CONNECTICUT STEM CELL RESEARCH ADVISORY COMMITTEE
Minutes – Special Meeting
Monday, June 7, 2010

A special meeting of the Connecticut Stem Cell Research Advisory Committee "Advisory Committee" was held on Monday, June 7, 2010, at the Legislative Office Building, Room 2B, Capitol Avenue, Hartford, Connecticut.

Call to Order: Noting the presence of a quorum, Robert Galvin, Chairman of the Advisory Committee, called the meeting to order at 8:40 a.m. Members present: Treena Livingston Arinzeh, Ph.D.; Richard H. Dees, Ph.D.; Robert Galvin, M.D., M.P.H., M.B.A. (Chair); Gerald Fishbone, M.D; David Goldhamer, Ph.D.; Myron Genel, M.D.; Ronald Hart, Ph.D.; Ann Kiessling, Ph.D.; Stephen Latham, J.D., Ph.D.; Robert Mandelkern; Paul Pescatello, J.D., Ph.D.; and Milton B. Wallack, D.D.S.

Advisory Committee Members Absent: Anne Hiskes, Ph.D.

Other Attendees: Isolde Bates (UCONN); Marianne Horn (DPH); Marc LaLande (UCONN); June Mandelkern (Parkinson Rep. to Stem Cell Coalition); Rachel O'Neill (UCONN), Henry Salton (Attorney General's Office); Chelsey Sarnecky (CI); Lynn Townshend (DPH); Daniel Wagner (CI); Paula Wilson (Yale); and Warren Wollschlager (DPH).

Opening Remarks—Commissioner Galvin:

Dr. Galvin welcomed everyone and stated that there is approximately $9,800,000 of funding available for the 2010 grant round.

Ms. Townshend mentioned that there are 89 grant applications to consider for the $9,800,000 of stem cell research funding that is available for the 2010 round. She emphasized that any decisions made during the meeting are not binding until the final vote is taken at the end of the process, and changes can be made at any time before the final vote.

Ms. Townshend reviewed the procedures for the grant process. She mentioned that only those members eligible to vote on a proposal should participate in the discussion and vote on the proposal. The first two categories for consideration are the Core and Group grants. Regardless of the peer review score, the proposals for these categories will be described by the team of committee members assigned to review those grants for a period of approximately 5 minutes, followed by a committee discussion of approximately 10 minutes. Based on consensus, the proposals will be preliminarily put into "yes," "no" or "maybe" categories. If an Advisory Committee member objects to the placement of a proposal, the proposal automatically gets placed into the "maybe" category for consideration in the next phase.

After all of the Core and Group grants have been preliminarily reviewed, the “maybe” and “yes” grants will again be discussed for approximately 4 minutes, and the “no” grant applications will be eliminated from further discussion or consideration.

Ms. Townshend reiterated that full funding considerations will be held to the end of consideration of all grant categories.

Ms. Townshend explained that the Seed grant proposals and Established Investigator grant proposals will be considered similarly to the Core and Group grant applications but have different time limits. The Seed and Established Investigator grant proposals scoring 6 or above will receive one minute description and discussion, and grant proposals scoring 5.9 or below will receive five minutes of description and discussion. Ms. Townshend noted the importance of Advisory Committee members refraining from discussion of any of the issues or proposals during the breaks, lunch or off hours. She indicated that if there is a need to go into executive session to discuss proprietary information relevant to a proposal, the audience will be asked to leave the room. Ms. Townshend mentioned that public comments will be taken after the decisions on the grant proposals.

Attorney Horn reviewed the list of members generally eligible to vote on the UCONN proposals and those generally eligible to vote on the Yale proposals. Additionally, it was noted that if any members have other conflicts, they should refrain from discussion or vote on those specific proposals. Attorney Horn mentioned that Dr. Galvin will not be voting on proposals from either UCONN or Yale University.

Review of Core Grant Proposal:

Dr. Kiessling summarized core grant proposal 10SCD01, UCHC “Stem Cell Physiology and Chemistry Core,” Dr. Antic, principal investigator. The Peer Review score is 2.00. Dr. Kiessling discussed the science and suggested that because of the limited amount of funding that is available the proposal be considered after consideration of the other proposals. There was a general discussion about funding more core facilities. Excerpts from the Request for Proposals (“RFP”) for the 2010 funding round were read, and it was noted that funding for core facilities is not a priority in this round but may be considered if the proposal is novel or has scientific merit. Dr. Kiessling noted that the proposed core is unique. If funded, it was suggested that an oversight committee be established to encourage collaboration throughout the state. After further discussion there was consensus to put the proposal into the “maybe” category.

Review of Group Grant Proposals:

Dr. Hart and Dr. Fishbone discussed Group grant proposal 10SCC01, UCONN "Neural Differentiation of hES cells and Patient-Derived iPS cells" Dr. O'Neill, principal investigator. The Peer Review score for the proposal is 4.3. Dr. Hart reviewed some of the concerns raised in the Peer Review, and there was consensus to put the proposal into the "no" category.

Dr. Kiessling and Dr. Pescatello summarized Group grant proposal 10SCC02, UCHC "Cancer Stem Cells as Tumor Initiative Cells in Breast and Ovarian Cancers" Dr. Brewer, principal investigator. The Peer Review score for the proposal is 4. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. If the Advisory Committee needs to discuss the information identified as proprietary, it may be necessary to go into executive session. After highlighting the proposal, Dr. Kiessling noted that several aspects of the proposal are cancer based, which may be eligible for other funding. There was consensus to put the proposal into the "no" category.

Dr. Goldhamer and Mr. Mandelkern reviewed Group grant proposal 10SCC03, Yale University "Emerging Roles of Biochemical and Mechanical Environments During hESC Cell Fate Determination" Dr. Horsley, principal investigator. The Peer Review score for the proposal is 3.8. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Goldhamer discussed some concerns with the proposal and noted that the proposal would be better suited as a seed grant proposal. After further discussion, there was consensus to put the proposal into the "no" category.

