BEFORE THE

INDEPENDENT CITIZENS' OVERSIGHT COMMITTEE
TO THE CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE
ORGANIZED PURSUANT TO THE
CALIFORNIA STEM CELL RESEARCH AND CURES ACT

REGULAR MEETING

LOCATION: DOUBLETREE HOTEL
MONROVIA-PASADENA
924 WEST HUNTINGTON DRIVE

MONROVIA, CALIFORNIA

DATE: WEDNESDAY, APRIL 28, 2010
4:30 P.M.

REPORTER: BETH C. DRAIN, CSR
CSR. NO. 7152

BRS FILE NO.: 85107

I N D E X

MONROVIA, CALIFORNIA; WEDNESDAY, APRIL 28, 2010

CHAIRMAN KLEIN: I THINK WE'RE GOING TO CONVENE HERE. ALL RIGHT. IF WE COULD BRING THE MEETING TO ORDER. I WANT IT TO BE KNOWN FROM THIS DAY GOING FORWARD THAT THIS BOARD WILL GO TO MONROVIA TO GET ITS WORK DONE.

WE'RE VERY PLEASED TO BE HERE. WE ARE LOOKING FORWARD TO BEING AT THE CITY OF HOPE TOMORROW. WE HAVE A NEW ALTERNATE BOARD MEMBER TODAY, DR. YANCEY, TODD YANCEY. THAT'S WHY HIS LETTERS ON HIS NAME TAG ARE LARGER THAN EVERYONE ELSE. HE'S A NEW ALTERNATE FOR THE BOARD WHO HAS BEEN SWORN IN TODAY.

WE HAVE SOME VERY, VERY IMPORTANT BASIC BIOLOGY TO COVER IN THE MEETING TODAY AND TOMORROW MORNING.

I'D LIKE TO THANK JENNIFER PRYNE, AMY CHUNG, NICK WARSHAW, AND MELISSA KING FOR GETTING US ALL HERE IN ONE PIECE, AND FOR THE SCIENTIFIC STAFF FOR PULLING TOGETHER A VERY EXCELLENT PROGRAM FOR US FOR THE TWO DAYS.

SPECIAL THANKS TO THE TEAM AT CITY OF HOPE WHO WORKED WITH JENNA TO ARRANGE THE MEETING AND TO LYNN HARWELL FOR ARRANGING OUR SPOTLIGHT ON HIV/AIDS

TOMORROW FEATURING THE DISEASE TEAM AWARD RECIPIENT DR. JOHN ZAIA. AND I WOULD LIKE TO ENCOURAGE YOU ALL TO BE THERE EARLY. IT SHOULD BE AN OUTSTANDING PROGRAM. MELISSA, WOULD YOU ADVISE US THE TIME FOR THAT PROGRAM, PLEASE?

MS. KING: 8:30 TOMORROW MORNING.

CHAIRMAN KLEIN: AND THAT IS AT THE CITY OF HOPE.

MS. KING: AT CITY OF HOPE, AND THERE'S TRANSPORTATION FOR BOARD MEMBERS AND CIRM STAFF TO THE CITY OF HOPE. I BELIEVE THAT LEAVES AT 7:30. DOES ANYONE REMEMBER FOR SURE?

CHAIRMAN KLEIN: WE'LL BRIEF EVERYONE BY THE END OF THE MEETING. ALL RIGHT. AND SO AT THE END OF THE MEETING, WE'LL HAVE A BRIEFING FOR BOARD MEMBERS WHEN WE HAVE EVERYONE HERE BECAUSE SOME OF THE BOARD MEMBERS ARE STILL IN TRANSIT, SOME ARE UPSTAIRS; BUT GIVEN OUR SCHEDULE AND WHAT WE NEED TO COVER, WE'RE GOING TO LAUNCH INTO THE MEETING TODAY.

WE HAVE ONE PERSON JOINING BY PHONE TOMORROW. THAT PERSON WILL HOPEFULLY BE HERE BY THE END OF THE SESSION TOMORROW IN PERSON. THE PROCEEDINGS OF BOTH DAYS ARE BEING AUDIOCAST AND MADE AVAILABLE TO ALL MEMBERS OF THE PUBLIC AROUND THE WORLD BY THE INTERNET AS USUAL. SO REMEMBER

WHEN WE'RE SPEAKING, TO GET CLOSE TO THE MIC AND REMEMBER YOU'RE SPEAKING TO THE WORLD, NOT TO THE ROOM.

WE WILL START TONIGHT WITH A REPORT FROM THE PRESIDENT, AND I HAVE SEVERAL ITEMS TO MENTION AFTER THE PRESIDENT'S REPORT. THE PLEDGE OF ALLEGIANCE WILL BE GIVEN BY MELISSA KING. THAT WILL BE FOLLOWED BY THE ROLL CALL. SO, MELISSA, COULD YOU LEAD OFF.

(THE PLEDGE OF ALLEGIANCE.)

MS. KING: RICARDO AZZIZ. ROBERT PRICE FOR ROBERT BIRGENEAU.

DR. PRICE: HERE.

MS. KING: FLOYD BLOOM.

DR. BLOOM: HERE.

MS. KING: GORDON GILL FOR DAVID BRENNER.

DR. GILL: HERE.

MS. KING: WILLIAM BRODY. JACOB LEVIN FOR SUSAN BRYANT. MARCY FEIT. MICHAEL FRIEDMAN. LEEZA GIBBONS.

MS. GIBBONS: HERE.

MS. KING: MICHAEL GOLDBERG.

MR. GOLDBERG: HERE.

MS. KING: SAM HAWGOOD.

DR. HAWGOOD: HERE.

MS. KING: BOB KLEIN.

CHAIRMAN KLEIN: HERE.

MS. KING: SHERRY LANSING. GERALD LEVEY.

DR. LEVEY: HERE.

MS. KING: TODD YANCEY FOR TED LOVE.

DR. YANCEY: HERE.

MS. KING: ED PENHOET. PHIL PIZZO. CLAIRE POMEROY. FRANCISCO PRIETO.

DR. PRIETO: HERE.

MS. KING: ELIZABETH FINI FOR CARMEN PULIAFITO. ROBERT QUINT. JEANNIE FONTANA FOR JOHN REED.

DR. FONTANA: HERE.

MS. KING: DUANE ROTH.

MR. ROTH: HERE.

MS. KING: JOAN SAMUELSON. DAVID SERRANO-SEWELL. JEFF SHEEHY.

MR. SHEEHY: HERE.

MS. KING: JON SHESTACK.

MR. SHESTACK: HERE.

MS. KING: OSWALD STEWARD.

DR. STEWARD: HERE.

MS. KING: ART TORRES.

MR. TORRES: HERE.

MS. KING: IF I COULD, CHAIRMAN KLEIN, I'D

JUST LIKE TO HAVE JENNIFER PRYNE ADDRESS THE BOARD AND LET YOU KNOW THE DETAILS FOR TOMORROW MORNING.

CHAIRMAN KLEIN: THANK YOU VERY MUCH.

MS. PRYNE: CHAIRMAN KLEIN, IN THE MORNING I'VE ARRANGED FOR GROUP TRANSPORTATION BY A BUS FOR ALL MEMBERS WHO REQUIRE TRANSPORTATION FROM THE HOTEL. IT WILL BE LEAVING AT 7:45 AND BRING YOU DIRECTLY TO THE CITY OF HOPE WHERE BREAKFAST WILL BE READY AT 8 A.M. FOR ALL BOARD MEMBERS AND STAFF.

CHAIRMAN KLEIN: ALL RIGHT. THANK YOU VERY MUCH. I WOULD ALSO LIKE TO MAKE CERTAIN, JENNA, THAT THOSE MEMBERS WHO ARE NOT HERE TODAY WHO ARE COMING IN THE MORNING, IF YOU COULD SEND THEM AN E-MAIL ABOUT THE SPOTLIGHT PROGRAM SO THEY'RE AWARE OF THAT TIMING.

MS. PRYNE: CERTAINLY. THE SPOTLIGHT IS SCHEDULED TO BEGIN AT 8:30 IN THE MORNING JUST AFTER BREAKFAST.

CHAIRMAN KLEIN: THANK YOU VERY MUCH. OUR HONORABLE PRESIDENT, DR. ALAN TROUNSON, WOULD YOU LIKE TO HAVE THE PRESIDENT'S REPORT.

DR. TROUNSON: THANK YOU, CHAIR, MEMBERS OF THE BOARD. AS USUAL, I'LL START IN ON THE SCIENCE, AND I'M BRINGING SOME DEVELOPMENTS TO YOU I THINK WHICH, AGAIN, ARE POTENTIALLY, I THINK, VERY

INTERESTING AND VERY IMPORTANT.

THE FIRST ONE IS SOME WORK THAT'S COME FROM LORENZ STUDER'S LAB AT THE SLOAN-KETTERING IN NEW YORK PUBLISHED IN *CELL STEM CELLS*, AND IT'S REALLY THE EFFICIENT DERIVATION OF WHAT THEY CALL FUNCTIONAL FLOOR PLATE TISSUE FROM HUMAN EMBRYONIC STEM CELLS. NOW, THEY POSITED THE FLOOR PLATE IS A CRITICAL SIGNALING CENTER DURING NEURAL DEVELOPMENT WHICH IS LOCATED ALONG THE VENTRAL MIDLINE OF THE EMBRYO. SO IT'S REALLY IN THE CENTRAL MIDLINE AREA OF THE EMBRYO IN THE UPPER HEAD PART OF IT.

LITTLE IS KNOWN ABOUT THE HUMAN FLOOR PLATE DEVELOPMENT BECAUSE OF THE LACK OF TISSUE ACCESSIBILITY. IT'S NOT -- YOU DON'T ACTUALLY GET THOSE STAGE EMBRYOS TO REALLY LOOK AT EVER. IN THE MOUSE THE FLOOR PLATE IS A SOURCE OF MIDBRAIN DOPAMINE NEURONS. THAT'S PRETTY SIGNIFICANT BECAUSE, OF COURSE, PARKINSON'S DISEASE DEPENDS ON US GETTING A SOURCE OF MIDBRAIN DOPAMINE NEURONS. AND WE'VE NEVER DIFFERENTIATED CELLS ALONG THE FLOOR PLATE PATHWAY TO GET TO THOSE NEURONS UP UNTIL NOW.

SO THE FLOOR PLATE INDUCTION IN HUMAN EMBRYONIC STEM CELLS IS DEPENDENT ON A GROWTH FACTOR CALLED SONIC HEDGEHOG. THE MOLECULAR BIOLOGISTS MAKE UP THESE WONDERFUL NAMES FOR GROWTH FACTORS,

AND IT'S BASICALLY BECAUSE THEY'RE ALLOWED TO DO IT BECAUSE THEY WORK ON WORMS OR DROSOPHILA, FRUIT FLY. IF YOU WORK IN MAMMALIAN EMBRYOGENESIS, YOU'RE NOT ALLOWED TO DO THOSE KIND OF COOL THINGS. NEVER MIND. SONIC HEDGEHOG WAS DISCOVERED IN ONE OF THOSE MORE PRIMITIVE ORGANISMS, AND EXPOSURE TO THIS MOLECULE CALLED SONIC HEDGEHOG OCCURS AT THE EXPENSE OF ANTERIOR NEURECTODERMS.

IF YOU LOOK AT THE BOTTOM GRAPH, NORMALLY THE HUMAN EMBRYONIC STEM CELL IS, GOING FROM LEFT TO RIGHT, WITHIN A DAY WILL GO TO A PROGENITOR CELL WHICH IS ON ITS WAY TO NEURECTODERM. AND WE, THE GROUP THAT I WORK WITH, DISCOVERED HOW TO DO THAT USING AN ANTAGONIST TO BONE MORPHOGENIC PROTEIN WHICH IS CALLED NOGGIN. AND WE WOULD ALL GO OFF ONTO THAT PATH OF NEURECTODERM, AND THAT'S WHERE MOST OF OUR NEURONS COME FROM IN THE DIFFERENTIATION PATHWAY.

WHAT HAPPENS IS THAT IF YOU EXPOSE THOSE CELLS TO HIGH LEVELS OF SONIC HEDGEHOG, THEY GO TO THE FLOOR PLATE, AND THEY PRODUCE A WHOLE RANGE OF DIFFERENT NEURONS, AND IMPORTANT, VERY IMPORTANT NEURONS FOR WHERE WE'RE GOING TO BE LOOKING FOR PARKINSON'S DISEASE, FOR EXAMPLE.

SO WHAT HAPPENS IF YOU GOT HIGH LEVELS OF

SONIC HEDGEHOG, YOU BLOCK THE PATHWAY OF THE DKK-1 GENE, WHICH SENDS ALL OF THE CELLS GOING UP TO NEURECTODERM. SO THIS IS A PRETTY CRITICAL PLACE FOR SENDING THE CELLS IN A DIRECTION THAT COULD BE VERY IMPORTANT USAGE DOWNSTREAM. AND I THINK THAT'S A VERY IMPORTANT PAPER.

LORENZ GAVE A TALK AT THE GRANTEE WORKSHOP, SO WE HAD THE PRIVILEGE OF LISTENING TO HIM. AND I THINK MAYBE JEFF SHEEHY WAS AT THAT MEETING AND MAYBE SOME OTHERS. HE GAVE AN ABSOLUTELY WONDERFUL TALK AND INCLUDED THIS ISSUE OF THE FLOOR PLATE. AND I THINK IT'S A REALLY CRITICAL COMPONENT IN WHAT'S NEEDED TO GET CELLS THAT ARE NEEDED FOR THESE NEURODEGENERATIVE DISORDERS THAT WE'RE TRYING VERY HARD TO WORK ON.

THE NEXT PAPER IS FROM SHENG DING'S LAB AT SCRIPPS RESEARCH INSTITUTE BY XU, ET AL., AND IT WAS PUBLISHED IN THE *PNAS* JOURNAL IN APRIL. SHENG DING IS REALLY BECOMING ONE OF THE STARS OF RESEARCH IN STEM CELLS, AND HE'S CLEARLY SORT OF MAKING A HUGE NAME FOR HIMSELF AND THE LABORATORY.

HE'S BEEN WORKING ON REVEALING CORE SIGNALING REGULATOR MECHANISMS FOR HOW EMBRYONIC STEM CELLS SURVIVE AND RENEW. WHAT HAPPENS AS A BIOLOGIST, IF YOU TAKE A NEST OF EMBRYONIC STEM

CELLS AND YOU BREAK THEM UP INTO SINGLE CELLS, THEY DIE. AND I REMEMBER IN THE '90S WATCHING THESE CELLS DIE ALL THE TIME ON ME, AND IT WAS ABSOLUTE AND UTTER FRUSTRATION. IF YOU KEEP THE COLONY TOGETHER, ONE ANOTHER TOGETHER, THEY SURVIVE; BUT IF YOU BREAK THEM UP INTO INDIVIDUAL CELLS, THEY DIE AND THEY CAN'T CONTINUE.

SO HE'S FOUND THAT -- THE LAB'S FOUND TWO SMALL MOLECULES THAT ENHANCE THE SURVIVAL OF THESE CELLS WHEN YOU BREAK THEM UP USING HIGH THROUGHPUT CHEMICAL SCREENING. HE SHOWED THAT THOSE CHEMICAL ACTIONS REVEALED AN ESSENTIAL ROLE FOR TWO MOLECULES. ONE IS THE CELL ADHESION MOLECULE CALLED E-CADHERIN. THAT'S A MOLECULE IN THE EARLY EMBRYO THAT BINDS THE CELLS TOGETHER. SO IT DOES HAVE AN IMPORTANT ROLE IN EMBRYONIC STEM CELLS. AND THIS E-CADHERIN MOLECULE IS AN ACTUAL SIGNALING MOLECULE. IT'S TELLING THE CELL WHAT TO DO. AND IF YOU DISRUPT THE EMBRYONIC STEM CELLS BY ENZYMATICALLY DIGESTING THEM, YOU DISRUPT THIS E-CADHERIN SIGNALING PATHWAY, AND THAT PERTURBS ANOTHER PATHWAY CALLED THE INTERGRIN SIGNALING PATHWAY.

SO INTERGRINS ARE ANOTHER MOLECULE THAT HOLDS CELLS TOGETHER, BINDS CELLS TOGETHER. SO SHOWN IN THE BOTTOM THERE, YOU GET THESE TWO

SIGNALING PATHWAYS COOPERATING IN THE SURVIVAL AND THE RENEWAL OF EMBRYONIC STEM CELLS. AND THAT INCLUDES A COMPONENT PART OF GROWTH FACTORS, SO THE THREE -- THE GROWTH FACTORS AND THESE TWO NEUROSIGNALING SYSTEMS ARE REQUIRED FOR THAT.

THESE TWO SMALL MOLECULES REALLY HELP YOU GET AROUND THE PROBLEMS OF DISRUPTING THOSE BONDS FROM THOSE CELL ADHESION MOLECULES. THAT'S VERY IMPORTANT IF YOU ARE GOING TO MANUFACTURE CELLS AND MULTIPLY THEM IN LARGE NUMBERS. SO IT'S A VERY IMPORTANT DEVELOPMENT AND ONE I THINK WILL BE STRONGLY WELCOME BY THE FIELD.

WHEN I'M TALKING ABOUT SIGNALING MOLECULES, THERE ARE NOW PEOPLE BUILDING COMPANIES AND NOT-FOR-PROFIT INSTITUTES ON THE BASIS OF UTILIZING THE SIGNALING PATHWAYS FOR DIFFERENTIATION. THIS IS A VERY IMPORTANT NEW DEVELOPMENT IN STEM CELLS. WHEN YOU THINK ABOUT IT IN TERMS OF INSULIN PRODUCTION OR PRODUCING BETA ISLET CELLS FROM EMBRYONIC STEM CELLS, WE KNOW THAT YOU CAN MAKE INSULIN-PRODUCING CELLS BY MIMICKING THE DEVELOPMENT OF PATHWAYS THAT THE EMBRYO NORMALLY SEES. AND THAT, AS SHOWN ON THE BOTTOM OF THE SLIDE THERE, YOU HAVE TO GO THROUGH WHAT WE CALL ES CELLS, AND THEN YOU GO TO MESENDODERM, DEFINITIVE ENDODERM,

FOREGUT ENDODERM, PANCREATIC ENDODERM, AND THEN THE ENDOCRINE PRECURSOR STAGE. YOU HAVE TO MOVE THROUGH THESE, AND YOU HAVE TO UNDERSTAND WHAT'S REQUIRED TO MOVE THROUGH THESE THINGS. SO PEOPLE ARE ADDING LOTS OF DIFFERENT GROWTH FACTORS AND CHEMICALS. THERE'S A BIG COOK-UP GOING ON TRYING TO FIGURE OUT HOW TO DO IT.

THIS GROUP OF PEOPLE AT KINGS COLLEGE HAVE LOOKED AT THAT, ALL THE RESULTS IN THE LITERATURE, AND THEN PULLED IT BACK TO THE SIGNALING PATHWAYS. SO THEN ON THE BOTTOM, WE CAN FIGURE OUT WHAT SIGNALING PATHWAYS NEED TO BE ADJUSTED TO MAKE THE CELLS MOVE FROM ONE STATE TO ANOTHER. SO YOU PUSH UP WNT SIGNALING, YOU PUSH DOWN P 13, PUSH UP NODAL, AND YOU GET ES CELLS TO GO TO MESENDODERM AND SO ON. SO YOU PUSH UP, PUSH DOWN, PUSH UP, PUSH DOWN, AND YOU WILL ACTUALLY GET THE CELLS TO CHANGE. AND YOU WILL SEE THAT COMMONLY THE WNTS AND NOTCHES AND SONIC HEDGEHOGS AND THINGS APPEAR FREQUENTLY IN THESE PROCESSES. THEY'RE USING THOSE SIGNALING PATHWAYS OVER AND OVER AGAIN FOR A DIFFERENT PURPOSE. THEY GET TO ONE STATE, THEN THEY TURN IT AROUND AND GO TO ANOTHER STATE AND ANOTHER STATE. SO IT'S PRETTY NEAT SORT OF SCIENCE THAT NOW PEOPLE CAN UNDERSTAND, I THINK, VERY CLEARLY WHAT HAVE YOU

GOT TO ACHIEVE DURING THE SIGNALING PATHWAY DEVELOPMENT.

AND NOW WHAT THEY'RE DOING IS COMPOSING THEIR HIGH THROUGHPUT SCREENING USING THOSE MOLECULES THAT ARE PART OF THE SIGNALING PATHWAY. SO VERY CLEVERLY THEY'RE IDENTIFYING THESE NEW MOLECULES BY UNDERSTANDING THE SIGNALING PATHWAYS. SO THEY HAVE THESE -- WHEN THEY'RE DOING A BIG MOLECULAR SCREEN, THEY PUT IN ALL THE SIGNALING PATHWAYS, AND THEN THEY WATCH WHAT HAPPENS. AND THEY GET THEM, THESE SMALL MOLECULES, OUT AND IT'S BECOMING MORE AND MORE EFFICIENT. SO THOSE SCREENING GROUPS LIKE SHENG DING AND LIKE OTHERS, PETE SCHULZ, OTHERS WHO DO THIS, PEOPLE AT THE BURNHAM AND OTHER PLACES, THEY ARE STARTING TO PICK UP MOLECULES ALL THE TIME JUST BY LOOKING AT THESE KIND OF PROCESSES. I THINK THIS IS BRINGING IT DOWN TO THE BARE BASIC FACTS OF HOW YOU DO THESE THINGS.

I THOUGHT -- I'VE BEEN TRYING TO PERSUADE THE STAFF AND MY REDOUBTABLE CHAIRMAN AND VICE CHAIRMEN THAT WE NEED TO BE STIMULATING CREATIVITY. AND I HAVE A VIEW THAT YOU NEED TO WORK IN DIFFERENT SPACES TO BE CREATIVE. LIKE I THINK YOU NEED TO BE WORKING IN STEM CELLS AND MUSIC OR STEM CELLS AND PHYSICS OR STEM CELLS AND SOMETHING ELSE TO REALLY

BE CREATIVE BECAUSE ESSENTIALLY WHAT WE DO IS PERPETUATE THE LONGITUDINAL RESEARCH; THAT IS, THE LINEAR RESEARCH. WE TAKE THE SCIENCE AND ADD ON, ADD ON, ADD ON. THE REALLY CREATIVE PEOPLE JUMP LIKE KANGAROOS, ONE TO PLACE TO PLACE. THIS IS WHAT WORKED OUT DNA. THIS IS WHAT WORKED OUT GOOGLE. THIS IS WHAT WORKED OUT ALL OF THOSE REALLY CREATIVE ELEMENTS THAT DIDN'T EXIST BEFORE.

