Title
Three Times a Woman: A Gendered Economy of Stem Cell Innovation

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In 2004, Californians passed Proposition 71, a statute establishing stem cell research as a constitutional right. Prop 71 authorized bond sales to fund stem cell research in California, and created the California Institute for Regenerative Medicine (CIRM) to award grants and regulate the research. The state’s General Fund provided initial startup funding, to be repaid later with proceeds from bond sales. In her recent Life (Un)Ltd talk, Charis Thompson told the curious story of Prop 71, and how women came to be disproportionately enrolled in its passage and the “bio-curial” economy that resulted from it.

Prop 71 represents a state-based (rather than federally based) science economy. Given the ethically problematic nature of stem cell research, and the shortfall of federal funding for it, three elements were crucial to its passage and subsequent acceptance. First, a pro-cures rhetoric defined the passage of Prop 71 as a moral imperative, an idea that no one could possibly oppose. Second, framing procurement of stem cells for research as “acceptable derivation”—happening under the right conditions, coming from the right place—put the ethical focus on how cells are obtained, rather than on the acceptability of using embryonic cells in the first place. Finally, the passage of Prop 71 gave rise to
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a system of bio-curation—an incredible set of additional bureaucracies surrounding bioinformatics, data curation, banking, chains of custody, bookkeeping, compliance, and ethical protocols—without which the research could not proceed.

Americans live in an innovation economy, where we have an idea of science as an engine of economic growth. We assume that science will produce jobs, increase quality of life, produce interesting results and gains in global capital, and move human history forward. We see it as a trickle-down economy, growing both innovation and the tax base. These ideas lie behind our contract with science at the federal level. Assuming the same ideas behind Prop 71—a social contract between science and the state, rather than the nation—it should be noted that several aspects made Prop 71 extraordinary in comparison. For one, it was a product of direct democracy—citizens voted to fund this specific type of research. Also, it used funds usually reserved for “bricks and mortar” projects like roads or buildings—things typically equally accessible to all residents of the state. Additionally, Prop 71 actually amended the California constitution to make stem cell research a constitutional right—a very strange thing, given the controversial nature of the research.

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**VOTES**

It’s probably true that Prop 71 passed due to disproportionate voting by women. And women had multiple reasons to vote pro-cures. Noted gender differences exist in disability type, chronic disease incidence and severity, and resource allocation. Also, care work has gender dimensions, and many conditions requiring care stood to gain from Prop 71. Not surprisingly, then, women who felt strongly in favor of Prop 71 had a high level of enthusiasm for research that might lead to cures. However, when pressed further, they expressed uncertainty about how or if the passage of Prop 71 would affect their care burdens. Also, despite belief that women stood to gain from research afforded by Prop 71, the possibility existed that they would be left out of the benefits of the research. Known correlations exist between SES and likelihood of benefit (mediated through insurance access), and certain women are more likely to be low income—therefore access to benefits would be restricted along gendered race/class lines.

**PROCUREMENT**

Women’s eggs are one of the raw materials needed for stem cell research. Pluripotent cells, which can develop into any cell type, are taken from embryos shortly after conception. In the language of the proposition, pluripotent cells were mentioned as “surplus products of IVF,” but words like “egg,” “embryo,” “woman,” or “couple” never appear, despite the fact that they are all relevant.
After Prop 71 passed, egg donor protection emerged as the women’s issue. Debates flared around whether to pay women for this work of donating material. Most women’s activist groups opposed compensation because it felt too close to paying for babies, and would affect who would donate (those who would be most likely to discount risks involved—in other words, those who needed the money). Protection of egg donors came to be mocked for being overly paternalistic. The sentiment against compensating donation for stem cell research contrasts notably with attitudes toward compensating donation for assisted reproductive technology, which are generally positive.

**COSMETICS**

When people vote for measures like Prop 71, they vote for the entire trajectory of the research process—bench to bedside. So it becomes important to see tangible results quickly. One result of this is the emergence of “regenerative” skin products marketed by companies engaged in stem cell research. In one example, a small startup company with ties to CIRM produces skin products derived from stem cells to generate revenue in the absence of substantial research grants. The combination of the belief in the regenerative potential of stem cells plus a gendered aesthetic toward youth results in a heavily gendered consumption of these products by women. In this way, women provide a steady stream of income to keep the essential functions of the company going while the basic research moves along.

In sum, women end up enrolled in and paying for this biocuration complex three times. So what, if anything, should be done about it? As Thompson suggests, we could ensure that women, who are less likely to benefit from the research, are not disproportionately sampled for it. We could also encourage rhetorical changes. Authors of future propositions could seek out and list possible disproportionate demands and benefits, clearly name the major actors in the research—women, embryos, couples—and spell out possible uncertainties or unintended consequences.

The story of Prop 71 and its disproportionate reliance on women raises many questions. If a new proposition were written that incorporated the changes suggested here, would the public actually vote for it? And if not, does that mean that Prop 71 itself should not have passed? Are there alternatives to direct funding at the state level, such as firewalls to evaluate and distribute funding? Or should the federal government remain the primary funder of stem cell research? And, finally, what does a changing social contract with science mean for everyday people living in an innovation economy, and how might we intervene?

– Lisa Kietzer

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