Using human stem cells to understand & treat disease

PLURIPOTENT HUMAN CELLS

HUMAN GENETICS

GLIOBLASTOMA

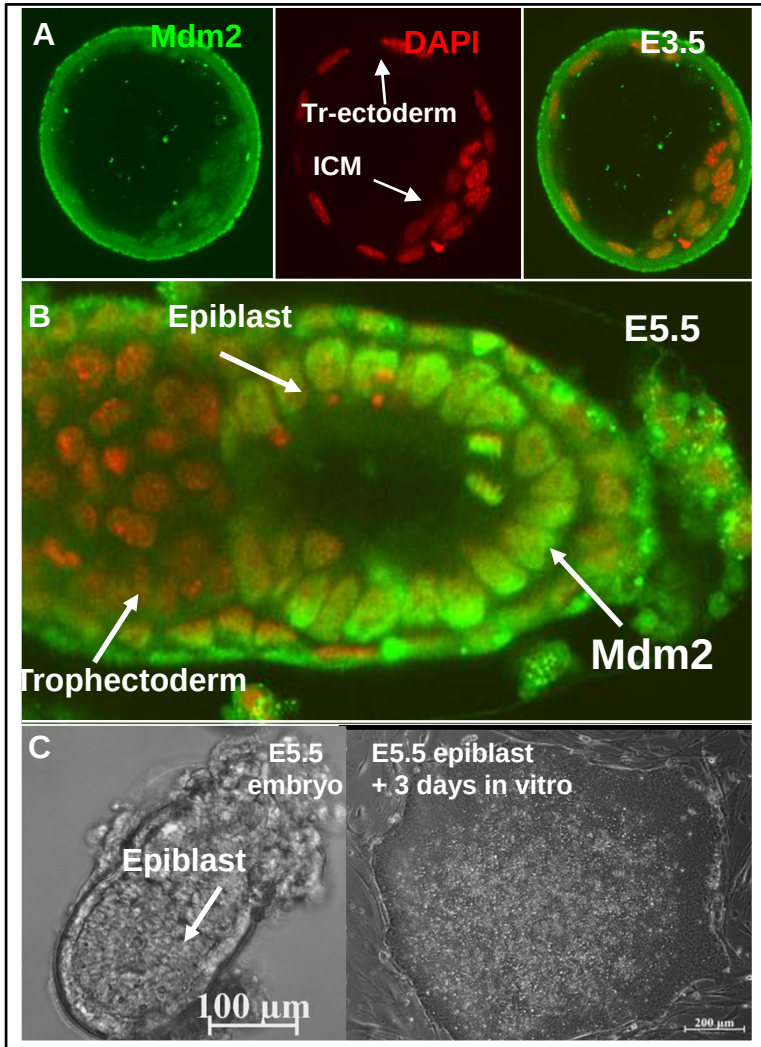
Josh Chenoweth, Paul Tesar & NIH stem cell facility