Review of Seed Proposals:

Dr. Latham and Dr. Goldhamer reviewed Seed grant proposal 10SCA26, Diagnostic Devices, "Stem-cell Graft Mapper (GM-04) Using Near Infrared Cameras (NIC) for Imaging Stem Cell Migration and Differentiation," Mrs. Rekha Shertukde, principal investigator. The Peer Review score for the proposal is 8.0. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. There was consensus to put the proposal into the "no" category.

Dr. Goldhamer and Dr. Wallack discussed Seed grant proposal 10SCA27, Yale University, "Temporal Regulation of Neural Progenitor Cell Fate in the Developing Cerebral Cortex," Dr. Shull, principal investigator. The Peer Review score for the proposal is 7.4. Dr. Goldhamer discussed some of the technical issues with the proposal, and there was consensus to put the proposal into the "no" category.

Dr. Arinzeh and Dr. Genel summarized Seed grant proposal 10SCA37, UCHC, "Response of Human Embryonic Stem Cells to Physiological Stresses," Dr. Basu, principal investigator. The Peer Review score for the proposal is 7.3. Dr. Arinzeh reviewed some of the concerns with the proposal. There was consensus to put the proposal into the "no" category.

Mr. Mandelkern and Dr. Kiessling reviewed Seed grant proposal 10SCA50, Yale University, “Modeling Pathogenesis of Temporal Lobe Epilepsy” Dr. Huttner, principal investigator. The Peer Review score for the proposal is 6.7. Mr. Mandelkern referred to some of the concerns raised by the Peer Review, and there was consensus to put the proposal into the “no” category.

Dr. Dees and Dr. Fishbone discussed Seed grant proposal 10SCA17, Yale University, “Engineering a Supportive Environment for Human Embryonic Stem Cell Differentiation,” Dr. Guo, principal investigator. The Peer Review score for the proposal is 6.6. Dr. Dees reviewed some of the issues indicated in the Peer Review. There was consensus to put the proposal into the “no” category.

Dr. Dees and Dr. Pescatello reviewed Seed grant proposal 10SCA08, UCHC, “Converting Human Embryonic Stem Cells into Cancer Stem Cells,” Dr. Heinen, principal investigator. The Peer Review score for the proposal is 6.3. Concerns were raised with the project, and there was consensus to put the proposal into the “no” category.

Dr. Fishbone and Dr. Dees summarized Seed grant proposal 10SCA14, Yale University, “Elucidating the Unique Features of Chromatin in Stem Cells,” Dr. Regan, principal investigator. The Peer Review score for the proposal is 6.3. Dr. Fishbone discussed some of the concerns indicated by the Peer Review. There was consensus to put the proposal into the “no” category.

Dr. Dees and Dr. Genel reviewed Seed grant proposal 10SCA15, Connecticut College, “Notch Signaling and Target Gene Expression in the Derivation of Neural Stem Cell Progenitors from Pluripotent Stem Cells,” Dr. Eastman, principal investigator. The Peer Review score for the proposal is 6.3. Dr. Dees reviewed discussed some of the concerns indicated by the Peer Review, and there was consensus to put the proposal into the “no” category.

Mr. Mandelkern and Dr. Kiessling discussed Seed grant proposal 10SCA48, UCHC, “Role of Channel Kinase TRPM7 in Cardiaomyocytes Differentiation from Human Embryonic Stem Cells,” Dr. Yue, principal investigator. The Peer Review score for the proposal is 6.3. Mr. Mandelkern discussed some of the criticisms indicated in the Peer Review. There was consensus to put the proposal into the “no” category.

Dr. Arinzeh and Dr. Fishbone reviewed Seed grant proposal 10SCA11, Yale University, “Control hESC Self Renew by the Stress Regulated Protein Kinase Cascades,” Dr. Su, principal investigator. The Peer Review score for the proposal is 6.1. Dr. Arinzeh discussed some of the concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Dees and Dr. Genel summarized Seed grant proposal 10SCA39, UCONN, “Stem Cell Secretion in Self Renewal and Differentiation,” Dr. Krueger, principal investigator. The Peer Review score for the proposal is 6. Dr. Dees reviewed some of the concerns indicated in the Peer Review. There was consensus to put the proposal into the “no” category.

Ms. Townshend reiterated that five minutes is the prescribed time frame for discussing Seed grant proposals with a score of 5.9 or better.

Dr. Hart and Dr. Latham summarized Seed grant proposal 10SCA33, UCHC, “Functional Properties of Neurons Derived from Autism and Angelman Syndrome Patients,” Dr. Levine, principal investigator. The Peer Review score for the proposal is 5.7. Dr. Hart discussed some of the concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Pescatello and Dr. Dees discussed Seed grant proposal 10SCA07, Yale University, “Derivation of Hepatocytes from Embryonic Stem Cells to Study the Initial Steps of Malaria Pathogenesis,” Dr. Mamoun, principal investigator. The Peer Review score for the proposal is 5.6. After reviewing the Peer Review comments, there was consensus to put the proposal into the “no” category.

Dr. Hart and Dr. Latham reviewed Seed grant proposal 10SCA41, UCONN, “Development of a Feeder-Free Culture System for the Directed Differentiation of Human Embryonic Stem Cells to Myoblasts,” Dr. Lawton, principal investigator. The Peer Review score for the proposal is 5.5. Dr. Hart mentioned some of the concerns and noted that the embryonic stem cell lines proposed may be federally eligible. After discussion, there was consensus to put the proposal into the “no” category.

Dr. Fishbone and Dr. Arinzeh summarized Seed grant proposal 10SCA10, Yale University, “Functional Characterization of Embryonic Stem Cell-Specific Miro RNAs,” Dr. Seli, principal investigator. The Peer Review score for the proposal is 5.3. Dr. Fishbone discussed some of the concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Goldhamer and Dr. Pescatello discussed Seed grant proposal 10SCA19, Yale University, “In Vitro Differentiation of Human Endometrial Mesenchymal Stem Cells to Neuron-Like Cells: Implications for Endometriosis Related Pain and Inflammation,” Dr. Kayisli, principal investigator. The Peer Review score for the proposal is 5.2. Some of the concerns indicated by the Peer Review were discussed. There was consensus to put the proposal into the “no” category.

