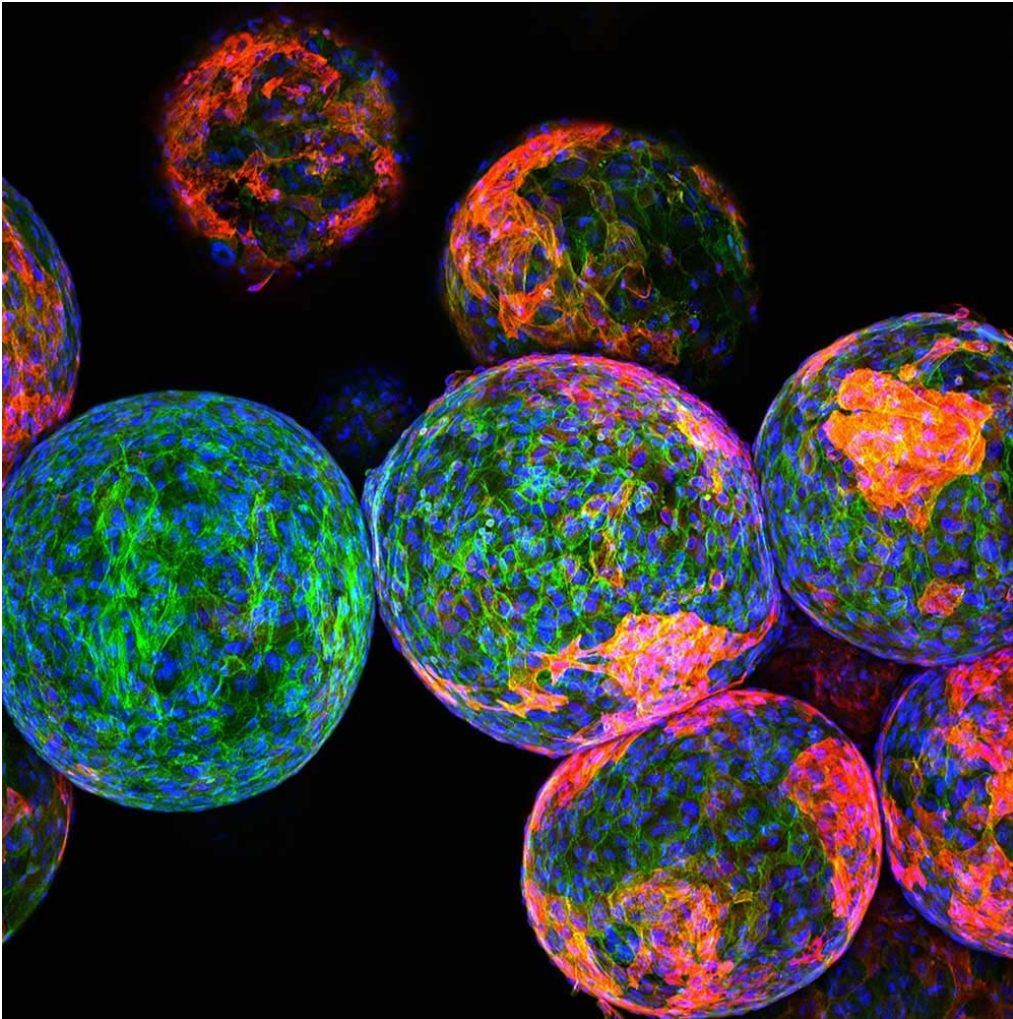


Trojan Micro Horses

<https://www.hhmi.org/biointeractive/trojan-micro-horses>



One possible therapy for Type I diabetes is to transplant insulin-producing cells into the patient. However, transplantation can often cause the recipient's immune system to reject and destroy the transplanted cells. This therapy relies upon a method to deliver the insulin-producing cells without triggering an immune response.

Researchers have found that pancreatic cells generated from human stem cells will grow happily inside spheres made from alginate gels (pictured here). Moreover, molecules such as insulin and proteins are able to move through the gels, and the cells inside are able to sense and respond to biological signals from the body. In tests on diabetic mice, the researchers have shown that these human cells growing inside spheres are hidden from the immune system of the mice, and cure their diabetes for up to six months, a significant length of time in the one to two year lifespan of a mouse.

Technical Details:

The spheres were fixed and stained with dyes for two types of actin (cell based filaments in green and smooth muscle in red) and for nuclei (in blue) viewed with a confocal microscope. The spheres are around 0.5 mm in diameter – about the size of a grain of sand.

Credit:

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And Robert Langer, PhD, Koch Institute for Integrative Cancer Research at MIT,
Cambridge, MA.

Links:

<http://anderson-lab.mit.edu/>