UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

JAMES L. SHERLEY, DR., *et al*, Appellees, v. KATHLEEN SEBELIUS, in her official capacity as Secretary of the Department of Health and Human Services, *et al.*, Appellants.	No. 10-5287

DECLARATION OF ARNOLD R. KRIEGSTEIN, M.D., PH.D. IN SUPPORT OF THE REGENTS' MOTION TO INTERVENE ON APPEAL

I, Arnold R. Kriegstein, M.D., Ph.D, declare as follows:

1. I am the Director of the Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research, the John G. Bowes Distinguished Professor in Stem Cell and Tissue Biology and a Professor of Neurology at the University of California, San Francisco ("UCSF"). I have applied for as principal investigator and been awarded through my grantee institutions twenty-five research and program-project grants from the National Institutes of Health an more from other funding sources. I have also served as an ad hoc reviewer for the National Institute of Neurological Disorders and Stroke ("NINDS") at the National Institutes of Health ("NIH") between 1997 and 2009.

2. My research at UCSF focuses on neurodevelopmental disorders including birth defects, schizophrenia, epilepsy, and learning disabilities. Twelve to fifteen scientists and three technicians or staff members are involved in research at my laboratory at UCSF. I am the principal investigator on two ongoing research grants funded by NINDS. I also am the co-principal investigator on an ongoing program-project grant funded by NINDS.

3. Our research uses electrophysiological, optical recording, and molecular biological approaches to study intercellular signaling and proliferation in the embryonic cerebral cortex during fetal stages of development. We use both adult stem cells as well as human embryonic stem cells ("hESC"). hESC serve as an important standard against which we measure the fidelity of other types of stem cells including adult and induced pluripotent stem cells. We recently demonstrated that radial glial cells, present only in the embryonic and fetal developing brain that were long thought to simply guide embryonic nerve cells during migration, are neuronal stem cells in the developing brain. This identification has helped to shift attention to the role of glial cells in the adult brain, and may lead to innovative therapies aimed at treating diseases of the brain and brain injuries. We also recently demonstrated that brain grafts consisting of a specific type of nerve cell, called an inhibitory interneuron, could be used to treat Parkinson's disease. We are

now working to make these nerve cells from embryonic or induced pluripotent stem cells.

4. Many of my colleagues and I have been adversely affected by the preliminary injunction that halted NIH's processes for funding ongoing grants and for reviewing, scoring, and approving grant applications. Although much of the work associated with hESC is funded through the State of California, the amount of federally funded research in the University of California ("UC") System is significant and the impact of the preliminary injunction is disproportionate to the amount of federal funds received for this research. In addition to its impact on scientists, technicians and staff who are hired on a full-time basis for federally funded research, the University also employs researchers who split their time between multiple studies, some involving hESC and some that do not. Any loss of funding for the federal hESC projects will result in a loss of hours for these employees. In this way, the preliminary injunction has an impact on dozens of researchers and students, affecting programs across the UC campuses and across departments including programs that do not perform any derivation work, but rather, acquire hESC lines from other institutions outside of California.

5. In addition, UCSF operates a Medical Scientist Training Program ("MSTP") which combines graduate and medical curricula and leads to both M.D. and Ph.D. degrees. It is designed to produce highly qualified physician-scientists who will

pursue outstanding careers in academic medicine and research. The MSTP is sponsored jointly by NIH, the UCSF School of Medicine, and the UCSF graduate programs. MSTP provides financial support to cover all medical and graduate tuition and fees, and NIH provides a yearly stipend of $28,000 (for the 2010-11 academic year) for students to participate in research activities. Currently, approximately eighty-eight students receive NIH MSTP grant funds. Mentoring by UCSF faculty is a critical part of the program and mentors are included in the grant applications submitted to NIH.

6. As a result of the preliminary injunction, NIH has held the NIH MSTP Grant in abeyance and has indicated that it will not renew funding because the grant included faculty members who were serving as mentors or advisors who also were involved in hESC projects even though those projects are not funded through the MSTP Grant. Because the applications were reviewed and scored based on the presence of those faculty members, we understand that the scientists cannot be replaced in order to permit continued funding of the NIH MSTP stipends. The preliminary injunction therefore threatens not only the vitality but the viability of this important program. Students in the program will lose their stipends and the research they perform, which is not only an integral part of their education, but an important part of our research that will thus be halted. A similar threat is hanging

over other NIH supported training programs at UCSF, including the Neuroscience Training Program, the Developmental Biology Training Program, and others.

I declare under penalty of perjury that the foregoing is true and correct.

Arnold R. Kriegstein, M.D., Ph.D.
September 20, 2010