

Adult Stem Cell Treatments for Diseases?

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Opponents of research with embryonic stem (ES) cells often claim that adult stem cells provide treatments for 65 human illnesses. The apparent origin of those claims is a list created by David A. Prentice, an employee of the Family Research Council who advises U.S. Senator Sam Brownback (R-KS) and other opponents of ES cell research (1).

Prentice has said, "Adult stem cells have now helped patients with at least 65 different human diseases. It's real help for real patients" (2). On 4 May, Senator Brownback stated, "I ask unanimous consent to have printed in the Record the listing of 69 different human illnesses being treated by adult and cord blood stem cells" (3).

In fact, adult stem cell treatments fully tested in all required phases of clinical trials and approved by the U.S. Food and Drug Administration are available to treat only nine of the conditions on the Prentice list, not 65 [or 72 (4)]. In particular, allogeneic stem cell therapy has proven useful in treating hematological malignancies and in ameliorating the side effects of chemotherapy and radiation. Contrary to what Prentice implies, however, most of his cited treatments remain unproven and await clinical validation. Other claims, such as those for Parkinson's or spinal cord injury, are simply untenable.

The references Prentice cites as the basis for his list include various case reports, a meeting abstract, a newspaper article, and anecdotal testimony before a Congressional committee. A review of those references reveals that Prentice not only misrepresents existing adult stem cell treatments but also frequently distorts the nature and content of the references he cites (5).

For example, to support the inclusion of Parkinson's disease on his list, Prentice cites Congressional testimony by a patient (6) and a physician (7), a meeting abstract by the same physician (8), and two publications that have nothing to do with stem cell therapy for Parkinson's (9, 10). In fact, there is currently no FDA-approved adult stem cell treatment—and no cure of any kind—for Parkinson's disease.

For spinal cord injury, Prentice cites personal opinions expressed in Congressional testimony by one physician and

two patients (11). There is currently no FDA-approved adult stem cell treatment or cure for spinal cord injury.

The reference Prentice cites for testicular cancer on his list does not report patient response to adult stem cell therapy (12); it simply evaluates different methods of adult stem cell isolation.

The reference Prentice cites on non-Hodgkin's lymphoma does not assess the treatment value of adult stem cell transplantation (13); rather, it describes culture conditions for the laboratory growth of stem cells from lymphoma patients.

Prentice's listing of Sandhoff disease, a rare disease that affects the central nervous system, is based on a layperson's statement in a newspaper article (14). There is currently no cure of any kind for Sandhoff disease.

By promoting the falsehood that adult stem cell treatments are already in general use for 65 diseases and injuries, Prentice and those who repeat his claims mislead laypeople and cruelly deceive patients.

References

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4. According the latest version of the list, accessed 12 July 2006.
5. See chart compiling and analyzing Prentice's list of 65 diseases allegedly treated by adult stem cells at the supplemental data repository available as Supporting Online Material on *Science* Online at www.sciencemag.org/cgi/content/full/1129987/DC1.

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