

# Evolution of Nanomedicine, Bioinformatics and Grid computing in medical bibliographic databases

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## Abstract and objective

Medical advances have experienced progress due to the emergence of Nanomedicine and Human Genome Project gave another vision to the Bioinformatics field. As data grows exponentially, Grid Technologies are needed to manage this kind of data. The objective of this study is to describe how these disciplines are represented in Medline. A search of text words was performed and each category results were analyzed. There is an accurate representation of Nanomedicine and Bioinformatics, in contrast of the lack of adequate representation of Grid computing in Medline. The objective of this study is to describe how Nanomedicine, Bioinformatics and Grid Computing are represented in Medline

## Introduction and Methods

Medical advances have experienced progress due to the emergence of Nanomedicine. In the same way, the Human Genome Project and the genomics "revolution" gave another vision to the Bioinformatics field. As data grows exponentially, Grid Technologies are needed to manage this kind of data. In this scenario, the information related to above-mentioned disciplines, might not be well represented in databases such as Medline. A search of text words with Nanomedicine, Bioinformatics and Grid Computing was performed in Medline by means of PubMed, From 1966 till December 31 of 2008. The results of each category were analyzed by quantity and characteristics of obtained citations by: MeSH terms included, publication type, periodicals, language, country of origin and progress in number of citations per year

## Results

A total of 59192 bibliographic citations were retrieved. The country with highest citation was USA with 41 %. The most common MeSH term and Journals are shown in Table 1.

**Table 1: Most common MeSH and Journals retrieved**

	Nano medicine N=874	Bio informatics N=58014	Grid Computing N=304
MeSH term (overall %)	Nano medicine (5.2%)	Computational Biology (3%)	Computer Simulation (3.1%)
Journals (overall %)	Nano medicine: nanotechnology, biology, and medicine (19.3%)	Bioinformatics - Oxford, England (8.8%)	Studies in health technology and informatics (12.2%)

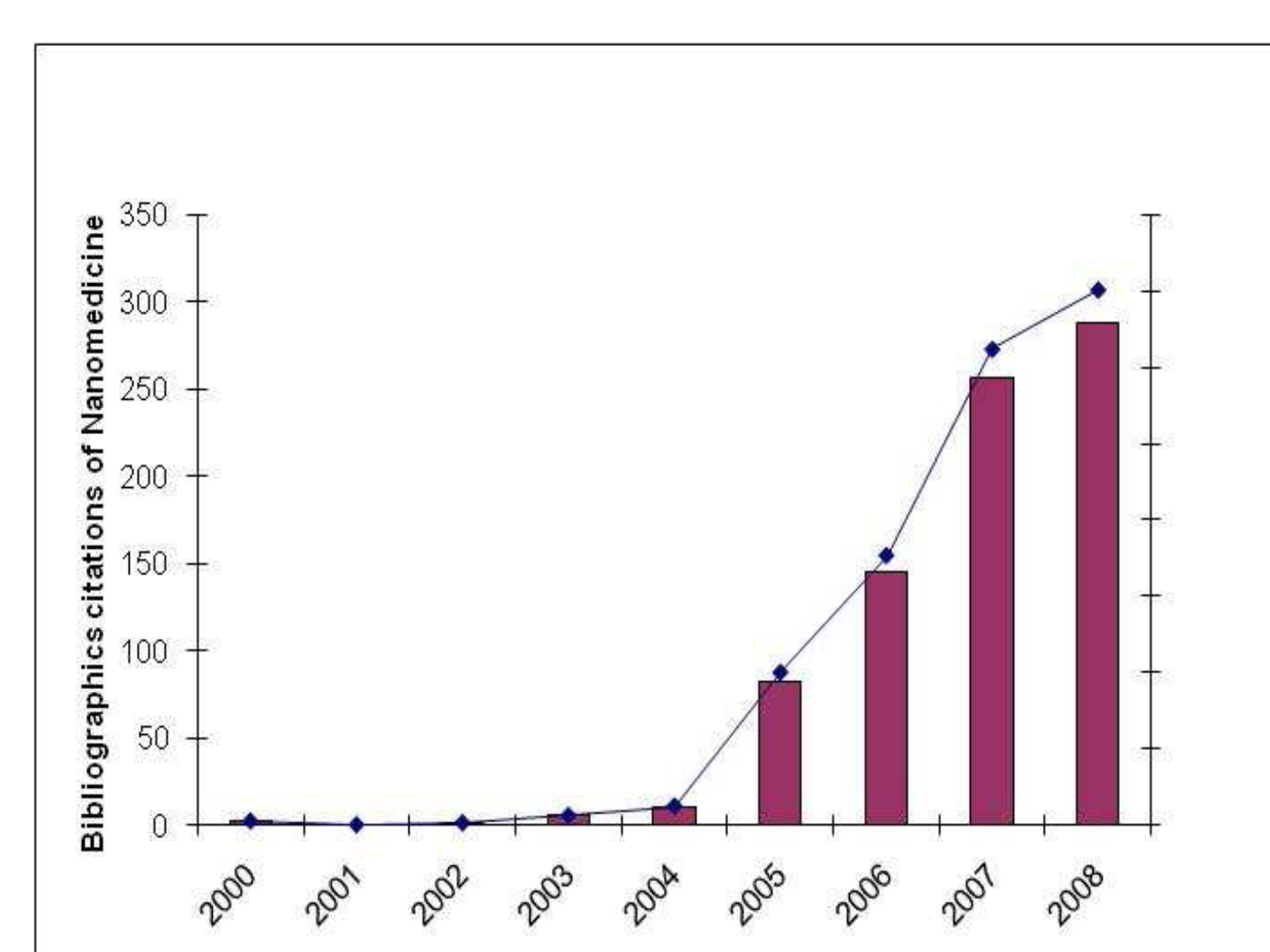
98 % of the citations correspond to Bioinformatics.