SO I THINK THERE'S A NEED TO STIMULATE CREATIVITY. I THINK I GOT BOB JUST ABOUT ON BOARD. I'M NOT SURE WHO ELSE I'VE GOT ON AT THE MOMENT, BUT I WANTED TO GIVE YOU AN EXAMPLE. SO I'VE GONE TO A PAPER IN *ADVANCE MATERIALS* ON PRINTED ORIGAMI STRUCTURES. WHAT'S ORIGAMI GOT TO DO WITH ANYTHING? WELL, THEY HAVE BEEN MERGING DIRECT-WRITE ASSEMBLY WITH WET-FOLDING ORIGAMI TECHNIQUES. AND THEY'VE GOT THESE DIRECT INK PRINTING MACHINES SHOWN THERE WITH THE RED TIP, AND THEY PRODUCE THESE REALLY NEAT PATTERNS, RIGHT, ON THE SIDE THERE. SO YOU CAN MAKE REALLY NEAT SORT OF PATTERNS.

NOW, IF YOU'VE GOT A FACILE PATHWAY FOR DOING THAT, YOU CAN THEN ASSEMBLE METALLIC, CERAMIC, AND POLYMERIC INK MATERIALS IN ANY KIND OF SHAPE THAT YOU'D LIKE. SO YOU GET INTO 3D MESOSCALE OBJECTS, YOU CAN FIND POTENTIAL APPLICATIONS

EVERYWHERE, ENGINEERED SCAFFOLD, BIOMEDICAL DEVICES, OR CATALYST SUPPORTS.

SO THE NEXT SLIDE. HERE WE'VE GOT -- THIS IS AN ORIGAMI FOLDING. YOU'VE DONE THAT AT SCHOOL OR YOU SHOULD HAVE DONE IT, OR YOU'VE HELPED YOUR KIDS DO IT. THIS IS HOW YOU FOLD ORIGAMI SHAPES. AND THIS IS WHAT THEY DO WITH THESE STRUCTURES. THEY MAKE THEM OUT OF POLYMERS OR CERAMICS AND THEN THEY FOLD THEM. AS LONG AS THEY'RE IN A WET, MALLEABLE STATE, THEY CAN DO THAT. THEY CAN CREATE KIND OF ANY FIGURE YOU LIKE.

THE NEXT SLIDE I THINK IS RATHER NEAT BECAUSE THEY'VE MADE A FOLDING SEQUENCE OF AN ORIGAMI CRANE. I KIND OF THINK IF SOMEONE WANTS TO MAKE A NEW LIVER FOR ME, MAKE IT LIKE A CRANE. SEE THE CRANE THERE ON THE RIGHT-HAND SIDE. YOU CAN MAKE WHATEVER YOU LIKE. YOU COULD BUILD SOMETHING THAT WOULD RESEMBLE ADRENAL GLAND OR A HEART. I KIND OF LIKE THE ORIGAMI CRANE MYSELF. BUT YOU SEE ON THE LEFT-HAND SIDE THERE THAT YOU CAN ACTUALLY FOLD THEM INTO ALL SORTS OF CONICAL SHAPES. SO YOU CAN START MAKING SCAFFOLDS THAT YOU CAN BUILD CELLS INTO, AND THEN CREATE TISSUES, ENGINEERED TISSUES AND SHAPES WHICH ARE REALLY, REALLY NEAT, COOL STUFF.

SO I KIND OF THOUGHT -- THIS IS A SORT OF A BIT OF A LIFT FOR MY KEENNESS TO TRY AND STIMULATE SOME CREATIVITY IN HERE AND HAVING SOME OF THE UNDERGRADUATE STUDENTS WHO POPULATE DIFFERENT SPACES AND THEN BRING IT TOGETHER WITH STEM CELLS. I THINK WE MIGHT GET SOME OF THE BIGGER JUMPS IN TECHNOLOGY. I SEE MICHAEL NODDING HIS HEAD. I MIGHT HAVE ONE VOTE FROM THE BOARD. HE'S ON BOARD.

I THINK IT'S KIND OF NEAT STUFF, AND SO IT JUST SHOWS YOU THAT YOU CAN MOVE FROM ONE SPACE TO ANOTHER, AND OUT OF THAT YOU MIGHT CREATE SOMETHING WHICH IS REALLY, REALLY COOL AND REALLY, REALLY INTERESTING AND MAYBE VERY IMPORTANT.

MY PRIORITIES ARE THE SAME AS MANAGEMENT'S. IT'S BEEN REALLY A VERY HARD MONTH, I CAN TELL YOU. WE'VE BEEN IN AN IMMUNOLOGY REVIEW. I THOUGHT IT WAS A TERRIFIC REVIEW. IT WAS ONE OF THE INTELLECTUALLY MOST STIMULATING REVIEWS. WE HAD A NEW GROUP OF PEOPLE, A LARGE NUMBER OF NEW REVIEWERS FROM AROUND THE WORLD, AND THEY ACTUALLY DID SORT OF CHALLENGE THINGS PRETTY HARD. I THOUGHT IT WAS A GREAT REVIEW. AND OUT OF IT, WE'LL GET SOME RECOMMENDATIONS THAT WILL BE COMING TO THE BOARD.

THERE HAVE BEEN ISSUES FOR RESOLUTIONS FOR

DISEASE TEAM PRECLINICAL RESEARCH. A LOT OF ISSUES HAVE COME UP WITH THE DIFFERENT TEAMS, AND WE'VE BEEN WORKING, WORKING, WORKING WITH THEM. AND I'D HAVE TO SAY THAT ALL THE TEAMS HAVE BEEN RESPONDING MAGNIFICENTLY. I HAVE TO SAY OFTEN THEY STARTED WITH A DIFFERENT VIEW, LIKE GIVE US THE MONEY, TRUST US, WE'LL DO IT, TO LET'S WORK TOGETHER AND LET'S MAKE SURE THAT WE CAN GET THAT IND IN TIME. THAT'S BEEN PROVING TO BE TERRIFIC. I THINK ALL OF THE GROUPS THAT I'VE WORKED WITH AND NOW THE STAFF HAVE WORKED WITH ARE REALLY RIGHT IN LINE AND BEING EXTREMELY HELPFUL AND POSITIVE ABOUT THE APPROACH.

THE VP R&D SEARCH CONTINUES. I'VE KIND OF LET DOWN THE SIDE A BIT IN GETTING SOMEONE TO THEM IN TIME. I HOPED TO HAVE HAD SOMEBODY BY FEBRUARY OR MARCH. NOW TIME'S MOVING ON, BUT WE'RE WORKING HARD ON THAT.

FINANCIAL FORECASTING FOR TIMING OF RFA RELEASE, WORKING WITH PAT OLSON AND THE TEAM TO SORT OF LOOK AT WHAT WE NEED TO DO AND THEN WHAT WE SHOULD DO WITH OUR REMAINING $2 BILLION IN ORDER TO MATCH UP WITH THE EXPECTATIONS OF THE GOALS THAT ARE SET IN THE STRATEGIC PLAN. SO WE WANT TO COME BACK TO THE BOARD WITH SOME DOCUMENT TO DISCUSS WITH YOU. WE HAD A DISCUSSION WITH THE VICE CHAIRS AND WE

THINK -- BOB WASN'T AVAILABLE AT THAT PARTICULAR TIME -- BUT THERE IS SOME IMPORTANT ISSUES RELATING TO HOW FAST YOU SPEND THE MONEY TO GET THE GOALS THAT ARE SET IN THE MISSION. AND IT'S AN IMPORTANT DISCUSSION TO HAVE WITH YOU.

JOHN ROBSON HAS BEEN REALLY CRITICAL IN THAT COMPONENT PART, A LOT OF THINKING, A LOT OF DETAILED ANALYSIS OF HOW WE SHOULD GO. SO WE'LL BRING THAT TO YOU HOPEFULLY IN ONE OF THE NEXT FEW BOARD MEETINGS.

THE ISSCR-CIRM REGULATORY WORKSHOP WE'VE BEEN WORKING HARD ON. THIS IS HARMONIZING REGULATION ACROSS THE INTERNATIONAL AREAS. IT'S KIND OF A HARD AREA BECAUSE EVEN WITH THE FDA, WE'RE STILL WORKING WITH THE FDA TO UNDERSTAND WHAT IS NEEDED IN THE REGULATORY PATHWAY FOR ALL OF THE TRANSLATION AND EARLY CLINICAL WORK.

WE'VE HAD AN FDA WEBINAR. AND ELONA BAUM HAS BEEN FANTASTIC IN GETTING THE FDA ALONG. IF YOU WERE ABLE TO TAKE THE TIME TO LISTEN TO THESE WEBINARS, THEY'RE TERRIFIC. THE INFORMATION THAT'S COMING FROM THE FDA AND FROM THE SCIENTISTS IS VERY, VERY HELPFUL. AND IT'S A LEARNING PROCESS THAT'S GOING BOTH WAYS. AND I'M REALLY THRILLED AT WHAT'S HAPPENING THERE.

WE HAVE A SERIES OF MEETINGS COMING UP. WE HAVE ANOTHER FACE-TO-FACE MEETING WITH FDA. THEY'RE COOPERATING VERY WELL. AND HOPEFULLY WE'LL BE ABLE TO PUT SOME RECOGNIZED STANDARDS IN THE PROCEDURES OF EXPECTATION SOONER RATHER THAN LATER SO THAT WE CAN HELP ALL OUR TEAMS UNDERSTAND WHAT IS NEEDED TO GET UP THIS PATHWAY. IT'S A TERRIBLY COMPLICATED, DIFFICULT PATHWAY, BUT IT'S BEEN VERY INTERESTING THE ANALYSIS THAT WE'VE BEEN DOING, BUT ALSO THE TO-AND-FRO DISCUSSION WITH FDA.

WE HAVE A SOMATIC CELL NUCLEAR TRANSFER WORKSHOP. WE HAVE A BOARD MEMBER PRESENTING AT THAT WORKSHOP, WHICH WE'RE THRILLED ABOUT. SO HARD-CORE SCIENCE, IT'S GOING TO BE GOOD. WE'VE GOT THE WHOLE WORLD COMING TO THAT WORKSHOP. AND WE EXPECT TO REALLY BE ABLE TO LAY THE WHOLE AREA OPEN AND TO SEE WHERE WE ARE, WE SHOULD FIT WITH RESPECT TO PRIORITIES IN THAT SUBJECT. SO WE'RE ALL LOOKING FORWARD TO THAT. IT'S GOING TO BE OPEN -- THE OPENING TALK IS GOING TO BE GIVEN BY JOHN GURDON. HE WON THE ALASKAS PRIZE RECENTLY FOR MEDICINE. HE'D BE ONE OF THE FAVORITES, I THINK, FOR THE NOBEL PRIZE, HE AND SHINYA YAMANAKA COMING UP IN THE NEXT FEW YEARS. HE'S A FANTASTIC GUY, JOHN GURDON. AND LORD PATEL IS GOING TO CHAIR THE MEETING. LORD

PATEL IS A VERY STRONG SUPPORTER OF SOMATIC CELL NUCLEAR TRANSFER AND A LORD IN THE HOUSE OF LORDS IN BRITAIN. HE'S A WONDERFUL MAN AND VERY STIMULATING. HE'S GOING TO CHAIR THE OVERALL MEETING.

WE'RE COMING UP TO THE CIRM 2010 REVIEW. I'LL SPEAK BRIEFLY ON THAT IN A MOMENT. WE'VE GOT A LOT OF COMMUNICATIONS, COLLABORATIVE FUNDING AGREEMENT CONTRACTS THAT WE'RE WORKING HARD ON, AND THAT CONTINUES TO OCCUPY A LOT OF TIME FROM TIME TO TIME, AND NANCY KOCH HAS BEEN REALLY CRITICAL IN KEEPING ALL OF THAT WORKING TOGETHER.

AS I SAID, THE ORIGAMI INTERNSHIPS. AND AN ISSUE THAT I'M TRYING TO GET SUPPORT FOR IS AN IPS CELL BANKING. WE WANT TO SORT OF BRING THAT ALSO TO YOU IN DUE COURSE, BUT I THINK THERE'S A GREAT OPPORTUNITY HERE FOR CIRM TO PROVIDE A RESOURCE FOR THE WHOLE OF CALIFORNIA RESEARCH AND A VERY IMPORTANT RESEARCH TOOL FOR EXAMINING THE HETEROGENEITY OF HUMAN DISEASES. I THINK THIS IS ONE OF THE NEXT BIG PLATFORMS IN MEDICAL RESEARCH, AND I THINK WE WANT TO BE PART OF IT. NEXT SLIDE.

WE WELCOME ON BOARD NINI GABRA. IS NINI HERE, PLEASE? AND SO NINI IS ADMIN ASSISTANT --

(APPLAUSE.)

DR. TROUNSON: -- TO BOTH THE GENERAL

COUNSEL AND THE VICE PRESIDENT OF OPERATIONS. SO SHE'S GOT A TERRIBLY DIFFICULT TASK TO PERFORM. THEY'RE VERY DEMANDING, THOSE TWO. SHE'S A WONDERFUL PERSON. CAME FROM STANFORD. AND I'VE BEEN PUNISHED BY DR. WEISSMAN FROM STEALING A GREAT RESOURCE. WE DIDN'T STEAL HER. SHE JUST WANTED TO COME. SO IRV'S DISAPPOINTED.

THE EXTERNAL REVIEW, THE STRATEGIC PLAN CALLS FOR AN EXTERNAL REVIEW TO BENCHMARK CIRM'S EFFORTS AGAINST ITS GOALS. THE REVIEW SHOULD BE SUBMITTED AS A WRITTEN REPORT TO BE PRESENTED AT THE DECEMBER BOARD MEETING. THE CHARGE OF THE REVIEW TEAM, WHICH IS REALLY TAKEN FROM THE STRATEGIC PLAN, IS TO EVALUATE CIRM'S PROGRESS AGAINST ITS GOALS, TO ASSESS THEIR EFFECTIVENESS IN MOVING CIRM TOWARDS MEETING ITS GOALS, AND ACCOMPLISHING ITS MISSION, AND TO RECOMMEND CHANGES TO CIRM'S FUNDING PRIORITIES TO ENSURE THAT CIRM IS SUPPORTING THE MOST PROMISING ADVANCES IN THE FIELD OF REGENERATIVE MEDICINE. I'VE DIRECTLY TAKEN THAT FROM THE STRATEGIC PLAN.

TOGETHER WITH THE CHAIR, CHAIR'S OFFICE, MANAGEMENT, LARGE GROUP OF PEOPLE PUT TOGETHER A POTENTIAL GROUP WHICH WE WENT OUT TO SEE IF WE COULD FIND THREE DAYS IN THEIR LIVES, THEIR BUSY LIVES,

AND WE HAVE AGREEMENT FROM THIS GROUP OF PEOPLE. AND I THINK IN YOUR NOTES THERE WILL BE -- SO WE WILL GIVE YOU BIOS ON THESE PEOPLE. THIS IS AN EXTRAORDINARY GROUP OF PEOPLE.

DR. ALAN BERNSTEIN WAS THE FOUNDING EXECUTIVE DIRECTOR OF THE CANADIAN INSTITUTES OF HEALTH RESEARCH, AND HE'S CURRENTLY THE DIRECTOR OF THE GLOBAL HIV VACCINE ENTERPRISE. HE'S A VERY SENIOR SCIENTIST WHO'S BEEN IN THE PUBLIC FUNDING SPACE.

DR. GEORGE DALEY IS REALLY ONE OF THE DEONS OF RESEARCH. HE'S AT HARVARD UNIVERSITY. HE'S REALLY A FANTASTIC PERSON, A VERY INNOVATIVE, VERY TOP-LINE SCIENTIST.

PROFESSOR SIR MARTIN EVANS IS A NOBEL LAUREATE IN STEM CELLS. HE RECEIVED THE NOBEL PRIZE FOR HIS WORK IN STEM CELLS FROM THE UNIVERSITY OF CARDIFF.

PROFESSOR JUDY ILLES IS A NEUROLOGIST AND NEUROETHICIST FROM THE UNIVERSITY OF BRITISH COLUMBIA.

DR. RICHARD INSEL IS THE CSO AND EXECUTIVE VICE PRESIDENT RESEARCH FROM THE JDRF.

DR. RICK KLAUSNER IS CURRENTLY THE COLUMN GROUP, BUT HE WAS THE EXECUTIVE DIRECTOR OF THE

GATES FOUNDATION FOR GLOBAL HEALTH AND WAS ALSO THE DIRECTOR OF THE NATIONAL CANCER INSTITUTE.

DR. MYRTLE POTTER WHO WAS PRESIDENT AND CEO OF MYRTLE POTTER & COMPANY, BUT SHE WAS FORMERLY PRESIDENT AND CHIEF OPERATING OFFICER FOR GENENTECH.

AND DR. NANCY WEXLER IS PRESIDENT OF THE HEREDITARY DISEASES FOUNDATION AND PROFESSOR OF NEUROPSYCHOLOGY AT COLUMBIA UNIVERSITY.

SO THEY'VE AGREED TO PARTICIPATE IN THREE DAYS IN OCTOBER 13TH TO 15TH. SO I THINK THAT'S A BLUE RIBBON GROUP. THEY'LL BE TOUGH, AND I THINK THEY WILL BE SEARCHING. SO WE'RE DELIGHTED THAT WE CAN ATTRACT PEOPLE OF THAT CALIBER TO DO THIS PARTICULAR REVIEW.

COMPLETED REVIEWS, AS I SAID, THE STEM CELL TRANSPLANTATION IMMUNOLOGY WAS COMPLETED IN APRIL, WILL COME IN THE JUNE MEETING TO THE ICOC.

UPCOMING RFA'S, THE EARLY TRANSLATIONAL II, POSTED IN FEBRUARY, WE'VE RECEIVED PREAPPLICATIONS. WE'VE RECEIVED 112 APPLICATIONS IN MARCH. THE FULL APPLICATIONS WILL BE INVITED ON MAY THE 17TH WITH FULL GRANT APPLICATIONS DUE JUNE 30TH, AND THE REVIEW WILL BE IN SEPTEMBER.

TOOLS AND TECHNOLOGIES FOR BOTTLENECKS, THE RFA POSTED IN APRIL, RECEIPT OF THE PREAPS WILL

BE MAY 19TH, AND THE REVIEW IN NOVEMBER, AND THE ICOC IN JANUARY. AND THE CLINICAL PROGRAM WILL BE POSTED EARLY JULY WITH A REVIEW IN JANUARY AND COMING TO THE ICOC IN MARCH. SO THAT'S SOME WORK IN FRONT OF US.

WE HAD A WORKSHOP WITH THE MARYLAND TEDCO GROUP. WE HAVE A COLLABORATIVE AGREEMENT WITH MARYLAND NOW. IT WAS HELD IN BALTIMORE MARCH 11TH AND 12TH. WE HAD SEVEN CALIFORNIANS ON SHORT NOTICE WENT AND 12 MARYLAND SCIENTISTS BOTH FROM ACADEMIA AND INDUSTRY PRESENTED. IT WAS ATTENDED BY 150 SCIENTISTS, CLINICIANS, AND POSTDOCTORAL FELLOWS FROM MARYLAND AND CALIFORNIA. THE SESSIONS WERE ON GENE THERAPY TECHNOLOGY AND IN VIVO IMAGING TECHNOLOGIES, TWO IMPORTANT COMPONENT PARTS OF OUR INTEREST IN THAT COLLABORATION.

THERE WAS A CIRM CONSORTIUM-FDA WEBINAR. THIS WAS THE ONE WITH THE FDA. THERE WERE PARTICIPANTS FROM 109 U.S. AND INTERNATIONAL SCIENCE, MIX OF INDUSTRY AND ACADEMIA, A LARGE SHOWING OF FDA PERSONNEL, AND CONTRACT MANUFACTURING ORGANIZATIONS. DON FINK FROM THE FDA SPOKE, MAHENDRA RAO FROM LIFE TECHNOLOGY SPOKE, AND DR. SCOTT BURGER, CONSULTANT WITH ADVANCED CELL AND GENE TECHNOLOGY SPOKE. AND THE VIDEO OF THAT IS NOW

POSTED ON THE CIRM REGENERATIVE MEDICINE CONSORTIUM WEB PAGE ON OUR WEB PAGE THERE. AND THERE'S TWO ADDITIONAL EDUCATIONAL WEBINARS AND ONE ROUNDTABLE SLATED BEFORE THE END OF 2010. SO WE'RE WORKING HARD WITH FDA, AND WE'RE MAKING IT AVAILABLE TO EVERYBODY TO PARTICIPATE THROUGH WEBINARS. AND WE HAVE A LARGE GROUP GOING FACE TO FACE WITH THEM AS WELL.

SO WE HAD AN ADVANCE EFFECTIVE RESEARCH OVERSIGHT COMPLIANCE WORKSHOP, REGULATORY COMPLIANCE. THESE WERE HELD IN THREE LOCATIONS THROUGH CALIFORNIA. THE WORKSHOPS WERE DESIGNED TO SUPPORT COMPLIANCE WITH CIRM'S REGULATORY OVERSIGHT AND FINANCE REPORTING REQUIREMENTS. AND THEY INCLUDED A REVIEW OF AMENDMENTS TO CIRM'S MEDICAL AND ETHICAL STANDARDS, A DESCRIPTION OF CIRM'S COMPLIANCE PROGRAM, COMPLIANCE SITE VISITS, IN FACT, DISCUSSION OF COMPLIANCE ISSUES WITH MULTI-INSTITUTIONAL COLLABORATION, AND DISCUSSION OF FINANCIAL ADMINISTRATION ISSUES AND REPORTING REQUIREMENTS.

SO THIS WAS HEADED BY GEOFF LOMAX, CYNTHIA SCHAFFER, GABE THOMPSON, IAN SWEEDLER, AND CHILA SILVA-MARTIN ALL WENT TO THESE SESSIONS. SO WE'RE GETTING INTO THE WEEDS WITH THE INSTITUTES HELPING

THEM UNDERSTAND WHAT'S REQUIRED WITH COMPLIANCE WITH A LOT OF REGULATIONS THAT WE HAVE ON OUR BOOKS.

THERE WAS A CIRM STAFF TRAINING ON ADVANCED RESEARCH INTEGRITY. THIS IS AN ISSUE WHICH HAS ALWAYS WORRIED FROM ME FROM THE BEGINNING AS A RESEARCH FUNDING ORGANIZATION, THAT WE SHOULD DO OUR BEST IN ENSURING THAT THE DATA THAT WE'RE FUNDING AND PRODUCING HAS THE HIGHEST POSSIBLE INTEGRITY. THAT'S CLEARLY THE REMIT OF THE ORGANIZATIONS WE WORK WITH AS WELL.

