGTTAAAAATTTGGTGTGTTCTTC-3')), *Pf*Pdx1$_{\Delta 270\text{-}301}$ (*Pf*Pdx1$_{\Delta 270\text{-}301}$.fwd (5'-CTAAAATACTTTTAGATGTTTGATAGCTCGAG-3')/ *Pf*Pdx1$_{\Delta 270\text{-}301}$.rev (5'-TTTCTCGAGCTATCAAACATCTAAAAGTATTTTAG-3')), *Pf*Pdx1$_{\Delta 273\text{-}301}$ (*Pf*Pdx1.fwd (5'-GAAGAAGGATCCATATGGAAAATCATAAAGATGATGCAG-3'/ *Pf*Pdx1$_{\Delta 273\text{-}301}$.rev (5'-TAATAACTCGAGTTAATTCATACTAACATCTAAAAGTATTTTAGG-3')), *Pf*Pdx1$_{\Delta 279\text{-}301}$ (*Pf*Pdx1$_{\Delta 279\text{-}301}$.fwd (5'-GGAAAAGCCATGTGTTGATAGCTCGAGAAAA-3')/ *Pf*Pdx1$_{\Delta 279\text{-}301}$.rev (5'-TTTTCTCGAGCTATCACACATGGCTTTTTCC-3')) and *Pf*Pdx1$_{\Delta 287\text{-}301}$ (*Pf*Pdx1.fwd (5'-GAAGAAGGATCCATATGGAAAATCATAAAGATGATGCAG-3'/ *Pf*Pdx1$_{\Delta 287\text{-}301}$.rev (5'-TAATAACTCGAGTTATTTATCCGAAACGCGTGTGC-3')).

Generation of the variants Pf*Pdx1*$_{\Delta 293\text{-}301}$, Pf*Pdx1*$_{\Delta 295\text{-}301}$ and Pf*Pdx1*$_{S270A\Delta 273\text{-}301}$

The variants *Pf*Pdx1$_{\Delta 293\text{-}301}$, *Pf*Pdx1$_{\Delta 295\text{-}301}$ and *Pf*Pdx1$_{S270A\Delta 273\text{-}301}$ have been generated in the same way as the variants described in the main publication using the following primers pairs: *Pf*Pdx1$_{\Delta 293\text{-}301}$ (*Pf*Pdx1$_{\Delta 293\text{-}301}$.fwd (5'-AAAAACTCGAGCTATTATTCATTTTTATTTTTCC-3')/ *Pf*Pdx1$_{\Delta 293\text{-}301}$.rev (5'-GGAAAAATAAAAATGAATAATAGCTCGAGTTTTT-3')), *Pf*Pdx1$_{\Delta 295\text{-}301}$ (*Pf*Pdx1.fwd

(5’-GAAGAAGGATCCATATGGAAAATCATAAAGATGATGCAG-3’/ *Pf*Pdx1$_{\Delta 295\text{-}301}$.rev (5’-TAATAACTCGAGTTAGTGTTCTTCATTTTTATTTTTCCATTTATCC-3’), *Pf*Pdx1$_{S270A\Delta 273\text{-}301}$ (*Pf*Pdx1.fwd (5’-GAAGAAGGATCCATATGGAAAATCATAAAGATGATGCAG-3’/ *Pf*Pdx1$_{S270A\Delta 273\text{-}301}$.rev (5’-TAATAACTCGAGTTAATTCATTGCAACATCTAAAAGTATTTTAGGGTTATTAAAATTGC-3’).

Table S1

protein	R5P binding[a]	I_{320}-specific activity		PLP-specific activity		Oligomeric state[b]
		nmol min^{-1} mg^{-1}	%	pmol min^{-1} mg^{-1}	%	
*Pf*Pdx1	+	1.22 ± 0.04	100	695 ± 71	100	dodecamer
*Pf*Pdx1$_{\Delta 270\text{-}301}$	-	n.d.	0	n.d.	0	mainly monomer
*Pf*Pdx1$_{\Delta 273\text{-}301}$	-	n.d.	0	n.d.	0	dodecamer
*Pf*Pdx1$_{\Delta 279\text{-}301}$	+	1.3 ± 0.4	107	351 ± 77	51	dodecamer
*Pf*Pdx1$_{\Delta 287\text{-}301}$	+	1.9 ± 0.2	155	-[c]	-[c]	dodecamer
*Pf*Pdx1$_{\Delta 295\text{-}301}$	+	1.75 ± 0.1	143	-	-	dodecamer
*Pf*Pdx1$_{S270A\Delta 273\text{-}301}$	-	n.d	0	n.d	0	dodecamer

Biochemical characterization of *Pf*Pdx1 and its C-terminal truncation variants using NH_4Cl as ammonium donor. Assays were performed with 20 µM protein, 1 mM R5P, 1 mM G3P, 10 mM NH_4Cl in 20 mM Tris-HCl pH 8.0, 10 mM NaCl, 0.5 mM EDTA. The activity of *Pf*Pdx1 was set as 100 %. Experimental results are means of at least three different measurements. n.d.: not detected; [a] compare Table 4; [b] compare Table 3; [c] protein precipitated upon addition of G3P.

