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Bodies Unlimited
A decade of subRosa's art practice

subRosa

subRosa's performative art practice has long focused on examining the conditions of female bodies in the production and consumption of medical and biotechnologies in the globalized fertility industry. To date, the so-called biotech revolution represents an unprecedented intervention – at both micro and macro levels – into the reproduction, manipulation, and control of all life forms. As feminist artists, subRosa situates our own bodies and labor in relation to an inquiry about the "***post-human***" body that manifests simultaneously as the distributed body, medicalized body, socially networked body, cyborg body, citizen body, virtual body, laboring body, soldier body, animal body, and gestating body. We ask: How do we imagine ourselves as resistant, activist artists in these new global bio-scenarios? Can our work propose feminist ethics for post-human bodies and material life?

For the past forty years or more, leading feminist scientists, scholars, and activists, including Evelyn Fox Keller, Donna Haraway, Sandra Harding, and Vandana Shiva,[1] have interrogated the disciplines of science from a feminist perspective. They have made crucial incursions into the practices, methods, and philosophies of life-science, biotechnology, genetics, bio-politics, and bio-ethics. Concurrently, feminist artists and art historians have profoundly challenged how art is made, taught, and interpreted; and feminist art has strongly influenced and changed the mainstream art world. Feminist artists have activated new art practices that often employ research into non-art fields such as sociology, anthropology, psychology, sexuality, medicine, and gender studies. They have introduced new subject matter, methods and content including interrogations of emerging biogenetic-sciences, genetically engineered life, new reproductive technologies, environmental studies, and animal studies; and pioneered cultural forms and methods including participatory, relational, and social art practices, cyberfeminist art, and pedagogical public performance. subRosa has been a leader in bringing such new performative, participatory, and relational art practices to bear on a feminist critique of biotechnology, Assisted Reproductive Technologies (ART),[2] eugenics, genetic engineering and patenting of life materials. In this article, subRosa briefly describes the history and development of our practice, and presents a selection of our projects and performances.

A brief history of subRosa

As part of a 1998 artist residency at the Studio for Creative Inquiry at Carnegie Mellon University (CMU), visiting artist Faith Wilding initiated a feminist reading group to research the topic of 'Sex and Gender in the Biotech Century'. [3] This heterogeneous group composed of graduate students, faculty, and artists met regularly over sumptuous brunches, to discuss feminist writings about gender, race, reproduction and female labor in relation to the bio-sciences, and the digital imaging and new media technologies that were coming into use in the burgeoning computer science fields, and electronic art practices. The Studio for Creative Inquiry was founded to foster interdisciplinary work between the arts, sciences, and new media technologies at a time when both "***new media art***" and "***bio art***" were beginning to be hot trends in the academic art world, yet few artists were bringing a critical, feminist discourse, and audience engagement to the complex questions raised by emerging bio-tech sciences. Members of the reading group were also reading and thinking about how cyberfeminism might relate to historical feminist art practices, and to engaged activist work with socio/political issues involving gendered and raced bodies. Thus we read and discussed articles on the tactics and strategies of the Feminist Women's Health Movement, ACT UP, feminist grass-roots activism in immigrant rights and labor movements, reproductive rights, anti-war, environmental organizing, and the like.

It was no accident that subRosa began at Carnegie Mellon, an elite private university that prides itself on its leadership in research and development of computer science fields, as well as business, engineering and robotic technologies – it early acquired "***Andrew***" one of the world's first supercomputers – and is also home to a highly regarded School of Art where Andy Warhol was a student. CMU is also a recipient of major DARPA funding for research in military and space robotics, and Artificial Intelligence.[4] Some interesting collaborations between (mostly male) art and robotics students and faculty were already underway at CMU in the 1990s, but there was a marked lack of feminist discussion and consciousness about women's involvement with technologies in this high-tech school.[5]

