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an application for a patent for a new and useful invention. The title  
and description of the invention are enclosed. The requirements  
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a patent on the invention shall be granted under the law.*

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*Patent*

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*Anders Iversen*

DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



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(12) **United States Patent**  
Aboussekhra et al.

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- (54) **METHOD FOR GENERATING HUMAN MULTIPOTENT MAMMARY STEM CELLS FROM NORMAL PRIMARY BREAST LUMINAL CELLS**
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- (\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
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CPC ..... **C12N 5/0602** (2013.01); **A61K 35/12** (2013.01); **C12N 2501/2308** (2013.01)
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See application file for complete search history.

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(57) **ABSTRACT**

The invention relates to methods for generating multipotent mammary stem cells from isolated and cultured human breast luminal cells. The method comprises the steps: 1. isolating and growing normal differentiated cells in vitro; 2. treating the differentiated cells with either a conditioned medium from active fibroblasts or cytokine. The invention also relates to multipotent mammary stem cells, cultures of the multipotent stem cells, differentiated cells, tissues, organs derived from the culture multipotent stem cells isolated by the methods disclosed and therapeutic and other uses for those cells thereof.

**14 Claims, 5 Drawing Sheets**

**Specification includes a Sequence Listing.**