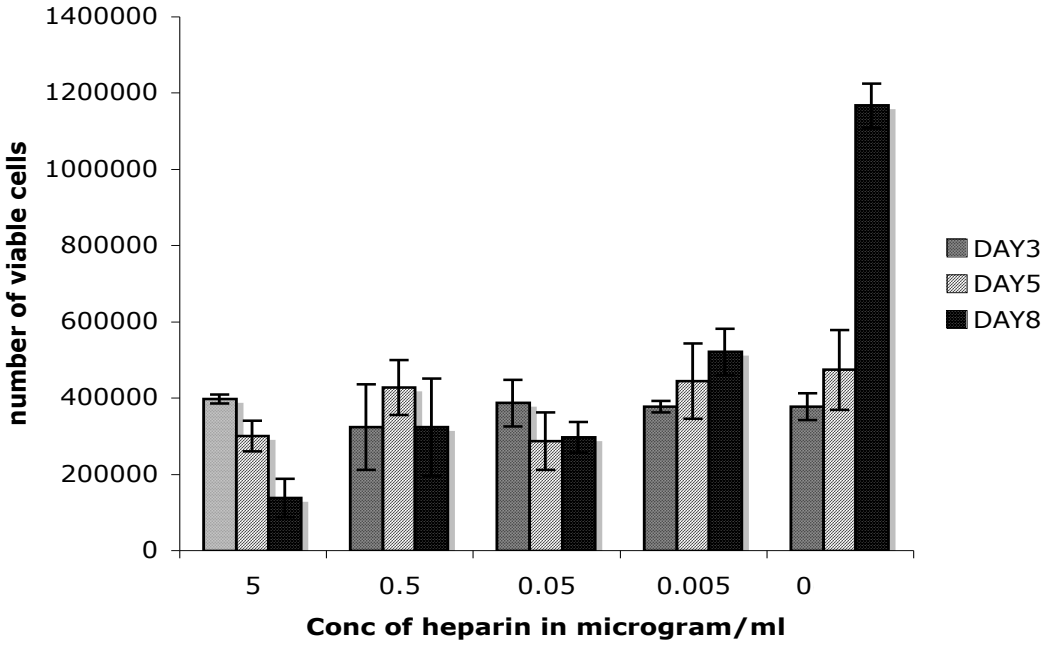
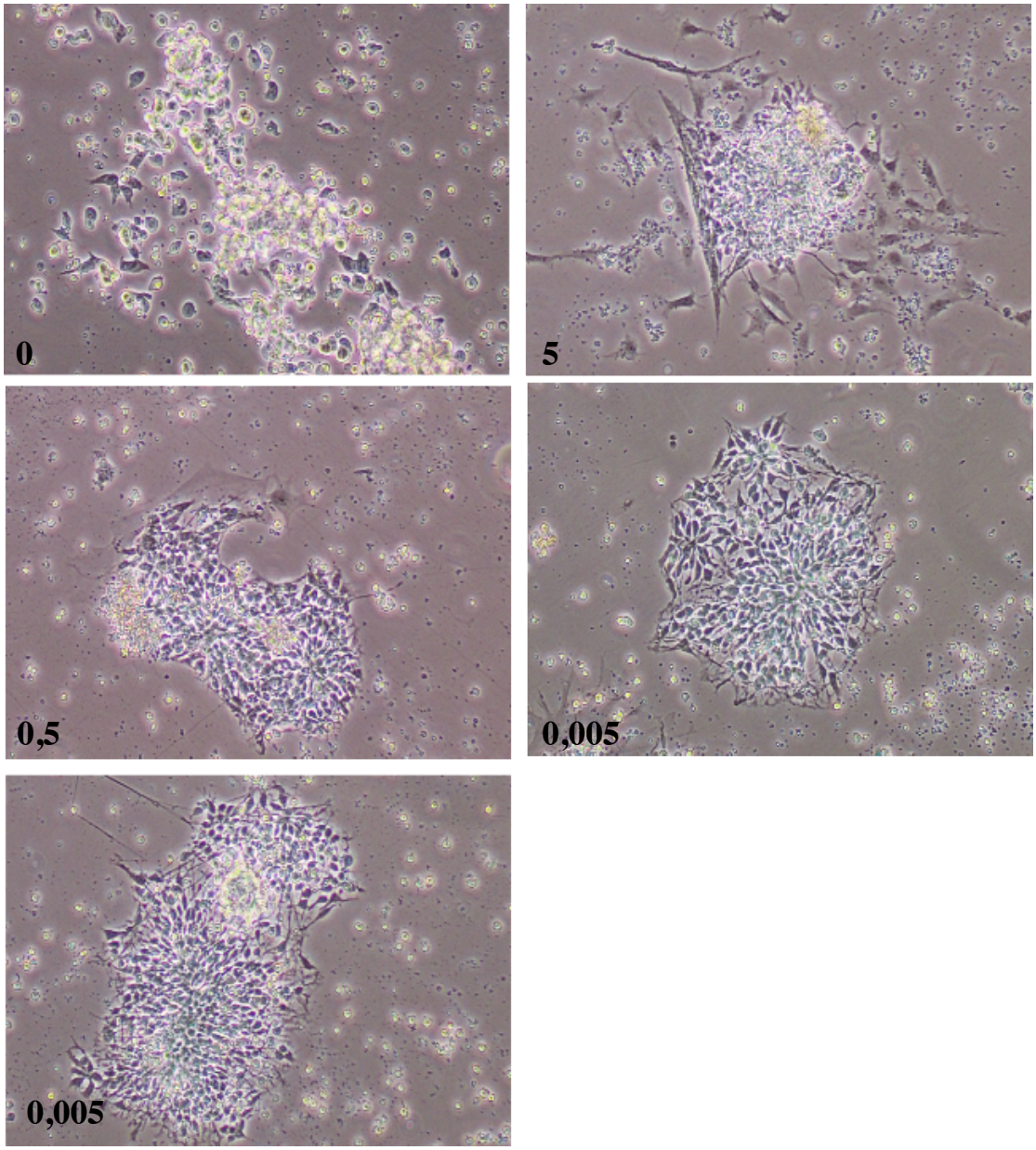
Supplementary Fig 1A



