

## VI. Historical and Future Growth Projections

### A. Publication Analysis

PubMed is a service of the U.S. National Library of Medicine that includes over 17 million citations from MEDLINE and other life science journals that date back to the 1950s.<sup>1</sup>

#### 1. Historical Analysis (Trailing 10 Years)

In this analysis, two search phrases are considered:

- 1) “Embryonic Stem Cells”
- 2) “Human Embryonic Stem Cells”

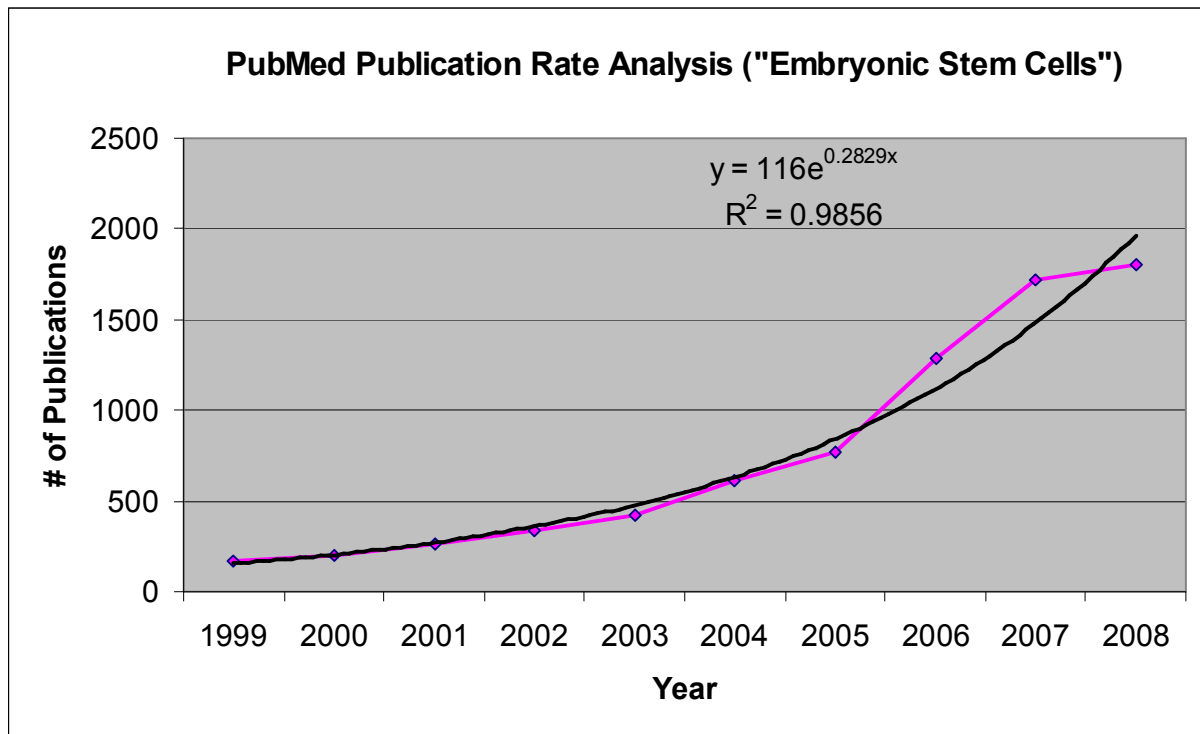
The intrinsic difference between these two phrases is that the search term “Embryonic Stem Cells” is inclusive of embryonic stem cell research conducted on ESCs of *all* species, human and non-human. The search term “Human Embryonic Stem Cells,” on the other hand, is limited to ESC research conducted only using hESCs. The purpose of this comparison is to explore the similarities and differences in rate data for these search terms, and to deduce useful market conclusions.

In the graph below, 10-year rate data for scientific publications containing the search phrase “**Embryonic Stem Cells**” is shown. In addition to the rate data, there is a trend line fitted to the data. The trend line is a best fit exponential line with an  $R^2$  value of 0.9856, meaning the trend line does an accurate job of predicting the data set.<sup>2</sup> Interestingly, publication rates for “embryonic stem cell” publications increased steadily and predictably through 2005, then **drastically increased in frequency from 2005-2007**. However, in 2008, publication rates leveled off again.