Dr. Fishbone and Dr. Pescatello reviewed Seed grant proposal 10SCA09, Yale University, “The Regulation of miRNA Expression by Polyuridylation in Controlling the Human Stem Cell Fate,” Dr. Kwak, principal investigator. The Peer Review score for the proposal is 5. There was consensus to put the proposal into the “no” category.

Dr. Goldhamer and Dr. Pescatello reviewed Seed grant proposal 10SCA20, Yale University, “Metabolic Profiling of Human Embryonic Stem Cells,” Dr. Seli, principal investigator. The Peer Review score for the proposal is 5. Dr. Goldhamer discussed some concerns with the proposal. There was consensus to put the proposal into the “no” category.

Dr. Genel and Dr. Latham discussed Seed grant proposal 10SCA40, UCONN, “The Lamin Interactome during Stem Cell Differentiation,” Dr. Krueger, principal investigator. The Peer Review score for the proposal is 5. Dr. Genel and Dr. Latham noted that the Peer Review was positive but the score does not reflect the review. After further discussion, there was consensus to put the proposal into the “maybe” category.

Dr. Hart and Dr. Wallack summarized Seed grant proposal 10SCA34, UCONN, “Induced Pluripotent Stem Cells (iPSC)-Seeded Novel Scaffolds for Improved Bone Repair in Vivo,” Dr. Wei, principal investigator. The Peer Review score for the proposal is 4.8. A discussion ensued in general about Seed grants. It was noted that the intent of the Seed grants is to provide opportunities for new investigators or senior investigators who are new to the stem cell research. After further discussion about the proposal and the team involved, there was consensus to put the proposal into the “no” category.

Mr. Mandelkern and Dr. Kiessling discussed Seed grant proposal 10SCA46, Yale University, “Cerebral Cavernous Malformation 3 (CCM3) in Hemangioblast Differentiation and EC Maturation,” Dr. He, principal investigator. The Peer Review score for the proposal is 4.7. Mr. Mandelkern reviewed some of the concerns expressed in the Peer Review, and there was consensus to put the proposal into the “no” category.

Dr. Arinzeh reviewed Seed grant proposal 10SCA03, Yale University, “Harnessing Immunity to Pluripotency Genes in Humans,” Dr. Dhodapkar, principal investigator. The Peer Review score for the proposal is 4.6. Dr. Arinzeh discussed some of the weaknesses with the proposal. She mentioned that both she and Dr. Hiskes, the second Committee reviewer for the proposal, recommend that that the proposal not be funded. There was consensus to put the proposal into the “no” category.

Dr. Latham and Dr. Hart discussed Seed grant proposal 10SCA32, UCHC, “Bone Regeneration Potential of Mesenchymal Cells Derived from ES Cells Versus Adult Mesenchymal Stem Cells,” Dr. Kalajzic, principal investigator. The Peer Review score for the proposal is 4.6. Dr. Latham discussed the Peer Review and noted that the review seemed to be better than the score. There was consensus to put the proposal into the “maybe” category.

Dr. Arinzeh summarized Seed grant proposal 10SCA02, Yale University, “Generation and Functional Study of induced Pluripotent Stem (IPS) Cells from Primary Bone Marrow Hematopoietic Stem Cells from Patients with Myelodysplastic Syndromes,” Dr. Halene, principal investigator. The Peer Review score for the proposal is 4.3. Dr. Arinzeh discussed some of the problems with the proposal and mentioned that both she and Dr. Hiskes, the second Committee reviewer, recommend that the proposal not be funded. There was consensus to put the proposal into the “no” category.

Dr. Arinzeh and Dr. Latham discussed Seed grant proposal 10SCA04, UCONN, “Artificial Extracellular Matrices for Controlled Differentiation of Human Pluripotent Stem Cells,” Dr. Wang, principal investigator. The Peer Review score for the proposal is 4.3. Dr. Arinzeh discussed some of the concerns indicated in the Peer Review. There was consensus to put the proposal into the “no” category.

Dr. Arinzeh summarized Seed grant proposal 10SCA01, Yale University, “Stem Cells for Cell Therapy of Hypoparathyroidism,” Dr. Sosa, principal investigator. The Peer Review score for the proposal is 4.2. Dr. Arinzeh reviewed some of the weaknesses mentioned by the Peer Reviewers. She mentioned that both she and Dr. Hiskes, the second Committee reviewer for the proposal, recommend not funding the proposal. There was consensus to put the proposal into the “no” category.

Dr. Genel and Dr. Kiessling discussed Seed grant proposal 10SCA23, UCHC, “To Develop Efficient Methodologies to Generate Customized Anti-Tumor Effecter T Cells from Human Embryonic Stem Cells (hES) and induced Pluripotent Stem Cells (iPS) by TCRengineering Approach,” Dr. Chhabra, principal investigator. The Peer Review score for the proposal is 4. Dr. Genel and Dr. Kiessling reviewed some of the positive aspects of the proposal and recommended that the proposal be put in the “maybe” category. There was consensus to put the proposal into the “maybe” category.

Dr. Wallack and Dr. Goldhamer described Seed grant proposal 10SCA25, Yale University, “Computational Modeling of Molecular Regulators in hESC Differentiation,” Dr. Lu, principal investigator. The Peer Review score for the proposal is 4. Dr. Wallack expressed a concern about a senior investigator applying for a seed grant. A discussion ensued about this issue, and it was noted that senior investigators who are new to the field or are developing a new direction within stem cell research are encouraged to apply for seed grants. Dr. Goldhamer expressed concerns with certain aspects of the proposal. There was consensus to put the proposal into the “no” category.

Dr. Wallack summarized Seed grant proposal 10SCA43, Yale University, “Epigenetic Regulation of Stem Cell Fate by Histone Demethylase RBP2,” Dr. Yan, principal investigator. The Peer Review score for the proposal is 4. Dr. Wallack discussed some of the concerns with the proposal and mentioned that both he and Dr. Hiskes, the seconded Committee reviewer for the proposal, recommend that the proposal not be funded. There was consensus to put the proposal into the “no” category.