Just prior to the formation of the reading group, Wilding and Hyla Willis – a professional graphic designer and art student at CMU – collaborated on *SmartMom*, a net-art project that *detourned* appropriated images and texts about NASA-engineered cyborg bodies and the *Smart T-shirt* technology developed by the Georgia Institute of Technology for remote medical surveillance and treatment of soldiers wounded in the battle field.[6] Inspired by Haraway's theorizing of the cyborg as a generative, feminist post-human figure, some of the artists in the reading group self-organized as a working group interested in collaborating on activist art projects about the subjects we were researching. [7] The group selected the name '**subRosa**', which sounded deliciously clandestine, for our as yet unspecified activities, and announced ourselves in an under-the-radar intervention "***cellular mutations***" which we sneakily distributed in red plastic biohazard baggies at The Next Five Minutes 3 Festival in Amsterdam in 1999. Our founding manifesta declared:

subRosa's name honors feminist pioneers in art, activism, labor, politics, and science: Rosa Bonheur, Rosa Luxemburg, Rosie the Riveter, Rosa Parks, Rosie Franklin.

subRosa is a reproducible cyberfeminist cell of cultural researchers committed to combining art, activism, and politics to explore and critique the intersections of the new information and biotechnologies in women's bodies, lives, and work.

subRosa produces artworks, activist campaigns and projects, sneak attacks, publications, media interventions, and public forums that make visible the effects of the interconnections of technology, gender, and difference; feminism and global capital; new bio and medical technologies and women's health; and the changed conditions of labor and reproduction for women in the integrated circuit.

subRosa practices a situational embodied feminist politics nourished by conviviality, self-determination, and the desire for affirmative alliances and coalitions.

It was an ambitious program, but since that first intervention, subRosa has never looked back, although we've undergone difficult changes in our group's composition, been separated geographically, and always struggle for time and resources to complete our many projects. Since the late 1990s, the landscape for artists who work collaboratively has changed dramatically, but when subRosa first began to work together it was still something of a novelty in mainstream academia and the art-world, and we found ourselves called on repeatedly to explain and justify our collaborative structure to funding organizations, granting bodies, hiring committees, curators, and art historians. Luckily, our first significant arts grant came from Creative Capital, which turned out to be

subRosa and Wu Tsang *Yes Species* in *Cyberfem. Feminisms on the Electronic Landscape* Espai d'art contemporani de Castelló (EACC), Spain, 20 Oct 2006

subRosa *Can You See Us Now? Ya Nos Pueden Ver?* in *The Interventionists: Art in the Social Sphere* curated by Nato Thompson, MASS MoCA, North Adams, MA, May 2004-April 2005

very open and helpful when we explained the nature of our collaborative work and allowed us to apply as a group, rather than as individuals. Even today, most artists with academic jobs who work collaboratively still have to struggle to defend their practices – and themselves – as worthy of advanced academic status and recognition when it comes to hiring, promotion and tenure.

subRosa's current members, Willis and Wilding, communicate frequently through email and phone calls, and we hold occasional intensive working retreats in one or the other's city of residence. As well, we use the time when we're traveling together to brainstorm and make plans for future projects and talk over what we've done. Apart from important funding by Creative Capital early on, as well as several state arts grants from Pennsylvania, our project funding comes from lecture and exhibition honoraria, and materials and travel funds from inviting institutions. Both Willis and Wilding support our-selves with full-time teaching jobs and also use faculty research and project money to fund subRosa projects and publications.

The subject matter of subRosa's projects has expanded well beyond our initial feminist critique of the development and marketing of ART, and ranges widely over a number of linked biotech and bio-political feminist issues. For example, our research about the lucrative global surrogacy and fertility tourism industry – and the eugenic thinking and "***genetic essentialism***" inherent in these industries – led to our participatory performance *U-GEN-A-CHIX* or *Why are Women Like Chickens, and Chickens Like Women*, which compared the use of women and chickens as producers of generative tissues such as eggs and embryonic stem cells for the global biomedical and ART market. [8] A version of this performance commissioned by the City of Women Festival in Ljubljana, Slovenia (2009), also incorporated findings of our research about the rapid growth in fertility tourism and the increasing incursion of genetically modified crops in Eastern European and Balkan countries. *Can You See Us Now*? *Ya Nos Pueden Ver?* was a large, interactive installation in the 9-month long exhibition, *The Interventionists,* at Mass MoCA in North Adams. [9] We collaborated with artist Wu Tsang on *Yes Species,* a performance and book project about transgender and Intersex for an exhibition at NGBK Gallery in Berlin. [10] Inspired by the work of our friends and comrades in the Ultrared collective, we held a two-week artist residency project, *A Week With|Out Women* at WHW's Galerija Nova in Zagreb, which we structured as a collective inquiry into