SO WE HAD A TRAINING SESSION WHICH WAS LED BY JOHN GALLAND FROM THE OFFICE OF RESEARCH INTEGRITY AT THE U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES. AND THAT COVERED THE FEDERAL POLICY REGARDING RESEARCH INTEGRITY, CURRENT PROGRAMS TO ADVANCE EXCELLENCE IN RESEARCH PRACTICE, PROCEDURES, PROCESS, AND METHODS FOR ADDRESSING ALLEGATIONS OF MANIPULATION OF SCIENTIFIC IMAGES, ONE OF THE REALLY DIFFICULT AREAS THAT THERE IS, BUT IMPORTANTLY, YOU NEED TO BE AWARE OF THOSE THINGS, AND THE ROLE OF FUNDING ORGANIZATIONS, PUBLISHERS, AND INSTITUTIONS IN PROMOTING GOOD RESEARCH PRACTICE.

SO IT WAS A HELP TO US TO HAVE OUR STAFF INVOLVED WITH SOME PEOPLE WHO THINK ALL THE TIME IN THIS SPACE ABOUT RESEARCH INTEGRITY.

UPCOMING WORKSHOPS ARE SUMMARIZED HERE. THERE'S THE SCNT WORKSHOP ON JUNE 13TH AND 14TH, THE ISSCR-CIRM INTERNATIONAL SOCIETY FOR CELLULAR THERAPY, THE CLINICAL TRIALS REGULATORY HARMONIZATION WORKSHOP ON JUNE 15TH IN SAN FRANCISCO. THE ISSCR ANNUAL MEETING IS IN SAN FRANCISCO. THAT'S WHY THESE WORKSHOP ARE AROUND THAT. AND WE HAVE PLANNED MEETINGS WITH SPAIN, NEW YORK, AND THE NETHERLANDS LATER IN THE YEAR, AND WE'RE HOPING TO GET A WORKSHOP UP ON IPS CELL BANKING LATER IN THE YEAR, THE THIRD OR FOURTH QUARTER. SO SOME IDEA OF WHAT WE'RE DOING WITH WORKSHOPS WITH OUR CONSTITUENTS.

THE BRIDGES PROGRAM 2010 TRAINEE MEETING IS GOING TO BE HELD JULY 8TH AND 9TH IN SAN FRANCISCO. IT'S AN ANNUAL MEETING FOR THE BRIDGES TRAINEES, PROGRAM DIRECTORS, AND TRAINEE MENTORS. IT WILL FEATURE POSTER PRESENTATION BY THE TRAINEES, GUEST SPEAKERS, NETWORKING, AND EDUCATION SESSIONS. THESE ARE BEING MANAGED BY GIL SAMBRANO AND MIKE YAFFE. AND ANYBODY WHO'S INTERESTED IN THIS PARTICULAR PART OF OUR WORK IS WELCOME TO COME ALONG. IT'S GOING TO BE, I THINK, 200 PEOPLE THERE; IS THAT RIGHT?

DR. SAMBRANO: 150 TO 200.

DR. TROUNSON: ONE HUNDRED FIFTY TO 200 YOUNG PEOPLE FROM THE BRIDGES PROGRAM. THE PEOPLE I'VE MET ARE A REAL BUZZ. THEY'RE FANTASTIC. THEY'VE REALLY GOT THE -- THEY'RE SUPERCHARGED. THEY REALLY ARE. THEY'RE IN GREAT SHAPE AND THEY'RE VERY, VERY ENTHUSIASTIC. SO IT WILL BE SPIRITUALLY AROUSING, I THINK, TO SEE THESE YOUNG PEOPLE REALLY GOING FOR IT. WE'VE GOT THEM TOGETHER RATHER THAN WITH THE BIG HIERARCHY OF SCIENTISTS WHERE THEY TEND TO BE ONLY SMALL CHICKENS IN THE FIELD. THESE WILL FEEL THAT THEY'RE MAKING THEIR CONTRIBUTIONS AMONGST THEIR PEERS. SO I THINK IT'S A GREAT PROGRAM, AND I'M REALLY PLEASED THAT GIL AND MIKE HAVE GOT THIS ONE OFF TO GIVE THEM A FORUM TO WORK TOGETHER IN.

SO NOW CAN I ASK MARGARET FERGUSON TO BRIEFLY UPDATE YOU ON THE BUDGET, AND THEN JOHN ROBSON WILL GIVE YOU JUST ONE SLIDE, ONE OR TWO SLIDES ON HOW OUR FINANCES LOOK FOR THE FUTURE.

MS. FERGUSON: GOOD AFTERNOON, MEMBERS OF THE ICOC, CIRM STAFF, AND THE PUBLIC. I'M HERE AGAIN TODAY TO PRESENT AN UPDATE ON THE FISCAL YEAR 2009-10 CIRM SUPPORT BUDGET AND EXPENDITURES THROUGH MARCH 31ST.

ON THE CHART BEFORE YOU, I'LL GO THROUGH THIS AGAIN, THE BLUE BARS INDICATE OUR APPROVED

'09-'10 BUDGET; ORANGE REFLECTS THE EXPENDITURES POSTED THROUGH MARCH 2010; AND THE YELLOW IS THE BALANCE THAT IS AVAILABLE FOR EXPENDITURE THROUGH JUNE 30, 2010. AS INDICATED BY THE BARS ON THE RIGHT SIDE OF THE CHART, THROUGH MARCH 31ST WE HAVE RECORDED TOTAL EXPENDITURES OF $7.5 MILLION AGAINST OUR $12.9 MILLION APPROVED BUDGET, LEAVING A BALANCE OF $5.4 MILLION. THE MIDDLE GROUP OF BARS INDICATES THAT 2.5 MILLION OF THE 5.5 APPROVED ALLOCATION FOR OPERATING EXPENDITURES AND EQUIPMENT, THAT INCLUDES, BUT NOT LIMITED TO, INTERAGENCY AGREEMENTS, CONTRACTS, MEETINGS, INFORMATION TECHNOLOGY, TRAVEL, SUPPLIES, TRAINING, AND COMMUNICATIONS SERVICES HAS BEEN EXPENDED, LEAVING A BALANCE OF $3 MILLION.

ON THE LEFT SIDE OR THE LAST GROUP OF BARS THERE INDICATES $5.1 MILLION OF OUR $7.5 MILLION BUDGET ALLOCATION FOR SALARIES AND BENEFITS HAS BEEN EXPENDED, LEAVING A BALANCE OF $2.3 MILLION.

NOW, ON THE BUDGET SUMMARY BEFORE YOU, YOU WILL NOTE THAT WE HAVE EXPENDED 69 PERCENT OF OUR SALARIES AND BENEFITS AND 45 PERCENT OF OUR OPERATING EXPENDITURE AND EQUIPMENT ALLOCATION. OUR OVERALL BUDGET ALLOCATION HAS -- THE SUMMARY INDICATES THAT 59 PERCENT HAS BEEN SPENT THROUGH MARCH 31ST. LET'S PUT IT THIS WAY. NOT SPENT, BUT

RECORDED THROUGH MARCH 31ST BECAUSE WHEN WE TAKE INTO CONSIDERATION THAT RIGHT NOW I HAVE ABOUT $970,000 IN LAGS FOR GOODS AND SERVICES THAT WERE RENDERED THROUGH MARCH AND NOT YET PROCESSED OR RECORDED, THE OPERATING EXPENDITURES AND EQUIPMENT ALLOCATION WILL INCREASE TO 62 PERCENT, AND OUR OVERALL BUDGET SUMMARY WILL REFLECT THAT OUR EXPENDITURES HAVE INCREASED TO 66 PERCENT THROUGH MARCH 31ST.

AT THIS TIME WE ARE SHOWING AN OVERALL SAVINGS OF 9 PERCENT BECAUSE IF WE WERE RIGHT ON TARGET, WE WOULD HAVE SPENT 75 PERCENT OF OUR BUDGET AT THIS POINT IN TIME. THE SALARIES AND BENEFITS WOULD REFLECT THE 6-PERCENT SAVINGS AS WELL AS OUR OPERATING EXPENSE AND EXPENDITURES WOULD HAVE A 13-PERCENT SAVINGS. HOWEVER, AS WE ENTER THE FOURTH AND FINAL QUARTER OF THE FISCAL YEAR, OUR PRELIMINARY PROJECTIONS INDICATE THAT WE'LL HAVE A FINAL SAVINGS OF ABOUT 7 PERCENT IN SALARIES AND BENEFITS AND AN APPROXIMATE SAVINGS OF 8 PERCENT IN OPERATING EXPENDITURES FOR AN OVERALL, AT THIS POINT AN OVERALL PROJECTED SAVINGS OF 8 PERCENT.

I STAND OPEN FOR ANY QUESTIONS THAT YOU MAY HAVE.

CHAIRMAN KLEIN: MARGARET, IS IT

APPROPRIATE TO SAY THAT ONE OF THE SIGNIFICANT DIFFERENCES IN BUDGET VERSUS ACTUAL IS THAT IN TRYING TO GET THE ABSOLUTE CORRECT HIRES FOR IMPORTANT POSITIONS, THAT WE HAVE BEEN HIRING SLOWER THAN PROJECTIONS?

MS. FERGUSON: ABSOLUTELY.

CHAIRMAN KLEIN: ANY OTHER QUESTIONS OR CLARIFICATIONS? WITHOUT THAT, WE THANK YOU VERY MUCH FOR YOUR REPORT. AND DR. ROBSON.

DR. ROBSON: THANK YOU, CHAIRMAN KLEIN. THIS WILL BE QUITE BRIEF. I'M JUST GOING TO GIVE YOU A QUICK SYNOPSIS OF OUR OVERALL FINANCIAL SITUATION RIGHT NOW. SO IF I COULD HAVE THE FIRST SLIDE.

WHAT'S INCLUDED IN THESE PROJECTIONS IS EVERYTHING THAT'S BEEN APPROVED BY THE ICOC TO DATE AND IT'S IN PROGRESS ALONG WITH PROGRAMS THAT HAVE BEEN THROUGH CONCEPT APPROVAL THAT ARE LISTED THERE BELOW. I REALIZE THE TOOLS AND TECHNOLOGIES IS NOT ON THAT LIST. THAT'S ALSO INCLUDED IN HERE. THAT WAS AT $40 MILLION. SO THESE ARE THE PROGRAMS THAT HAVE BEEN THROUGH CONCEPT APPROVAL AND ARE AT VARIOUS STAGES OF RFA DEVELOPMENT OR IN THE REVIEW PROCESS. IN FACT, THE NUMBERS THAT I'M GOING TO SHOW YOU IN THE NEXT SLIDE IN JUST A SECOND WILL

PROBABLY CHANGE TOMORROW BECAUSE -- OR TODAY WHEN YOU REVIEW BASIC BIOLOGY, WHICH HERE IS TARGETED AT 30 MILLION. SO THE FIGURES I SHOW YOU NOW WILL CHANGE IF YOU FUND ABOVE OR BELOW $30 MILLION.

SO THE NEXT SLIDE SUMMARIZES. YOU'VE ALL SEEN THESE GRAPHS MANY TIMES BEFORE. THERE ARE TWO CHANGES THAT I'D LIKE TO POINT OUT FROM THE LAST TIME. THE FIRST ONE AND PERHAPS THE MOST SIGNIFICANT ONE IS THANKS TO THE EFFORT OF CHAIRMAN KLEIN AND MEMBERS OF HIS STAFF WHO INTERACT WITH THE TREASURER'S OFFICE, ESPECIALLY LYNN HARWELL, SCOTT TOCHER, AND JAMES HARRISON, THE TREASURER'S OFFICE DID A GENERAL OBLIGATION BOND SALE IN THE LAST MONTH AND SOLD SOME BONDS FOR OUR BENEFIT, AND WE NETTED $112 MILLION OUT OF THAT.

SO YOU WILL SEE THERE THE BAR FOR APRIL-JUNE 2010 SHOWS AN INCREASE OF $112 MILLION. SO THAT'S TERRIFIC NEWS FOR US AS IT ALWAYS IS WHEN WE GET ADDITIONAL FUNDS.

THE OTHER DIFFERENCE BETWEEN THIS AND THE LAST GRAPH THAT I SHOWED YOU IS I TRY TO KEEP PROJECTING OUT ABOUT 18 MONTHS, AND SO WE'VE EXTENDED OUR PROJECTIONS NOW. LAST TIME WE JUST SHOWED YOU TO THE END OF THE FISCAL YEAR. THAT WAS TO THE END OF JUNE 2011. NOW WE'RE PROJECTING OUT

TO THE END OF THE CALENDAR YEAR 2011; THAT IS, TO THE END OF DECEMBER. YOU SEE WE NOW HAVE ENOUGH MONEY BASED ON THE GREEN LINE TO CARRY US UNTIL THE END OF THE CALENDAR YEAR OF 2011.

SO THAT'S WHAT I HAD TO SHOW YOU TODAY. I THINK THAT'S VERY GOOD NEWS FOR US. LOOKS GOOD FOR OUR PROGRAMS OVER THE SHORT TERM, THE NEAR TERM. THANK YOU. ANY QUESTIONS?

CHAIRMAN KLEIN: I'D LIKE TO RECOGNIZE THAT ART TORRES HAS MADE A TREMENDOUS CONTRIBUTION TO THAT EFFORT.

MR. TORRES: APPARENTLY MR. ROBSON DOESN'T REALIZE THAT. I HAVE TO REMIND HIM.

CHAIRMAN KLEIN: IT'S ALSO IMPORTANT TO RECOGNIZE THE GOVERNOR'S OFFICE, THE DEPARTMENT OF FINANCE HAVE BEEN WONDERFUL AND IN WORKING IN A PARTNERSHIP WITH THE TREASURER'S OFFICE ON REALLY RECOGNIZING THAT THE AGENCY HAS INTERNATIONAL COLLABORATIONS. WITH THE DIFFICULT NEWS ABOUT CALIFORNIA AND OUR BUDGET CHALLENGES, IT'S BEEN VERY IMPORTANT FOR THE LEVERAGE, THE FINANCIAL LEVERAGE, WE'VE OBTAINED FOR CALIFORNIA TO BE ABLE TO SHOW THAT WE HAVE THE FUNDING THAT GOES OUT 18 MONTHS, SO THEY HAVE THE WILLINGNESS TO MAKE REALLY HARD CHOICES AND COMMITMENTS TO THE TEAMS, THE BILATERAL

FUNDING TEAMS THAT ARE COMPLEMENTING CALIFORNIA SCIENTISTS.

IT'S ALSO IMPORTANT TO NOTE THAT IN OUR OWN STRATEGIES WE'RE GOING TO BE HAVING THE CIRM REVIEW THIS YEAR, AND WE MAY WELL HAVE SOME PENDING OPTIONS FOR THAT IN THAT REVIEW THAT COME UP FOR SUGGESTED PRIORITIES OR ACCELERATIONS OF PROGRAMS THAT'S GOING TO HAVE -- THE PRESIDENT'S GOING TO HAVE THE ABILITY TO RESPOND TO THOSE BECAUSE WE ARE GOING TO HAVE THE FUNDS AVAILABLE TO DO SO.

AND FINALLY, AN ISSUE WILL COME UP THAT THERE'S CERTAIN OPTIONS NOW ON THE TABLE THAT THE PRESIDENT IS LOOKING AT THAT WE'VE ADVISED YOU AT A PRIOR MEETING THAT WE KNOW BOTH THE PUBLIC AND PRIVATE UNIVERSITIES AND NONPROFIT INSTITUTIONS IN CALIFORNIA WITH TIGHT BUDGETS BECAUSE OF THE ECONOMY AND DONOR CUTBACKS AS WELL AS STATE BUDGET CUTBACKS, THERE'S ISSUES ABOUT WHETHER THE FUNDS ARE AVAILABLE TO FILE PATENTS AND TO PROSECUTE PATENTS ON ALL OF THE OPPORTUNITIES THAT ARE THERE. AND SO THESE CASH FLOWS HAVE AN ALLOWANCE, ALTHOUGH NOT PROJECTED IN THE NUMBERS YOU'VE LOOKED AT, THAT WILL BE DISCUSSED LATER FOR POTENTIALLY CO-FUNDING WITH INSTITUTIONS SO THEY CAN PROSECUTE PATENTS AND PROVIDE PATENT FILINGS, FOR EXAMPLE, INTERNATIONALLY WHERE THEY

OTHERWISE BECAUSE OF CUTBACKS WOULD NOT BE ABLE TO.

IT'S VERY IMPORTANT TO US IN HAVING OUR PATENTS FOLLOWED UP AND OUR IP PROTECTED BECAUSE OUR IP IS REALLY OUR WAY TO PROTECT OUR ACCESS POLICIES, OUR CALIFORNIA RX PRICING PROGRAMS, AND TO MAKE CERTAIN THAT WE HAVE BENEFIT FOR CALIFORNIA AND THE CALIFORNIA TAXPAYERS OF THE VISION THEY'VE ILLUSTRATED HERE IN THEIR COMMITMENT.

SO HAVING CASH AVAILABLE IS GIVING US SOME STRATEGIC OPTIONS THAT THE PRESIDENT, I'M SURE, WILL ADDRESS BOTH IN UPCOMING MEETINGS AS WELL AS WITH THE BENEFIT OF THE ADVICE FROM THE REVIEW BOARD.

MR. SHEEHY: JUST ONE QUESTION. COULD THESE SLIDES BE MADE AVAILABLE TO THE BOARD? WE ONLY SEE THEM. I THINK I'VE ASKED EVERY TIME WE'VE HAD THIS TO GET ONE, AND I'VE NEVER BEEN GIVEN A COPY OF THIS SLIDE. COULD THEY ALSO BE MADE AVAILABLE TO THE PUBLIC? I THINK THESE ARE PUBLIC DOCUMENTS THAT SHOULD BE AVAILABLE. BUT ARE THEY POSTED?

MS. KING: NOT YET. NOW THAT I HAVE THEM, I'M HAPPY TO SEND THEM TO THE BOARD.

MR. SHEEHY: IT'S JUST HELPFUL TO HAVE. IT WOULD BE GREAT IF THEY CAME IN OUR PACKET.

CHAIRMAN KLEIN: I THINK SOME OF THOSE

WERE JUST DEVELOPED AND REFINED AT THE VERY LAST 48 HOURS. BUT IT'S A VERY GOOD PRACTICE, AND WE CAN JUST FOLLOW THAT PRACTICE PROACTIVELY GOING FORWARD.

MR. ROTH: I HAD TWO QUESTIONS, ALAN, FOR YOU ON YOUR REPORT. FIRST, I'M INTERESTED TO KNOW IN YOUR COMPLIANCE MEETINGS, YOU SAID YOU HAD THREE, I THINK, THROUGHOUT THE STATE, AND YOU ALSO MENTIONED THAT WE HAVE SIGNIFICANT REGULATIONS. WERE THERE ONE OR TWO THINGS THAT SEEMED TO BE OF GREATEST CONCERN TO OUR GRANTEES?

DR. TROUNSON: I WONDERED IF -- WHO WAS AT ALL OF THOSE COMPLIANCE MEETINGS? IAN. I JUST WANT TO MAKE SURE I GET YOU THE DETAIL OF WHAT YOU ARE ASKING, DUANE.

MR. SWEEDLER: GOOD AFTERNOON. IT WAS VERY DETAILED AND VERY TECHNICAL, WHAT LINE ON A REPORT IS THE RIGHT PLACE TO PUT THIS. IT WAS THE KIND OF NITTY-GRITTY STUFF THAT PEOPLE HAVE QUESTIONS AND THEY WANT TO DO IT RIGHT. THEY WEREN'T REALLY POLICY ISSUES.

THERE WAS ALSO GEOFF LOMAX WENT OVER THE ISSUES ADDRESSED IN THE RECENT BOARD MEETING ABOUT CLARIFYING THE POLICY ON CELL LINES. AND THEN THERE WAS SOME GOOD FEEDBACK ABOUT THINGS THAT OUR GRANTEES WERE FINDING TO BE ADMINISTRATIVELY

BURDENSOME THAT WE HADN'T REALIZED WERE BURDENSOME. AND SO THERE WERE MESSAGES THAT WE TOOK BACK ABOUT HOW TO STREAMLINE THINGS.

I WOULDN'T SAY THAT THERE WAS ANY ONE PARTICULAR ISSUE THAT STOOD OUT, BUT IT'S BEEN VERY HELPFUL TO SEE HOW SOME OF THESE THINGS WORK IN PRACTICE, SO WE COULD SEE IF THEY'RE DOING WHAT WE EXPECT THEM TO DO. SO IT WAS VERY MUCH A TWO-WAY COMMUNICATION.

MR. ROTH: THANKS. I THINK IT'S IMPORTANT IF THERE ARE POLICIES AND PROCEDURES THAT ARE VIEWED AS ONEROUS OR IMPEDIMENTS, THAT IF WE CAN HELP CLARIFY SOME OF THOSE, WE SHOULD.

DR. TROUNSON: RIGHT. THEY TEND TO EVOLVE -- A LOT OF IT HAS BEEN TENDING TO EVOLVE OUT OF THE PARTICULAR REVIEWS THAT ARE DONE WITH EACH INSTITUTION, BUT WE THOUGHT MAYBE WE SHOULD GET ON THE ROAD AND ACTUALLY HAVE THE OPPORTUNITY FOR PEOPLE TO COME IN IN A GENERIC WAY AND GET IT AS WELL. WE STILL DO, WE DO THE VISITS. THEY'RE DONE BY GEOFF AND HIS TEAM. AND THAT'S SUPPLEMENTARY TO THE SCIENCE OFFICERS GOING OUT THERE AS WELL.

SO THERE'S A LOT OF IT, BUT THIS WAS A MORE FORMAL WAY OF GETTING FEEDBACK FROM THE BROAD SPECTRUM OF ALL OF THE GRANTEES.

MR. ROTH: SIMILAR TO WHAT JEFF JUST ASKED FOR, I THINK IT'S ALWAYS HELPFUL FOR US TO HAVE THE ONE OR TWO THINGS SO WE CAN BE AWARE IN CASE THEY GET RAISED WITH US THAT THESE ARE ISSUES.

DR. TROUNSON: I THOUGHT MY TALK USUALLY GOES ON THE -- I UNDERSTOOD FROM PAT THAT IT NORMALLY GOES ON.

MS. KING: AFTER THE MEETING.