The first citation for Nanomedicine was included in 2000. Approximately 35 % of the citations were published during 2008 as shown in Figure 1.

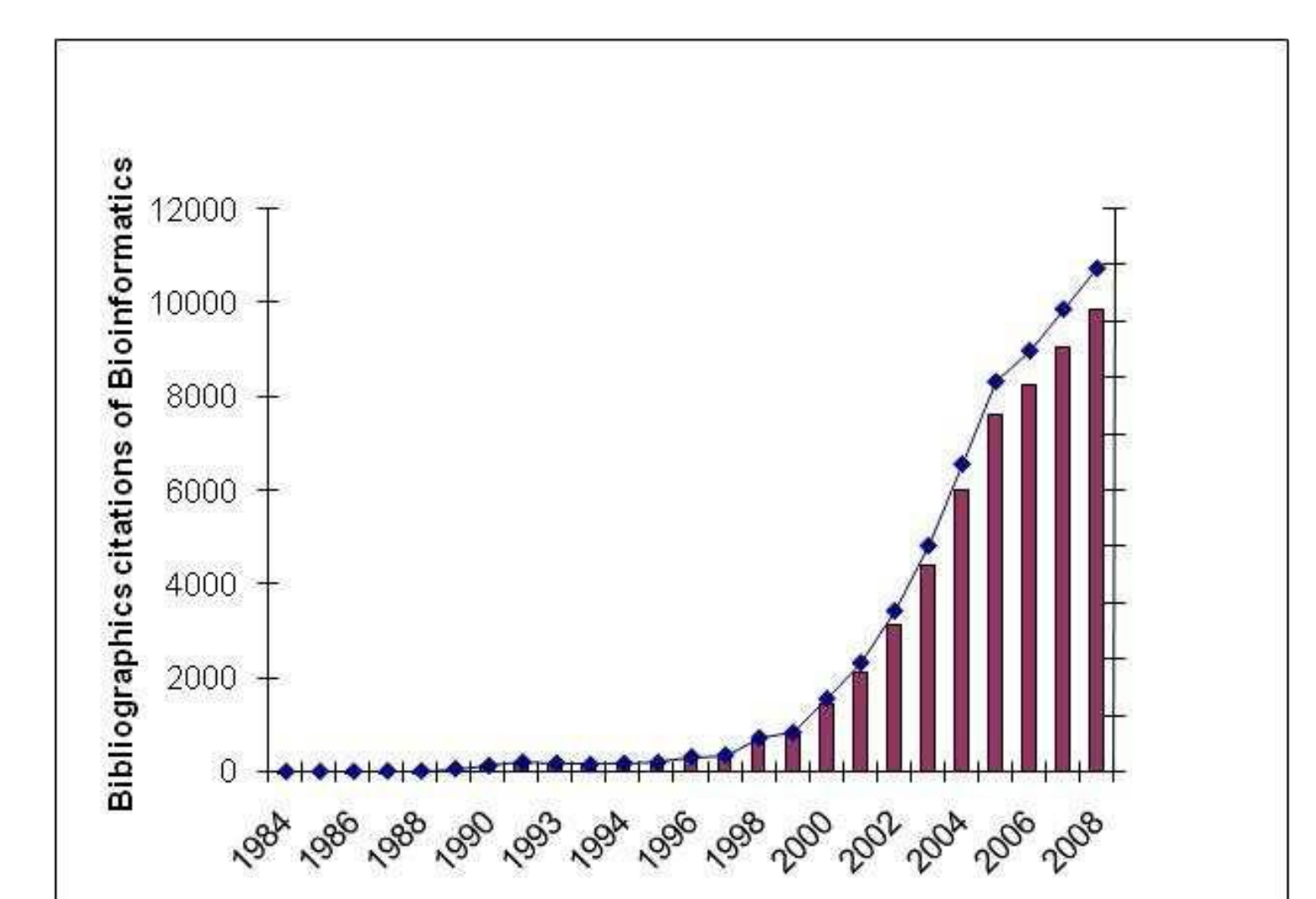
The number of citations of Nanomedicine increased particularly in 2006 when its MeSH term was coined.