subRosa *U-Gen-A-Chix / Why are Women Like Chickens, and Chickens, Like Women?* in City of Women Festival, Ljubljana, Slovenia, 13 Oct 2008

subRosa *Biopower Unlimited!* **23rd Annual New Media & Art Festival, Bowling Green State University, Ohio, October, 2002**

the conditions and status of several different groups of women in Croatia including university students, queer activists, women's studies scholars, and performance artists. [11]

subRosa frequently gives lectures, seminars, and participatory workshops in the US and internationally. As well, we often collaborate with students and faculty from Women's Studies, Life Sciences, Visual and media arts departments, as well as various community groups, local artists and art institutions, to organize performances and events. subRosa also participates in international conferences, art festivals and video screenings, and has published a variety of books, booklets, essays, zines, DVDs, mapping projects, and posters.

Most of our projects are initiated by an invitation to perform or lecture at a specific festival, exhibition, event, school, or cultural institution. We try to match what we are interested in researching to the situation, site, and conditions of the inviting venue. Productive performances have taken place in colleges and universities when we do not identify ourselves as artists, but, sometimes costumed in our official white lab coats, we have insinuated ourselves successfully into one of the public student gathering spaces such as the school cafeteria, or the student union, where students are used to seeing info-tables, vendors and proselytizers of all kinds – since students are a huge marketing group for the military, various political and social organizations, and electronic and technological gadgets. For example, a successful subRosa intervention took place at a 'Campus Technology Fair' where we represented a fictive entity, *Biopower Unlimited*, and set up shop among the many other booth displays during Freshman week, with a bank of computers programmed to test attendants' "***bio-power***" by analyzing the every-day uses of their time and labor. It was interesting – and perversely entertaining – to witness the students' perplexity when trying to figure out what we were "***selling***". Many took our on-line bio-power "***test***" only to find that they were spending all of their waking hours working for someone else, and had virtually no "***free***" time of their own for family, pleasure, play, or socializing. [12]

Over the years, subRosa has developed situational and sited forms of trans-disciplinary performance that create

open-ended, discursive environments in which participants engage with objects, images, texts, technologies, and learning experiences, and interact with each other and the artists. We strive to create a space of collective inquiry where participants can directly experience and speak about the social and material effects of the new digital and biotechnologies on their lives.

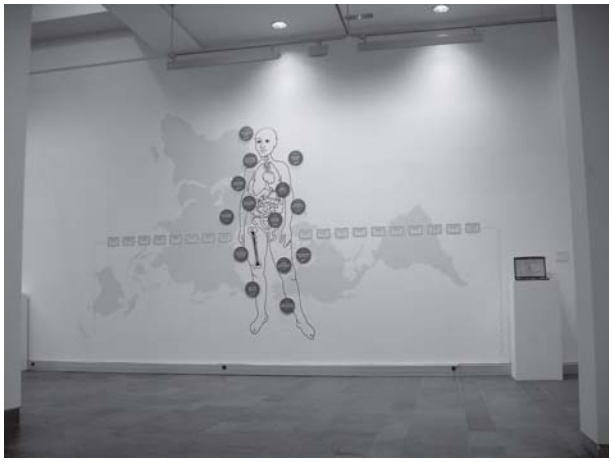
subRosa engages in many forms of research and investigates new models of interdisciplinary knowledge generation, dissemination and representation in the arts, sciences, and humanities. We ask: what counts as collective knowledge production and who are the knowledge producers in a democracy? What are the criteria for ethical, socially engaged scientific and artistic work? What cultural and social mechanisms promote such citizen knowledge production, and what apparatuses of authority, specialization, or privatization counter the sharing of important contemporary knowledge? We believe that artists can introduce audiences to scientific processes within a critical context that questions the effects bio-science has in real life. Emerging bio-technologies are creating changes in labor conditions for scientists, lab-workers, medical technicians, doctors and nurses. They also create new social relations and subjectivities, and new ways of using and controlling everyone's bodies and bio-power. As feminists, we also study the particular effects on women's and children's bodies and lives. For example, a child born through the use of Assisted Reproductive Technologies could have four mothers: a) the "***commissioning***" mother; b) the egg-donor mother; c) the surrogate gestational mother; and d) the social mother/ parental mother who rears the child. Our work explores the consequences and meaning of such new subjectivities and kinship relations, as well as examining actual embodied processes such as the new divisions of gestational labor, the physical and emotional effects of the process of "***assisted reproduction***" and the troubling issues of eugenic control of reproduction. Our projects attempt to show how and why the new digital media- and bio-technologies affect everyone – directly or indirectly, whether "***wired***" or not – because they are embedded in every aspect of life: material and service labor, immaterial knowledge and intellectual work, creative and cultural production, food production, education, communication, reproduction, medical treatment, and global commodity production and exchange. And they have a profound impact on how we conceptualize and represent our "***human-ness***". In fact, the very idea of an "***essential humanness***" has been called into question by the new life-forms, bodies, and conditions these technologies produce. These are exciting, and disturbing, questions for subRosa and engaged artists and activists to confront and grapple with.

