Novel methods may help stem cells survive transplantation into damaged tissues

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Stem cells offer much promise for treating damaged organs and tissues, but with current transplantation approaches stem cell survival is poor, limiting their effectiveness. New methods are being developed and tested to improve the survival and optimize their therapeutic function

after transplantation, as described in a Review article in *BioResearch Open Access*.

In the article 'Preconditioning Stem Cells for In Vivo Delivery,' Sébastien Sart, Ecole Polytechnique (Palaiseau, France) and Teng Ma and Yan Li, Florida State University (Tallahassee) examine the leading strategies for preconditioning stem cells prior to transplantation to prepare them for the environment often found in damaged tissue. Preconditioning methods might include exposing stem cells to microenvironments characterized by reduced oxygen levels, heat shock, and oxidative stress, creating three-dimensional stem cell aggregates or microtissues, and using hydrogels in which to embed or encapsulate the cells.

"This article provides an extensive review of the current methods of stem cell preconditioning for transplantation," says *BioResearch Open Access* Editor Jane Taylor, PhD, MRC Centre for Regenerative Medicine, University of Edinburgh, Scotland. "It also highlights the cutting edge technologies employed to do this."

More information: The article is available free on the *BioResearch Open Access* website.

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