DR. TROUNSON: I HAVE A TERRIBLE PROBLEM OF DOING IT IN TIME TO GET IT POSTED THE WEEK BEFORE. THAT'S JUST MY -- THAT'S MY TERRIBLE HABIT OF BEING LATE WITH THESE THINGS, AND I APOLOGIZE.

MR. ROTH: THAT GETS JOHN SIMPSON VERY UPSET. HE'S SITTING BACK THERE TODAY.

THE SECOND QUESTION IS AROUND THE CLINICAL HARMONIZATION WORKSHOP. WILL THE FDA AND EMA AND OTHER REGULATORY AGENCIES BE REPRESENTED THERE?

DR. TROUNSON: THEY WILL BE. AND THEY'RE GOING TO BE SPEAKING, AND THEY'RE GOING TO BE REPRESENTED IN QUITE NUMBERS. EMA IS COMING. ALSO MEMBERS OF ORGANIZATIONS THAT HAVE THAT REGULATORY ROLE IN CHINA, SOUTH AMERICA, AND INDIA PROBABLY. I EVEN SENT A LETTER TO THE PRESIDENT OF RUSSIA, AND I DIDN'T GET A LETTER BACK FROM HIM, BUT THINGS ARE HAPPENING IN THAT SPACE.

MR. ROTH: HOPEFULLY, IN ADDITION TO SPEAKING, THEY'LL BE LISTENING BECAUSE THIS IS SUCH AN IMPORTANT ISSUE HAVING TO DO SEPARATE CLINICAL TRIALS WHICH TAKE TIME AND DELAY THERAPIES FROM GOING FORWARD IS SUCH A BIG ISSUE.

DR. TROUNSON: I HOPE MEMBERS OF THE BOARD THAT ARE INTERESTED IN THIS WILL COME TO THE WORKSHOP. I WOULD REALLY ENCOURAGE YOU TO DO THAT. ELONA AND I HAVE BEEN INTERVIEWING A VERY LARGE NUMBER OF THE COMMERCIAL COMPANIES WHO ARE IN THIS REGENERATIVE MEDICINE SPACE FOR STEM CELLS. AND IT'S BEEN A REAL EYE-OPENER TO GET THEIR RESPONSE. WHAT WE WANT TO DO IS GET THEIR FEEDBACK AND THEN PUT IT IN A SORT OF MORE GENERIC WAY. IT'S INTERESTING HOW SOME STEM CELLS ARE SEEMINGLY GETTING THROUGH RELATIVELY EASILY, PARTICULARLY THOSE CELLS THAT DON'T LAST VERY LONG IN THE BODY. THEY DON'T SEEM TO WORRY THE REGULATORS SO MUCH AS CELLS THAT ARE GOING TO BE IN THE BODY AND THEN CONTRIBUTE TO DEVELOPMENT OF TISSUE.

BUT AS PART OF THAT WE'RE GOING TO PRESENT A PRESENTATION ON WHAT WE'VE GOT FROM GOING THROUGH ALL OF THESE COMPANIES AND LOOKING AT WHAT THE SITUATION HERE IS IN THE U.S. AS AGAINST WHAT'S GOING ON IN EUROPE AND IN OTHER PLACES.

I THINK IT'S HELPFUL, BUT I'D HAVE TO SAY THERE'S A LOT OF SUPPORT FROM THE FDA IN GETTING TO UNDERSTAND THIS AREA BETTER BECAUSE IT'S ONE WHICH THEY'RE NOT -- THEY HAVEN'T REALLY WELL REHEARSED, AND THERE ARE ONLY A FEW COMPANIES, AS YOU KNOW, THAT HAVE BEEN UP THIS WHOLE PATHWAY. AND MANY OF THOSE ONES ARE THE PLURIPOTENTIAL STEM CELLS ARE ALL STILL HELD UP, AND WE'RE STARTING TO UNDERSTAND BETTER WHAT ARE THE CONCERNS AND WHAT ARE THE ISSUES FOR THOSE COMPANIES IN DOING THAT.

CHAIRMAN KLEIN: DR. TROUNSON, BECAUSE WE ARE AUDIOCASTING THIS, FOR THE BENEFIT OF THE PUBLIC, YOU MIGHT EXPLAIN THE EMA, EUROPEAN --

DR. TROUNSON: LET ME GET GENERAL COUNSEL TO GIVE YOU A PROPER DEFINITION.

MS. BAUM: THEY RECENTLY DROPPED THE SECOND E, AND SO NOW IT'S THE EUROPEAN MEDICINE AGENCY.

DR. TROUNSON: RESPONSIBLE FOR THE REGULATION RECOMMENDATIONS IN EUROPE. WHAT HAPPENS --

CHAIRMAN KLEIN: COMPARABLE TO THE FDA.

DR. TROUNSON: WELL, NOT QUITE BECAUSE STILL INDIVIDUAL COUNTRIES STILL HAVE THEIR SOVEREIGNTY WITH RESPECT TO THAT, BUT I THINK THEY

TAKE A LOT OF LEADERSHIP FROM WHAT THE EMA IS RECOMMENDING.

MS. BAUM: THERE IS A CENTRALIZED PROCEDURE UNDER WHICH BIOLOGICS AND NOW STEM CELLS WILL HAVE TO GO THROUGH TO GET APPROVAL THROUGH THE EMA.

CHAIRMAN KLEIN: THANK YOU. I'D LIKE TO RECOGNIZE ONE OF THE GREAT EARLY CONTRIBUTORS TO THIS AGENCY, DR. ARLENE CHIU, WHO IS PRESENT.

(APPLAUSE.)

CHAIRMAN KLEIN: ADDITIONAL BOARD COMMENTS?

DR. PIZZO: THIS MAY BE PERHAPS REDUNDANT WITH WHAT YOU'RE ALREADY DOING, ALAN, BUT ABOUT A COUPLE MONTHS AGO I PARTICIPATED ONE OF THE IOM'S DRUG FORA THAT WAS ON REGULATORY SCIENCE. AND IT WAS WELL REPRESENTED, OF COURSE, BY THE FDA AND NIH AND INDUSTRY. AND THAT MAY BE ANOTHER ACCESS POINT FOR THIS BECAUSE I THINK IT BRINGS -- IT'S A GOOD LEVELER OF INTERESTS AND MAY HELP THIS WHOLE AGENDA GO FORWARD.

DR. TROUNSON: EXACTLY RIGHT, PHILIP. AND ELONA IS PARTICIPATING IN THAT ORGANIZATION. I HAVE BEEN APPROACHED BY THAT ORGANIZATION TO TAKE A MORE FORMAL ROLE. I'M IN DISCUSSION WITH THE CHAIR ABOUT

WHETHER I SHOULD OR I SHOULDN'T. BUT, YES, I MET RECENTLY WITH THE CHAIR OF THAT ORGANIZATION, AND WE ARE DOING THINGS IN SYNC, IF YOU LIKE. WE TEND TO BE THE MORE SCIENTIFIC ASPECT. THEY TEND TO BE A BIT MORE THE POLITICO-REGULATORY ASPECT, BUT TOGETHER I THINK WE BRING A REASONABLY SANE WAY OF ADDRESSING, AS YOU SUGGEST, THE ENTIRE AREA.

CHAIRMAN KLEIN: SO I'D LIKE TO ALSO SAY, DR. TROUNSON, THAT I'D LIKE TO ASSURE YOU AS THE PRESIDENT IN YOUR OWN TERMS THAT AS FAR AS I KNOW FROM ALL OF THE BOARD MEMBERS, WE ARE ALREADY VERY SPIRITUALLY AROUSED BY STEM CELLS.

DR. PIZZO: BE CAREFUL WITH THAT STATEMENT.

CHAIRMAN KLEIN: SO I HOPE YOU WILL TAKE COMFORT IN THAT. BUT SECONDLY, THIS ORGANIZATION, I THINK, HAS BEEN KNOWN FOR ITS CREATIVITY. NO ONE HAS EVER ACCUSED US OF HOLDING BACK FROM CREATIVELY LOOKING AT THE ALTERNATIVES.

IT IS INTERESTING THE ORIGAMI CRANE IS, IN FACT, THE SYMBOL THAT HIROSHIMA TOOK FOR PEACE AND NUCLEAR DISARMAMENT AS A SYMBOL FOR A BETTER WORLD. AND PERHAPS WE CAN CREATE A SYMBOL FOR STEM CELL RESEARCH AS A SCIENTIFIC BRIDGE TO A WORLD WITH LESS HUMAN SUFFERING.

BUT IN THAT REGARD, ALTHOUGH I HAVE A GREAT PERSONAL COMMITMENT AND WITH DUE DEFERENCE TO THE PRESIDENT, I WANT TO BE ON THE RECORD THAT I HAVE NOT MADE ANY COMMITMENT TO, IN HIS WORDS, JUMP LIKE KANGAROOS TO REACH THAT GOAL, BUT WE DO APPRECIATE YOUR CREATIVITY IN YOUR REPORT.

LIKE TO GO ON. WE HAVE A QUORUM PRESENT, AND I'D LIKE TO GO ON TO THE CONSIDERATION OF THE MINUTES FROM THE PAST ICOC MEETINGS. AGENDA ITEM NO. 6. IS THERE A MOTION TO APPROVE?

DR. BLOOM: SO MOVED.

DR. LEVEY: SECOND.

CHAIRMAN KLEIN: IS THERE DISCUSSION? IS THERE DISCUSSION FROM THE PUBLIC? ALL IN FAVOR.

(CHORUS OF AYES.)

CHAIRMAN KLEIN: OPPOSED. SHOW THE MOTION PASSES.

WE ARE GOING TO MOVE ITEM NO. 7 TO OUR DISCUSSION TOMORROW. AND WE HAVE SOME MEMBERS PARTICIPATING TOMORROW THAT ARE IMPORTANT TO THAT DISCUSSION, AND THAT DECISION HAS BEEN MADE IN CONSULTATION WITH VICE CHAIR TORRES.

WE ARE ALSO FOR THE SAME REASONS MOVING ITEM NO. 8 TO TOMORROW.

AGENDA ITEM NO. 9, MR. PRESIDENT, WOULD

YOU LIKE ELONA BAUM TO MAKE THAT PRESENTATION?

DR. TROUNSON: I WOULD LIKE THE GENERAL COUNSEL TO PRESENT THIS ITEM TO THE BOARD.

MS. BAUM: CHAIR, MEMBERS OF THE BOARD, THANK YOU FOR YOUR CONSIDERATION OF THIS MATTER. I AM VERY PLEASED TO SEE THAT NINI HAS CORRECTED MY SLIDES BECAUSE MINE SAID TAB NO. 8. THE MATTER IS ACTUALLY SET FORTH IN TAB NO. 9 IN YOUR BINDERS.

I ONLY HAVE TWO SLIDES WHICH SUMMARIZES THE SUM AND SUBSTANCE OF THE REQUEST THAT WE'RE MAKING TODAY. THIS MATTER IS TO SEEK PERMISSION OF THE BOARD TO CHANGE THE PREGNANCY LEAVE COMPENSATION FOR CIRM STAFF. AS YOU KNOW, UNDER PROP 71 THE ICOC MUST LOOK AT THE COMPARATOR INSTITUTIONS WHEN DECIDING ON THE APPROPRIATE RANGE FOR COMPENSATION. AND IN THAT LIGHT, WE TOOK A LOOK AT THE COMPARATOR INSTITUTIONS AS SET FORTH IN PROPOSITION 71, AND WE BELIEVE THAT THEY SUPPORT THE FOLLOWING REQUESTED CHANGE, WHICH IS SET FORTH IN THE NEXT SLIDE.

I FIGURED THAT I'D SET THE STAGE BY TELLING YOU WHAT THE CURRENT POLICY IS AND THEN REITERATING WHAT OUR RECOMMENDED CHANGE IS. CURRENTLY CIRM STAFF RECEIVE UNDER NDI, WHICH IS NONINDUSTRIAL DISABILITY INSURANCE, AN AVERAGE OF SIX WEEKS COVERAGE AT 50 PERCENT. AND CIRM DOES NOT

MAKE UP ANY OF THE DIFFERENCE IN THAT PAY. SO THEY RECEIVE 50 PERCENT.

WHAT WE ARE RECOMMENDING IS THAT FOR THE NDI-APPROVED PERIOD THAT WE PROVIDE, IN ESSENCE, CIRM STAFF UP TO 12 WEEKS OF PAID SALARY DURING THE NDI-APPROVED PERIOD. I JUST NOTE THAT THIS WOULD HAVE A VERY NEGLIGIBLE IMPACT ON THE OVERALL BUDGET. THAT'S THE SUM AND SUBSTANCE OF WHAT OUR RECOMMENDATIONS ARE TODAY. THANK YOU.

CHAIRMAN KLEIN: THANK YOU VERY MUCH. ANY QUESTIONS?

MR. SHEEHY: DOES THIS COVER PARENTAL LEAVE MORE GENERALLY?

MS. BAUM: GOOD QUESTION. I MEANT TO SAY THAT IN THE FUTURE WE WILL BE LOOKING AT FAMILY LEAVE OR NONPREGNANCY LEAVE.

MR. SHEEHY: SO IF YOU WERE AN ADOPTIVE PARENT?

MS. BAUM: THIS WOULD NOT COVER IT AT THIS TIME. WE WERE NOT ABLE TO CONDUCT THOSE STUDIES. QUITE FRANKLY, I'M NOT SO SURE THAT THE COMPARATOR INSTITUTIONS EVEN PROVIDE THAT BASED ON WHAT WE'VE SEEN TO DATE, BUT WE THOUGHT WE WOULD DIG DEEPER TO SEE.

CHAIRMAN KLEIN: I'D SAY THIS IS AN

IMPORTANT --

MR. TORRES: EXCUSE ME. DR. POMEROY.

CHAIRMAN KLEIN: YES, I WILL BE THERE IN JUST ONE MOMENT. THIS IS AN IMPORTANT ITEM THAT HAS COME UP IN EXECUTIVE MEETING. WE DISCUSSED THE FACT THAT UNDER THE INITIATIVE WE HAVE TO LOOK AT OUR COMPARABLE INSTITUTIONS IN TERMS OF HOW WE SET OUR POLICY. IT WOULD BE GREAT TO SEE COMPARABLE INSTITUTIONS IN THE STATE ADDRESS THIS ISSUE, WHICH WOULD MAKE IT EASIER FOR US TO ADDRESS IT UNDER THE RESTRICTIONS IN THE INITIATIVE.

DR. POMEROY: I JUST WANTED TO MENTION THAT AT LEAST THE UNIVERSITY OF CALIFORNIA DAVIS DOES HAVE A LEAVE POLICY FOR ADOPTION, AND WE'D BE GLAD TO PROVIDE THAT.

CHAIRMAN KLEIN: THAT'S VERY HELPFUL. THANK YOU VERY MUCH. MR. HARRISON.

MR. HARRISON: I JUST WANTED TO POINT OUT THERE IS A LEAVE POLICY THAT CIRM HAS. IT'S UNPAID LEAVE. AS ELONA SAID, WHAT WE'RE LOOKING INTO IS WHETHER THERE'S A WAY, BASED ON THE COMPARABLE INSTITUTIONS, THAT WE CAN PROVIDE SOME PAID FAMILY LEAVE UNDER THOSE CIRCUMSTANCES. AND THE BIG DIFFERENCE IS THAT MANY OF THESE INSTITUTIONS USE A PROGRAM CALLED SDI, WHICH IS AN EMPLOYEE

CONTRIBUTION; WHEREAS, CIRM USES NDI, WHICH IS PAID BY THE AGENCY.

SO IT'S SOMETHING THAT WE'RE INTERESTED IN PROVIDING. IT'S JUST GOING TO REQUIRE MORE LEGWORK ON OUR PART.

CHAIRMAN KLEIN: IF I COULD ASK DR. POMEROY, IS YOURS A PAID LEAVE PROGRAM OR AN UNPAID LEAVE PROGRAM? AND IS IT --

DR. POMEROY: I BELIEVE THERE'S A PAID COMPONENT TO IT.

CHAIRMAN KLEIN: THAT WILL BE VERY HELPFUL TO US TO LOOK TO. MIGHT BE GOOD FOR US TO CIRCULATE THAT INFORMATION MORE GENERALLY.

ADDITIONAL QUESTIONS? ALL RIGHT. IS THERE A MOTION TO APPROVE?

MR. TORRES: SO MOVED.

CHAIRMAN KLEIN: MOVED BY ART TORRES. IS THERE A SECOND?

DR. PRIETO: SECOND.

CHAIRMAN KLEIN: SECOND BY FRANCISCO PRIETO. DISCUSSION? DISCUSSION FROM THE PUBLIC? SEEING NONE, CALL THE QUESTION. ALL IN FAVOR.

(CHORUS OF AYES.)

CHAIRMAN KLEIN: OPPOSED? GREAT. I THINK IT'S A VERY IMPORTANT STEP FORWARD IN RECOGNIZING

THE CONTRIBUTION FROM OUR STAFF, AND I WOULD HOPE WE FOLLOW THROUGH ON JEFF'S SUGGESTION, WHICH WE HAVE DISCUSSED AND TRIED TO FIND SOME COMPARABLE SUBMISSIONS ON. AND DR. POMEROY'S INFORMATION WILL BE VERY HELPFUL. THANK YOU, DR. POMEROY.

WE WILL GO TO -- ARE WE -- DR. TROUNSON, ARE WE PREPARED TO GO TO AGENDA NO. 10?

DR. TROUNSON: YES. I THINK, MICHAEL, YOU'RE STEPPING RIGHT UP TO THE PODIUM TO MAKE THIS PRESENTATION. IF YOU JUST GIVE US A MOMENT, CHAIR, WE'LL PLUG THAT INTO THE COMPUTER AND WE'LL HAVE MICHAEL MAKE THE PRESENTATION.

CHAIRMAN KLEIN: ALL RIGHT. AND AS A QUESTION, WOULD YOU LIKE TO COMBINE THE EXECUTIVE SESSION FOR ITEMS NO. 10 AND 11 SO WE DON'T ADJOURN TWICE?

DR. TROUNSON: I'M LOOKING AT JAMES HARRISON AND ELONA BAUM. IS THERE ANY REASON WHY WE CAN'T DO THAT? I HAVE NO OBJECTION TO THAT. I THINK THERE COULD BE QUESTIONS THAT NEED TO BE ADDRESSED IF THE BOARD WISHES, AND SO COMBINING THEM MIGHT BE A USEFUL MECHANISM.

CHAIRMAN KLEIN: THANK YOU. AND SO WHILE WE'RE WAITING FOR DR. YAFFE TO GET HIS SLIDES, MR. HARRISON, IF YOU COULD JUST GIVE US AN INDICATION OF

THE TWO DIFFERENT STATUTORY PROVISIONS UNDER WHICH THAT EXECUTIVE SESSION WOULD BE CONVENED.

MR. HARRISON: WHEN WE CONVENE IN CLOSED SESSION, IT WILL BE TO CONSIDER CONFIDENTIAL AND PROPRIETARY INFORMATION RELATED TO THE RESEARCH LEADERSHIP AWARD APPLICATION AND BASIC BIOLOGY II APPLICATIONS WHICH THE BOARD WILL DISCUSS LATER THIS EVENING UNDER HEALTH AND SAFETY CODE SECTION 125290.30.

CHAIRMAN KLEIN: AND JUST AS A QUESTION, UNDER THE FACULTY LEADERSHIP AWARDS, DOES THAT ALSO EXIST AS A CONFIDENTIAL SUBCATEGORY UNDER PERSONNEL? THEY'RE NOT PERSONNEL OF THE AGENCY, SO I'M JUST ASKING THE QUESTION.

MR. HARRISON: NO. THE PERSONNEL EXCEPTION ONLY RELATES TO PERSONNEL OF THE AGENCY, SO IT'S CONFIDENTIAL INFORMATION RELATING TO THE APPLICATION.

CHAIRMAN KLEIN: GREAT. THANK YOU VERY MUCH. WITH THAT, DR. YAFFE, WOULD YOU PROVIDE AN OVERVIEW PRESENTATION FOR US OF THIS CONSIDERATION?

DR. YAFFE: MR. CHAIRMAN AND MEMBERS OF THE BOARD, I BRING FOR YOUR CONSIDERATION THE RECOMMENDATIONS OF THE GRANTS WORKING GROUP ON THE RESEARCH LEADERSHIP AWARDS. THIS IS AGENDA ITEM NO.

10.

JUST LET ME REMIND YOU THAT THE GOALS OF THIS AWARD ARE TO FACILITATE THE RECRUITMENT TO CALIFORNIA OF THE MOST PRODUCTIVE AND PROMISING EARLY TO MIDCAREER SCIENTISTS IN STEM CELL BIOLOGY AND REGENERATIVE MEDICINE. AND UPON THEIR SUCCESSFUL RECRUITMENT TO CALIFORNIA, TO SUPPORT ROBUST AND INNOVATIVE RESEARCH PROGRAMS FOCUSED ON FUNDAMENTAL STUDIES OF PLURIPOTENT AND PROGENITOR STEM CELL BIOLOGY AND TRANSLATIONAL STUDIES LEADING TO INNOVATIVE STEM CELL-BASED THERAPIES FOR DISEASE AND INJURY.

IN TERMS OF THE PROGRAM'S SCOPE AND ELIGIBILITY, THE PROGRAM IS OPENED TO NONPROFIT CALIFORNIA INSTITUTIONS, AND THE CANDIDATE OR PRINCIPAL INVESTIGATOR MUST HOLD A POSITION OUTSIDE CALIFORNIA AT TIME OF APPLICATION AND HAVE BEEN AN INDEPENDENT RESEARCHER FOR THREE AT LEAST YEARS. THE CANDIDATE, FURTHER, MUST BE UNDER CONSIDERATION FOR RECRUITMENT TO A FULL-TIME POSITION AT AN ELIGIBLE CALIFORNIA INSTITUTION.

INDIVIDUAL INSTITUTIONS MAY RECEIVE ONLY A SINGLE AWARD UNDER THIS PROGRAM. AND AS YOU DECIDED WHEN YOU APPROVED THE CONCEPT, UP TO EIGHT AWARDS WILL BE MADE OVER A PERIOD OF TWO YEARS. JUST FOR A

REMINDER, THE TOTAL BUDGET FOR THIS PROGRAM THAT YOU ALLOCATED WAS $44 MILLION.