subRosa *Cloning Culture* LASALLE-SIA College of Arts, Singapore, 10-13 Jan 2003

subRosa Projects

As Vandana Shiva suggests, '**The new biotechnologies reproduce the old patriarchal divisions of activity/ passivity, culture/nature. These dichotomies are then used as instruments of capitalist patriarchy to colonize the regeneration of plants and humans. Only by decolonizing generation can the activity and creativity of women and nature in a non-patriarchal mold be reclaimed.**' [13]

In 2003, subRosa held a series of presentations and conversations in Singapore about that country's leading scientific developments in Assisted Reproductive Technologies (ART), animal cloning, and embryonic stem cell technologies under the title *Cloning Cultures in Singapore*. During our two-week stay, we observed scientists in a primate cloning lab; attended an informational sales seminar at a commercial umbilical cord blood bank; and visited the obstetrics and maternal care wards and neonatal intensive care units (ICU) of a large public women's hospital. We interviewed reproductive scientists, doctors, nurses, women patients, and researchers in these facilities. As well, we conducted a three-day workshop called *Cloning Cultures* with art students from LASALLE-SIA College of the Arts, and a seminar with a class from the National University of Singapore taught by Irina Aristarkhova, a feminist scholar and professor teaching courses in feminism and new media arts in both schools. The workshop at LASALLE began with a simple blackboard



subRosa *Cell Track: Mapping the Appropriation of Life Materials*, 'Soft Power: Arte eta teknologiak aro biopolitikoan' Bilbao, Spain, 1 Oct - 6 Nov 2009

lecture on the processes of cloning, cell-division, and cell-culture, and explained how "***genetically identical***" new animals and plants could be produced by this method. subRosa showed a slide-show of photos taken in down-town Singapore's stores, restaurants, and sidewalks the day before, which demonstrated how cloning has entered the cultural imaginary in the form of everyday commodities, clothing, toys, and foods. We then divided the students into five groups led by a subRosa member, and each group took on a different project connected to cloning, genetics, eugenics, and biotechnology as they pertained to local issues such as water purification, growing genetically modified crops, or charting school children's growth and intelligence. In the course of three days, the students produced wonderfully engaging works that clearly visualized the social and cultural fears and desires connected to cloning and genetic engineering. [14]