TERATOCARCINOMA

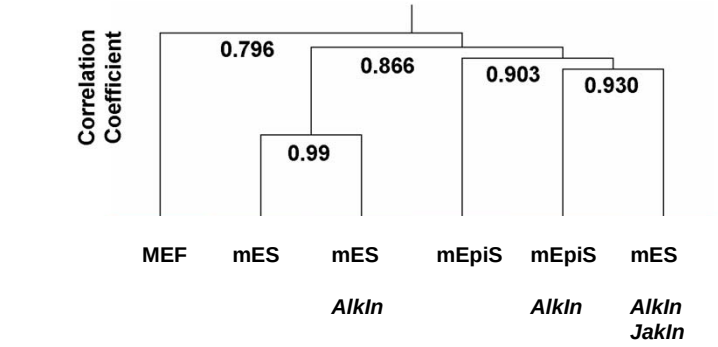
LIVER DEVELOPMENT & FUNCTION

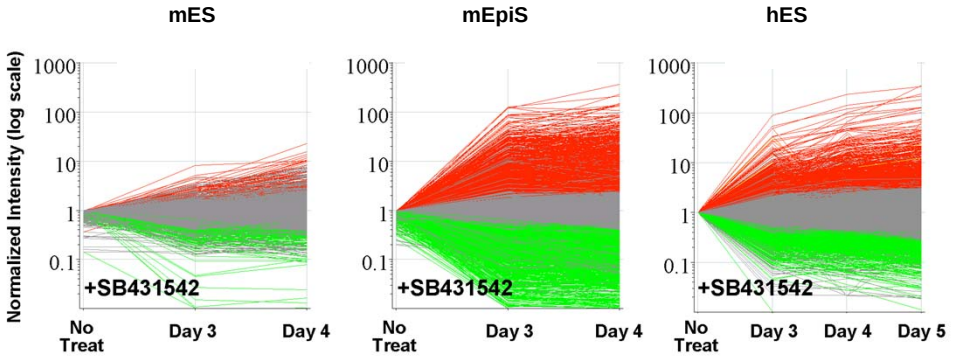
Jong-Hoon Kim (NIH & Korea University)

Controlling embryonic stem cell differentiation in the mouse



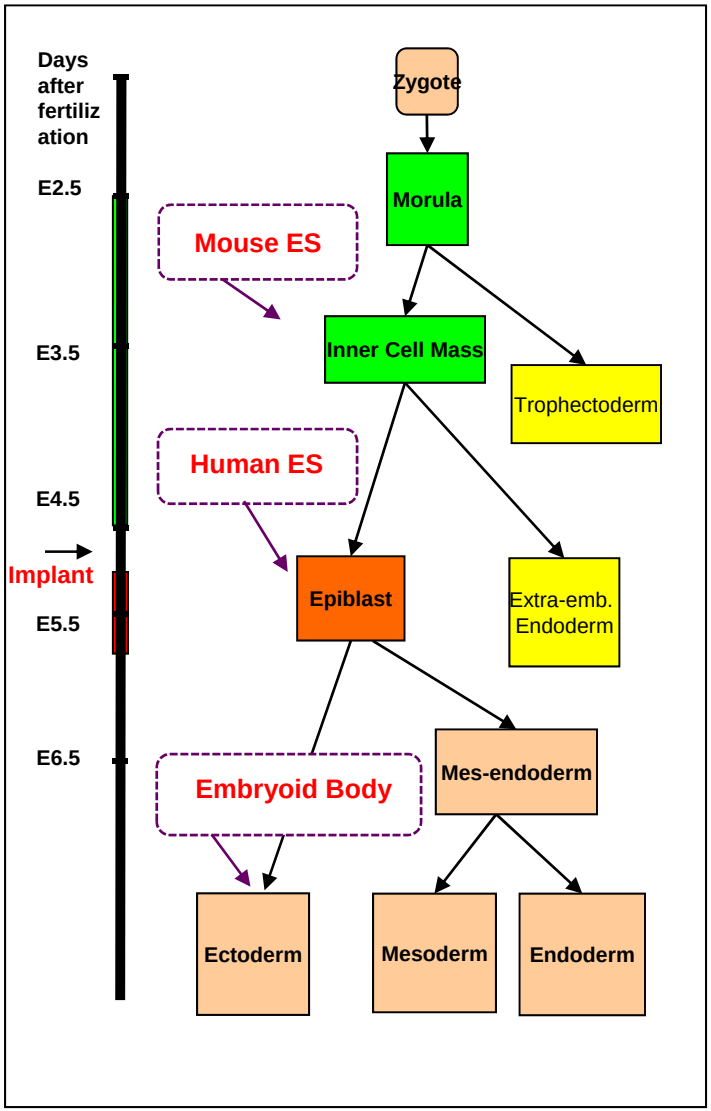
Mdm2 expression in the E3.5 (A) and E5.5 embryo (B). The E5.5 embryo prior to dissection of the epiblast and the epiblast after 3 days in culture (C).