NOW, THE FEATURES OF THE AWARD INCLUDE RESEARCH SUPPORT FOR UP TO SIX YEARS IN THE SUCCESSFUL GRANTEE'S LABORATORY. AWARDEES MUST FURTHER COMMIT AT LEAST 75 PERCENT OF THEIR TIME TO STEM CELL OR REGENERATIVE MEDICINE RESEARCH. ELIGIBLE COSTS UNDER THIS AWARD INCLUDE THE PI'S SALARY UP TO 90 PERCENT, FUNDS FOR LAB OPERATION AND LAB RELOCATION, EQUIPMENT. THESE FUNDS MUST BE MATCHED ONE TO ONE BY FUNDS FROM THE INSTITUTION AND ADDITIONAL FUNDS FOR FACILITIES AND INDIRECT COSTS.

THE APPLICATIONS ARE REVIEWED BY THE GRANTS WORKING GROUP USING THE FOLLOWING CRITERIA: GRANTS ARE REVIEWED -- PROPOSALS ARE REVIEWED IN THREE KEY AREAS. FIRST, RESEARCH VISION AND PLANS OF THE APPLICANT, THE PRINCIPAL INVESTIGATOR, AND HERE THERE IS HIGHEST CONCERN ABOUT THE SIGNIFICANCE OF THAT PLANNED RESEARCH AND ABOUT THE INNOVATION THAT IT REPRESENTS WITHIN THE FIELD.

SECOND KEY AREA IS THE PI'S ACCOMPLISHMENTS AND POTENTIAL. HERE THERE'S CONSIDERATION FOR RESEARCH ACHIEVEMENTS BY THE APPLICANT, THE IMPACT OF WORK THAT THE APPLICANT HAS ALREADY CARRIED OUT AND THE POTENTIAL IMPACT OF THE

WORK GOING FORWARD. LEADERSHIP, IT'S ALREADY BEEN DEMONSTRATED IN SCIENCE AND THE SCIENTIFIC COMMUNITY AND ALSO THE POTENTIAL FOR LEADERSHIP. AND FURTHER, AN ASSESSMENT OF ACCOMPLISHMENTS AND POTENTIAL BY RECOGNIZED LEADERS IN THE FIELD.

THE THIRD KEY AREA OF REVIEW, THIRD KEY CRITERION IS INSTITUTIONAL COMMITMENT AND ENVIRONMENT. WHAT KINDS OF PROMISES AND RESOURCES WILL BE SUPPLIED BY THE INSTITUTION AND WHAT KIND OF ENVIRONMENT IS AVAILABLE TO CARRY OUT THE RESEARCH AND HOPEFULLY TO PROVIDE A FLOURISHING ENVIRONMENT FOR FURTHER DISCOVERY.

SO I BRING YOU THE RESULTS OF CYCLE 1. SO THERE WILL BE UP TO EIGHT CYCLES OF THIS. WE'RE TRYING TO TIME THIS SO THERE IS A DEADLINE EVERY THREE MONTHS, AND WE ENDEAVOR TO BRING YOU THE RESULTS OF THE GRANTS WORKING GROUP CONSIDERATION OF APPLICATIONS WITHIN THREE MONTHS, ACTUALLY WITHIN 70 DAYS. THIS CYCLE, THE APPLICATION DEADLINE WAS IN MID-FEBRUARY. WE RECEIVED ONE APPLICATION. THAT WAS NOT SURPRISING TO STAFF BECAUSE THE PROGRAM JUST WAS INITIATED. WE ANTICIPATE IN SUBSEQUENT CYCLES QUITE A FEW MORE APPLICATIONS.

THIS APPLICATION WAS REVIEWED BY THE GRANTS WORKING GROUP, BUT VIA TELEPHONIC REVIEW,

THAT WAS HELD ON THE 25TH OF MARCH. AND HERE IS ITS RECOMMENDATION. THIS PROPOSAL, LA 11747, IS RECOMMENDED FOR FUNDING. THE TITLE OF THIS PROPOSAL IS THE "ROLE OF NEURAL STEM CELLS IN CEREBELLAR DEVELOPMENT REGENERATION AND TUMOROGENESIS." TOTAL REQUESTED FUNDS ARE APPROXIMATELY 5.9 MILLION. THIS INCLUDES BOTH DIRECT AND INDIRECT COSTS. THE SCORE ON THIS APPLICATION AS VOTED BY THE GRANTS WORKING GROUP WAS 83.

I'LL BE HAPPY TO ANSWER QUESTIONS.

CHAIRMAN KLEIN: SO AT THIS POINT IN THE DISCUSSION, WE'RE NOT TALKING ABOUT THE INSTITUTION OR THE INDIVIDUAL CANDIDATE. BUT ARE THERE PROGRAMMATIC QUESTIONS?

MR. SHESTACK: BOB, WHAT DID YOU SAY ABOUT THE INSTITUTION AND THE INDIVIDUAL CANDIDATE?

CHAIRMAN KLEIN: AT THIS POINT IN THE DISCUSSION, PRIOR TO THE EXECUTIVE SESSION, WE'RE NOT TALKING -- WE'RE NOT USING THE INDIVIDUAL'S NAME OR THE INSTITUTION. WE'RE TALKING ABOUT WHETHER THIS CANDIDATE MET THE CRITERIA THAT WERE THE PURPOSE OF THE RFA. THE BOARD IN THE DISCUSSION AFTER THE EXECUTIVE SESSION, IF WE HAVE A VOTE ON THIS, THE INDIVIDUAL'S NAME, IF THIS IS APPROVED, WILL BE RELEASED PUBLICLY AS WILL THE INSTITUTION.

MR. SHEEHY: I JUST HAD A QUESTION JUST TO CLARIFY ABOUT THE RFA. NOW, EACH INSTITUTION IS ELIGIBLE FOR ONE GRANT, RIGHT?

DR. YAFFE: ONE AWARD.

MR. SHEEHY: ONE AWARD. HOW MANY APPLICATIONS CAN BE PUT IN PER INSTITUTION?

DR. YAFFE: THEY MAY PUT IN ONE PER YEAR UNTIL THEY'RE SUCCESSFUL. THAT IS, ESSENTIALLY THEY CAN PUT IN ONE. IF THEY'RE UNSUCCESSFUL, THEY CAN PUT IN A SECOND THE NEXT YEAR.

CHAIRMAN KLEIN: AS LONG AS THE CAP HAS NOT BEEN EXCEEDED.

DR. YAFFE: AS LONG AS THE CAP HAS NOT BEEN EXCEEDED.

CHAIRMAN KLEIN: UNLESS THE BOARD HAS CHANGED THE NUMBER THAT IS AVAILABLE AGAINST THE CAP.

DR. YAFFE: YES.

MR. SHEEHY: JUST WANTED TO GET THAT OUT THERE SO THE PUBLIC KNOWS THAT THIS IS NOT -- LIKE IF THIS CANDIDATE WINS, THIS WILL BE THAT INSTITUTION'S ONLY GRANT FOR THIS. WE'RE DISPERSING THESE AS OPPOSED TO SOME OF THE GRANTS, SOME OF THE BIG ONES GET MORE THAN SOME OF THE LITTLE ONES. THIS ONE IS MORE EQUITABLE.

DR. YAFFE: MY APOLOGIES. MR. SHEEHY MAY HAVE OTHER COMMENTS SINCE HE IS THE CHAIR OF THE GRANTS WORKING GROUP FOR THE PROGRAMMATIC REVIEW.

CHAIRMAN KLEIN: MR. SHEEHY, DO YOU HAVE ANY SPECIFIC COMMENTS YOU'D LIKE TO MAKE AT THIS TIME, OR YOU MAY, OF COURSE, CHOOSE TO MAKE COMMENTS AFTER THE EXECUTIVE SESSION?

MR. SHEEHY: I WOULD WAIT TILL AFTER THE EXECUTIVE SESSION.

CHAIRMAN KLEIN: DR. HAWGOOD.

DR. HAWGOOD: I JUST HAVE ONE QUESTION ON THE PROCESS. BECAUSE OF THE RELATIVELY COMPLICATED NATURE OF THESE AWARDS -- QUESTION ON PROCESS. BECAUSE OF THE COMPLEX NATURE OF THESE AWARDS AND THE FACT THAT THERE ARE INDIVIDUALS LEAVING AN INSTITUTION AND THAT DECISION IS POTENTIALLY RELATED TO THIS AWARD, ARE THEY AWARE THAT THEIR NAME WILL BE RELEASED?

CHAIRMAN KLEIN: THEY ARE AWARE. WE TAKE -- AND THEY HAVE CLEARED THAT WITH THEIR INSTITUTION.

DR. HAWGOOD: THANK YOU.

DR. POMEROY: ONE OTHER PROCESS QUESTION. DO WE -- I UNDERSTAND THAT WE RELEASE THE NAME OF A SUCCESSFUL CANDIDATE. WOULD WE IN THE FUTURE

RELEASE THE NAMES IF WE DECIDED NOT TO FUND ONE OF THESE?

CHAIRMAN KLEIN: OUR POLICY HAS BEEN NOT TO RELEASE THE NAME ON INDIVIDUALS WHO ARE NOT SUCCESSFUL WITH THE DESIRE NOT TO HARM THEIR CAREERS.

DR. POMEROY: GOOD.

CHAIRMAN KLEIN: DR. PIZZO, ARE YOU MAKING A COMMENT IN SUPPORT OF THAT?

DR. PIZZO: I'M AGREEING WITH THAT.

CHAIRMAN KLEIN: DR. PIZZO IS AGREEING WITH THAT. IF EVERYONE, WHEN THEY SPEAK, COULD GET CLOSE TO MIC BECAUSE OTHERWISE THE AUDIO BROADCAST DOESN'T WORK VERY EFFICIENTLY.

SEEING NO ADDITIONAL QUESTIONS HERE, THEN I'D LIKE TO GO ON TO THE NEXT ITEM, AND THEN WE'RE GOING TO ADJOURN JOINTLY, AS WE DISCUSSED, TO EXECUTIVE SESSION.

MR. SIMPSON: WILL YOU TAKE QUESTIONS FROM THE PUBLIC ON THE LAST ITEM?

CHAIRMAN KLEIN: WE WILL, YES.

MR. SIMPSON: JOHN SIMPSON WITH CONSUMER WATCHDOG. I GUESS THIS GOES TO THE PROCESS ISSUE. IS IT CONCEIVABLE THAT THIS GRANT COULD BE AWARDED AND THIS INDIVIDUAL, WHO APPARENTLY HAS BEEN

SPECULATED ABOUT IN AT LEAST SOME ELEMENTS OF THE BLOGOSPHERE, WOULD DECLINE TO ACCEPT IT?

CHAIRMAN KLEIN: FOR ANY CANDIDATE, ALTHOUGH INSTITUTIONS TRY AND SET A VERY HIGH STANDARD ON RECRUITING INDIVIDUALS THAT THEY KNOW WILL ACCEPT BECAUSE THEY CAN'T MAKE ANOTHER APPLICATION THIS YEAR. FOR EXAMPLE, IF THIS WERE NOT SUCCESSFUL, THERE CAN'T BE A GUARANTEE SINCE THIS IS A MAJOR MOVE FROM ONE INSTITUTION TO ANOTHER THAT THAT MOVE WILL BE, IN FACT, SUCCESSFUL. AND SO THERE IS NOT A GUARANTEE IF THE BOARD APPROVES THIS THAT, IN FACT, THE PERSON WILL MOVE BECAUSE THEY HAVE FAMILIES INVOLVED HERE AND IT IS A MAJOR PROFESSIONAL CHANGE FOR THEM.

MR. SIMPSON: THANK YOU.

CHAIRMAN KLEIN: DR. PIZZO.

DR. PIZZO: JUST TO ADD TO THE COMPLEXITY, A COMMENT THAT I MADE EARLIER WHEN THIS WAS INTRODUCED INITIALLY IS THAT THE OTHER VARIABLE, WHICH WILL BE, I THINK, VARIABLE FROM ONE INSTITUTION TO ANOTHER, IS THAT SIMPLY DECIDING ON A CANDIDATE THROUGH A SEARCH PROCESS DOESN'T GUARANTEE THAT THAT PERSON IS GOING TO PASS THE HURDLES OF THE ACADEMIC REVIEW PROCESS BECAUSE THAT OFTEN HAPPENS IN TANDEM OR FOLLOWING A SEARCH SELECTION. SO THERE

ARE LOTS OF ISSUES THAT COULD UNFOLD.

CHAIRMAN KLEIN: WE'VE HEARD THAT DISCUSSED. I THINK YOU BROUGHT IT UP ORIGINALLY. SO IN THE INTERNAL PROCESS NOW, WE'VE ASKED INSTITUTIONS TO CLEAR THEIR CANDIDATE BEFORE IT COMES TO THIS BOARD IN TERMS OF THE RECRUITING INSTITUTION HAVING APPROVED THE RECRUITMENT.

YES, DR. CHIU.

DR. CHIU: JUST TWO QUESTIONS ABOUT THIS AWARD. FIRST IS IF THE GRANTEE COMES TO THE INSTITUTION THAT'S SPONSORED THEM, GOT THE AWARD, AND CAME TO CALIFORNIA, AND THEN IN A YEAR OR TWO WAS OFFERED A BETTER POSITION IN ANOTHER CALIFORNIA INSTITUTION, WILL THEY BE ABLE TO TAKE THIS AWARD AND MOVE IT WITH THEM?

CHAIRMAN KLEIN: DR. YAFFE, WOULD YOU PLEASE ADDRESS THAT?

DR. YAFFE: NO. THIS AWARD IS NOT TRANSFERABLE FROM ONE INSTITUTION TO ANOTHER. AND IT'S NOT TRANSFERABLE FROM ONE INDIVIDUAL TO ANOTHER. HAS TO BE USED ONLY BY THE ORIGINAL AWARDEE AT THE INSTITUTION WHICH RECEIVES THE AWARD.

DR. PIZZO: I THINK THEY SHOULD GO TO CIRM JAIL.

DR. CHIU: AND THE SECOND QUESTION IS

SUPPOSING AN INSTITUTION JUST RECRUITED AN INCREDIBLY GOOD STEM CELL SCIENTIST RIGHT BEFORE THIS WAS ANNOUNCED. ARE THEY NOT ABLE TO APPLY FOR IT, THAT THEY'VE ALREADY MISSED THAT OPPORTUNITY?

DR. YAFFE: THAT IS CORRECT, BUT THEY'RE ELIGIBLE TO APPLY FOR ALL OF THE OTHER GENEROUS AND AMBITIOUS PROGRAMS THAT WE ARE TRYING TO PUT OUT THERE.

CHAIRMAN KLEIN: YOU SHOULD RUN FOR OFFICE. ALL RIGHT. ADDITIONAL QUESTIONS FROM THE PUBLIC OR THE BOARD? SEEING NONE, I'D LIKE TO MOVE TO ITEM 11.

I BELIEVE DR. GRIESHAMMER IS GOING TO DO A PRESENTATION HERE ON ITEM 11 RELATED TO THE BASIC BIOLOGY AWARDS NO. II.

DR. GRIESHAMMER: EXACTLY. ANOTHER RFA THAT WAS RECENTLY REVIEWED. IN FEBRUARY THE GRANTS WORKING GROUP REVIEWED THE APPLICATIONS WE RECEIVED IN RESPONSE TO THE BASIC BIOLOGY II RFA. AND I WILL NOW PRESENT TO YOU THE FUNDING RECOMMENDATIONS MADE BY THE GRANTS WORKING GROUP. THAT'S AGENDA ITEM NO. 11.

SO THE GOALS OF THIS RFA WERE TO SUPPORT STUDIES TACKLING SIGNIFICANT UNRESOLVED ISSUES PERTINENT TO THE CONTROL OF STEM CELL FATE AND TO

FOSTER CUTTING EDGE RESEARCH INTO THE MECHANISMS OF PLURIPOTENCY, DIFFERENTIATION, AND CELLULAR REPROGRAMMING. WE ASKED THAT THE STUDIES BE FOCUSED PRIMARILY ON HUMAN CELLS. I SAY PRIMARILY BECAUSE WE DID ALLOW AN EXCEPTION FOR GROUNDBREAKING REPROGRAMMING STUDIES WHERE THE NECESSARY USE OF OTHER MAMMALIAN SYSTEMS MAY BE CONSIDERED.

SO FOR THIS RFA, INDIVIDUAL PROJECTS CAN BE FUNDED FOR UP TO THREE YEARS WITH DIRECT PROJECT COSTS OF UP TO $300,000 PER YEAR. AND THE OVERALL PROGRAM THAT WAS APPROVED BY YOU CONSISTS OF UP TO 20 GRANTS WITH A TOTAL COST OF UP TO $30 MILLION.

THE APPLICATION AND REVIEW PROCESS FOR THIS RFA INCLUDED PRELIMINARY APPLICATIONS. WE HAD NO INSTITUTIONAL LIMITS ON THE NUMBER OF PREAPPLICATIONS. AND THE PREAPPLICATIONS WERE REVIEWED BY OUTSIDE SPECIALISTS AS WELL AS CIRM SCIENTISTS. THE RESULTING INVITED FULL APPLICATIONS WERE THEN REVIEWED BY THE GRANTS WORKING GROUP IN FEBRUARY.

I WOULD LIKE TO REMIND YOU AT THIS POINT THAT THIS RFA, RFA 0902, THAT YOU ARE CONSIDERING TODAY IS THE SECOND HALF OF A TWO-PART BASIC BIOLOGY INITIATIVE THAT WE RELEASED IN 2009, AND THE FIRST PART WAS RFA 0807, BASIC BIOLOGY AWARDS I. AND ALSO

TO REMIND YOU THAT A PI WAS ONLY ELIGIBLE TO SUBMIT A PREAPPLICATION TO ONE OF THESE TWO BASIC BIOLOGY RFA'S RELEASED IN 2009.

SO ON THIS SLIDE I'M SHOWING YOU THE NUMBERS OF APPLICATIONS THAT CIRM RECEIVED FOR THE ENTIRE 2009 BASIC BIOLOGY PROGRAM. IN THE RIGHT COLUMN FOR BASIC BIOLOGY II, WHICH IS THE RFA YOU ARE CONSIDERING TODAY, YOU CAN SEE THAT WE RECEIVED 154 PREAPPLICATIONS THAT LED TO THE INVITATION OF 57 FULL APPLICATIONS. AND THEN 52 APPLICATIONS WERE RECEIVED AND REVIEWED BY THE GRANTS WORKING GROUP. FOR COMPARISON, I'M ALSO SHOWING THE NUMBERS FOR THE BASIC BIOLOGY I PROGRAM IN WHICH YOU'VE ENDED UP FUNDING 12 APPLICATIONS FOR A TOTAL COST OF $16.3 MILLION.

NEXT SLIDE. I'LL GET TO THE 52 APPLICATIONS THAT WERE CONSIDERED BY THE GRANTS WORKING GROUP IN FEBRUARY. WE ASKED THE REVIEWERS TO CONSIDER THESE REVIEW CRITERIA LISTED HERE. WE WERE LOOKING FOR HIGHLY INNOVATIVE PROJECTS. AND FOR THE SIGNIFICANCE OF THE PROJECTS, WE ASKED THE REVIEWERS TO NOT ONLY CONSIDER THE IMPACT THE PROJECT MIGHT HAVE ON BASIC STEM CELL BIOLOGY, BUT ALSO CONSIDER WHETHER THE PROJECT WILL ENABLE THE REALIZATION OF THE FULL POTENTIAL OF HUMAN STEM

CELLS FOR THERAPIES AND AS TOOLS FOR BIOMEDICAL INNOVATION. WE ASKED THE REVIEWERS TO ASSESS WHETHER THE RESEARCH AS PROPOSED IS FEASIBLE AND WHETHER THE EXPERIMENTAL DESIGN IS LOGICAL AND BASED ON A SOUND RATIONALE. AND FINALLY, THE REVIEWERS ASSESSED THE QUALIFICATIONS OF THE PI AND THE TEAM TO EXECUTE THE PROPOSED STUDIES.

SO NOW I'M SHOWING YOU THE RESULTS OF THIS REVIEW PROCESS. WHAT I'M SHOWING HERE IS THE DISTRIBUTION OF THE SCORES FOR THE 52 APPLICATIONS FOLLOWING SCIENTIFIC REVIEW BY THE GRANTS WORKING GROUP. AS YOU CAN SEE, ALONG THE X AXIS, THE SCORES RANGED FROM THE 30S TO THE 80S. AND SINCE SOME SCORES WERE GIVEN TO MORE THAN ONE GRANT, YOU SEE THAT ILLUSTRATED ALONG THE Y AXIS. IN SOME CASES THERE WERE MORE THAN ONE GRANT WITH A PARTICULAR SCORE.

SO DURING THE PROGRAMMATIC REVIEW, FOR THE INITIAL CATEGORIZATION OF THESE APPLICATIONS INTO THE THREE TIERS, THE GRANTS WORKING GROUP DREW THE GREEN LINE, AS YOU CAN SEE AS ILLUSTRATED HERE AT SCORE 73 SO THAT APPLICATIONS WITH A SCORE OF 73 OR ABOVE WERE PLACED INTO TIER I. THE GRANTS WORKING GROUP THEN DREW THE RED LINE AT SCORE 67, PLACING APPLICATIONS WITH A SCORE OF 67 AND BELOW IN TIER

III, AND THE REMAINDER OF THE APPLICATIONS INTO TIER II.

THEN ON MY LAST SLIDE I'M SHOWING YOU THAT FOLLOWING PROGRAMMATIC DISCUSSION, FOLLOWING PROGRAMMATIC DISCUSSION, THE GRANTS WORKING GROUP ARRIVED AT THESE RECOMMENDATIONS. THEY RECOMMENDED TO YOU TO FUND 14 APPLICATIONS WHICH WOULD COST 19 -- APPROXIMATELY $19.6 MILLION.

I'LL STOP HERE AND ANSWER ANY QUESTIONS. AND IF MR. SHEEHY WOULD LIKE TO MAKE SOME COMMENTS ABOUT THE REVIEW AS WELL, THAT WOULD BE GREAT.

MR. SHEEHY: I WOULD JUST SAY ONE THING. IT'S AN INTERESTING PHENOMENON SINCE WE'VE GONE TO THE PREAP PROCESS THAT WE TYPICALLY FUND -- THE WORKING GROUP TYPICALLY SUPPORTS 20 TO 30 PERCENT OF THE GRANTS. WE DID -- FIRST TIME AROUND WE DID, WHAT, 12 OUT OF 40, AND THIS TIME WE DID 14 OUT OF 52. AND I JUST FIND THAT -- AND MAYBE A LOT OF FOLKS ARE ACADEMIC AND A LOT OF YOU GUYS ARE ACADEMICS. I JUST THINK THAT THERE'S A CURVE THAT YOU GRADE PEOPLE ON. I DON'T THINK THAT APPLICATIONS ARE NECESSARILY ALWAYS JUDGED ON THE MERIT ALONE, BUT THEY'RE JUDGED IN RELATIONSHIP TO OTHER APPLICATIONS.

