

Supplementary Fig 1. Amphetamine induced rotational behavior after transplantation of eGFP+ cells. (A, B): The severity of the lesions of the 6-hydroxydopamine lesioned rats was measured twice prior to transplantation by rotational behavior in response to amphetamine (4mg/kg i.p.). The animals were placed (randomized) into automated rotometer bowls and left and right full-body turns were monitored by a computerized activity monitor system (San Diego Instruments Inc., San Diego, CA, <http://www.sandiegoinstruments.com>). There was no difference in the number of rotations between the cell-transplantation group and the vehicle group before transplantation ($p=0.86$, unpaired t test). Rotational behavior was measured again at 4, 7 and 10 weeks post transplantation of 300,000 eGFP+ cells. (A) When the entire 90 min interval was analyzed there was no significant difference between the vehicle injected and the cell transplanted group. (B) The individual animals within the cell transplanted group showed a large variability in their rotation scores post transplantation, with some animals improving their scores and others being unaffected or showing an increase in the number of rotations. The TH cell counts within the grafts did not correlate with the improvement in the number of rotations. Abbreviations: eGFP, enhanced green fluorescent protein, N/A, not applicable; ND, not done.

Supplementary Fig 2. *In vitro* analysis of Oct-4 expression in differentiated mES cell cultures.

(A-C): Analysis of 9 kb TH-eGFP cells, *in vitro* differentiated for 9 days using the MS5 based protocol, showed that some of the SSEA-1+/eGFP+ cells in the cultures were also Oct-4+. Abbreviations: eGFP, enhanced green fluorescent protein; Oct-4, Octamer-4;

SSEA-1, stage-specific embryonic antigen 1. Scale bars: 10 μ M (C) (C applies to A and B).

Supplementary Fig 3. Karyotype analysis. Partial chromosomal analysis showed that (A) the original D3 mES cells, (B) the 9 kb TH-eGFP transfected D3 mES cells and (C) the empty vector (EV-1) transfected D3 mES cells contained a trisomy 11. The original D3 mES cells also contained a trisomy 17. Abbreviations: eGFP, enhanced green fluorescent protein; TH, tyrosine hydroxylase.