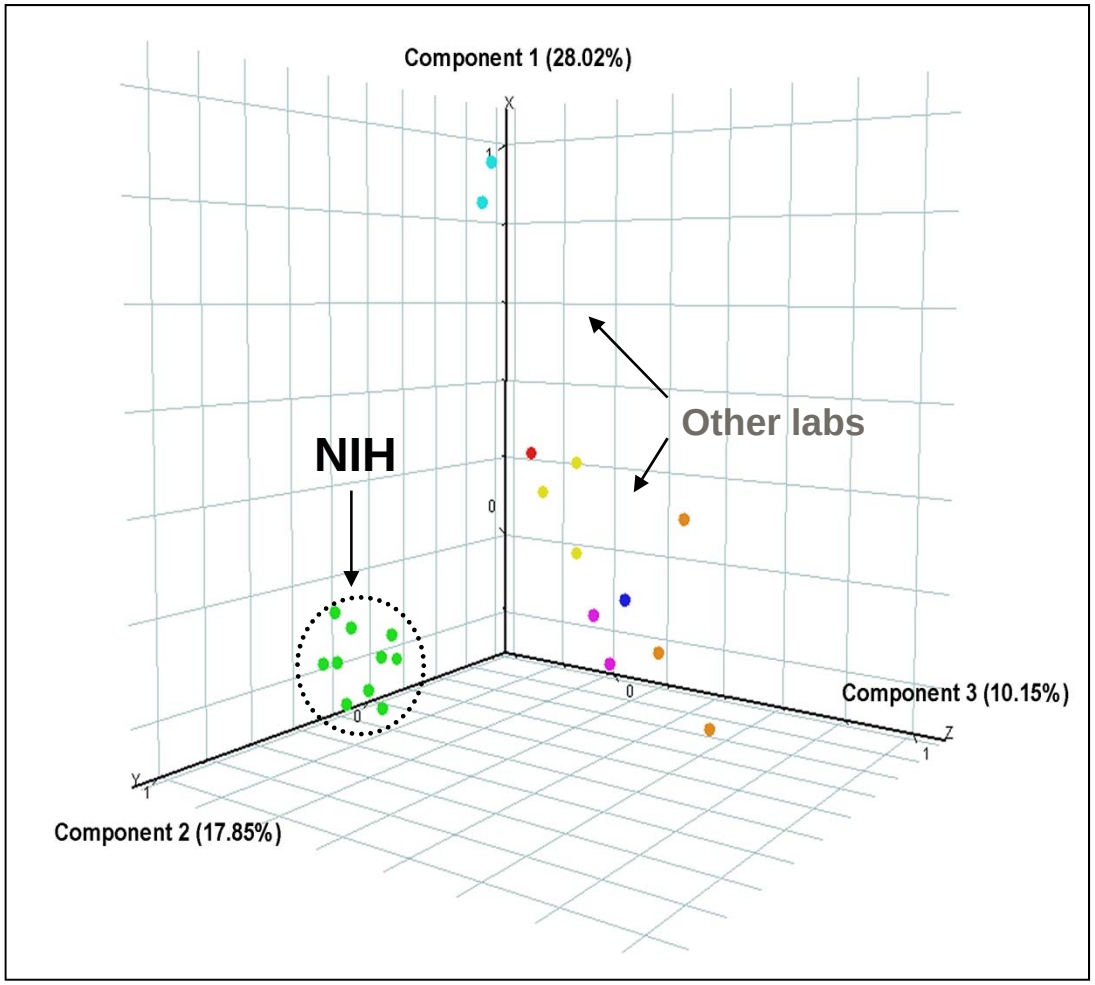
Tesar et al., *Nature, 2007*

Cell types in the early embryo

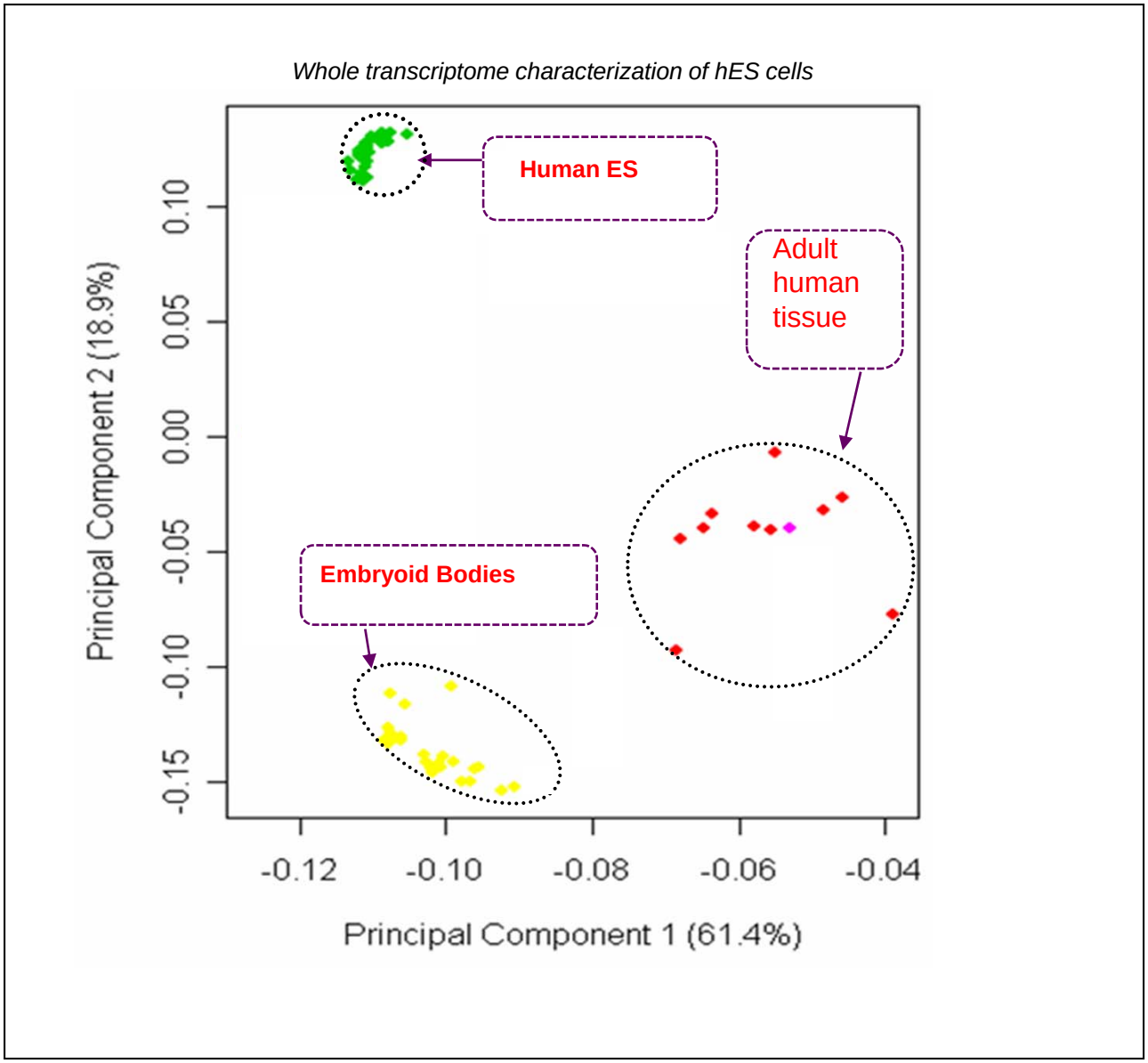


