



MEMORANDUM

Date: September 4, 2012

From: Alan Trounson, PhD
CIRM President

To: Independent Citizen's Oversight Committee

Subject: Extraordinary Petition for Application RB4-06117 (LATE)

Enclosed is a petition letter from Dr. Song Li of the University of California Berkeley, an applicant for funding under RFA 11-03, CIRM Basic Biology IV Research Awards. This letter was received at CIRM on September 4, 2012 (less than 5 business days prior to the ICOC meeting) and we are forwarding it pursuant to the ICOC Policy Governing Extraordinary Petitions for ICOC Consideration of Applications for Funding.

Extraordinary Petition for A Proposal to RFA 11-03 Basic Biology Awards IV Program

Jonathan Thomas, Ph.D., J.D., The Chairman of CIRM ICOC
Alan Trounson, PhD, CIRM President and Chief Scientific Officer

Dear Dr. Thomas and Dr. Trounson,

I'm submitting this Extraordinary Petition to The CIRM Governing Board to request for the consideration of the proposal RB4-06117 (In Vitro 3D Model of Vascular Diseases) for funding. I sincerely appreciate the valuable comments of the review committee, especially on the innovative aspect of the proposal. However, I felt that the uniqueness and the scientific significance of this proposal have not been included in the consideration for funding recommendation. As I noted that some proposals on specific topics scored a few points lower are recommended for funding, I would like to bring your attention to the uniqueness and the broad impact of this proposal and the lack of CIRM support in this emerging area, in addition to the scientific and technical feasibility.

Cardiovascular diseases are a leading cause of death in the United States and California. While significant attention has been focused on the treatment of heart diseases, the research on the cause of heart attack and stroke, including atherosclerosis and restenosis in the blood vessels, and the research on the related treatment, have not been supported by CIRM. A main reason is that blood vessel diseases were considered "smooth muscle cell diseases", in which the de-differentiation and the proliferation of smooth muscle cells play a major role. Our recent study (Nat Comm, 2012 Jun 6;3:875) indicates, for the first time, that the proliferation and the differentiation of the newly identified vascular stem cells, instead of the de-differentiation of smooth muscle cells, contribute to vascular diseases. This finding is ground breaking (as covered by news media) and opens a door to new therapeutic strategies. For example, drug delivery method can be used to target vascular stem cells, and new drugs that block vascular stem cell differentiation into bone and cartilage lineages may be developed to prevent the hardening of the blood vessels and calcified plaque formation-the main cause of heart attack and stroke. The understanding of the basic biology of human vascular stem cells is fundamental for the development of new therapies of vascular diseases, which will have broad impact, as vascular diseases affect every one of us.

Regarding to the feasibility of the proposed studies, the preliminary data from 10 human samples shows that vascular stem cells can be isolated from both healthy and diseased regions of the blood vessels and that these stem cells are in various differentiation stages, which warrants further in-depth studies as proposed. The bioreactor for the proposed studies has been developed, and the multiplexed system will be developed to integrate the bioreactors for high-throughput investigations, which is highly feasible with the world class expertise of the Co-Investigator on microfabrication in our team. We understand that the in vitro model cannot recapitulate every aspect of in vivo environment; however, human stem cell model complements animal model, and is extremely valuable for the development of new therapeutic strategy.

In summary, this proposal is unique and will have broad impact on the treatment of vascular diseases and our healthcare, and it is an emerging research area that lacks CIRM support. There is no major technical obstacle for the proposed studies. I'm confident that this basic biology research will lead to translational clinical research in the near future. The kind consideration of this proposal for funding by the CIRM Governing Committee is very much appreciated.

Sincerely,

Song Li, Ph.D.; Professor, University of California, Berkeley

