

**Policy Uncertainty, Ethical Controversy and Emerging Technologies:
Lessons from the Funding of Stem Cell Science**

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Emerging technologies, such as stem cell research and nanotechnology, offer substantial promise to improve our quality of life. Yet, at the same time, many emerging technologies raise challenging ethical questions. As a result of these and other tensions, the outcomes of policy debates surrounding emerging technologies often vary both across jurisdictions and time, yielding a heterogeneous and uncertain policy environment. In this project, I consider policy uncertainty surrounding federal funding policies for stem cell research in the United States and assess its impact on scientists in this promising but controversial field. Drawing on data from a recent survey of stem cell scientists in the United States, I illustrate that policy uncertainty surrounding federal funding policies for human embryonic stem cell research has negatively impacted the development of the broader field of stem cell science, affecting not just scientists working with human embryonic stem cells, but also those working with less controversial types of stem cells. My analysis also illustrates the importance of state policy in this field. In particular, scientists in states that have provided funding for stem cell research are substantially less likely than scientists in states without such funding to report that policy uncertainty at the federal level is affecting their research plans. This effect is present for the full sample of stem cell scientists, including both scientists working with human embryonic stem cells and other less contentious cell types, but is strongest for scientists working with human embryonic stem cells. State policies that legalize or otherwise support human embryonic stem cell research, but do not provide funding, have no discernible effect. These results both demonstrate the potential negative consequences of policy uncertainty on the development of emerging technologies and offer insight into strategies that mitigate the effects of uncertainty and should help policymakers develop oversight approaches well suited to supporting the development of important emerging technologies.