SO THIS IS NOT AN AREA -- A LOT OF THIS

SCIENCE IS, FRANKLY, BEYOND ME. BUT I THINK AS YOU START TO LOOK AT SOME OF THOSE THAT FALL RIGHT BELOW THE FUNDING LEVEL, IF YOU HAVE ANY SPECIFIC KNOWLEDGE OR INFORMATION OR IF THERE'S SOMETHING THAT POPS UP AT YOU, I WOULD NOT BE RELUCTANT TO TRY TO DISCUSS THESE EITHER IN CLOSED SESSIONS OR BEFORE THE BOARD SIMPLY BECAUSE I'M NOT CONVINCED THAT A CERTAIN NUMBER OF APPLICATIONS ARE GOING TO FALL BELOW THE FUNDING CATEGORY NO MATTER WHAT BECAUSE THEY'RE NOT GOING TO FUND 50 PERCENT OF THE APPLICATIONS EVEN THOUGH TWO-THIRDS OF THE APPLICATIONS HAVE ALREADY BEEN ELIMINATED IN THE PREAP PROCESS. BUT THAT NEVER REALLY SEEMS TO SINK IN.

THIS IS MY ONLY PEER REVIEW EXPERIENCE. AND FOR A LOT OF INDIVIDUALS HERE, YOU SAT ON PEER REVIEW BEFORE. SO I DON'T KNOW HOW -- YOU KNOW, IT'S A CULTURE -- HOW THAT IMPACTS SOME OF THIS, BUT I JUST -- I'M REALLY STARTING TO GET A SENSE IN THESE ONES WHERE WE'VE WINNOWED THEM DOWN, EVEN THOUGH I THINK -- AND STAFF IS VERY GOOD ABOUT MAKING COMMENTS -- THAT THERE HAS BEEN A PREAP PROCESS. I JUST AM NOT ALWAYS CONVINCED THAT THERE'S NOT SOME IMPACT, THAT PEOPLE LOOK AT THIS AND THERE'S GOING TO BE ABOUT A THIRD THAT ARE

GREAT, A THIRD THAT ARE BAD, AND A THIRD IN THE MIDDLE, AND THAT SEEMS TO ALWAYS HAPPEN. I DON'T KNOW, LOOKING AT THIS, IF WE'RE NOT MISSING SOME GOOD SCIENCE RIGHT BELOW THE FUNDING LINE.

AGAIN, A LOT OF THE SCIENCE IS GOING TO BE BEYOND ME, BUT I JUST HOPE PEOPLE TAKE A HARD LOOK AT THIS AND AT LEAST IF WE DISCUSS SOME OF THESE THAT FELL BELOW, I HOPE PEOPLE WILL BE OPEN-MINDED.

CHAIRMAN KLEIN: DR. YANCEY, I BELIEVE YOU HAVE A COMMENT.

DR. YANCEY: ACTUALLY I HAVE A QUESTION, TWO PROCEDURAL QUESTIONS. ONE WITH REGARD TO TIER II, COULD YOU PLEASE HELP ME UNDERSTAND HOW YOU ASSESSED THE THREE THAT FELL INTO TIER II TO COME TO AN ALIGNMENT WITH REGARD TO THAT PARTICULAR CUTOFF? IT APPEARS, BASED ON THE CHART, THAT THERE ARE THREE THAT SAT IN TIER II, AND THEN YOU WENT THROUGH SOME SUBSEQUENT LEVEL OF ASSESSMENT BECAUSE AT LEAST ON A QUANTITATIVE BASIS, YOU CUT THE LINE IN A MANNER THAT ALLOWED AT LEAST ONE OF THEM THAT HAD A LOWER SCORE TO ACTUALLY BE RECOMMENDED FOR GRANTING. COULD YOU PROVIDE US WITH SOME UNDERSTANDING OF THAT?

AND THEN FOR HISTORICAL PRECEDENT, WHICH ACTUALLY DOES GET A BIT TO YOUR POINT, JEFF, FOR

CONSISTENCY ACROSS THE PROCESS, COULD YOU TELL US WHAT WAS THE BOTTOM SCORE FOR TIER I IN THE PRIOR CYCLE JUST FOR MY BENEFIT?

DR. GRIESHAMMER: I'LL BE HAPPY TO COMMENT ON THAT, OR, JEFF, YOU WANT TO COMMENT ON IT.

MR. SHEEHY: THE PROCESS WHEN WE -- BECAUSE OF OUR CONFLICTS POLICY, WHAT WE DO IS WE JUST PUT UP THE HISTOGRAM WHICH SHOWS THE DISTRIBUTIONS OF SCORES WITH NO IDENTIFYING INFORMATION. AND GENERALLY, HAVING SAT THROUGH A REVIEW FOR SOMETIMES A DAY, A DAY AND A HALF, SOMETIMES TWO DAYS, THE SCIENTISTS HAVE A SENSE OF WHAT THEIR TOP TIER IS. AND THEY'RE ABLE TO DO THAT NUMBER. THAT NUMBER IS PRETTY REGULARLY FALLING SOMEWHERE BETWEEN 70 AND 75. THEY ALSO HAVE A SENSE OF WHERE, BASED ON THEIR EXPERIENCE FOR HAVING SAT THERE, THE SCORES ARE NOT GOING TO BE GOOD. IT'S NOT MERITORIOUS.

AND WHAT THIS ALLOWS US TO FOCUS ON IN PROGRAMMATIC REVIEW ARE REALLY THOSE GRANTS WHERE THERE'S SOME QUESTION AS TO WHETHER OR NOT THEY'RE MERITORIOUS. SO WE DRAW TWO LINES BEFORE WE EVEN LOOK AT WHAT THE GRANTS ARE AND ARE ABLE TO THEN KIND OF SAY ALL OF THIS IS GOOD AND ALL OF THIS IS BAD, AND WE WANT TO TALK ABOUT THESE IN THE MIDDLE.

SO THAT'S HOW WE END UP. THAT MIDDLE SECTION IS GENERALLY THE DISCUSSION SECTION. IT DOESN'T PRECLUDE PEOPLE TAKING STUFF OUT OF THE TOP TIER. IT DOESN'T PRECLUDE PEOPLE MOVING STUFF FROM THE BOTTOM TIER, BUT IT GIVES US A FRAMEWORK SO THAT WE DON'T -- WE DON'T IN PROGRAMMATIC REVIEW WANT TO REREVIEW THE WHOLE 50 SOME ODD GRANTS THAT WE LOOKED AT, BUT WE WOULD LIKE TO BE ABLE, FOR PROGRAMMATIC REASONS, TO CONSIDER MOVING SOME OF THE ONES THAT DIDN'T SCORE NECESSARILY THAT HIGH, SEE IF THERE ARE REASONS WHY THEY MAY BE WORTH FUNDING OR RECOMMENDING FOR FUNDING.

DR. YANCEY: THANK YOU. JUST TRYING TO UNDERSTAND, GET A LITTLE MORE COLOR ON HOW YOU OBJECTIFY THE SUBJECTIVE ASPECTS OF THE TIER II DISCUSSION TO GET TO YOUR RECOMMENDATION HERE. IS THAT CLEARER?

DR. GRIESHAMMER: I DIDN'T FOLLOW THE ENTIRE DISCUSSION JUST NOW.

MR. SHEEHY: I THINK -- I GET WHAT YOU ARE SAYING. THERE IS SOME SUBJECTIVITY IN THE TIER II DISCUSSION BECAUSE WHAT YOU DO IS YOU LOOK, AND I THINK IF, GIVEN THAT I DON'T HAVE A CONFLICT, I THINK I CAN TALK ABOUT THIS SPECIFIC. COUNSEL WON'T GO -- IF I TALK ABOUT THE SPECIFIC ONE THAT WAS

MOVED UP, IF YOU LOOK, THE ONE AT THE BOTTOM IS A 66 CLEARLY WAS ELEVATED. NOW, I CAN TELL YOU WHAT THE PROGRAMMATIC CONSIDERATION WAS FOR THAT ONE. THAT ONE HAD TO DO WITH THE DERIVATION OF HEMATOPOIETIC STEM CELLS FROM EMBRYONIC OR PLURIPOTENT LINES. THAT'S SOMETHING THAT'S NOT -- PEOPLE HAVEN'T ACTUALLY BEEN ABLE TO WORK OUT. IT WASN'T A GRANT THAT PEOPLE THOUGHT WAS BULLETPROOF, BUT THIS WAS AN IMPORTANT THING PROGRAMMATICALLY FOR US TO BE WORKING ON. WE'VE APPROVED DISEASE TEAM GRANTS LOOKING AT ADULT HEMATOPOIETIC STEM CELL THERAPIES, A LOT OF THEM AUTOLOGOUS, AND WE'RE NOT GOING TO BE ABLE TO BROADEN THOSE APPROACHES UNLESS WE ARE ABLE TO GET HEMATOPOIETIC STEM CELLS TO DERIVE THEM FROM IPS OR EMBRYONIC STEM CELLS.

SO BEING ABLE TO DO THAT IS BOTH FROM A LARGER PROGRAM FROM SOME OF THE STUFF WE FUNDED ALREADY AND ALSO BASED ON THE FACT THAT WE DIDN'T FUND DOING THAT IN THIS ROUND. SO ABOVE 74, NONE OF THOSE DID THAT, AND WE DIDN'T FUND ANYTHING DOING THAT IN THE FIRST ROUND. THAT WAS KIND OF A PLACE WHERE IT SEEMED REASONABLE THAT WE SHOULD STRETCH AND INCLUDE THAT IN OUR PORTFOLIO.

SO I'LL GIVE YOU A SENSE OF THE CONSIDERATION. SOMETIMES THERE ARE DISEASE

CONSIDERATIONS THAT COME IN BECAUSE WE MAY NOT BE COVERING ENOUGH OF THE DIFFERENT DISEASE BASES. THAT BECOMES MORE IMPORTANT AS WE GET FURTHER DOWN THE LINE. IN BASIC BIOLOGY IT'S A LITTLE BIT MORE DIFFICULT TO DO THAT. THAT GIVES YOU A SENSE.

DR. YANCEY: IT DOES. WHAT I HEARD YOU SAY IS THAT YOU'VE OBJECTIFIED THE PROCESS BY EVALUATING THE MISSION OF THE ORGANIZATION AND IDENTIFYING GAPS, AND THAT THIS REPRESENTED SOMETHING THAT FILLED A SPECIFIC GAP. THAT WAS VERY HELPFUL. THANK YOU.

CHAIRMAN KLEIN: THE OTHER POINT HERE IS THAT THE PEER REVIEW GROUP IS TOLD VERY EXPLICITLY BY THE SCIENTIFIC STAFF THAT UNDER CALIFORNIA LAW AND IN ORDER TO MAINTAIN THE CONFIDENTIALITY OF PEER REVIEW, THE BOARD HAS TO EXERCISE ITS DISCRETION WHERE IT THINKS THERE'S SCIENTIFIC MERIT OUTSIDE OF WHAT THE PEER REVIEW GROUP RESOLVES. SO THEY DON'T HAVE AN ABSOLUTE COMPULSION TO TRY AND FIGHT TO ELEVATE EVERY GRANT THAT MAY HAVE MERIT BECAUSE THEY KNOW THERE'S A FINAL DECISION THAT WILL BE MADE AT THE BOARD. THAT'S JUST A BEHAVIORISTIC STUDY OF GROUP BEHAVIOR.

IN ORDER TO PROVIDE SOME TRANSPARENCY TOO ON AREAS WHERE THERE IS A SPLIT OR A POTENTIAL SPLIT

IN THE VIEW OF THE PEER REVIEW GROUP, WE HAVE A COUPLE OF PETITIONS THAT WE'RE GOING TO HEAR, EXTRAORDINARY PETITIONS, AFTER THE EXECUTIVE SESSION. AND WE HAVE A COUPLE OF GRANTS HERE THAT HAVE BEEN POINTED OUT HAVE HIGHER SCORES THAN ONE THAT WAS ELEVATED.

ON THE EXTRAORDINARY PETITIONS AND THOSE OTHER TWO THAT WERE PASSED OVER BY THE ENTIRE GROUP, COULD YOU TELL US WHAT THE STANDARD DEVIATION WAS, WHAT THE MEDIAN AND THE MEAN WAS, AND THE RANGE SO THAT WE CAN SEE IF THERE WAS A SPLIT EFFECTIVELY IN THE VIEW OF THE PEER REVIEW GROUP?

DR. GRIESHAMMER: SO, MR. KLEIN, YOU MEAN FOR THE TWO THAT ARE DIRECT -- THE FIRST TWO WHITE ONES?

CHAIRMAN KLEIN: FOR THOSE TWO AND THE TWO EXTRAORDINARY PETITIONS.

DR. GRIESHAMMER: I SEE. SO FOR APPLICATION 1512, THE STANDARD DEVIATION WAS 2. AND YOU ASKED FOR THE RANGE?

CHAIRMAN KLEIN: YES.

DR. GRIESHAMMER: 70 TO 75. AND ONE PERSON, ONE SCIENTIST WAS RECUSED.

AND ANOTHER POINT.

CHAIRMAN KLEIN: AND THEN JUST GO TO THE

OTHER.

DR. GRIESHAMMER: THEN 1507 HAD A STANDARD DEVIATION OF 9, A RANGE OF 40 TO 80, AND ONE PERSON RECUSED, ONE SCIENTIST RECUSED.

CHAIRMAN KLEIN: AND ON THE TWO EXTRAORDINARY PETITIONS.

DR. GRIESHAMMER: EXTRAORDINARY PETITION 1567, WHICH HAD A SCORE -- A MEAN SCORE OF 65 HAD A STANDARD DEVIATION OF 6, A RANGE OF 55 TO 75, AND NOBODY NEEDED TO BE RECUSED, ZERO.

AND THE EXTRAORDINARY PETITION FOR 1523, WHICH HAD A SCORE, A FINAL SCORE OF 63. THE STANDARD DEVIATION FOR THAT ONE WAS 9, AND IT HAD A RANGE OF SCORES FROM 50 TO 80, AND ONE PERSON WAS RECUSED.

CHAIRMAN KLEIN: ALL RIGHT. DO WE HAVE A QUESTION?

MR. SHESTACK: THIS IS A BASIS COMPARISON. WHAT WAS THE RANGE ON GRANT 1645?

CHAIRMAN KLEIN: LET ME ASK THE QUESTION. I DON'T BELIEVE THERE'S ANY CONFLICTS FOR THE CURRENT SPEAKER; IS THAT CORRECT?

MR. HARRISON: THERE ARE NO CONFLICTS.

CHAIRMAN KLEIN: THANK YOU.

DR. GRIESHAMMER: SO THERE WAS ANOTHER NO.

1645. WE'RE GETTING THAT. MEANWHILE, WHILE WE'RE WAITING FOR THAT INFORMATION, I DO WANT TO POINT OUT ALSO WHAT THE MEDIAN SCORE WAS FOR THE FOUR APPLICATIONS THAT I JUST MENTIONED BECAUSE THAT SCORE GIVES YOU AN IDEA IN TERMS OF WHAT THE MIDDLE GROUND, SO TO SPEAK, WAS IN TERMS OF THE REVIEWERS' OPINION WHEN THEY EXPRESSED THEIR SCORES BECAUSE 50 PERCENT OF THE REVIEWERS SCORED BELOW THE MEDIAN AND 50 PERCENT OF THE REVIEWERS SCORED ABOVE THE MEDIAN.

SO FOR APPLICATION NO. 1512, THE MEDIAN WAS 70. FOR 1507, THE MEDIAN WAS ALSO 70. 1567, THE MEDIAN WAS 65. AND FOR 1523, THE MEDIAN WAS 60.

CHAIRMAN KLEIN: OKAY. THANK YOU. ADDITIONAL QUESTIONS? WE'RE GOING TO GO INTO EXECUTIVE SESSION WHERE WE HAVE AN OPPORTUNITY TO LOOK AT PROPRIETARY INFORMATION. I THINK IT'S VERY IMPORTANT TO PUT THIS OUT FOR THE PUBLIC AS WELL AS THE BOARD SO THAT WE UNDERSTAND THAT SOMETIMES WITH BREAKING EDGE SCIENCE, THERE ARE DIFFERENCES OF OPINION THAT ARE SIGNIFICANT. BUT BY PROVIDING THIS ADDITIONAL DATA INSIGHT, THERE'S AN OPPORTUNITY TO GAUGE THE VARIANCES IN THAT AS PERCEIVED BY THE PEER REVIEW GROUP.

DR. TROUNSON: CHAIR, JUST IN TERMS OF A COMMENT ABOUT THE GRANTS WORKING GROUP. THEY ARE

VERY SENIOR RESEARCHERS, AND THEY'RE CLEARLY REVIEWING FOR NIH AND MRC AND THE UK MRC, AND OTHER ORGANIZATIONS. SO IT'S INTERESTING THAT THEY, WITH RESPECT TO THOSE THAT REVIEW FOR THE NIH, THEY SEE THIS A LITTLE LIKE WHAT THEY CALL THE OLD NIH BECAUSE THE CURRENT NIH HAS SUCH A SORT OF LOW FUNDING SCORE, VERY FEW GRANTS THAT THEY CAN ACTUALLY GO WITH. THEY'VE GOT A VERY SMALL NUMBER THAT THEY CAN SUPPORT. HERE THEY FEEL LIKE IT'S THE OLD NIH WHERE THERE'S SUFFICIENT MONEY FOR THEM TO EXERCISE THEIR VIEWS.

AND I THINK THEY DO, AND THEY'RE UNAFRAID AS WELL AS GIVING A RANGE WHERE THEY WOULD DIFFER FROM THEIR COLLEAGUES OR THEY WOULD BE IN CONCERT WITH THEIR COLLEAGUES. SO IN CONSIDERING THE RANGE, I THINK YOU NEED TO TAKE IN THE WHOLE RANGE BECAUSE AT SOME POINT IN TIME THE VALUES OF THE UPSIDE AS WELL AS THE DOWNSIDE REPRESENT SOMETHING THAT THEY PROBABLY KNOW OR BELIEVE IS SIGNIFICANT. SO I THINK A MEDIAN IS PROBABLY A BETTER ESTIMATE OF THE VARIANCE, BUT WHAT IT DOES, IT TENDS TO NARROW THINGS DOWN CLOSER. A MEAN TENDS TO SEPARATE THEM MORE. BUT A MEDIAN IS MAYBE A BETTER REPRESENTATIVE OF A BIG SPREAD THAN A MEAN. BUT IT DOESN'T CHANGE VERY MUCH THE POSITION IN THE HIERARCHY.

SO I THINK THEY DO AN INCREDIBLY GOOD JOB OF ACTUALLY GETTING THE NUMBERS RIGHT. THE PROGRAMMATIC IS DIFFERENT BECAUSE THAT'S A DIFFERENT TOTAL OF REASONING, BUT THE NUMBERS, I BELIEVE, COME STRONGLY FROM A WELL-ARGUED BASE, AND AT TIMES QUITE VOCIFEROUS ARGUMENT ABOUT THE MERITS AND NONMERITS OF THE ACTUAL PROJECT.

CHAIRMAN KLEIN: DR. STEWARD AND THEN DR. HAWGOOD.

DR. STEWARD: I HAVE ONLY, I THINK, SAT IN ON THE MEETING MAYBE TWICE. BUT IF YOU'RE STILL DOING IT THE SAME WAY AS BEFORE, THE REVIEWERS ALSO GET THE OPPORTUNITY TO SEE THE ORDER OF THE APPLICATIONS AT THE END OF THE DAY; IS THAT CORRECT?

DR. TROUNSON: YES.

DR. STEWARD: IN A LARGE WAY THAT WASHES OUT A LOT OF THESE VARIANCES THAT MIGHT COME FROM THE SCORING. IT'S A GREAT WAY TO DO IT BECAUSE THE REVIEWERS CAN THEN LOOK AT THE ORDER AND SAY, WELL, YOU KNOW, GEE, I'M REALLY SURPRISED THAT GRANT NUMBER X IS ACTUALLY ABOVE OR BELOW GRANT NUMBER Y. THAT TENDS TO, I THINK, ELIMINATE THESE CONCERNS ABOUT THESE MINOR VARIANCES IN THE SCORING OF PARTICULAR GRANTS AND THE RANGE AND SO FORTH.

DR. TROUNSON: I THINK, GENERALLY

SPEAKING, IF A REVIEWER -- THE REVIEWERS SEE IT IN THE 80S AND ABOVE, THAT'S STRONG ENDORSEMENT FOR THAT PROJECT. THEY SEE IT 60S AND BELOW, THEY'RE VERY SORT OF MEDIOCRE TO I'M NOT INVOLVED IN IT. THE 70S, THEY CAN GO EITHER WAY, TO BE HONEST. ABOVE 75 YOU WON'T HAVE ANY ARGUMENT. BELOW 75, NOT A LOT OF ARGUMENT. SO THAT'S WHERE IT SITS IN RESPECT TO AND IT HAS FOR THE TIME THAT I'VE BEEN HERE, JEFF'S BEEN LONGER, AND OTHERS HAVE BEEN LONGER, BUT I SEE THAT AS REFLECTING THEIR FEELINGS. AND I DON'T KNOW IF THERE'S ANOTHER CLOUD ABOVE IT ALL SAYING THEY SHOULD DO ONE OR TWO, BUT I THINK IT'S A GENUINE FEELING OF HOW THEY -- THE DEGREE OF RESPECT THAT THEY GIVE TO THAT PARTICULAR PROJECT.

DR. HAWGOOD: I WOULD REALLY JUST ECHO WHAT ALAN IS SAYING. I THINK IT'S EXTREMELY IMPRESSIVE THAT THE REVIEW BOARD IS USING SUCH A BROAD SPAN. IT'S SOMETHING YOU REALLY DON'T SEE AT THE NIH ANYMORE WHERE EVERYTHING IS CRAMMED AT THE FRONT END, AND IT'S EXTREMELY UNUSUAL TO SEE THIS BROAD SPAN. I THINK IT ALLOWS GREATER DISCRIMINATION, AND IT APPEARS TO ME THE SYSTEM IS WORKING WELL.

MR. ROTH: I HAVE A QUESTION ON 1645 TO JEFF. WAS THAT MOVED UP IN THE PROGRAMMATIC REVIEW?

MR. SHEEHY: YEAH.

