



## ABSTRACT

### Knowledge networks in the biotechnology industry

**Isabel Díez-Vial**

Complutense University of Madrid (Spain)

[idiezvia@ucm.es](mailto:idiezvia@ucm.es)

**Jose Antonio Belso-Martínez**

Miguel Hernández University (Spain)

[Jbelso@umh.es](mailto:Jbelso@umh.es)

**Angeles Montoro-Sánchez**

Complutense University of Madrid (Spain)

[mamontor@ucm.es](mailto:mamontor@ucm.es)

#### Subject área:

S02 – Clústeres industriales, dinamismo y estrategia empresarial  
7. Empresas, emprendimiento y dinámica empresarial en el territorio

#### Abstract:

Biotechnology industry is highly dependent on knowledge and it is claiming for cooperation and interaction between firms and institutions: SMEs research-intensive firms, large established chemical and pharmaceutical corporations, and higher education institutions are endowed with complementary assets and knowledge to generate, develop and commercialize new biotechnology products, exiting wide ranging opportunities for collaboration among them (Arora and Gambardella 1990; Demirkan and Demirkan 2012).

As a consequence, biotech firms tend to be embedded in wider research communities that reflect the distributed nature of scientific knowledge (Powell et al. 1996). These are work-based communities group individuals who share common professional identities, cognitive frames, and informal or explicit norms governing the creation, validation, selection, and communication of new knowledge (Gittelman 2007). They can compensate physical distance with publication and exchange of unpublished papers, the attend meetings and conferences, labor markets in science operate at the national level, the socialization of Teams that form across regions are likely to reflect the spatial distribution of scientific expertise, as well as access to specialized resources (Gittelman 2007). The Spanish Bioindustry Association (ASEBIO) is the leading research



community of the Spanish biotech, bringing together companies, associations, foundations, universities, research and technology centers that carry out activities directly or indirectly related to biotechnology in Spain. Participation in this association provides a valuable source of knowledge and learning that has been reflected into higher innovation capabilities.

This research adopts a network perspective in order to understand the dynamics of relationships that are developed inside ASEBIO and how they affect the innovation performance of the associated firms. In doing so we analyze how firms combine different positions in the network across time (centrality, brokerage and embeddedness) with their own internal characteristics to become more innovative.

**Keywords:**

Biotechnology, networks, knowledge, relationships

**JEL codes: M0, O3**