Dr. Hart and Dr. Genel discussed Seed grant proposal 10SCA36, UCHC, “Generation of a Novel Source of iPS Cells for the Treatment of Osteoarthritis,” Dr. Guzzo, principal investigator. The Peer Review score for the proposal is 3.7. Dr. Hart reviewed the Peer Review comments and noted that the project could be novel and useful if the underlying hypothesis is true. There was consensus to put the proposal into the “maybe” category.

Dr. Kiessling and Mr. Mandelkern reviewed Seed grant proposal 10SCA28, UCHC, “Study the Role of Cytoplasmic RNA Binding Protein in Human Embryonic Stem Cells and During Neural Differentiation,” Dr. Palakodeti, principal investigator. The Peer Review score for the proposal is 3.8. Dr. Kiessling and Mr. Mandelkern discussed the Peer Review and indicated that the Peer Reviewers thought the project was ambitious. Dr. Hart clarified a technical issue and stated that some of the concerns raised by the Peer Reviewers can be overcome and are feasible. There was consensus to put the proposal into the “maybe” category.

Dr. Hart and Dr. Wallack summarized Seed grant proposal 10SCA44, UCHC, “Targeting Phosphodiesterases to Induce Apoptosis of Leukemic Stem Cells,” Dr. Epstein, principal investigator. The Peer Review score for the proposal is 3.6. Dr. Hart expressed some concerns that the proposal is not well justified as a stem cell topic. There was consensus to put the proposal into the “no” category.

Dr. Kiessling and Mr. Mandelkern discussed Seed grant proposal 10SCA47, UCHC, “Discovering Treatments to Prevent Neurodegeneration in Huntington’s Disease Using hESCs and Patient-Derived iPSCs,” Dr. Drazinic, principal investigator. The Peer Review score for the proposal is 3.6. Dr. Kiessling noted that the Peer Review was very enthusiastic. After discussion of the proposal, the proposal was put into the “maybe” category.

Mr. Mandelkern and Dr. Arinzeh reviewed Seed grant proposal 10SCA13, Yale University, “The Role of Epigenetic Factor-HP1 in Regulating Human Embryonic Stem Cell Pluripotency and Differentiation,” Dr. Cheng, principal investigator. The Peer Review score for the proposal is 3.5. Mr. Mandelkern reviewed the Peer Review comments, and there was consensus to put the proposal into the “maybe” category.

Dr. Galvin cautioned the Committee members about putting too many proposals in the “maybe” category. Before putting the proposal into the “maybe” category, he urged the Committee members to consider how the proposal could change from a “maybe” to a “yes” or “no.” Dr. Galvin also asked the Committee members to consider whether the proposal has any material flaws or is dependent upon something else.

Dr. Dees and Dr. Fishbone discussed Seed grant proposal 10SCA16, Yale University, “In vivo Evaluation of Humans ES, IPS and Adult Brain Derived Neural Progenitor Cell Transplantation and Migration Using MRI,” Dr. Shapiro, principal investigator. The Peer Review score for the proposal is 3.5. Both Committee reviewers were in favor of the proposal being put into the

“yes” category; however, there was an objection since there were still a number of other proposals to review, and the proposal was put into the “maybe” category.

Dr. Fishbone and Dr. Arinzeh summarized Seed grant proposal 10SCA12, Yale University, “Analysis of the Biological Function of Lin28 in Human Embryonic Stem Cells Using a Novel RNA Interference Method,” Dr. Huang, principal investigator. The Peer Review score for the proposal is 3.3. The reviewers discussed the Peer Review, and there was consensus to put the proposal into the “maybe” category.

The Committee members discussed the use of the Peer Review scores. There was general consensus that the scores should be used as guidance but that other factors should also be considered.

Dr. Goldhamer and Dr. Pescatello discussed Seed grant proposal 10SCA22, Yale University, “Identification and Characterization of Multipotent Cell Populations from Human Adipose Tissue for Application in Regenerative Therapies,” Dr. Rodeheffer, principal investigator. The Peer Review score for the proposal is 3.3. Dr. Goldhamer discussed some of the positive aspects of the proposal as well as some of the concerns addressed in the Peer Review. In response to a question, Attorney Horn noted that funding is not provided to any grant recipients until ESCRO approval has been received and all approvals are put in place. Following further discussion on the proposal, the proposal was put into the “maybe” category.

Dr. Hart and Mr. Mandelkern reviewed Seed grant proposal 10SCA38, Yale University, “Efficient Gene Targeting in Human Embryonic Stem Cell via Recombineering Based Long Arm Targeting Vector,” Dr. Dong, principal investigator. The Peer Review score for the proposal is 3.3. Both Committee reviewers discussed the positive aspects of the proposal, and there was consensus to put the proposal in the “yes” category.

Dr. Wallack summarized Seed grant proposal 10SCA45, Yale University, “Establishing Gene-Expression-Based High-Throughput Assays for hESC Differentiation,” Dr. Lu, principal investigator. The Peer Review score for the proposal is 3.3. Following a discussion about the proposal, there was consensus to put the proposal into the “no” category.

Dr. Wallack and Dr. Goldhamer reviewed Seed grant proposal 10SCA30, Yale University, “Molecular Mechanisms of Germ Layer Induction in Human Embryonic Stem Cells” Dr. Oron, principal investigator. The Peer Review score for the proposal is 3.2. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Wallack recommended putting the proposal in the “yes” category. However, some concerns were expressed with project, and the proposal was put into the “maybe” category.

Dr. Fishbone and Dr. Goldhamer discussed Seed grant proposal 10SCA18, Yale University, “Control of mRNA Translation in Neuronal Differentiation from hESC,” Dr. Wells, principal investigator. The Peer Review score for the proposal is 3. After discussion of the proposal, there was consensus to put the proposal in the “maybe” category.

Dr. Hart and Dr. Wallack reviewed Seed grant proposal 10SCA31, Yale University, "Dual-Specificity Phosphatases and Muscle Stem Cell Regulation" Dr. Bennett, principal investigator. The Peer Review score for the proposal is 3. Although the proposal was well written and the project appears to be very good, there was consensus that this should not be in the seed category. The proposal was put into the "no" category.