Controlling human embryonic stem cells

Whole transcriptome characterization of undifferentiated hES cells

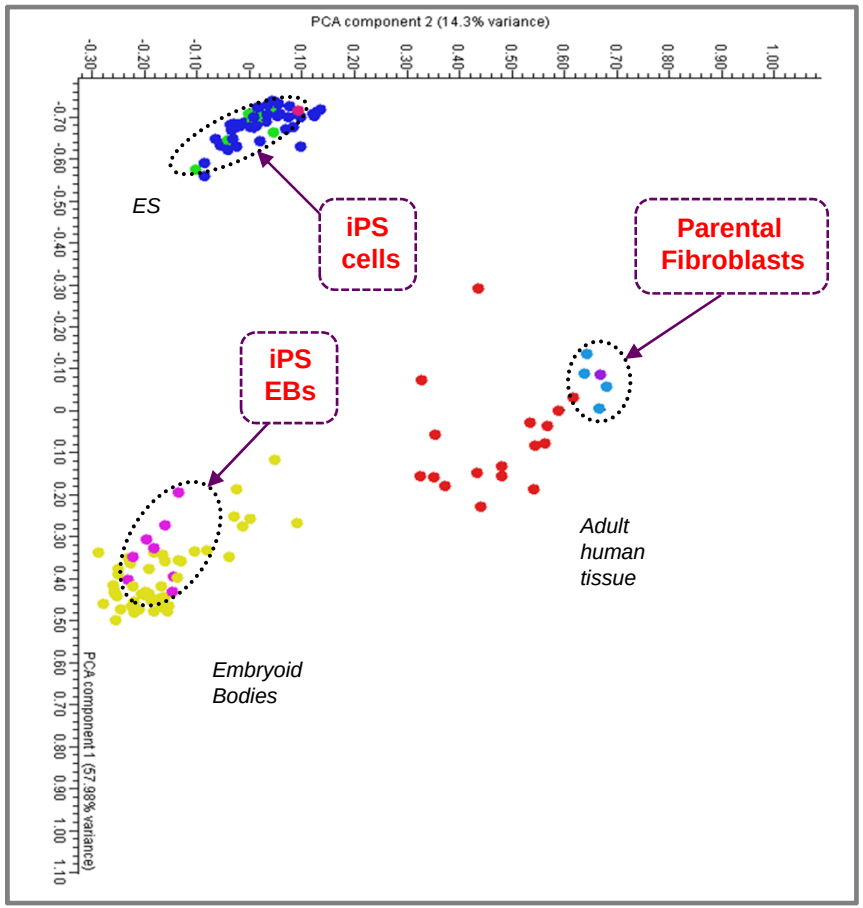


