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## **Stem cell field grows despite controversy: experts**

*MAGGIE FOX*

WASHINGTON (Reuters) - Political controversy may have slowed the pace of stem cell science, but the field is still promising enough to attract many talented researchers, stem cell experts said on Saturday.

A meeting of the International Society for Stem Cell Research in Philadelphia this week attracted 2,500 delegates, something ISSCR president Dr. George Daley finds encouraging.

"Despite the political opposition to parts of stem cell therapy, the entire field has grown in a healthy way," Daley said in a telephone interview.

Stem cells are the body's master cells, giving rise to tissues, organs and blood. Scientists hope to harness their power to create a new field of regenerative medicine, offering cures for diseases of the brain, cancer and serious injuries.

Stem cells from bone marrow can reconstitute the immune systems of patients with leukaemia and rare diseases, but other uses of the cells are experimental.

The only controversial stem cells are those taken from human embryos. Most stem cells have partially differentiated -- started down a clear developmental pathway to becoming a blood cell or a muscle cell, for instance.

Stem cells taken from balls of cells that develop days after conception are far more powerful, giving rise to all tissues in the body. President George W. Bush and some religious conservatives oppose their use because they involve destruction of the human embryo.

The issue has led to annual battles in Congress, with Bush vetoing legislation to require more federal funding of such research. Many experts feared the field would wither, or that expertise would flee to places such as Britain or Singapore that actively encourage embryonic stem cell research.

Instead, it is flourishing, Daley said.

### **PENT-UP DESIRE**

"There obviously has been a pent-up desire to do this work," Daley said.

The discovery last year of induced pluripotent stem cells -- ordinary skin cells that can be transformed into something that looks very much like an embryonic stem cell -- has energized the field, Daley said.

"Now that the technology is easy and free of any political complications, you have got hundreds of new scientists jumping in and calling themselves stem cell biologists," Daley said.

However, experts speaking at the conference agreed that work needs to continue on stem cells from all sources, including embryonic stem cells.

Researchers learned how to make induced pluripotent stem cells or iPS cells by studying which genes were turned on and off as embryonic stem cells developed.

One big hurdle with iPS cells is that they can only be transformed by using viruses to carry in new genes. Applications for adult stem cells are limited because they do not live for long in the body.

"This will require serious work over quite a long time before we can take it to the clinic," said Olle Lindvall of the University of Lund in Sweden.

"Most of the experience we have in treating patients with cells has involved short-term successes," added Ira Fox of the University of Nebraska.

Researchers reported on progress in regenerating pancreatic cells to treat diabetes, using stem cells in gene therapy and in creating new nerve cells.

Others are studying the role of cancer stem cells in a range of tumours. Los Angeles-based ImmunoCellular Therapeutics, Ltd. reported on an experimental a cancer stem cell vaccine aimed at treating deadly brain tumours called glioblastomas.