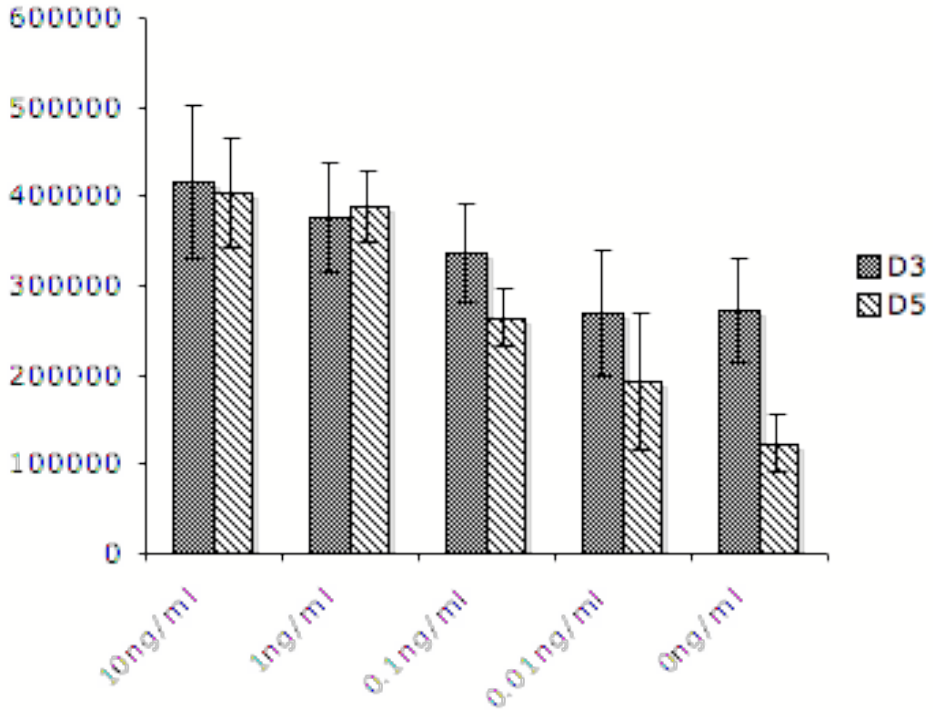
S1A. Dose-response of cell death induced by heparin during neural differentiation
NDST1-/-2-/- ES in N2B27 medium were exposed to heparin at the following concentrations: 0.005, 0.05, 0,5 and 5 mg/ml. FGF4 was kept constant at 10ng/ml. Cell counts were performed on day 3, 5 and 8 to assess cell survival. Heparin at 5 mg/ml, reduced the cell number for each time point measured while at 0,5 mg/ml and lower concentrations. There was a trend towards an increase in cell number at day 5 and 8 with the lowest heparin concentration but no statistical difference.

Supplementary Fig. 1B



S1B. Titration of the heparin concentration
Photomicrographs of the experiment depicted in A) at 8 days of differentiation. At lower doses of heparin and in the absence of exogenously added FGF (0,5; 0,05 and 0,005 mg/ml) mutant cells turn into neural rosettes.

Supplementary Fig. 1C



S1C. Titration of the FGF4 concentration
The heparin concentration was kept constant at 5 mg/ml, and the FGF4 concentration was lowered ten-fold from 10 ng/ml to 0,01 ng/ml. Cells were counted on day 3 and 5 to monitor cell survival. The two highest concentrations (10 and 1 ng/ml) resulted in approximately the same number of living cells at both time points, thus showing full rescue. With 0,1 ng/ml however, the cell numbers dropped after five days of culture and cell numbers were further diminished at the lowest concentration, 0,01 ng/ml