MR. ROTH: SO THAT WAS THE ONE THAT --

MR. SHEEHY: THERE WAS A MOTION TO MOVE IT UP. FOR THOSE PROGRAMMATIC REASONS THAT I JUST EXPRESSED TO TODD, I THINK IT WAS APPROVED UNANIMOUSLY.

MR. ROTH: WHO VOTES ON THAT?

MR. SHEEHY: EVERYBODY IN THE ENTIRE REVIEW GROUP. AND THAT MOTION DID SUCCEED WITH A UNANIMOUS VOTE.

MR. ROTH: WHAT WAS THE MEDIAN ON THAT?

DR. GRIESHAMMER: THE MEDIAN ON THAT GRANT WAS 70.

MR. SHESTACK: AND WHAT WAS THE RANGE?

DR. GRIESHAMMER: 50 TO 85.

CHAIRMAN KLEIN: I'D ALSO LIKE TO SAY THAT THERE IS A PROCESS FOR MINORITY REPORTS. WHEN I WAS WRITING THE INITIATIVE, DR. BALTIMORE MADE THE POINT THAT IN BREAKING AREAS OF SCIENCE, YOU HAVE NEW THEORIES THAT ARE NOT ALWAYS ACCEPTED EARLY, AND THAT IT'S IMPORTANT TO COMMUNICATE TO THE BOARD FOR FINAL DECISION AREAS OF GREAT OPPORTUNITY AS PERCEIVED BY PART OF THE PEER REVIEW GROUP EVEN THOUGH THAT'S A MINORITY OPINION.

THE PROBLEM ON A BEHAVIORAL VIEWPOINT IS

THAT EVEN THOUGH A NUMBER OF THESE MAY HAVE HAD SUFFICIENT VOTES TO QUALIFY FOR A MINORITY OPINION, IT'S DIFFICULT TO GET SOMEONE TO STAND UP AND TAKE THE LEAD IN OPPOSITION TO THEIR ESTEEMED COLLEAGUES TO BE THE LEAD TO WRITE THE MINORITY REPORT. JUST AS AN OBSERVATION OVER THE LAST THREE AND A HALF YEARS, IT TAKES SOMEONE WHO REALLY WANTS TO BE A CHAMPION OF A PARTICULAR GRANT TO AGREE TO STAND UP AGAINST THEIR PEERS AND AGREE TO TAKE THE LEAD ON WRITING THE MINORITY REPORT.

BUT I WOULD POINT OUT THAT WHEN YOU SEE STANDARD DEVIATIONS IN THE RANGE OF NINE, I HAVE SOME CONCERN AND I THINK IT IS INCUMBENT UPON THE BOARD IN THOSE CIRCUMSTANCES TO TAKE PARTICULAR ATTENTION TO SEE WHAT THE POTENTIAL MERIT IS FROM THE BOARD'S PERSPECTIVE, THAT MAYBE A DIFFERENT PERSPECTIVE THAN IS REPRESENTED IN THE PEER REVIEW GROUP. THE REASON THAT I ASKED FOR THE INFORMATION ON RECUSALS, AND YOU WILL NOTICE THE RECUSALS WERE LOW IN THIS CASE, IS SOMETIMES WITH A GROUP OF 15 SCIENTISTS SCORING, YOU CAN HAVE THREE OR FOUR RECUSALS. IN THAT CASE THERE'S EVEN A GREATER VULNERABILITY TO NOT HAVING A FULL REPRESENTATION OF OPINION, AND I THOUGHT THAT ADDITIONAL POINT OF INFORMATION WOULD BE USEFUL.

THE STANDARD DEVIATION DOES RAISE THE POINT, AND THE RANGES THAT ARE CITED, THE RANGES COULD BE REPRESENTED BY ONE OR TWO PEOPLE; BUT WHEN YOU SEE A STANDARD DEVIATION THAT'S VERY SUBSTANTIAL, I THINK IT CERTAINLY PUTS ANOTHER RESPONSIBILITY ON THIS BOARD TO FULFILL THE OBLIGATION OF THE INITIATIVE FOR THE VOTERS OF CALIFORNIA IN LOOKING AT THESE PARTICULARLY CLOSELY.

DR. LEVEY AND THEN DR. STEWARD.

DR. LEVEY: JUST A POINT OF CLARIFICATION. SO DO THE MEMBERS OF THE STUDY SECTION THEN CONCUR IN THIS TYPE OF REALIGNMENT?

CHAIRMAN KLEIN: THEY VOTE ON THE OVERALL SLATE TO BE FORWARDED. BUT, FOR EXAMPLE, IF THERE IS A VOTE, YOU MAY HAVE A VOTE THAT'S A DIVERGENT VOTE, SO YOU COULD HAVE SOMETHING FAIL SIX TO FIVE. AND SO THIS IS NOT A REFLECTION OF A UNANIMOUS DECISION EXCEPT THAT THERE IS GENERALLY A UNANIMOUS DECISION ON ALL THOSE BEING MOVED FORWARD WITH THE EXCEPTION OF THOSE IN WHICH THEY HAVE A CONFLICT. IS THAT A PROPER STATEMENT, MR. HARRISON?

MR. HARRISON: THAT'S CORRECT.

DR. SAMBRANO: JUST TO HOPEFULLY BRING SOME CLARITY TO SOME OF THIS. SO FOR EACH APPLICATION THAT IS DISCUSSED, THERE IS A MOTION

THAT IS MADE BY THE GRANTS WORKING GROUP AND SECONDED BY ANOTHER MEMBER. WHEN DISCUSSED, THE APPLICATION IS PUT TO A VOTE BY ALL MEMBERS OF THE WORKING GROUP; THAT IS, THE SCIENTIST AND PATIENT ADVOCATE MEMBERS. AND SO THE MOTION WILL CARRY BY A MAJORITY VOTE.

IN CASES WHERE THERE IS A 35 PERCENT OR MORE MINORITY, WE MAKE NOTE OF THAT AND GIVE THE OPPORTUNITY TO THAT MINORITY TO BRING FORTH THEIR MINORITY POSITION TO THE BOARD, AND WE REPORT THAT IN THE SUMMARY IN THE CASES WHERE THAT HAPPENS.

NOW, JUST ANOTHER IMPORTANT CLARIFICATION ABOUT STANDARD DEVIATIONS. THE STANDARD DEVIATION CAN BE GREAT, BUT IT DOES NOT INDICATE HOW MANY INDIVIDUALS VOTED OUTSIDE THE RANGE. YOU CAN HAVE ONE INDIVIDUAL THAT VOTES OUTSIDE THE RANGE AND STILL HAVE A VERY BROAD STANDARD DEVIATION. SO THAT'S WHY THE MEDIAN VERSUS THE MEAN IS PROBABLY YOUR BEST ESTIMATE AND BETTER GUIDE AS TO HOW MUCH VARIATION OR WHETHER THERE'S A GROUP THAT WAS VOTING OUTSIDE.

CHAIRMAN KLEIN: SO, DR. SAMBRANO, TO MAKE IT CLEAR, THOUGH, YOU CAN HAVE SUFFICIENT VOTES FOR A MINORITY REPORT. IN FACT, MORE THAN YOU NEED. BUT UNLESS SOMEONE IS WILLING TO CHAMPION IT AND

WRITE THE MINORITY REPORT, YOU DON'T GET A MINORITY REPORT.

DR. SAMBRANO: YOU GET A MINORITY REPORT IF THEY AGREE TO BRING THEIR POSITION TO THE BOARD, AND WE CAN SUMMARIZE IT IN THE SUMMARY STATEMENT. SO THEY DON'T ACTUALLY HAVE TO PRODUCE A DOCUMENT.

CHAIRMAN KLEIN: WHILE THEY MAY NOT -- LET ME JUST GO TO THE BOTTOM LINE AND SAY IT'S CLEAR TO ME THAT THEY DON'T UNDERSTAND THAT UNLESS THEY TAKE -- SOMEONE TAKES THE LEADERSHIP TO WRITE A MINORITY REPORT AND STAND UP AGAINST THEIR PEERS, THAT THERE'S GOING TO BE A MINORITY REPORT OUT THERE. I THINK ONE OF THE THINGS WE NEED TO DO WITH MINORITY REPORTS IS REALLY GET A WRITTEN POLICY THAT CREATES A VERY GOOD BRIEFING ON THE PHILOSOPHICAL REASON FOR MINORITY REPORTS. WE LEARN AS WE GO. WE IMPROVE AS WE GO. AND I THINK THERE'S A DIFFERENCE OF UNDERSTANDING BETWEEN THE PEER REVIEW SESSIONS. SOME REALLY HAVE UNDERSTOOD IT QUITE WELL, SOME LESS SO.

DR. TROUNSON: I THINK, CHAIR, YOU'RE NOT NECESSARILY BEING REASONABLY FAIR ABOUT COMING TO A CONCLUSION ABOUT WHETHER SCIENTISTS ARE FEARED ABOUT COMING TO A DIFFERENT POSITION THAN OTHER SCIENTISTS. I'VE NEVER ACTUALLY SEEN A ROOM FULL OF

SCIENTISTS THAT HAVE FEARED THAT AT ALL EVER IN MY WHOLE LIFE. I DON'T THINK THAT'S THE SITUATION.

I THINK THAT THEY DO OR THEY DON'T ON THE BASIS OF HOW STRONGLY THEY FEEL. SOMETIMES THEY FEEL STRONGLY AND THEY WOULD DO IT. OTHER TIMES THEY DON'T FEEL THAT THEY COULD BE BOTHERED TO DO IT OR THEY DON'T FEEL THAT STRONGLY MOTIVATED. I'VE ACTUALLY NEVER EVER SEEN THEM BACK OFF PUTTING THEIR POSITION IF THEY REALLY FELT STRONGLY ABOUT IT. IT'S UNSCIENTIFIC TO DO THAT.

CHAIRMAN KLEIN: RATHER THAN FEAR, I'D CALL IT DEFERENCE, PROFESSIONAL DEFERENCE.

DR. STEWARD: THANK YOU. I REALLY HAVE TO AGREE WITH ALAN ON THIS. I DON'T THINK ANYBODY WOULD EITHER DEFER OR BE FEARFUL IF THEY REALLY THOUGHT IT WAS AN IMPORTANT THING TO DO. IT'S ANOTHER REASON.

WITHOUT GOING INTO THAT ANYMORE, I WANTED TO MAKE ONE POINT. I THINK IT'S ACTUALLY A VERY INTERESTING IDEA TO CONSIDER THESE OTHER WAYS OF EVALUATING THE DATA. AND YOU MAKE VERY GOOD POINTS ABOUT THE IMPORTANCE OF CONSIDERING THE VARIANCE, AND I THINK ALSO A VERY GOOD POINT ABOUT THE MEDIAN BEING A BETTER MEASURE PERHAPS THAN THE MEAN.

I'M A LITTLE CONCERNED ABOUT PROCESS HERE

BECAUSE WE'RE SORT OF CHERRY PICKING AROUND THE EDGES AND ACTUALLY CHERRY PICKING AROUND THE AREA BELOW THE CUTOFF LINE. THAT ALSO COULD INFORM US ABOVE THE CUTOFF LINE AS WELL. I JUST WOULD SAY IF WE'RE GOING TO DO IT, WE OUGHT TO DO IT REGULARLY AND FOR ALL OF THE APPLICATIONS THAT WE'RE CONSIDERING. AND I THINK WE CAN DO STANDARD DEVIATION AND MEDIAN AND WHATEVER ELSE MIGHT BE VALUABLE, BUT WE SHOULD DO IT CONSISTENTLY FOR ALL APPLICATIONS AND DO IT REALLY KIND OF IN ADVANCE.

CHAIRMAN KLEIN: I THINK THAT'S A GOOD SUGGESTION. WHAT WE'RE TRYING TO DO IS DEVELOP MORE DATA THAT'S MEANINGFUL AND ASK THE PRESIDENT TO ANALYZE YOUR SUGGESTION.

SO ARE THERE ANY MORE POINTS THAT WE'RE GOING TO MAKE? WE ARE GOING TO, AFTER COMING BACK FROM EXECUTIVE SESSION, FOR THOSE WHO HAVE EXTRAORDINARY PETITIONS OR WISH TO SPEAK FROM THE AUDIENCE, WE'RE GOING TO TAKE THOSE COMMENTS. I BELIEVE SOME OF THOSE PEOPLE MAY NOT BE HERE TONIGHT BECAUSE THEY THINK THAT THIS IS GOING TO COME BACK FOR A VOTE IN THE MORNING. SO WHAT I'D LIKE TO DO, UNLESS THERE IS SEPARATE ADVICE FROM THE BOARD, IS PERHAPS ADJOURN TO AN EXECUTIVE SESSION AND THEN GO TO DINNER TONIGHT AND COME BACK TOMORROW. THAT WAY

WE DON'T HAVE ALL THE AUDIENCE WAITING ON US TONIGHT. UNLESS THERE IS SOMEONE WHO HAS A COMMENT TO BE MADE TONIGHT WHO WILL NOT BE HERE TOMORROW.

DR. STEWARD: ALONG THOSE LINES, I FEEL A LITTLE BIT, I GUESS, UNCOMFORTABLE ASKING SOMEONE TO WAIT WHILE WE HAVE OUR CLOSED SESSION AND DINNER TO MAKE A BRIEF PRESENTATION. IF THERE WAS SOMEBODY HERE, COULD WE HEAR BEFORE.

CHAIRMAN KLEIN: ABSOLUTELY. THAT WAS MY POINT IS I DON'T THINK WE'RE GOING TO COME BACK TONIGHT AFTER OUR CLOSED SESSION AND DINNER BECAUSE IT COULD BE QUITE LATE. SO, THEREFORE, I WAS ASKING IF SOMEONE WHO WAS GOING -- WOULD LIKE TO MAKE A PRESENTATION NOW WHO WILL NOT BE HERE TOMORROW.

IF YOU'D LIKE TO GO AHEAD AND PROCEED. IF YOU WOULD APPROACH THE MIC AND INDICATE YOUR NAME AND AFFILIATION AND WHAT YOU'RE ADDRESSING.

DR. DE ROBERTIS: I THANK YOU FOR THE OPPORTUNITY. MY NAME IS EDWARD DE ROBERTIS, AND I PRESENTED THIS PETITION, EXTRAORDINARY PETITION, FOR GRANT 1523, ENTITLED "WNT/GSK3 AS A GENERAL REGULATOR OF PROTEIN HALF-LIFE IN HUMAN EMBRYONIC STEM CELLS."

I'D LIKE TO MAKE JUST THREE BRIEF POINTS ON MY OWN BEHALF, I'M AFRAID, TO SAY THAT I AM A

SENIOR AND EXPERIENCED DEVELOPMENTAL BIOLOGIST PARTICULARLY IN THE FIELD OF CELL DIFFERENTIATION. I HAVE AN M.D. DEGREE FROM URUGUAY AND A PH.D. FROM LELOIR INSTITUTE IN ARGENTINA, AND I HAVE BEEN AT UCLA FOR 24 YEARS.

AND I WOULD LIKE -- THE FIRST POINT IS THAT I'M TOTALLY COMMITTED TO THIS RESEARCH IN STEM CELLS. AND THE REVIEWERS THOUGHT THAT THIS GRANT WAS INNOVATIVE, AND WE THINK IT'S EXTREMELY ORIGINAL IN THE SENSE THAT THERE'S AN ENZYME THAT'S SEQUESTERED WITHIN VESICLES. THIS ENZYME IS CALLED GLYCOGEN SYNTHASE KINASE 3, AND THAT GIVES WNT SIGNALING.

SO THE SECOND POINT IS THAT I THINK MY SCORE OF 63 MUST HAVE BEEN IMPACTED BECAUSE THE REVIEW PANEL, I THINK, WAS IN ERROR IN THINKING THAT MOST OF THESE EXPERIMENTS COULD JUST BE DONE AS EASILY IN OTHER CELLS. THAT WAS, I THINK, THE MAIN OBJECTION. BUT IT TURNS OUT THAT WE DISCOVERED THIS AS AN ASYMMETRY BETWEEN CELLS IN USING HUMAN STEM CELLS. THIS IS A PAPER IN *PNAS* IN 2008. HUMAN STEM CELLS ARE THE ONLY ONES WHICH HAVE OVER 90 PERCENT OF EACH DIVISION IS ASYMMETRIC ALTHOUGH THESE ARE THE SYMMETRIC DIVISIONS, NOT THE -- THESE ARE THE SELF-RENEWING DIVISIONS ARE ASYMMETRIC FOR PROTEINS

THAT ARE TARGETED FOR DEGRADATION. SO THAT'S HOW WE FOUND WHY THIS ENZYME, GLYCOGEN SYNTHASE KINASE 3, IS DIFFERENTIALLY ACTIVE IN CELLS.

ALSO HUMAN STEM CELLS ARE THE ONLY CELLS THAT GIVE US THESE VESICULAR STRUCTURES, WHICH ARE ON PAGE 2 OF MY REQUEST SHOWN. SO THERE WE CAN VISUALIZE THEM. AND WE PROPOSE EXPERIMENTS TO SEE THESE HUMAN STEM CELLS WHEN THEY DIFFERENTIATE WHETHER THE GSK3 GOES WITH ONE OR THE OTHER. THAT COULD NOT BE DONE IN ANY OTHER CELL SYSTEM.

THIRDLY, THE REVIEWERS THOUGHT THAT I HAD ONLY BEEN WORKING IN HUMAN STEM CELLS FOR A SHORT TIME. WE STARTED IN 2006 AND PUBLISHED ONE PAPER IN 2008, LIKE I SAID. AND TO ALLEVIATE THIS WORRY OF THE REVIEWERS, I HAVE SECURED MENTORSHIP AGREEMENT WITH DR. MICHAEL TEITELL. SO I DON'T KNOW IF THAT WILL ALLEVIATE IN ANY WAY, BUT THAT HAS BEEN E-MAILED TO DR. SAMBRANO.

AND WITH THAT, LET ME JUST SAY THAT IF YOU HAVE THE FUNDS, THEN I WOULD PUT THEM TO VERY GOOD USE AND HAVE A TEAM IN PLACE, AND WE WILL USE THEM IMMEDIATELY. THANK YOU VERY MUCH FOR YOUR ATTENTION.

CHAIRMAN KLEIN: THANK YOU.

MR. SHEEHY: CAN I ASK A QUESTION. YEAH.

JUST TO PUT THIS IN CONTEXT AND REALLY FROM A PROGRAMMATIC POINT OF VIEW, HOW IMPORTANT IS WNT SIGNALING TO DIFFERENTIATION? IS THIS LIKE A CRITICAL ELEMENT OF THAT?

DR. DE ROBERTIS: WE KNOW THAT ALL STEM CELLS REQUIRE WNT SIGNALING. SO MAMMARY STEM CELLS REQUIRE EGF AND WNT. BLOOD STEM CELLS, HEMATOPOIETIC STEM CELLS, REQUIRE STEM CELL FACTOR AND WNT. MOUSE EMBRYONIC STEM CELLS REQUIRE LIF AND WNT. SO WNT IS THE COMMON DENOMINATOR. AND WHAT THIS PROJECT SAYS, IN A WAY I THINK IT WILL CHANGE THE PARADIGM OF HOW WE THINK ABOUT WNT, IS TELLING THAT WNT STABILIZES HUNDREDS OF PROTEINS WHEN THIS WORKS. SO WNT IS NOT WHAT WE THINK WE SAY UP TO NOW, JUST SIGNALING THROUGH A PROTEIN CALLED BETA CATENIN, WE SAY IT'S THROUGH THE DECREASING THE PHOSPHORYLATIONS OF HUNDREDS OF PROTEINS, ALL OF WHICH HAVE VARIOUS EFFECTS IN METABOLISM. SO WNT IS A SIGNAL, IN OUR VIEW, THAT TELLS CELLS KEEP YOUR PROTEINS WITHOUT DEGRADING THEM FOR A LITTLE BIT LONGER. THAT'S THE MAIN HYPOTHESIS.

MR. SHEEHY: WE ABSOLUTELY HAVE TO UNDERSTAND THIS IF WE'RE GOING TO UNDERSTAND SELF-RENEWAL AND DIFFERENTIATION. I CAN'T GET -- MY TONGUE IS TOO BIG TODAY. IF WE'RE GOING TO

UNDERSTAND SELF-RENEWAL AND DIFFERENTIATION, WE HAVE TO UNDERSTAND WNT. DIFFERENTIATION. THANK YOU.

DR. DE ROBERTIS: YES. THAT, OF COURSE, IS WELL-KNOWN. IT'S NOT FROM MINE. IT IS THE CRITICAL ELEMENT IN SELF-RENEWAL OF ALL STEM CELLS.

MR. SHEEHY: NO. BUT IT HELPS US FROM A PROGRAMMATIC POINT OF VIEW LOOKING AT WHETHER OR NOT, YOU KNOW -- WE NEED TO BE INVESTED IN THIS PARTICULAR AREA TO KNOW THAT THIS IS A VERY CRITICAL AREA.

CHAIRMAN KLEIN: ALL RIGHT. AND I WOULD INDICATE THAT IN THE FRONT COVER OF YOUR PACKET, THERE'S A LETTER FROM DR. OWEN WITTE FROM UCLA SUPPORTING THIS PETITION.

CAN I JUST ASK ONE MORE QUESTION BEFORE YOU LEAVE? IS IT MY UNDERSTANDING YOU'RE SAYING THAT THE REVIEW FOCUSED ON THINKING THAT THIS PARTICULAR ANALYSIS COULD BE DONE WITH ANY TYPE OF CELL; BUT, IN FACT, SPECIFICALLY YOU'RE SAYING THAT YOU HAVE UNIQUELY FOUND THIS TYPE OF ASYMMETRIC CELL DIVISION IN HUMAN CELLS OF THE TYPE BEING STUDIED?

DR. DE ROBERTIS: YES. SO I THINK THAT HAS TO HAVE IMPACTED THE SCORE GREATLY, OF COURSE, BECAUSE THEY WERE LOOKING FOR APPLICATIONS ON STEM CELLS. THE IDEA IS, WELL, THIS DOESN'T REALLY APPLY

TO STEM CELLS. SO --

MR. SHEEHY: THAT WAS THE CENTRAL CRITICISM. IT WAS LIKE YOU DIDN'T HAVE TO DO THIS IN EMBRYONIC CELLS IS WHAT THE CRITICS --

DR. DE ROBERTIS: THAT WAS THE ARGUMENT. MY ARGUMENT IS WE WOULD HAVE NEVER DISCOVERED THIS IF WE WERE NOT WORKING IN HUMAN STEM CELLS, AND NOW WE COULD LET THEM GO. IN FACT, IT'S THE ONLY ONES IN WHICH WE CAN FOLLOW THESE VESICLES AND THESE ASYMMETRIES WHEN CELLS DIVIDE. PEOPLE THINK THAT ALWAYS SELF-RENEWING ARE SYMMETRIC. SELF-RENEWING DIVISIONS, I SAY, ARE NOT SYMMETRIC, SO THIS IS A VERY UNUSUAL KIND OF GRANT.

