

**STEM CELLS:  
SCIENTIFIC PROGRESS  
AND FUTURE  
RESEARCH DIRECTIONS**

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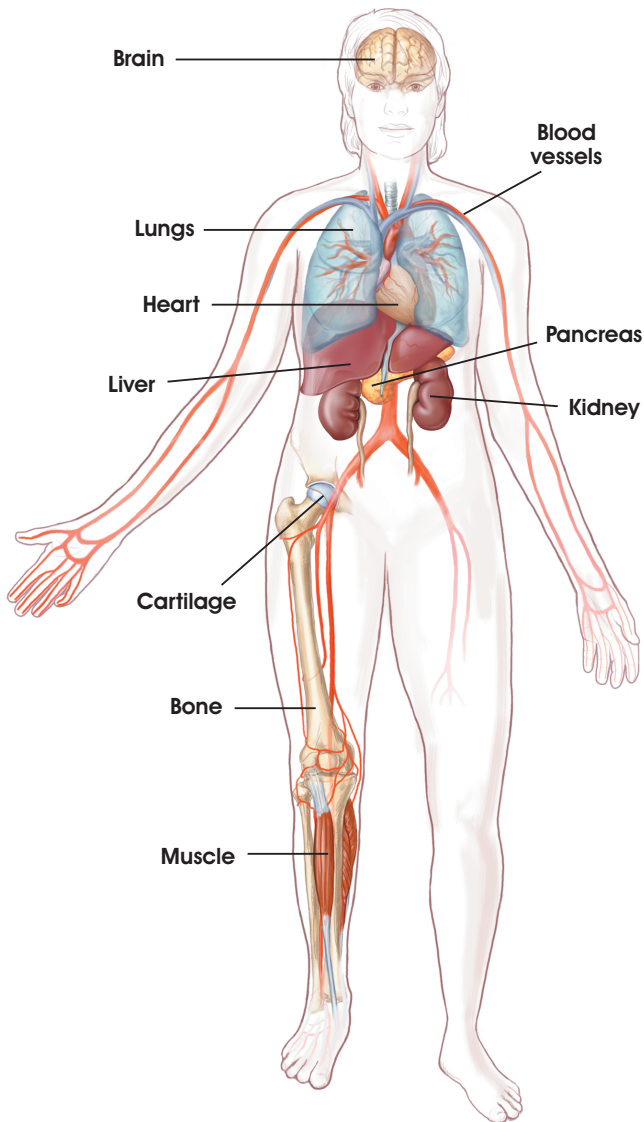
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## OPPORTUNITIES AND CHALLENGES: A FOCUS ON FUTURE STEM CELL APPLICATIONS



The makings of future news headlines about tomorrow's life saving therapies starts in the biomedical research laboratory. Ideas abound; early successes and later failures and knowledge gained from both; the rare lightening bolt of an unexpected breakthrough discovery — this is a glimpse of the behind the scenes action of some of the world's most acclaimed stem cell scientists' quest to solve some of the human body's most challenging mysteries.

Stem cells — what lies ahead? The following chapters explore some of the cutting edge research featuring stem cells. Disease and disorders with no therapies or at best, partially effective ones, are the lure of the pursuit of stem cell research. Described here are examples of significant progress that is a prologue to an era of medical discovery of cell-based therapies that will one day restore function to those whose lives are now challenged every day — but perhaps in the future, no longer.

**REPORT PREPARED BY THE NATIONAL INSTITUTES OF HEALTH**

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