Controlling differentiation of human embryonic stem cells



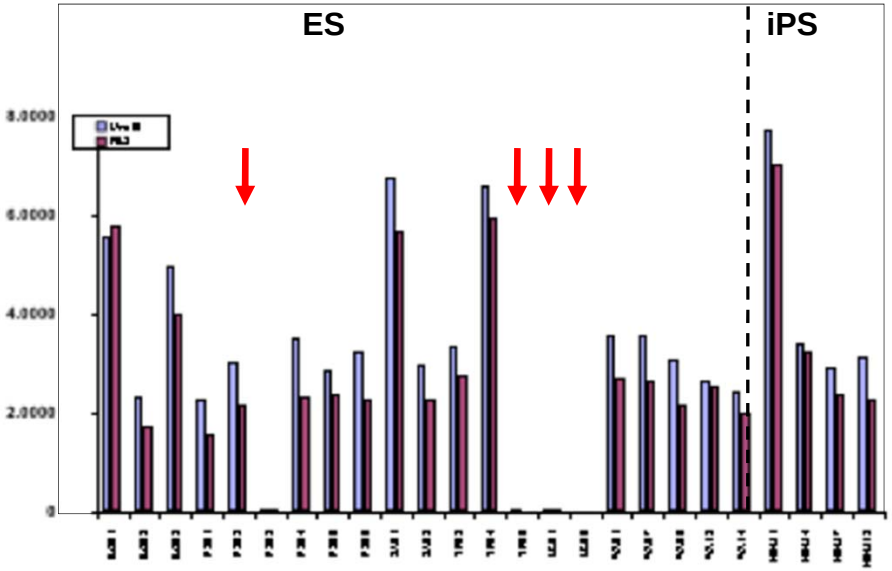
Controlling differentiation of human iPS cells