A year later, our Singaporean research on the biological, socio-economic and political issues surrounding embryonic stem cells, reproduction, and cloning technologies led to the development of two new subRosa projects. The first, *Cell Track: Mapping the Appropriation of Life Materials* (2009, 2008, 2004) was both an installation, and a web site that examined the privatization and patenting of human, animal, and plant genomes within the context of a history of eugenics in the US. [15] In the Chicago version of the installation, a large anatomical drawing of a human figure combining male and female body parts was superimposed on a wall painted with Buckminster Fuller's Dymaxion map of the world. [16] Affixed to relevant parts of the figure, were large red dots bearing texts that highlighted examples of the patenting of human biological material ranging from specific gene sequences to one man's entire genome. These dots also noted a few significant examples in which ownership rights have been contested or overturned. The figure and map were horizontally bisected by a timeline delineating key moments in the history of the patenting of life materials, as well as important statements or actions critical of this form of ownership. The overlapping territories of the bodily and land-masses, superimposed with brief case studies and contestational histories, provided a graphic visualization of the economic and geographic implications of the human stem cell industry. A laptop installed at one end of the time line allowed visitors to further explore some of the source material that informed the project, as well as critical and artistic texts by subRosa. This material was incorporated into a web site (http://refugia.net/celltrack/) that provided actual examples of the Licensing and Commercialization Agreements scientists must sign to obtain cell lines, and accounts of researchers "***harvesting***" genetic intellectual property from women, children, cancer patients, and indigenous peoples. An essay on the site takes a closer look at the rhetoric used by genetics industries that refer to stem cell technologies as the "***new gold standard***" for medical research. An animation in the form of a children's storybook gave voice to a rebellious '**Stem Cell That Wanted to be Different**'. Site visitors could also read a statement drafted at the 2002 World Social Forum in Brazil, 'The Treaty Initiative to Share the Genetic Commons'. Finally, the "***gold rush***" of recent mergers between fiscal giants in the pharmaceutical, agricultural, and biotech industries were also documented.

Cell Track draws attention to the increasing separation between the bodies that produce stem cells and genetic material, and the medical and pharmaceutical "***products***" derived from them. Maternal body cells and tissues like eggs, placentas, fetuses, and umbilical cord blood have become valuable "***raw materials***" mined for stem cell technologies. This development has opened the way for corporate science to profit from the manipulation and control of life – by patenting and licensing DNA sequences, engineered genes, stem cell lines, transgenic organisms, and the like. *Cell Track* raises the need to found an activist, feminist-inspired collective research and resource lab, available to amateurs, artists, independent scientists, and non-profit researchers conducting experimental and contestational public health research and shared knowledge production about controversial biotechnologies.

Epidermic! DIY Cell Lab (2009, 2005) was a participatory performance alongside *Cell Track*, intended to familiarize gallery visitors with the scientific processes and concepts of recombinant DNA and stem cell technologies that underlie genetic engineering. [17] subRosa set up an amateur science performance and experimental lab in the Betty Rymer art gallery. Working with a scientist and using easily obtained science materials, we duplicated the classic 1973 experiment that first produced anti-biotic resistant recombinant DNA. By completing the final "***transformation***" step in the gallery, we were able to give visitors an understanding of some of the actual lab processes by which *E.coli* bacteria were genetically altered to make them resistant to antibiotics. Viewers could practice the technique of "***streaking***" the agar-coated surface of a Petri dish with cell cultures, and observe *E.coli* cells being transformed. Visitors also watched a short lecture demonstration about adult and embryonic stem cell cloning, and learned how to make yogurt in their own kitchens as an example of DIY cell culture. At another table in the gallery, visitors cut and pasted xeroxed historical and contemporary drawings and images of recombinant processes from alchemy to gene splicing, into collages that represented their own fears, desires and understandings of recombinant science. These were projected onto a large screen next to the lab-like setting of the DNA experiment in progress. Thus visitors were exposed to at least three different ways in which science can be visually represented, and got a taste of public knowledge production in action. The "***wet lab***" component of *DIY Epidermic!* brought information and discussion about cell transformation, recombinant DNA, and tissue culture experiments into a public space of discourse in the context of the research performed and exhibited in the *Cell Track* installation. Transgressing the sanctity of what and where a "***lab***" should be located, and who should or can engage in scientific processes allowed for the different kind of public inquiry and perception of the ownership issues which subRosa wished to address in these two projects.

