



***Tensions between Knowledge Sharing and Knowledge  
Appropriation in Biomedicine:  
Public Science Responses  
to the Patentability of Research Tools***

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***Ph.D. thesis defence on 22 June 2010***

**Abstract**

The aim of this study is to contribute to the understanding of the institutional realignments in the biomedical innovation system brought about by changes in the intellectual property (IP) regime that enabled the expansion of patent protection to new areas, such as living organisms and basic biological information, and new actors, such as universities and public research institutes. These changes brought about two risks: a weaker dissemination of knowledge due to high access costs to research tools and findings, and the disruption of the norms of openness, traditionally associated with scientific progress. The available empirical studies that attempted to assess the effects of patenting on scientific exchange and on technology transfer often gave inconclusive or inconsistent results, pointing at deeper theoretical and methodological problems. The present study is based on an in-depth analysis of the various IP responses of public research actors in three biomedical fields: genomics, stem cell research and synthetic biology. The study elaborates a typology of public scientists' IP responses with respect to research tools and traces the main factors behind them. The co-existence of different and often conflicting IP responses shows that public researchers operate in a hybrid institutional system, which forces them to juggle constantly between the rules of the market and the conventions of "open science". Although they are often able to do so relatively smoothly, some responses clearly point at problems and dysfunctions in the patent regime. Moreover, they are indicative of some major changes in the innovation system, where new IP practices and growing science and technology interaction profoundly affect science funding policies, firm creation propensity and the organization of R&D across the public and the private sphere.



**Jury:** Aldo Genua (University of Torino), Laszlo Bruszt (EUI), Rikard Stankiewicz (University of Lund, formerly EUI) (supervisor), Finn Valentin (Copenhagen Business School)

## **Bio**

Tamara Jonjic's research and professional interests in the last seven years have been focused on innovation and on how institutions, such as science and technology policies and intellectual property regimes, affect innovation processes. She developed this interest while doing a Master in Contemporary European Studies at the University of Sussex, UK. After working for two years in the Ministry of Science and Technology in Zagreb, Croatia, she resumed her academic studies at the European University Institute in Florence, at the Department of Political and Social Sciences. Under the supervision of Professor Rikard Stankiewicz, in her PhD project Tamara strove to understand the organizational and institutional challenges faced by public research organizations as a result of changes in the intellectual property regime that allowed a proliferation of patents on upstream research results, such as genes and basic biological knowledge. She intends to continue exploring the rationale and appropriateness of different incentive mechanisms and organizational structures for the production, dissemination and utilization of knowledge in biotechnology.