

(12) **United States Patent**  
**Symonds et al.**(10) **Patent No.:** **US 7,345,025 B2**  
(45) **Date of Patent:** **Mar. 18, 2008**(54) **METHODS FOR GENETIC MODIFICATION  
OF HEMATOPOIETIC PROGENITOR CELLS  
AND USES OF THE MODIFIED CELLS**

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Limited**, Eveleigh (AU)(\*) Notice: Subject to any disclaimer, the term of this  
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No. 60/304,127, filed on Jul. 10, 2001.(51) **Int. Cl.**

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435/91.31; 435/320.1; 435/455; 435/458;  
536/23.1; 536/24.5(58) **Field of Classification Search** ..... 514/44;  
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See application file for complete search history.

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(Exhibit 15).

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*Primary Examiner*—Jane Zara(74) *Attorney, Agent, or Firm*—John P. White; Cooper &  
Dunham LLP(57) **ABSTRACT**Described are compositions and methods relating to gene  
therapy, particularly as applied to hematopoietic progenitor  
(HP) cells, to transduced cells and methods of obtaining  
them, and to methods of using them to provide prolonged  
engraftment of modified hematopoietic cells in human sub-  
jects. The invention particularly relates to ex vivo gene  
therapy of HP cells for treatment or prevention of HIV  
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