Dr. Latham and Dr. Hart discussed Seed grant proposal 10SCA42, UCHC, "Exploring the Roles of Kalirin in Human Neural Stem Cells," Dr. Ma, principal investigator. The Peer Review score for the proposal is 3. Dr. Latham discussed some of the concerns with the proposal indicated in the Peer Review. There was consensus to put the proposal in the "no" category.

Dr. Genel and Dr. Pescatello reviewed Seed grant proposal 10SCA21, UCHC, "Regulating Caspase Activity to Enhance Differentiation Efficiency of Human Embryonic Stem Cells," Dr. Wang, principal investigator. The Peer Review score for the proposal is 2.7. Dr. Genel discussed the favorable Peer Review, and there was consensus to put the proposal in the "yes" category.

Dr. Genel and Dr. Kiessling summarized Seed grant proposal 10SCA24, UCHC, "Novel Roles of Long Non-Coding RNAs in Human Embryonic Stem Cells," Dr. Yang, principal investigator. The Peer Review score for the proposal is 2.7. Dr. Genel reviewed the positive Peer Review. There was consensus to put the proposal in the "yes" category.

Dr. Dees and Dr. Pescatello discussed Seed grant proposal 10SCA06, UCONN, "Nuclear Receptor Control of Human Epidermal Stem Cells," Dr. Aneskievich, principal investigator. The Peer Review score for the proposal is 2.5. Dr. Dees discussed the Peer Review, and there was consensus to put the proposal in the "yes" category.

Dr. Kiessling and Mr. Mandelkern reviewed Seed grant proposal 10SCA29, UCONN, "Generation of Layer V Pyramidal Neurons from Human Embryonic Stem Cells," Dr. Filipovic, principal investigator. The Peer Review score for the proposal is 2.3. Dr. Kiessling spoke favorably about the proposal, and there was consensus to put the proposal in the "yes" category.

Dr. Dees summarized Seed grant proposal 10SCA05, Yale University, "The Role of Dormant Replication Origins in Ensuring Genome Integrity in Human Embryonic Stem Cells" Dr. Ge, principal investigator. The Peer Review score for the proposal is 2.2. Dr. Dees discussed the favorable Peer Review. He mentioned that both he and Dr. Hiskes, the second Committee reviewer for the proposal, recommend putting the proposal in the "yes" category. There was consensus to put the proposal in the "yes" category.

Dr. Goldhamer discussed Seed grant proposal 10SCA35, Yale University, "Maturation of Human Embryonic Stem (hES) Cell-Derived Cardiomyocytes *in vitro* Using 3D Engineered Tissue Model System," Dr. Lee, principal investigator. The Peer Review score for the proposal

is 2.1. Dr. Goldhamer reviewed the positive aspects of the proposal and noted that both he and Dr. Hiskes, the second Committee reviewer for the proposal, recommend putting the proposal in the “yes” category. There was consensus to put the proposal in the “yes” category.

The following is a summary of how each of the Seed grant proposals were preliminarily broken into the three categories—“yes,” “no” and “maybe.”

Preliminary “Yes” Seed Grant Proposals:

- 10SCA38
- 10SCA21
- 10SCA24
- 10SCA06
- 10SCA29
- 10SCA05
- 10SCA35

Preliminary “Maybe” Seed Grant Proposals:

- 10SCA40
- 10SCA32
- 10SCA23
- 10SCA36
- 10SCA28
- 10SCA47
- 10SCA13
- 10SCA16
- 10SCA12
- 10SCA22
- 10SCA30
- 10SCA18

Preliminary “No” Seed Grant Proposals:

- 10SCA26
- 10SCA27
- 10SCA37
- 10SCA50
- 10SCA17
- 10SCA08
- 10SCA14
- 10SCA15
- 10SCA48
- 10SCA11
- 10SCA39
- 10SCA33

- 10SCA07
- 10SCA41
- 10SCA10
- 10SCA19
- 10SCA09
- 10SCA20
- 10SCA34
- 10SCA46
- 10SCA03
- 10SCA02
- 10SCA04
- 10SCA01
- 10SCA25
- 10SCA43
- 10SCA44
- 10SCA45
- 10SCA31
- 10SCA42

The meeting was recessed from 11:57 a.m. to 12:45 p.m.

Review of Established Investigator Grant Proposals:

The Committee members review the established investigator grant proposals.

Mr. Mandelkern and Dr. Goldhamer reviewed Established Investigator grant proposal 10SCB32, UHART, "Near Infrared Imaging Using State-of-the Art Cameras and Wavelet Transform Tracker for Embryonic Stem Cell Identification," Dr. Shertukde, principal investigator. The Peer Review score for the proposal is 8. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Some of the weaknesses of the proposal as indicated in the Peer Review were discussed, and there was consensus to put the proposal into the "no" category.

Mr. Mandelkern summarized Established Investigator grant proposal 10SCB27, Yale University, "Stem Cells in Treatment of Human Brain Cancer," Dr. van den Pol, principal investigator. The Peer Review score for the proposal is 7. Concerns were expressed with the proposal, and there was consensus to put the proposal into the "no" category.

Dr. Dees described Established Investigator grant proposal 10SCB14, UCHC, "Characterization and Isolation of Stem Cell Intermediates from Human Pluripotent Stem Cells for Efficient Regenerative Therapies," Dr. Aguila, principal investigator. The Peer Review score for the proposal is 5.5. Concerns were expressed with the proposal, and there was consensus to put the proposal into the "no" category.

Dr. Fishbone and Dr. Dees reviewed Established Investigator grant proposal 10SCB13, Yale University, “Targeting Cancer Stem Cells for Novel Ovarian Cancer Therapies,” Dr. Hu, principal investigator. The Peer Review score for the proposal is 5.3. Some of the weaknesses indicated in the Peer Review were discussed, and there was consensus to put the proposal into the “no” category.

Dr. Wallack and Dr. Dees reviewed Established Investigator grant proposal 10SCB34, UCONN, “Biological Relevance and Functional Consequences of Heterogeneous Expression Patterns in hES Cells,” Dr. Carter, principal investigator. The Peer Review score for the proposal is 5.3. Dr. Wallack discussed some of the concerns with the proposal. There was consensus to put the proposal into the “no” category.