Table S2

Protein + *Pf*Pdx2	I_{320}-specific activity		PLP-specific activity		Glutaminase-specific activity	
	nmol min^{-1} mg^{-1}	%	pmol min^{-1} mg^{-1}	%	nmol min^{-1} mg^{-1}	%
*Pf*Pdx1	2.76 ± 0.2	100	779 ± 130	100	193.9 ± 14	100
*Pf*Pdx1$_{\Delta 270\text{-}301}$	n.d	0	n.d.	0	190.60 ± 3	99
*Pf*Pdx1$_{\Delta 273\text{-}301}$	n.d	0	n.d.	0	202.77 ± 16	105
*Pf*Pdx1$_{\Delta 279\text{-}301}$	4.62 ± 0.4	167	250± 32	32	271.62 ± 8	140
*Pf*Pdx1$_{\Delta 287\text{-}301}$	2.25 ± 0.1	83	-[a]	-[a]	182.76 ± 9	94
*Pf*Pdx1$_{\Delta 295\text{-}301}$	1.75 ± 0.1	63	-[a]	-[a]	200.75± 11	103
*Pf*Pdx1$_{S270A\Delta 273\text{-}301}$	n.d.	0	n.d	0	160.8 ± 4	87

Biochemical characterization of *Pf*Pdx1 and its C-terminal truncation variants in presence of *Pf*Pdx2. Assays were performed with 20 µM protein, 1 mM R5P, 1 mM G3P, 10 mM L-glutamine in 20 mM Tris-HCl pH 8.0, 10 mM NaCl, 0.5 mM EDTA. The activity of *Pf*Pdx1/*Pf*Pdx2 was set as 100 %. Experimental results are means of at least three different measurements. n.d. - none detected. [a] - protein precipitated on addition of G3P.

Table S3

Analysis of Pdx1 and the C-terminal truncation variants by analytical ultracentrifugation (velocity sedimentation)

Protein	s_{exp} (S)[a]	M_{exp} (kDa)[b]	M_{cal} (kDa)[c]
*Pf*Pdx1	14.0	363	420
*Pf*Pdx1$_{\Delta 270\text{-}301}$[d]	Peak 1: 3.0 ± 0.1 Peak 2: 4.8 ± 0.5 Peak 3: 6.9 ± 1.1	29 ± 3 60 ± 12 110 ± 26	31 - -
*Pf*Pdx1$_{\Delta 273\text{-}301}$	12.9	324	380
*Pf*Pdx1$_{\Delta 279\text{-}301}$	13.0	330	387
*Pf*Pdx1$_{\Delta 287\text{-}301}$	13.8	354	400
*Pf*Pdx1$_{\Delta 295\text{-}301}$	13.6	340	412
*Pf*Pdx1$_{S270A\Delta 273\text{-}301}$	13.0	319	382

[a] The c(S) distribution of sedimentation coefficients was determined with SEDFIT [21] and corrected to standard conditions (20 °C, H_2O). Calculated *s*-values using HYDROPRO and 3.1-Å bead size [22] are 2.7 S for the monomeric and 15.4 S for the dodecameric species.
[b] Molecular mass derived from molar mass distributions c(M) calculated by SEDFIT. For all dodecameric variants the frictional ratio was fixed to 1.25 (average of all experiments).
[c] Molecular mass calculated from the amino acid composition.
[d] Three different species were detected. The monomeric form fitted to 3.0 ± 0.1 S and comprised about two thirds of the total protein. The standard deviation is given on the basis of three independent experiments. Higher oligomeric forms are probably in fast equilibrium giving rise to larger errors as discussed in the text (no theoretical *s* and *M* values calculated).

Table 4

Molecular mass of *Pf*Pdx1 and the C-terminal truncation variants in the absence or presence of ribose 5-phosphate as determined by ESI-MS

Protein	- R5P (Da)	+ R5P (Da)
*Pf*Pdx1	35,320.7	35,532.6
*Pf*Pdx1$_{\Delta 270\text{-}301}$	31,506.8	31,506.8
*Pf*Pdx1$_{\Delta 273\text{-}301}$	31,722.6	31,722.6