International Markets of Flesh (IMF) (2009, 2005, 2003) was an audience-participatory performance and collective mapping of global trafficking in human organs and tissues.[18] The first iteration of *IMF* took place on the altar of a seventeenth century converted convent church turned art space, near the vast central market of Mexico City. Through participatory activities, demonstrations, & manipulation of life-size organ sculptures, the audience learned about the growing international demand for transplantable organs and

Top: subRosa *International Markets of Flesh* in *Arte Nuevo InteractivA'05* Mérida, Mexico, 25 June 2005. Bottom: XI International Performance Art Festival: *Out of Focus*, ExTeresa Arte Actual, Mexico City, 11 July 2004

tissues, and the political, social, and medical consequences these demands create. Participants wrote personal stories and rumors about organ harvesting and trade on a large Dymaxion world map, and affixed organ stickers to relevant spots. The visual accumulation of facts, fiction, and testimony effectively demonstrated the dominant flows of the flesh-market worldwide, with demand generally coming from the North, and supply from the South. Performers and audience members also discussed changing ideas about the value of human life in the age of genetically engineered, globally distributed, and patented human body parts; filled in a form estimating the net worth of their body parts and labor, and received a 'Certificate of Flesh Worth'. We repeated the *IMF* performance, and further developed it, for *InteractivA*, a cultural festival held in the Yucatan city of Merida a year later. For this performance local teenage schoolchildren

assisted subRosa, while their families, as well as international artists and tourists, participated as the audience. Here our emphasis was on acts of exchange, gift economies, and the different ways in which value is created and distributed: an organ for money, the "***gift of life***" for family survival, the exchange of knowledge for power.

Seminars and Workshops

subRosa is working on designing new pedagogies that combine women's studies, art, and science studies. Thus we often engage in participatory forms of inquiry and knowledge creation such as lectures, seminars, and workshops. For example, in February 2011, we were invited to conduct a class in a graduate Women's Studies seminar, 'Engineering Life and Ethics' taught by Drs. Deboleena Roy, and Sara Giordano, at Emory University in Atlanta. Our topic, *Feminist Scientists and Artists Interrogate Synthetic Biology,* was grounded in Sandra Harding's premise that a feminist science that takes gender into account, posits a different world, and imagines a science built on different social relations than patriarchal science.[19] We were interested in hearing what the students might have to say about strategies and tactics for "***becoming feminist scientists***" and what it means to do science from a feminist point of view. Each student first gave a brief summary of her/his research topic and field of study and voiced a central question or concern. subRosa then presented and discussed several "***bio-art***" projects that exemplified some of the ways in which performative and participatory art practices can initiate public discussion about troubling aspects of bio-genetic technologies. We also posed a number of questions to the class to try to tease out troubling issues regarding the "***new***" biological and material science of synthetic biology, for example: Do synthetic biologists and bio-artists have *carte blanche* to manipulate life materials, eradicate species boundaries, and change the ontology of existing organisms? In other words, in what ways does matter "***matter***"? Are there limits and boundaries to human interventions into life processes? If "***life***" is synthetically produced, will random bio-diversity, mutation, and difference be obliterated or disrespected? Since synthetic DNA needs living cells or molecules [so-called wetware] to "***make life***", does that change its ethical status? What are the urgencies and possibilities for feminist science pedagogy now? It was interesting to see how closely our questions coincided with the students' concerns and research. We were excited to learn that the class requires students to spend a minimum of five hours in a lab over the course of the semester working "***bench-side***" with '**graduate students, postdoctoral fellows and/or faculty who conduct synthetic biology research or genetic engineering experiments in their lab**.' [20] The method of interdisciplinary "***bench-side***" work presents interesting possibilities for feminist artists, ethicists, and scientists to develop new methods of teaching and "***doing***" science and art together. subRosa found this class to be exciting and generative, and hopes to refer to the model to organize a feminist science and art study and action group in the coming years.

Bodies Unlimited! A subRosa Workshop for 'SoftPower II', was held at Sala Rekalde, a cenrally located public art gallery and hot spot for contemporary art close to the Guggenheim, Bilbao, in November 2010.[21] Organized by curator and journalist Maria Ptqk, 'SoftPower II' was a series of week-long seminars, workshops, and exhibitions with the overall title of 'Art and Technologies in the Age of Bio-politics'. Our goals for the workshop were to help participants gain a basic understanding of what is meant by recombinant DNA, genetic engineering, intellectual property and patenting of life. Further, we wanted to examine the ways in which capitalism and patriarchy become naturalized in the production of scientific knowledge, and to ask: How do we produce new knowledge together using our own stories and experiences, and mix things up to produce new questions and new working methods?

