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**R**estoration and repair are essential operations in the maintenance of the healthy human body. However, not all tissues heal at the same rate, if at all. This Insight on Regeneration examines the scope of cellular repair and the strategies currently being employed to challenge existing regenerative limitations.

In many cases of disease or injury it would be preferable to harness endogenous repair capacity. In the first Review, Wells and Watt discuss therapeutic options to stimulate cellular plasticity and drive regeneration while simultaneously avoiding malignant cellular transformation.

The brain possesses limited capacity for repair, with approaches such as cellular transplants producing only modest therapeutic results after injury. Barker, Götz and Parmar explore the use of stem-cell-derived structures and direct cellular reprogramming as powerful new tools for repairing neural circuits and function.

While these stem cell-based repair strategies hold much future potential, available options in the clinic are sparse. Blau and colleagues detail recent progress with biomaterials and platforms that aim to eliminate the current challenges of using stem cell-based treatments and to enhance their efficacy.

Despite decades of advances in the treatment of spinal cord injury, meaningful recovery remains elusive. In his Perspective, Michael Sofroniew explores the current state of spinal cord regeneration research and discusses why results and progress have been slow to come and controversial.

The two distinct components of the pancreas possess very different capacities for regeneration, with the exocrine pancreas exhibiting intrinsic repair, which the endocrine pancreas lacks. Zhou and Melton summarize this current knowledge and explore the therapeutic pipeline for combating pancreatic loss.

Treatments for restoring vision have been desired for centuries, but only recently has any significant progress been made. In the final Review, Roska and Sahel detail this recent progress and describe how the latest model systems and translational strategies will generate new opportunities to combat vision loss.

We hope this diverse collection stimulates further discussion and research in the field of regenerative medicine.

**Noah Gray, Nathalie Le Bot & Marie-Thérèse Heemels**  
*Senior Editors*

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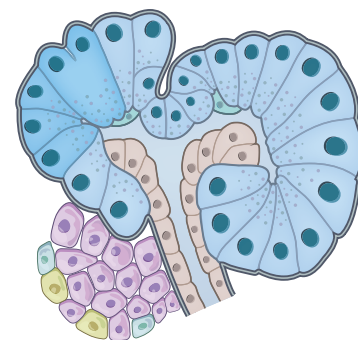
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