National Human Genome Research Institute

Murine C57BL/6J Embryonic Stem Cell Lines

NHGRI INVENTION:
Number: E-038-2009/0

KEY WORDS

Serum-Free Media, Mouse Embryonic Stem Cell Lines

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PATENT-PENDING TECHNOLOGY AVAILABLE FOR LICENSING

SUMMARY

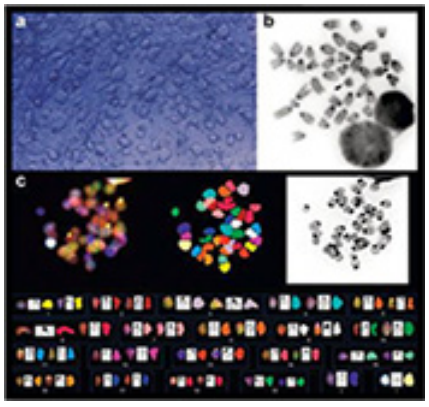
Investigators at the National Human Genome Research Institute (NHGRI), a component of the National Institutes of Health (NIH) have generated Embryonic Stem (ES) cell clones from C57BL/6J mice in a defined serum-free medium. These cell lines enable direct genetic alteration of mice in a pure genetic background. Using a defined media supplement, namely knockout serum replacement (KSR) with knockout DMEM (KSR-KDMEM), the investigators established ES cell lines from blastocysts of C57BL/6J mice. One cell line, HGTC-8, was further tested and found to be karyotypically stable and germline competent, both prior to manipulation and after gene targeting. All cell lines showed greater efficiency of transfection, as well as increased clone and chimera generation, when maintained in KSR-KDMEM.

POTENTIAL COMMERCIAL APPLICATIONS

These cell lines can be used for targeted genetic alteration of mice in a pure genetic C57BL/6J background without the need for time-consuming backcrossing.

RELATED ARTICLES

Cheng et al., Improved Generation of C57BL/6J Mouse Embryonic Stem Cells in a Defined Serum-Free Media, 39 Genesis 100 (2004).
http://onlinelibrary.wiley.com/doi/10.1002/gene.20031/pdf



Morphology and characterization of a male C57BL/6J ES cell line, HGTC-8. a: Morphology of cells cultured on mouse embryonic fibroblasts (magnification x50). b: DAPI stained karyotype reveals 40 XY chromosomes. The arrow indicates the Y chromosome. c: Spectral karyotyping analysis.