

Cell Science, Stem Cell Research & Pharmacological Regenerative Medicine

November 29-30, 2017 | Atlanta, USA

Oct4 expression in adult human stem cells: Evidence in support of the stem cell theory of carcinogenesis

Mei-Hui Tai, Chia-Cheng Chang, L Karl Olson and James E Trosko
Michigan State University, USA

The *Oct3/4* gene, a POU family transcription factor, has been noted as being specifically expressed in embryonic stem cells and in tumor cells but not in cells of differentiated tissues. With the ability to isolate adult human stem cells, it became possible to test for the expression of *Oct3/4* gene in adult stem cells and to test the stem cell theory of carcinogenesis. Using antibodies and PCR primers, we tested human breast, liver, pancreas, kidney, mesenchyme and gastric stem cells, the cancer cell lines HeLa and MCF-

7 and human, dog and rat tumors for *Oct4* expression. The results indicate that adult human stem cells, immortalized non-tumorigenic cells and tumor cells and cell lines, but not differentiated cells, express *Oct4*. *Oct4* is expressed in a few cells found in the basal layer of human skin epidermis. The data demonstrate that adult stem cells maintain expression of *Oct4*, consistent with the stem cell hypothesis of carcinogenesis.

e: James.Trosko@hc.msu.edu