Do funding agencies foster the convergence of the epistemic commitments of scientists? Insights from interdisciplinary nanomedicine in France and in the United States

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The calls for tenders of funding agencies foster the creation of communities of expectations (Borup et al., 2006) and communities of opportunities (Molyneux and Meyer, 2009) around a common project. To what extent do they also align the practices and ways of knowing of the scientists funded by the same programs? In other words, do funding programs encourage the creation of a social *milieu* in which scientific teams share conceptions of their work of its relevance, although their specific objects and research questions may diverge? These questions are part of a more global reflection on the consequences of science policies on the ways of organizing and practicing research (Gläser and Laudel, 2016). Competitive project funding is the subject of particular attention, particularly because of its widespread use in OECD countries (Lepori et al., 2007). Social science literature largely focuses on the organizational and professional consequences of competitive project funding, in particular its impact on the autonomy of researchers (Hubert and Louvel, 2012). It is also questioning its epistemic consequences. Social scientists are particularly concerned about the epistemic poverty of project-based research, which can result from risk aversion by evaluators and researchers, as well as from the identification by funding agencies of priority topics or types of science for funding (Gläser and Laudel, 2016, op cit). In this talk, I will adopt a different analysis angle. I will question the influence of funding agencies on the constitution of "epistemic commitments" in research, that is, on certain visions of the relevance of research attached with practices and professional networks (Granjou and Arpin 2015, Granjou, Louvel, Arpin, 2015). I will more specifically analyze how the funding programs for nanomedicine launched in the 2000s in France and the US fostered the constitution of interdisciplinary communities in nanomedicine. Emerging interdisciplinary communities have not stabilized their practices yet. It is therefore interesting to study how institutional commitments such as funding programs contribute to drawing boundaries around these communities and to what extend these programs orient the practices, shared values and objectives of their members. I draw here on a qualitative study (document

analysis and semi-structured interviews) which I have conducted between 2011 and 2014 in France and in California. I investigate how the two main objectives for research in nanomedicine defined by national and European funding agencies – 1) technological innovation in the early 2000s or 2) therapeutic discoveries in the mid to late 2000s – favor the formation of common epistemic commitments for researchers in the field. Finally, I also address the following question: what is the strength of these new interdisciplinary commitments encouraged by funding agencies compared to the epistemic commitments of researchers which prevail in their disciplinary communities? I will argue that the first funding programs for nanomedicine –focusing on technological advances– are not prescriptive and only slightly federating. In this approach to project funding, the teams still evaluate the relevance of their research according to the objectives of the scientific disciplines and communities to which they belong and not according to criteria common to nanomedicine and promoted by funding agencies. I will also argue that the subsequent funding programs define nanomedicine as a possible area for therapeutic research. With these programs, nanomedicine becomes a preclinical research tool that has to meet hybrid, scientific, industrial and regulatory expectations. I will show that the funding programs for this type of therapeutic research strongly structure the epistemic commitments of the nanomedicine teams. In fact, these funding programs greatly encourage the formation of networks and organizations that define these hybrid expectations and establish strategies common to researchers in the field. To conclude, funding programs are a necessary, but not sufficient, condition for stabilizing and unifying interdisciplinary nanomedicine. Indeed, such a stabilization supposes that these programs formulate performative expectations, prescribing means of action and scientific directions common to the teams of the field (Pollock and Williams, 2010). Also, nanomedicine is not entirely shaped by the visions of the future proposed by scientific policies. Indeed, research directions given be funding programs do not mechanically align on team practices. They have to materialize in guidelines, objects and applications, which are the product of interactions between scientists and funders, but also regulatory actors and clinicians. Therefore, although the call for tenders seem to target certain types of science, scientists play a key role in defining the research practices “that matter” in nanomedicine (Simakova, 2012).