Dr. Arinzeh summarized Established Investigator grant proposal 10SCB04, Yale University, “Biochemical and Morphological Characterization of Candidates for Cell-Based Therapy of Parkinson’s Disease,” Dr. Elsworth, principal investigator. The Peer Review score for the proposal is 5. Dr. Arinzeh discussed some of the concerns indicated in the Peer Review. In response to a question as to whether this project integrates with the project previously funded for Dr. Redmond, Dr. Arinzeh stated that she does not believe that this project affects the group project approved in 2008 for Dr. Redmond. Dr. Arinzeh mentioned that both she and Dr. Hiskes, the second Committee reviewer on the proposal, recommend not funding the proposal. There was consensus to put the proposal into the “no” category.

Dr. Goldhamer described Established Investigator grant proposal 10SCB31, Yale University, “The Role of miRNAs in Melanoma Cancer Ste,” Dr. Bosenberg, principal investigator. The Peer Review score for the proposal is 5. Dr. Goldhamer discussed some of the concerns indicated in the Peer Review. He mentioned that both he and Dr. Hiskes, the second Committee reviewer on the proposal, recommend not funding the proposal. There was consensus to put the proposal into the “no” category.

Dr. Fishbone and Dr. Goldhamer reviewed Established Investigator grant proposal 10SCB11, Yale University, “Cigarette Smoke, Anti-Viral Immunity, and Lung Epithelial Stem Cells,” Dr. Herzog, principal investigator. The Peer Review score for the proposal is 4.7. Dr. Fishbone discussed some of the strengths and weaknesses of the proposal. After discussion, there was consensus to put the proposal into the “no” category.

Dr. Goldhamer and Dr. Fishbone reviewed Established Investigator grant proposal 10SCB09, Yale University, “Role of Pluripotency Factors in a Subpopulation of Stem Cell-Like Cells in Ovarian Cancer,” Dr. Huang, principal investigator. The Peer Review score for the proposal is 4.6. Dr. Goldhamer noted that the Peer Reviewer felt that the proposal was better suited for a cancer grant than a stem cell grant. After discussion, there was consensus to put the proposal into the “no” category.

Dr. Fishbone and Dr. Goldhamer discussed Established Investigator grant proposal 10SCB15, Yale University, “Transgenerational Epigenetic Memory in Mouse ES Cells,” Dr. Chi, principal investigator. The Peer Review score for the proposal is 4.6. Dr. Fishbone described some of the strengths as well as some of the concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Hart and Mr. Mandelkern reviewed Established Investigator grant proposal 10SCB20, UCHC, “Identification and Characterization of Potential Human Embryonic Stem Cell Derived Mesenchymal Progenitors (hEMPs) for Differentiation to Trabecular Meshwork-Like Cells,” Dr. Choudhary, principal investigator. The Peer Review score for the proposal is 4.6. It was noted that the proposal builds upon a seed grant project. Dr. Hart discussed some concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Wallack and Dr. Arinzeh described Established Investigator grant proposal 10SCB28, Yale University, “Mechanisms for Balancing Stem-Cell Self-Renewal and Differentiation During Human Neurogenesis,” Dr. Zhong, principal investigator. The Peer Review score for the proposal is 4.6. Concerns raised in the Peer Review were discussed, and there was consensus to put the proposal into the “no” category.

Dr. Kiessling and Dr. Genel reviewed Established Investigator grant proposal 10SCB10, UCONN, “Stem Cell Approaches for Defining Patient-Specific Predisposition to Idiosyncratic Drug-induced Liver Injury (DILI),” Dr. Boelsterli, principal investigator. The Peer Review score for the proposal is 4.5. Dr. Kiessling discussed a concern with the proposal and indicated that the project would be better suited as a seed grant proposal. There was consensus to put the proposal into the “no” category.

Dr. Latham and Dr. Hart discussed Established Investigator grant proposal 10SCB18, UCONN, “Developing a Microscale Artificial Stem Cell Niche,” Dr. Fan, principal investigator. The Peer Review score for the proposal is 4.3. Dr. Latham mentioned that the project developed from a seed grant. After discussion about the proposal, there was consensus to put the proposal into the “maybe” category.

Dr. Dees summarized Established Investigator grant proposal 10SCB24, UCHC, “Derivation of Neural Crest Cells Capable of Forming Skeletal and Dental Tissue of the Craniofacial Region from Human Embryonic Stem Cells (hESC),” Dr. Mina, principal investigator. The Peer Review score for the proposal is 4.3. Dr. Dees discussed some of the concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Arinzeh and Dr. Wallack reviewed Established Investigator grant proposal 10SCB33, UCHC, “Gene Targeting of Mutations in iPS Cells from Osteogenesis Imperfecta Patients Using Zn Finger Nucleases,” Dr. Lichtler, principal investigator. The Peer Review score for the proposal is 4.3. Dr. Arinzeh discussed some of the concerns with the proposal, and there was consensus to put the proposal into the “no” category.

Dr. Dees and Dr. Pescatello described Established Investigator grant proposal 10SCB25, UCONN, “Derivation of Human Mesendoderm and Mesectoderm Progenitors for Regenerative Therapy,” Dr. Nelson, principal investigator. The Peer Review score for the proposal is 4. Dr. Dees discussed some of the concerns with the proposal. After further discussion, there was consensus to put the proposal into the “no” category.

Dr. Latham and Dr. Dees discussed Established Investigator grant proposal 10SCB26, UCONN, “Chromatin Control of Sporadic Gene Expression in Human Embryonic Stem Cells,” Dr. Nelson, principal investigator. The Peer Review score for the proposal is 3.9. Dr. Latham reviewed the positive aspects of the proposal as well as some concerns. A question arose as to whether the principal investigator has submitted a similar project in the past for grant funding. A suggestion was made to add language to the next iteration of the RFP that would require applicants to provide information about past grant submissions. After further discussion on the proposal, there was consensus to put the proposal into the “no” category.

Dr. Genel and Dr. Kiessling summarized Established Investigator grant proposal 10SCB08, UCHC, “Investigation of Molecular Adaptations to Alcohol in iPS Cell Derived Neural Cultures from Alcohol Dependant and Control Subjects,” Dr. Covault, principal investigator. The Peer Review score for the proposal is 3.8. Dr. Genel reviewed some concerns indicated in the Peer Review. There was consensus to put the proposal into the “no” category.