Not knowing what we were facing in terms of participants, space, available equipment, and language or cultural differences, we stuck to some basic processes and exercises through which we hoped to raise consciousness and questions about the big issues we were introducing. The challenge was to merge live art practices, everyday life, and specialist and amateur fields of research and practice. The five-day interdisciplinary workshop included eight female students and one male student, who represented a wide range of disciplines including fine arts, social sciences, media art, digital technologies, scientific, and medical fields. Since a common language was a problem, we divided each day into several different experiential activities that included visual presentations and discussions of many artist projects, creating and keeping shared lab-books, observing/doing basic biological processes that are often used in biotechnology such as fermentation methods, culturing cells and bacteria, growing molds and yeasts. We performed a simple DNA

subRosa *Bodies Unlimited* workshop and exhibition *Soft Power II* Sala Rekalde, Bilbao, Spain, 2-6 November 2010

extraction from strawberries, and made high-powered magnifiers from web cams. We organized a three-hour "***drift***" (using the method of the Situationist *derive)* through local sites of biological production and consumption– supermarkets, farmer's markets, hair and massage salons, street food vendors, urban gardens, etc. The workshop culminated in a public exhibition of our experiments, and a performance of DNA extraction with the audience. Surprisingly, a wide variety of people showed up, and energetically engaged in discussion around the subject of the experiments and objects. Although we were quite happy with the outcome of the workshop, it is frustrating that one never knows what the long-term reverberations of such hit and run projects are. We are always sowing seeds randomly, but rarely seeing what comes up.

Throughout the world farmers, scientists, scholars, activists, artists, and ordinary citizens are making it a common cause to contest capitalist control of the world's genetic heritage, biopower, and traditional knowledges. At stake for concerned citizens is the contestation of corporate biotech's bid for the monopoly, ownership and control of all life materials, icluding new biological organisms, and genetic heritage that, up to the early 1970s, had been considered a common good and not patentable. subRosa is interested in engaging in a collective inquiry with feminist scientists, theorists, scholars, students, artists, and practicioners, for the purpose of developing contestational, interdisciplinary, and pedagogical practices, and introducing new feminist research models and methods. We believe that the acceleration of synthetic biology research, the creation of so-called biomass and synthetic life organisms, and other new ways of "***making life***" in the laboratory, calls feminist scientists and artists to go beyond a critique of science to create new science practices, methods, and working ethics that specifically address the challenges of synthetic biology and the ethical and embodied issues it raises.

Notes

1. See Sandra Harding *The Science Question in Feminism* (Ithaca and London: Cornell University Press, 1986); Donna Haraway *Modest_Witness@Second_Millenium.FemaleMan©_Meets_OncoMouse™Feminism and Technoscience* (New York and London: Routledge, 1997); Vandana Shiva *Biopiracy: The Plunder of Nature and Knowledge* (Boston: South End Press, 1997); Suzanne Holland, Karen Lebacqz and Laurie Zoloth(eds.) *The Human Embryonic Stem Cell Debate: Science, Ethics, and Public Policy*(Cambridge and London: MIT Press, 2001) and Judith Butler *Undoing Gender* (New York and London: Routledge, 2004).

2. See subRosa 'Stolen Rhetoric: The Appropriation of Choice by ART Enterprises' in Maria Fernandez, Michelle Wright, Faith Wilding (eds.) *Domain Errors! Cyberfeminist Practices* (New York: Autonomedia, 2003); see also 'The Economies of Art' *n.paradoxa* vol.8 (2001) pp. 59-64

3. Participants in initial subRosa meetings, discussions, and projects: Emily de Araujo, Krista Connerly, Steffi Domike, Maria Fernandez, Camilla Griggers, Christina Hung, Carolina Loyola, Laleh Mehran,

Elizabeth Monoian, Ann Rosenthal, Suzie Silver, Lucia Sommer, Rebecca Vaughan, Faith Wilding, Hyla Willis, Michelle M. Wright.