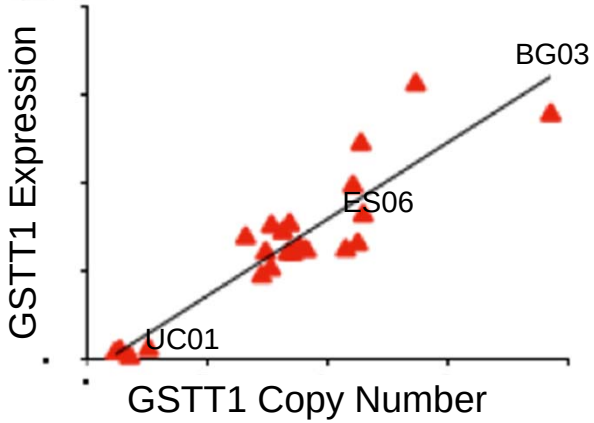
Whole transcriptome characterization of hES cells



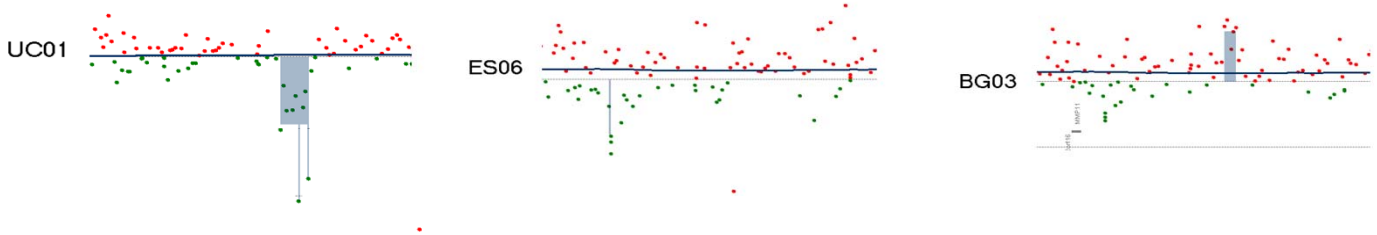
Polymorphic levels of gene expression – Lung & prostate cancer

Glutathione S transferase (GSTT1)

