Materials and methods

LUHMES cells culture and differentiation

For culturing the human mesencephalon-derived cell line LUHMES (ATCC® CRL-2927™), flasks and plates were pre-coated with 50 µg/mL poly-L-ornithine (R&D Systems, Minneapolis, MN) and 1 µg/mL fibronectin (ThermoFisher) according to ATCC's protocols. Undifferentiated LUHMES cells were maintained in proliferation medium consisting of DMEM/F12 (Gibco), 1X N2 supplement (Invitrogen, Carlsbad, CA), and 40 ng/mL recombinant human basic fibroblast growth factor (bFGF) (R&D Systems). When cells reached 70% confluency, culture medium was exchanged to the differentiation medium consisting of DMEM/F12, 1X N2 supplement, 2.25 µM tetracycline (Sigma-Aldrich), 1 mM 3', 5'-cyclic adenosine monophosphate (cAMP) (ACROS Organics, Morris Plains, NJ), and 2 ng/mL recombinant human glial cell-derived neurotrophic factor (GDNF) (Invitrogen). After 48 h, cells were re-seeded at a density of 3.5x10^5 cells per well in 500 µl differentiation medium into pre-coated 24-well plates, and cultured for three more days followed by 24 h exposure to 0, 0.5, 1, 2, 5, 10 µM As(III) or 0, 0.1, 0.25, 0.5, 1, 2 µM MAs(III).