Newly-discovered gene controls stem cell production

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A scientific team from the University of Southern California (USC) and the University of California, San Diego have described an important gene that maintains a critical balance between producing too many and too few stem cells. Called Prkci, the gene influences whether stem cells self-renew to produce more stem cells, or differentiate into more specialized cell types, such as blood or nerves.

When it comes to stem cells, too much of a good thing isn't necessarily a benefit: producing too many new stem cells may lead to cancer; making too few inhibits the repair and maintenance of the body.

In their experiments, the researchers grew mouse embryonic stem cells, which lacked Prkci, into embryo-like structures in the laboratory. Without Prkci, the stem cells favored self-renewal, generating large numbers of stem cells and, subsequently, an abundance of secondary structures.

Upon closer inspection, the stem cells lacking Prkci had many activated genes typical of stem cells, and some activated genes typical of neural, cardiac, and blood-forming cells. Therefore, the loss of Prkci can also encourage stem cells to differentiate into the progenitor cells that form neurons, heart muscle, and blood.

Read full, original post: Gene Found that Regulates Stem Cell Number Production