Dr. Dees and Dr. Latham reviewed Established Investigator grant proposal 10SCB23, Wesleyan, “Directing Differentiation of Embryonic Stem Cells to Epiblast,” Dr. Grabel, principal investigator. The Peer Review score for the proposal is 3.8. Dr. Dees mentioned that the Peer Review was relatively positive but the work proposed is not innovative. It was noted that the proposal is one of the only proposals not from UCONN or Yale. The proposal was put into the “maybe” category.

Dr. Kiessling and Dr. Genel described Established Investigator grant proposal 10SCB06, UCHC, “Stem Cell Vaccine Against Cancer,” Dr. Li, principal investigator. The Peer Review score for the proposal is 3.7. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Kiessling mentioned that the project builds upon a previously funded Seed grant. After discussion of the proposal, the proposal was put into the “maybe” category.

Dr. Genel and Dr. Kiessling discussed Established Investigator grant proposal 10SCB07, UCHC, “Use of hESC- and iPSC- derived Skeletal Progenitors for Mammalian Limb and Digit Regeneration,” Dr. Dealy, principal investigator. The Peer Review score for the proposal is 3.7. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Both Committee reviewers were in favor of putting the proposal in the “yes” category. However, some question arose as to whether the proposal overlaps with a grant previously awarded to Dr. Rowe. It was confirmed that the referenced grant for Dr. Rowe’s project ended in April 2010. The proposal was put into the “maybe” category.

Dr. Hart and Dr. Wallack reviewed Established Investigator grant proposal 10SCB35, UCHC, "Do Various Culture Conditions Matter to Differentiation Ability of Human Embryonic Stem Cells?" Dr. Xu, principal investigator. The Peer Review score for the proposal is 3.6. Dr. Hart mentioned that the Peer Review was critical. However, the score does not reflect the criticisms. Dr. Wallack noted that the researcher has provided many contributions to the state of Connecticut, and it is with regret that he does not recommend funding this proposal. There was consensus to put the proposal into the "no" category.

A discussion ensued about the Peer Review scores. The Committee members questioned whether it would be helpful to receive profile information about each of the reviewers and/or individual scores by the reviewers. Mr. Wollschlager mentioned that in cases where there was a discrepancy between two or three reviewers, a third peer reviewer was brought in.

Dr. Arinzeh summarized Established Investigator grant proposal 10SCB01, Yale University, "Regulation of VEGFR2 Signaling in Hemangioblast: Mechanism and Therapeutics," Dr. Min, principal investigator. The Peer Review score for the proposal is 3.5. Dr. Arinzeh discussed the positive aspects of the proposal and some of the minor concerns indicated in the Peer Review. She mentioned that Dr. Hiskes, the second Committee reviewer on the proposal, recommend putting the proposal into the "yes" category. After further discussion, the proposal was put into the "maybe" category.

Dr. Hart and Dr. Latham reviewed Established Investigator grant proposal 10SCB21, UCHC, "The Epigenetics of Wolf-Hirschhorn Syndrome: A Stem Cell Approach" Dr. Bayarsaihan, principal investigator. The Peer Review score for the proposal is 3.3. Dr. Hart discussed the positive Peer Review. Dr. Latham questioned whether the project could be funded elsewhere. The proposal was put into the "maybe" category.

Dr. Latham and Dr. Hart discussed Established Investigator grant proposal 10SCB17, UCHC, "Development of Novel Translational Approaches for the Repair of Human Osteoarthritic Cartilage Explants Using Embryonic Stem Cell-Derived Chondrocytes," Dr. Drissi, principal investigator. The Peer Review score for the proposal is 3.2. Dr. Latham discussed the positive Peer Review. In response to a question, Dr. LaLande from UCONN was asked to clarify whether the proposal is in connection with the grant previously provided to Dr. Rowe. Dr. LaLande indicated that this is a separate project and not part of the grant provided for Dr. Rowe. There was consensus to put the proposal into the "yes" category.

Dr. Dees and Dr. Pescatello summarized Established Investigator grant proposal 10SCB22, Yale University, "Epigenetic Mechanisms During Cellular Reprogramming," Dr. Xiao, principal investigator. The Peer Review score for the proposal is 3.2. Dr. Dees noted some of the concerns with the proposal, and Dr. Pescatello reviewed some of the strengths with the project. After further discussion, the proposal was put into the "maybe" category.

Dr. Goldhamer and Dr. Fishbone described Established Investigator grant proposal 10SCB16, Yale University, “Transcriptional Control of Pluripotency in Human Embryonic Stem Cells,” Dr. Ivanova, principal investigator. The Peer Review score for the proposal is 3.1. Dr. Goldhamer mentioned that the proposed project builds upon a previously approved seed grant. There was consensus to put the proposal into the “yes” category.

Dr. Kiessling and Mr. Mandelkern reviewed Established Investigator grant proposal 10SCB29, Yale University, “Epigenetic Regulation of Reprogramming,” Dr. Park, principal investigator. The Peer Review score for the proposal is 3. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Kiessling discussed the Peer Review. After discussion, there was consensus to put the proposal into the “maybe” category.

Dr. Wallack and Dr. Genel discussed Established Investigator grant proposal 10SCB12, UCHC, “Generation of Hematopoietic Stem Cells and T-cell Progenitors from Human ESCs,” Dr. Lai, principal investigator. The Peer Review score for the proposal is 3. Dr. Wallack noted that the proposal received very positive Peer Review. There was consensus to put the proposal into the “yes” category.

Dr. Hart and Dr. Pescatello summarized Established Investigator grant proposal 10SCB19, Yale University, “Regulations of Lin28 in Human Embryonic Stem Cell Self-Renewal and Differentiation,” Dr. Qui, principal investigator. The Peer Review score for the proposal is 2.8. Attorney Horn mentioned that proprietary information has been identified in the proposal by the applicant. Dr. Hart indicated that the proposal was very well written and received positive Peer Review. There was consensus to put the proposal into the “yes” category.