4. DARPA is the Defense Advanced Research Projects Agency, the research arm of the military www.darpa.mil

5. For example, Simon Penny's classes in 'Gizmology' produced some interesting cross-over projects between art and robotics students. In the 1990s Faith Wilding was a member of Old Boys Network, a cyberfeminist group in Europe, and also collaborated on some bio-tech projects and publications with CAE (Critical Art Ensemble)

6. For the *Smart T shirt* see www.gtwm.gatech.edu/gtwm.html

7. The project group evolved into a "***core***" subRosa group that worked together until 2004; it included Steffi Domike, Christina Hung, Laleh Mehran, Lucia Sommer, Hyla Willis, and Faith Wilding. subRosa never had formalized membership criteria or elections of members. It is interesting to note that though the words "***collaboration***" or "***collective***" do not occur in the subRosa founding manifesto, the current members of subRosa, Hyla Willis and Faith Wilding, think of ourselves as collaborators, and of subRosa as a collective.Our current website describes subRosa as a collective, and we talk about subRosa's body of work as collectively produced. For more history, and to download publications go to www.cyberfeminism.net

8. First *U-Gen-A-Chix* performance, *YOUGenics2: Exploring the Social Implications of Genetic Technologies* was curated by Ryan Griffis, Southwest Missouri State University, Springfield, 2 Oct 2003. Performed as Express Choice, Syracuse University, Syracuse, NY, 7 Nov 2005.

9. *Can You See Us Now? ¿Ya Nos Pueden Ver?* in *The Interventionists: Art in the Social Sphere* curated by Nato Thompson, MASS MoCA, North Adams, MA, May 2004-April 2005 (catalogue)

10. *Yes Species* 'Intersex 1-0-1 Festival' Neue Gesellschaft für Bildende Kunst (NGBK), Berlin, June 17, 2005 (catalog). Also shown in *Cyberfem. Feminisms on the Electronic Landscape* curated by Ana Martínez-Collado, Espai d'art contemporani de Castelló (EACC), Spain (20 Oct 2006)

11. A Week With | Out Women Artist residency (at WHW's Galerija Nova) & performance (at Student Center Club, Teater &TD), Zagreb, Croatia, 31 May-8 June 2008

12. *Biopower Unlimited!* '23rd Annual New Media & Art Festival' Bowling Green State University, Ohio, October, 2002

13 Vandana Shiva *Biopiracy: The Plunder of Nature and Knowledge* (1997) p. 45

14 subRosa's Singapore residency and 'Cloning Cultures' workshop were hosted by LASALLE-SIA College of the Arts, with additional sponsorship from the National University of Singapore's Cyberarts Programme. Special thanks to Gunalan Nadarajan, then Dean of LASALLE-SIA; Dr. Irina Aristarkhova, Assistant Professor of Communications (NUS); and all our Singaporean collaborators, especially Adeline Kuh, Margaret Tan, and Dr. Sheryl Vanderpol. The project was funded in part by a generous grant from the Creative Capital Foundation, NYC.

15. *Cell Track* was exhibited at *BioDifference: The Political Ecology* Biennale of Electronic Arts, Lawrence Wilson Gallery, Univ. of Western Australia, Perth, Sept-Oct 2004; and at *YOUgenics 3* Betty Rymer Gallery, Art Institute of Chicago, Dec 2004-Feb2005, curated by Ryan Griffis. see http://refugia.net/celltrack/

16. We used Buckminster Fuller's Dymaxion map because it reverses the locations of North and South that we are used to in world maps, and renders the comparative size of the continents more accurately.

17. *Epidermic! DIY Cell Lab*took place Feb. 18, 2005 during *YOUGenics 3*

18. *International Markets of Flesh*, XI International Performance Art Festival *Out of Focus*, ExTeresa Arte Actual, Mexico City, 11 July 2004. *Arte Nuevo InteractivA '05* curated by Raul Balanquet, Patio Central del Centro Cultural Olimpio, Mérida, Mexico, 25 June 2005 (catalogue).

19. Sandra Harding *The Science Question in Feminism* (Ithaca and London: Cornell University Press, 1986) p. 243 and ff

20. Re-phrased from the class syllabus

21. The first part of *Soft Power I* took place in 2009 in Vitoria-Gasteiz,Spain thanks to the collaboration of Proyecto Amarika. see www.amarika.org/softpower/

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