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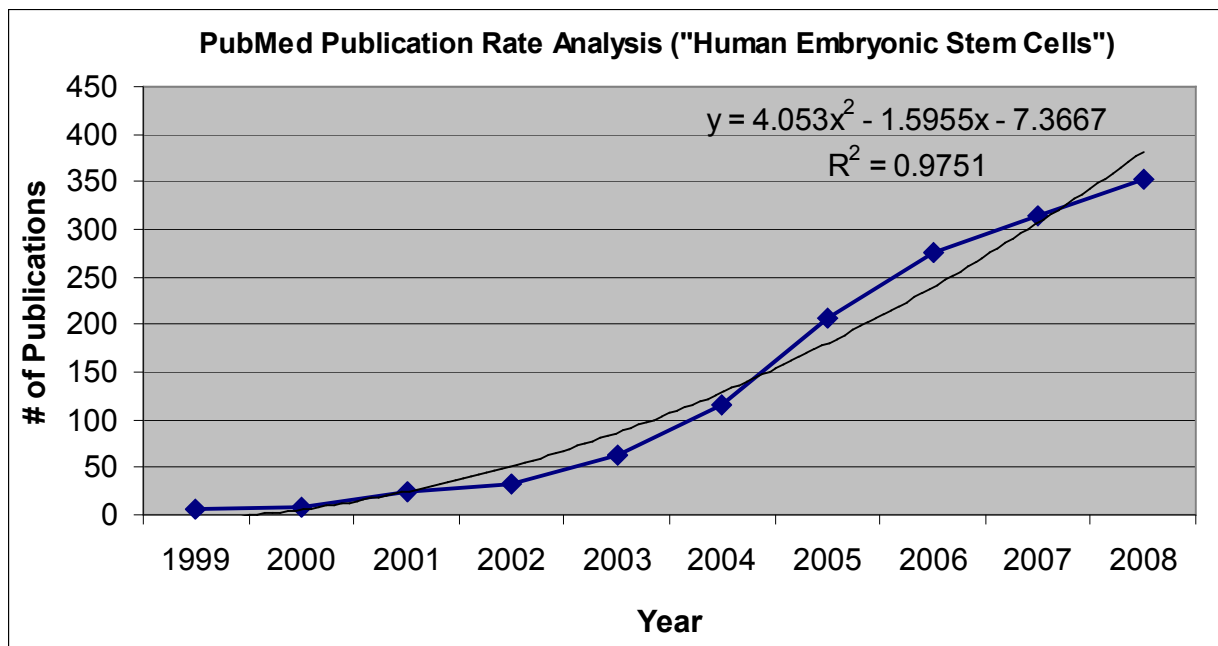
<sup>1</sup> PubMed Homepage: [www.pubmed.com](http://www.pubmed.com). Accessed Feb 24, 2009.

<sup>2</sup>  $R^2$  is a statistical term describing how good one term is at predicting another. If R-Squared is 1.0 then given the value of one term, you can perfectly predict the value of another term. If R-Squared is 0.0, then knowing one term doesn't not help you know the other term at all.



In the next graph, 10-year rate data for scientific publications containing the search phrase “**Human Embryonic Stem Cells**” is shown. In addition to the rate data, there is again a trend line fitted to the data. The trend line is a best fit polynomial line with an  $R^2$  value of 0.9751.<sup>3</sup> As seen in the previous graph, publication rates for “human embryonic stem cell” publications increased steadily but moderately through 2005. However, in this graph, a drastic increase in publication frequency occurred **from 2004 through 2006**. Interesting, 2007 and 2008 data show that publication rates again leveled off somewhat over the past two years.

<sup>3</sup>  $R^2$  is a statistical term describing how good one term is at predicting another. If R-Squared is 1.0 then given the value of one term, you can perfectly predict the value of another term. If R-Squared is 0.0, then knowing one term doesn't not help you know the other term at all.



## 2. Future Growth Predictions (5-Year Forecasts)

The charts below are the SAME two charts, expect that the best-fit trends lines have been extended in order to provide 5-year growth projections. First, consider 5-year projections is for the search phrase **"Embryonic Stem Cells"**:

[ - - - END SAMPLE SECTION - - - ]