

A powerful producer of Brazilian science

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Stem cells are, perhaps, the biological entity that has given rise to the most dreams, hopes, frustrations and deceptions among scientists, physicians, people with complex medical conditions and their family members in the past decade. In May 2011, findings about stem cells and Parkinson's disease by a group of scientists from São Paulo were featured on the cover of the Brazilian version of *Pesquisa FAPESP*, a monthly publication. Because these findings continued to be among the most important studies originally published in 2011, we selected this study for the magazine's special English language issue and again as the cover story. The article on page 14 presents an important clue that may partially explain the failure of stem cell transplant treatments and of older cell-based therapies that involved the transplantation of material from the adrenal glands or the brains of aborted fetuses.

In the original article published on April 19, 2011, in the online issue of *Stem Cell Reviews and Reports*, the São Paulo group suggested that one of the villains in this story might be fibroblasts. Fibroblasts are skin cells that are similar to certain stem cells but have different properties. When implanted in mice with Parkinson's disease in combination with mesenchymal cells derived from the umbilical cords of newborns, the fibroblasts not only reversed the beneficial results observed when the mice were implanted with pure stem cells but also exacerbated the symptoms in the test animals. What might one deduce from this finding? "Perhaps many of the poor results of scientific work on cell therapies were due to this type of contamination," stated geneticist Mayana Zatz. In other words, fibroblasts may have been mistakenly identified as stem cells and may have been included with stem cells during implan-

tation, which could cause new problems in patients who receive poorly controlled transplants. "And patients should be warned about this," said Zatz. Furthermore, contamination could result in erroneous conclusions about the potential of cell-based therapies. A positive aspect of this story is that, once again, a window has opened for experiments on treating Parkinson's disease with pure and well-controlled mesenchymal stem cells.

In another field, the human and social sciences section of the magazine carries an article on the changes in São Paulo's migration profile. The findings of this study provide a better understanding of the impressive population dynamics of the largest city in South America. São Paulo currently has just over 11 million inhabitants, but the São Paulo metropolitan area has 19 million. During most of the twentieth century, São Paulo was absorbed vast numbers of internal and external migrants, who were drawn to the city mainly because of the strength of its industrial growth and its formal jobs. However, in the twenty-first century, the city joined the international migration route. According to the article on page 56, São Paulo has now become a destination for highly qualified individuals and for workers without documents or specific training. These workers are being absorbed by more flexible forms of production that are aligned with the mobility of the capital's population.

The pieces highlighted here are good examples of Brazil's capacity to generate diverse scientific knowledge. The second article brings our readers closer to the demographic reality of one of Brazil's major science production centers – the state of São Paulo, the capital of which shares the same name, accounts for half of Brazil's scientific production.

Happy reading!