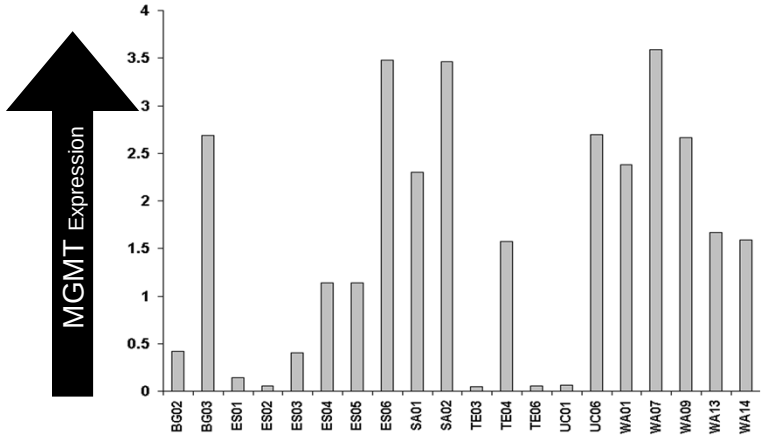


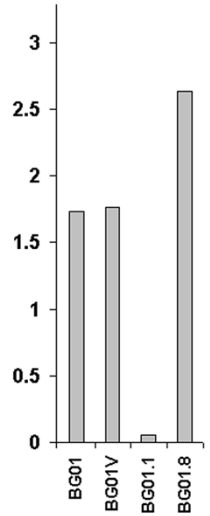


Agilent: CGH Analytics used to assess copy number

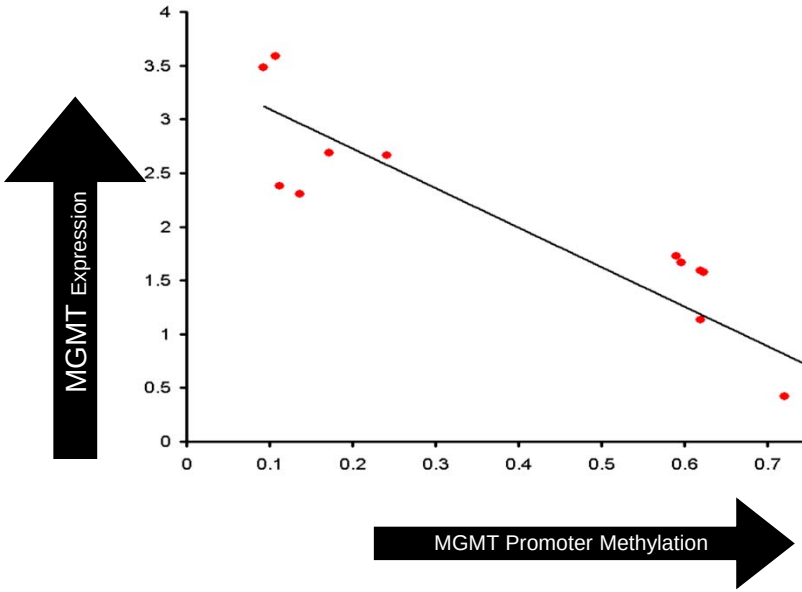


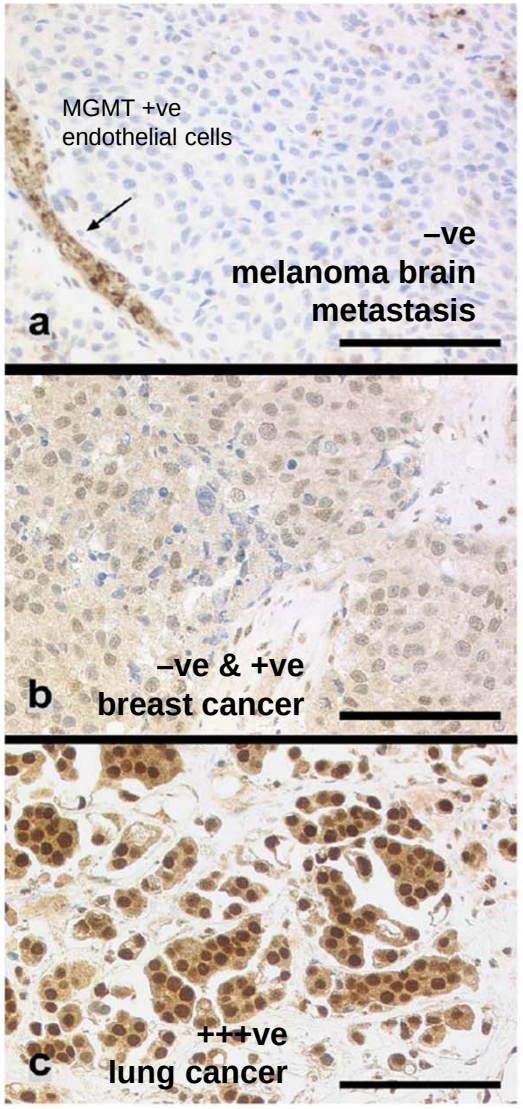
Polymorphic levels of gene expression – Glioblastoma & Teratocarcinoma





MGMT





Ingold B, Schraml P, Heppner FL Moch H,
Homogeneous MGMT immunoreactivity correlates
with unmethylated MGMT promoter status in brain metstases
of various solid tumors PLoS One 2009

Generating Functional Hepatocytes