Dr. Arinzeh discussed Established Investigator grant proposal 10SCB02, Yale University, “Co-Differentiation of hESC-Derived Retinal and Retinal Pigment Epithelial Progenitors,” Dr. Rizzolo, principal investigator. The Peer Review score for the proposal is 2.5. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Arinzeh discussed the positive aspects of the proposal. She mentioned that both she and Dr. Hiskes, the second Committee reviewer of the proposal, recommend that the proposal be funded. There was consensus to put the proposal into the “yes” category.

Dr. Arinzeh reviewed Established Investigator grant proposal 10SCB03, Yale University, “Use of Human Embryonic Stem Cells and Inducible Pluripotent Stem Cells to Study Megakaryoblastic Leukemia,” Dr. Krause, principal investigator. The Peer Review score for the proposal is 2.5. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Arinzeh mentioned that the Peer Review for the project was very enthusiastic and there were very minor weaknesses. She mentioned that both she and Dr. Hiskes, the second Committee reviewer of the proposal, recommend that the proposal be funded. There was consensus to put the proposal into the “yes” category.

Dr. Arinzeh summarized Established Investigator grant proposal 10SCB05, Yale University, "Mechanical Control of Neural Stem Cell Fate," Dr. Bordey, principal investigator. The Peer Review score for the proposal is 2.5. Attorney Horn indicated that proprietary information has been identified in the proposal by the applicant. Dr. Arinzeh mentioned that the Peer Review was very positive and the proposal was solid. Both Dr. Arinzeh and Dr. Hiskes, the second Committee reviewer of the proposal, recommend that the proposal be funded. There was consensus to put the proposal into the "yes" category.

Dr. Genel and Mr. Mandelkern discussed Established Investigator grant proposal 10SCB30, UCHC, "Modeling Parkinson's Disease Using Human Embryonic Stem Cells and Patient-Derived Induced Pluripotent Stem Cells," Dr. Li, principal investigator. The Peer Review score for the proposal is 2.5. Dr. Genel mentioned that the Peer Review was positive. There was consensus to put the proposal into the "yes" category.

Mr. Mandelkern and Dr. Kiessling reviewed Established Investigator grant proposal 10SCB36, Yale University, "Reconstitution of Human Hematopoietic System by HSCs derived from Human Embryonic Stem Cells in Humanized Mice," Dr. Flavell, principal investigator. The Peer Review score for the proposal is 1.8. Mr. Mandelkern mentioned that this proposal was the highest scored proposal for this funding round. There was consensus to put the proposal into the "yes" category.

The following is a summary of how each of the established investigator grant proposals were preliminarily broken into the three categories—"yes," "no" and "maybe."

Preliminary "Yes" Established Investigator Grant Proposals:

- 10SCB17
- 10SCB16
- 10SCB12
- 10SCB19
- 10SCB02
- 10SCB03
- 10SCB05
- 10SCB30
- 10SCB36

Preliminary “Maybe” Established Investigator Grant Proposals:

- 10SCB18
- 10SCB23
- 10SCB06
- 10SCB07
- 10SCB01
- 10SCB21
- 10SCB22
- 10SCB29

Preliminary “No” Established Investigator Grant Proposals:

- 10SCB32
- 10SCB27
- 10SCB14
- 10SCB13
- 10SCB34
- 10SCB04
- 10SCB31
- 10SCB11
- 10SCB09
- 10SCB15
- 10SCB20
- 10SCB28
- 10SCB10
- 10SCB33
- 10SCB24
- 10SCB25
- 10SCB26

Based on the grants put into the preliminary “yes” and “maybe” categories, Ms. Sarnecky mentioned that there are 37 grant applicants requesting approximately $20,000,000 of funding with only $9,800,000 available.

The Committee members had a lengthy discussion on how to proceed, and the following suggestions were made and considered:

- Since the budgets for the applicants are estimates, consider reducing the budgets for some or all of the proposals.
- Categorize the similar proposals to determine whether there is duplication or overlap with some of the projects.

- Start with the “maybe” Seed proposals and dismiss the entire list of “maybe” Seed proposals unless someone has a reason to relook at specific proposal(s).
- Consider how the funding should be proportioned among the grant categories and fund more Seed proposals.

A motion was discussed to dismiss the proposals preliminarily put into the Seed “maybe” category unless a Committee member specifically requests that they be moved to the “yes” category. There was some opposition with moving the entire category of “maybe” proposals to the “no” category without further discussion. As a processing issue, Attorney Horn suggested that each of the “maybe” proposals be called out individually so that Committee members can have the opportunity to move the proposal into either the “yes” or “no” category.

> **MOTION:** Upon a motion made by Dr. Latham, seconded by Dr. Wallack, the Committee members voted to proceed with calling out each of the Seed proposals in the “maybe” category for the purpose of moving them either to the “yes” or “no” categories. **VOTE: 9-3-0** (In favor: Arinzeh, Dees, Galvin, Goldhamer, Hart, Kiessling, Latham, Pescatello, and Wallack; Opposed: Fishbone, Genel and Mandelkern) MOTION PASSED.

A suggestion was made to review the Core proposal that was put into the “maybe” category. The Committee members began with re-reviewing Core grant proposal 10SCD01. It was noted that one of the concerns raised by the Peer Review was whether the principal investigator has made realistic plans for sharing the capacity. Several Committee members were in favor of funding the proposal because the project would provide a unique resource to the State of Connecticut. It was also noted that this proposal had the second highest Peer Review score out of 89 proposals. Dr. Kiessling suggested relooking at the budget and to discuss this proposal again tomorrow.

Due to time constraints, the Committee members were asked to look at the proposals in the “maybe” category over night for further consideration when the Committee reconvenes tomorrow. The Committee members were reminded not to discuss the grant proposals with anyone until the meeting is reconvened tomorrow, June 8, 2010, at 8:30 a.m.

Dr. Latham mentioned that he will not be able to attend tomorrow, and this is his last meeting serving as a member of the Committee. Dr. Galvin thanked Dr. Latham for his service and contributions, noting that he will be missed.

The meeting was recessed at 3:48 p.m.

Respectfully submitted:

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Dr. Robert Galvin, Chair