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## Functional Genomic Analysis of Chemically Defined Human Embryonic Stem Cells

### Grant Award Details

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Functional Genomic Analysis of Chemically Defined Human Embryonic Stem Cells

**Grant Type:** Comprehensive Grant

**Grant Number:** RC1-00100

**Investigator:**

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|---------------------|---------------------|
| <b>Name:</b>        | Julie Baker         |
| <b>Institution:</b> | Stanford University |
| <b>Type:</b>        | PI                  |

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**Disease Focus:** Genetic Disorder, Muscular Dystrophy, Pediatrics, Skeletal/Smooth Muscle disorders

**Human Stem Cell Use:** Embryonic Stem Cell

**Cell Line Generation:** Embryonic Stem Cell

**Award Value:** \$2,518,303

**Status:** Closed

### Progress Reports

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**Reporting Period:** Year 2

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**Reporting Period:** Year 3

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**Reporting Period:** Year 4

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### Grant Application Details

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**Application Title:** Functional Genomic Analysis of Chemically Defined Human Embryonic Stem Cell

**Public Abstract:**

Regenerative medicine holds the promise that tissues can be engineered in vitro and then transplanted into patients to treat debilitating diseases. Human Embryonic Stem Cells differentiate into a wide array of adult tissue types and are thought to be the best hope for future regenerative therapies. This grant has three main goals: 1. The creation of new human embryonic stem cells in animal free conditions which will allow for future therapeutic uses. 2. The creation of human embryonic stem cell that contain mutations in their genomes that cause diseases, including cystic fibrosis, muscular dystrophy, Downs Syndrome and many others. These lines can be used to study these diseases and to test potential therapies 3. A close biological assessment of one of the first tissues to arise during differentiation of human embryonic stem cells – the endoderm. Since the endoderm eventually, during many days of development, becomes the pancreas, liver, and gut. It is critically important that we know everything about this very specialized tissue if we are to attempt to engineer these organs in the laboratory. Our overwhelming goal is to provide tools that clinician can use to treat disease whether it is to establish new and improved human embryonic stem cell lines or to find new ways of creating endodermal tissues within the laboratory for future therapeutic uses.

**Statement of Benefit to California:**

This grant will provide to the state of California new human embryonic stem cell lines that could be used in future therapeutic uses. It will also provide disease specific human embryonic stem cell lines that can be used to study disease and as models to test pharmacological compounds to treat disease. We will also provide a characterization of tissues generated from the new human embryonic stem cells which we hope will someday aid in the formation of liver, lung and pancreas.

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