SciVerse® has been preferred for the present study as it encompasses both scientific products and patents (together with web documents); it is in fact a meta-database, retrieving data from other databases (for instance Scopus® and Pubmed®) for scientific production, and from World Intellectual Property Organization, European Patent Office, United States Patent and Trademark Office, Japan Patent Office and other European and non-European patent offices for patent applications. Database has been built retrieving occurrences according to Boolean sets of keywords and carefully counting the number of scientific products/patents per each year in order to avoid the spurious count of duplicates. Data have been retrieved on June 2012 exploiting the search-and-retrieve system of SciVerse®, inserting in the search window composite queries and using the "title-abs-key" code, thus enabling search only in Title, Abstract or Keywords of scientific products. Data were collected up to 2011 and go back up to 1974. Queries are reported in Appendix 1 in Table 1A. The analysis has been performed on data from 1990 onwards only, when the quantity of scientific/technological products starts to be more consistent. As a general rule data mining has been performed including (when needed) keywords into quotation marks (*i.e.* "search for the exact phrase").

Search queries have been realized combining (with the Boolean operator "AND") for each query two groups of keywords and Boolean operators.

The first group of keywords is common to all queries. It is relative to plasma and it contains all its most relevant definitions. This group of keywords has been realized with due care avoiding to incorporate citations of scientific products and patents on "blood plasma". Several tests have been performed before getting to the final queries.

The second group of keywords is specific for each query, and encompasses all the terms that are relevant for the specific subject, obtained via study of scientific literature and checked via several preliminary queries on Scopus® (2012), which also support relevant keywords on different topics.

After performing the queries, results have been checked to control duplicates and spurious data. Table 1 in Appendix 1 contains all keywords sets used for our database.

Data mining has been performed in June 2012, and is focused on the time horizon 1990 – 2011 for scientific research products (articles, books and related works) and patents. The analysis also considers the citations of papers to better evaluate the evolutionary growth of research fields.

As an acceleration of scientific activity in some research fields is a first main signal of scientific accumulation and continuous advances, it is critical to measure and analyse the *rates of scientific and technological growth* that indicate the evolutionary growth of technological trajectories in the medium-long term. The rate of scientific advances is measured by the number of scientific products, whereas technological advances are measured by the number of patents. An *exponential* model is a fruitful approach to measure the patterns of critical scientific fields based on the following *assumptions* (Coccia 2012):

1: $_0P$ is the number of scientific articles at t=initial (e.g. 1996)

2: $_tP$ is the number of scientific articles at 2011