For Bioinformatics (Figure 2) almost 95 %

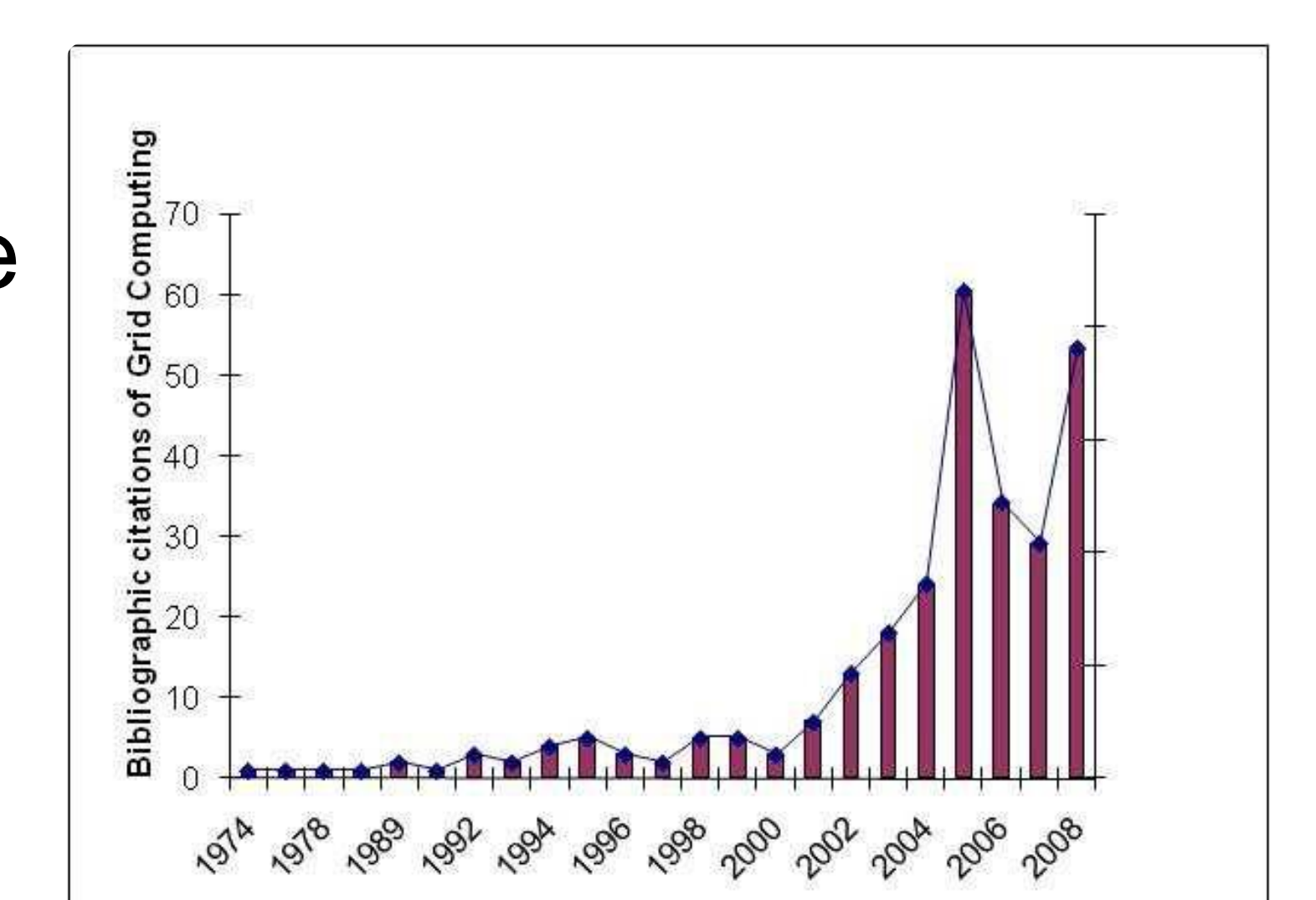
**Evolution of the number of citation per Year**



**Figure 1: Nanomedicine**



**Figure 2: Bioinformatics**



**Figure 3: Grid Computing**

of the citations were published Between 1999 and 2008. Citations related to Grid Computing have increased since 2002; nearly 84 % of the Citations have been published since that date (Figure 3).

The increase of citation came about in the era of the Human Genome Project.

Nanomedicine and Bioinformatics have specialized publications, while this does not occur in Grid Computing.

## Conclusion

There is an accurate representation in Medline of Nanomedicine And Bioinformatics, in contrast of the lack of adequate representation of Grid computing.

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