CHAIRMAN KLEIN: DR. TROUNSON, I THINK, TO HAVE A BALANCE HERE, IT WOULD BE APPROPRIATE FOR THE STAFF, IF THEY HAVE A RESPONSE TO THIS, TO DO A PRESENTATION.

DR. TROUNSON: YEAH. I THINK THIS IS AN IMPORTANT AREA, I THINK, AS WE'VE BASICALLY HEARD. I THINK THERE ARE PEOPLE WHO WORK ON THESE -- ON SOME OF THESE AREAS WHO REALLY HAVE A REALLY PROFOUND INFLUENCE IN THE AREA. I NOMINATE SOMEONE LIKE AUSTIN SMITH FROM THE UK AS BEING A HUGELY INFLUENTIAL PERSON IN UNDERSTANDING SELF-RENEWAL AND DIFFERENTIATION WITH THESE KIND OF TOOLS.

I THINK WHAT IS REALLY INTERESTING HERE, FROM MY OWN PERSPECTIVE, IS THAT THIS HAS A PARTITIONING EFFECT WHICH IS NOT SIMPLY THE CELL DIVISION. THE MOLECULES ARE BEING PARTITIONED DIFFERENTLY BECAUSE THEY'RE IN THE LYSOSOME. SO YOU CAN -- IN THE INTRACELLULAR STRUCTURES YOU CAN GET A DIFFERENTIAL PARTITIONING OF THE PRODUCT SO THAT IF YOU GET MORE IN A CELL OR LESS IN A CELL BECAUSE YOU'VE GOT A DIFFERENCE IN THE PARTITIONING, THAT COULD LEAD TO A DIFFERENT RESPONSE IN THE CELL.

SO IT HAS -- IF THIS IS PROVEN TO BE THE CASE, THEN I THINK THE QUESTION IS CAN YOU THEN HAVE OTHER LABS INDEPENDENTLY SUPPORT THIS WORK AND SO FORTH. IT STARTS TO BECOME A PRETTY IMPORTANT AREA FOR RESEARCH DOWNSTREAM.

I THINK THE -- SO I SEE IT SLIGHTLY DIFFERENTLY TO THE REVIEWERS, AND I SENSE THAT'S WHAT YOU WERE TRYING TO SOURCE FROM ME. BUT ON THE OTHER HAND, THE REVIEWERS, GOOD PEOPLE THEY ARE, INDEED, THEY SAW THAT THERE WAS SOME DEFICIENCIES IN THE PROJECT BECAUSE WNT IS A VERY COMMON MOLECULE IN LOTS OF CELL TYPES, AND THAT YOU COULD LOOK AT THIS PROCESS IN A NUMBER OF DIFFERENT CELL TYPES. AND, YES, YOU COULD AND YOU COULD LOOK AT THE MOUSE AND YOU COULD LOOK AT SOME OF THE ORGANISMS, MORE

PRIMITIVE ORGANISMS, AND YOU COULD LOOK AT DIFFERENT CELL TYPES, BUT YOU MIGHT GET A DIFFERENT OUTCOME. WE'RE TALKING ABOUT DIFFERENTIATION IN DEVELOPMENT. THAT MIGHT BE QUITE DIFFERENT TO A TISSUE REPLACING ITSELF OR AN ANIMAL PLENARIUM OR A DIFFERENT KIND OF ANIMAL WHICH IS PARTITIONING ITS -- DOESN'T OR DOES PARTITION THESE MOLECULES IN OTHER WAYS.

SO IF THE HUMAN, FOR EXAMPLE, IS PARTITIONING THESE KINDS OF MOLECULES IN THIS WAY, IF THE HUMAN IS DOING THAT AND THE MOUSE AND SOME OTHER SPECIES DON'T, IT'S IMPORTANT, ISN'T IT? THAT'S A MECHANISM THAT WE NEED TO UNDERSTAND. SO WE'RE REALLY DEEP DOWN IN THE WEEDS, IF YOU LIKE, IN THE SCIENCE OF THE SUBJECT. AND, THEREFORE, I THINK YOU SAW THE REVIEWERS HAVE A DIFFERENTIAL VIEW OF HOW IMPORTANT IT WAS. SOME PEOPLE THOUGHT IT WAS REALLY IMPORTANT AND THEY GAVE IT A HIGH SCORE. I THINK THERE WAS AN 80, IF I RECALL WHAT WAS SAID. AND OTHERS THOUGHT, WELL, YOU KNOW, YOU COULD DO THIS IN ANY CELL TYPE AND WHY BOTHER TO HAVE TO GO TO THE HUMAN EMBRYONIC STEM CELL TO DO IT.

SO I THINK WE COULD -- I THINK IT BECOMES ONE OF THOSE ISSUES IN THE SCIENCE WHERE YOU HAD A MARK WHICH FELL BELOW WHAT WE WOULD NORMALLY SCORE. SO ON THE MAJORITY THEY FELT THAT IT REALLY DIDN'T

GET UP TO THE STANDARD. BUT I HAVE A VIEW AND YOU MIGHT HAVE A VIEW THAT IS THE SAME OR DIFFERENT TO THAT. BUT ARGUABLY THIS IS AN INTERESTING NEW MECHANISM THAT'S BEEN POINTED OUT BY SOME, I THINK, PRETTY NEAT SCIENCE. DOES IT DESERVE TO BE FUNDED? I THINK THAT'S A MATTER FOR THE ICOC TO DECIDE. I THINK IT'S A PRETTY INTERESTING APPROACH, BUT COLLEGIATE REVIEWERS, AND I, AS YOU KNOW, CHAIR, I DON'T SPEAK UP DURING THE REVIEWS, AND I TRY NOT TO INFLUENCE IT IN ANY WAY. BUT I HAVE A SET OF VIEWS AS A SCIENTIST WHEN I READ THESE THINGS, AND THEY'RE NOT ALWAYS CONSISTENT WITH THE AVERAGE OR THE EXTENT TO WHICH THOSE THINGS HAPPEN.

ESSENTIALLY I THINK THERE IS GOOD REASON, GOOD MECHANISM, AND INTERESTING TO GO FORWARD ON. ON THE OTHER HAND, THE REVIEWERS SAW IT IN GENERAL TO BE SHIFTED DOWN IN THAT LEVEL THAT'S BELOW WHAT WE CALL THE 70S WHERE WE WOULD FEEL COMFORTABLE GOING EACH WAY.

CHAIRMAN KLEIN: THANK YOU. DUANE AND THEN JOAN SAMUELSON.

MR. ROTH: AGAIN, JUST THE PROCESS THAT WE'VE SET UP FOR THESE EXTRAORDINARY PETITIONS IS THAT THEY SUBMIT AN EXTRAORDINARY PETITION AND WE ANSWER IN A LETTER. AND I THINK NOT HAVING THE

BENEFIT OF HEARING ALL THE REVIEWERS AND THEIR CONCERNS, FOR US TO DEBATE IN PUBLIC THE PROS AND CONS OF THESE IS A SLIPPERY SLOPE.

CHAIRMAN KLEIN: THAT IS THE BASIS ON WHICH PEER REVIEW WAS ESTABLISHED UNDER THE INITIATIVE.

MR. ROTH: I'M SORRY. WHAT I WAS TRYING TO SAY, MR. CHAIRMAN, IS WE HAVE A PROCESS WHERE THEY SUBMIT THE EXTRAORDINARY PETITION AND WE RESPOND TO IT. AND STAFF HAS RESPONDED TO THIS. AND IF WE'RE GOING OPEN IT UP IN ADDITION, THEN, TO HAVE A DEBATE ABOUT THE MERITS OF THE GRANT, THEN EXPECT EVERYONE TO SHOW UP HERE AND ONE-OFF DEBATE BACK AND FORTH. I DON'T THINK THAT'S WHAT WE WANT TO DO.

CHAIRMAN KLEIN: UNLESS THERE IS A SUBSTANTIAL CASE, I DOUBT THAT MANY PEOPLE ARE GOING TO SHOW UP HERE BECAUSE THEY'RE GOING TO HAVE TO HAVE A VERY COMPELLING CASE. BUT FUNDAMENTALLY OUR STATUTORY AUTHORITY IS BASED ON THE FACT THAT WE WILL DEBATE ISSUES HERE AND MAKE DIFFERENT DECISIONS THAN THE PEER REVIEW GROUP IF WE ARE GOING TO RETAIN THE ABILITY TO HAVE CONFIDENTIAL PEER REVIEW. WE SUBSTANTIVELY HAVE TO BE MAKING DECISIONS.

NOW, HOPEFULLY IN THE GREAT MAJORITY OF

CASES, PEER REVIEW WILL STAND. AND WE HAVE VERY GOOD RESPONSES FROM THE SCIENTIFIC STAFF SUMMARIZING THE COMMENTS. THEY'RE VERY INFORMATIVE. AND I THINK WE'VE SHOWN A HISTORY, EVEN WITH THE EXTRAORDINARY PETITION PROCESS IN PLACE, WHERE THOSE COMMENTS ARE RESPECTED AND PEOPLE COME BACK IN OTHER CYCLES AND APPLY WITH THE BENEFIT OF THAT INFORMATION. DO WE HAVE ANOTHER? JOAN SAMUELSON.

MS. SAMUELSON: ALAN, I HAD A FOLLOW-UP QUESTION, I GUESS. ARE THERE OTHER SCIENTISTS IN CALIFORNIA THAT YOU'RE AWARE OF WHO ARE WORKING IN THE SAME AREA?

DR. TROUNSON: I MENTIONED SOMEONE OVERSEAS BECAUSE I THINK THAT PERSON IS REALLY ONE OF THE BEST STEM CELL SCIENTISTS IN THE WORLD WHO WORKS IN A KIND OF SIMILAR AREA. I DON'T THINK WE HAVE ANYBODY --

MS. SAMUELSON: HE'S OUT OF THE COUNTRY. DIDN'T YOU SAY UK?

DR. TROUNSON: YEAH. BUT I DON'T THINK WE HAVE ANYBODY AT THAT SAME LEVEL HERE, BUT THAT MIGHT BE DOING A DISSERVICE TO A GOOD FRIEND OF MINE, MARTIN PERA AND A FEW OTHERS. IN THE SENSE OF IT, I JUST THINK THAT THIS AREA IS A REALLY INTERESTING AREA AND IT HAS A PROFOUND INFLUENCE IF IT IS THEN

SHOWN TO BE EFFECTIVE. AND THERE ARE SOME PEOPLE OVERSEAS WHO HAVE MADE THIS KIND OF AREA VERY INFLUENTIAL AND VERY IMPORTANT.

SO THE SHORT ANSWER IS TO YOU THAT I DON'T THINK WE HAVE PEOPLE AT THAT LEVEL, BUT WE HAVE SOME VERY GOOD BASIC STEM CELL BIOLOGISTS NEVERTHELESS HERE.

MS. SAMUELSON: BUT IT MAY BE THAT IF THIS IS AN IMPORTANT AREA THAT ISN'T IN THE CALIFORNIA PORTFOLIO AND IT MIGHT NEVER BE.

CHAIRMAN KLEIN: I THINK MAYBE THE PRESIDENT, CORRECT ME, PLEASE, IF I'M WRONG, IS MAKING THE POINT RELATED TO THIS SPECIFIC APPROACH BECAUSE WE HAVE MEMBERS OF THE CALIFORNIA SCIENTIFIC COMMUNITY THAT WERE INVOLVED IN THE DISCOVERY OF WNT SIGNALING WHO ARE PART OF OUR TEAMS THAT WE PREVIOUSLY APPROVED, AND THEY'RE INVOLVED IN DISEASE STUDIES, BUT MAY NOT BE INVOLVED IN THIS SPECIFIC AREA OF WNT SIGNALING. MAYBE A NARROWER STATEMENT IS MORE APPROPRIATE.

DR. PIZZO: I WOULD ABSOLUTELY AGREE WITH THAT. I THINK YOU WOULD AGREE THERE ARE MANY PEOPLE -- THAT WNT IS A CRITICALLY IMPORTANT PATH AND MANY PEOPLE WORKING ON THIS. I WOULD BE REMISS NOT TO RECOGNIZE SOME OF OUR OWN INSTITUTION.

DR. TROUNSON: I KNEW I WAS GOING TO GO THERE.

CHAIRMAN KLEIN: I THINK IT MIGHT HAVE BEEN INTENDED IN A NARROWER FORMAT THAN IT WAS STATED.

MS. SAMUELSON: THEN I WANT TO ASK YOU THE NEXT FOLLOW-UP QUESTION. ARE YOU SAYING THERE ARE PEOPLE IN CALIFORNIA WHO ARE WORKING SPECIFICALLY IN THIS AREA NOW?

DR. PIZZO: THERE ARE PEOPLE WHO ARE WORKING IN WNT SIGNALING IN RELATIONSHIP TO MANY DIFFERENT DISEASE PROCESSES, INCLUDING CANCER AND STEM CELL BIOLOGY, YES.

CHAIRMAN KLEIN: BUT THEY MAY NOT BE WORKING ON THIS SPECIFIC.

DR. PIZZO: NOT THE SPECIFIC. I THINK THE DIRECTION THAT WAS ARTICULATED IS AN INTERESTING VARIANCE ON THE CURRENT GOVERNING HYPOTHESIS, AND I THINK THAT IS WHAT'S UNIQUE ABOUT IT.

CHAIRMAN KLEIN: RIGHT.

DR. TROUNSON: THAT'S EXACTLY RIGHT.

CHAIRMAN KLEIN: SO ADDITIONAL. DR. STEWARD.

DR. STEWARD: JUST BEFORE WE GO TO THE CLOSED SESSION, I WONDER COULD YOU, SOMEONE, JUST

REALLY BRIEFLY HIGHLIGHT THE ISSUES THAT CAME UP WITH THE TWO RIGHT BELOW THE LINE THAT ACTUALLY HAVE HIGHER SCORES THAN THE NUMBER 66 ABOVE THE LINE? IS THAT SOMETHING WE CAN DO IN A PUBLIC SESSION?

CHAIRMAN KLEIN: DR. TROUNSON, COULD SOMEONE FROM THE STAFF ADDRESS THOSE TWO THAT ARE RIGHT BELOW THE FUNDING LINE?

DR. OLSON: SO WHAT I WILL DO IS FIRST ADDRESS THE APPLICATION NO. 1512. AND BRIEFLY WHAT I WANT TO DO IS JUST STATE I THINK MANY OF YOU KNOW THAT ONE OF THE AREAS THAT IS THE SUBJECT OF ACTIVE RESEARCH IS ESSENTIALLY THE GENERATION OF CARDIOMYOCYTES FROM PLURIPOTENT STEM CELLS, BE THEY HUMAN EMBRYONIC STEM CELLS OR BE THEY IPS CELLS. AND ONE OF THE ISSUES THAT HAS ARISEN WITH RESPECT TO THE GENERATION OF THOSE CELLS IS, IN FACT, THE HETEROGENEITY AND THE IMMATURITY OF ESSENTIALLY THE CELLS THAT ARE DERIVED. SO BY THAT I MEAN THEY ARE ELECTROPHYSIOLOGICALLY IMMATURE, AND THAT IS A CONCERN BECAUSE IF YOU ARE GOING TO TALK ABOUT PUTTING A PROGENITOR CELL IN PEOPLE WITH HEART DISEASE OR SOMETHING LIKE THAT AND YOU DON'T REALLY KNOW HOW IT'S GOING TO MATURE OR DEVELOP, WHAT YOU COULD END UP GETTING IS YOU COULD GET A SET OF CELLS THAT HAVE, SAY, PACEMAKER FUNCTION. AND SO THEN YOU

GENERATE ARRHYTHMIAS.

SO WHAT THIS -- THE PURPOSE OF THIS AWARD ESSENTIALLY IS TO -- THE GOAL OF THIS PROPOSAL IS TO EXPLORE THE CELLULAR FACTORS AND THE MOLECULAR PATHWAYS THAT CONTROL THE ELECTROPHYSIOLOGICAL MATURATION OF HUMAN PLURIPOTENT CELLS TO CARDIOMYOCYTES. AND WHAT THEY WANT TO DO IS THEY ESSENTIALLY WANT TO RECAPITULATE IN WHAT I'LL CALL A MODEL SYSTEM. SO OBVIOUSLY WHEN CARDIOMYOCYTES DEVELOP IN AN EMBRYO, THERE ARE POSITIONAL SIGNALS, THERE ARE LIKELY PARACRINE SIGNALS, SO THEY WANT TO REPLICATE A NICHE. AND THE NICHE THAT THEY ARE CHOOSING TO REPLICATE IS ESSENTIALLY AN EMBROID BODY.

SO THEY'VE GOT A MODEL SYSTEM. THEY'RE SAYING WE WILL GENERATE CARDIOMYOCYTES IN AN EMBROID BODY FORMAT TO STUDY ELECTROPHYSIOLOGICAL MATURATION. THEY DEVELOPED SOME VERY NICE TECHNOLOGIES WHICH ALLOW THEM TO PURIFY OUT THE CARDIOMYOCYTES FROM AN EMBROID BODY POPULATION TO THEN KEEP THEM IN CULTURE EITHER WITH OR WITHOUT ADD-BACK OF NONCARDIOMYOCYTE CELLS AND LOOK AT THE EFFECT OF ADDING NONCARDIOMYOCYTE CELLS FROM THE EMBROID BODY TO THIS TO TRY AND DISSECT THE CONTRIBUTION OF SPECIFIC PATHWAYS.

THEY ARE, IN FACT, FOCUSED ON SPECIFIC PARACRINE PATHWAYS THAT THEY BELIEVE ARE CONTRIBUTED BY THE NONCARDIOMYOCYTE CELLS, AND THEY'RE TRYING TO DETERMINE THE CONTRIBUTION OF THOSE SPECIFIC PATHWAYS, OR IS IT MORE THAN THAT FROM THIS CELL TO THIS ELECTROPHYSIOLOGICAL MATURATION AND, THEREFORE, TO BEING ABLE TO ACTUALLY ACHIEVE THE TYPE OF MATURE CARDIOCYTES THAT YOU WANT. THAT'S WHAT THEY'RE TRYING TO DO.

SO THEIR AIMS ARE ESSENTIALLY -- AIMS 1 AND 2 WILL USE CALCIUM IMAGING AND ELECTROPHYSIOLOGICAL RECORDING METHODS TO CHARACTERIZE THE PHENOTYPES AND THE MATURATION OF THE CELLS IN THESE TWO DIFFERENT -- WITH A FOCUS ON THESE TWO PARACRINE PATHWAYS, AND THEN THEY WILL APPLY WHAT THEY'VE LEARNED IN THOSE AIMS TO IPS CELLS.

DO YOU WANT TO HEAR THE GENERAL STRENGTHS AND WEAKNESSES?

CHAIRMAN KLEIN: I THINK THAT WOULD BE VALUABLE IN TERMS OF THE REQUEST, YES.

DR. OLSON: OBVIOUSLY THIS IS AN IMPORTANT TOPIC TO TALK ABOUT USING CARDIOMYOCYTES THERAPEUTICALLY. YOU HAVE TO UNDERSTAND THE MECHANISM OF MATURATION, AND YOU HAVE TO BE ABLE TO

GET WHAT YOU WANT. AND THE REVIEWERS DEFINITELY CITED THE SIGNIFICANCE IN TERMS OF THAT. THAT WAS A STRENGTH.

THEY ALSO APPRECIATED THERE IS A STRONG MECHANISTIC FOCUS TO THIS GRANT, THE EMPHASIS ON THE ELECTROPHYSIOLOGICAL CHARACTERIZATION AND THAT INNOVATIVE CO-CULTURE SYSTEM. SO I TOLD YOU ABOUT THE TECHNOLOGIES THAT ALLOW PURIFICATION OF THE CARDIOMYOCYTE FRACTION AND THEN THE ADD-BACK STUDIES. THAT'S ACTUALLY A VERY CLEVER WAY TO LOOK AT THIS. SO THEY LIKED ALL THOSE THINGS.

THEY AGREED THAT THE RESEARCH PLAN, THOUGH DENSE -- AND I CAN DEFINITELY CORROBORATE THAT. I READ THAT APPLICATION. IT IS AN INCREDIBLY DENSE APPLICATION -- IT'S LOGICAL. IT HAS ADEQUATE MILESTONES IN IT. AND IT HAS A VERY SOLID AND CONVINCING SET OF PRELIMINARY DATA. SO IT HAD GOOD PRELIMINARY DATA THEY BELIEVE THEY CAN DO THIS.

THE FIGURES DID MAKE IT HARD TO -- THE FEASIBILITY TO ASSESS THE MERITS AND THE TECHNICAL DETAILS, THEY COULDN'T REALLY TELL FROM SOME OF THE FIGURES. THEY THOUGHT THAT A LOT OF THE PROPOSAL WAS REALLY FOCUSED ON A VERY DETAILED METHODS DESCRIPTION. SO IN THE ACTUAL RESEARCH PLAN, IT'S A VERY DETAILED METHOD DESCRIPTION IN LIEU OF A CLEAR

RATIONALE. WHAT'S THE EXPERIMENTAL RATIONALE FOR THESE EXPERIMENTS, THE PLAN AND THE EXPECTED OUTCOMES, AS WELL AS THE LIMITATIONS OF THE PROPOSED METHODOLOGIES THAT FOCUS ON VERY DETAILED EXPERIMENTAL, HOW METHODOLOGIES LIMITED -- THEY LEFT OUT SOME THINGS LIKE HOW MANY LINES ARE GOING TO BE ANALYZED. AND THEY WERE CONCERNED ABOUT THAT BECAUSE THEY EVEN STATE IN THEIR PRELIMINARY DATA THAT THERE'S VARIABILITY IN THE ELECTROPHYSIOLOGICAL PROFILE OF THE CARDIOMYOCYTE FRACTION FROM DIFFERENT CELL LINES.

BUT I THINK THE SINGLE -- ONE OF THE BIGGEST ISSUES HAD TO DO WITH THE FACT THAT THEY WERE NOT CHARACTERIZING THE NONCARDIOMYOCYTE FRACTION. AND THE REASON FOR -- LET ME JUST POINT OUT TO YOU THAT THE CARDIOMYOCYTE FRACTION OF AN EMBROID BODY POPULATION IS ONLY ABOUT 7 PERCENT. AND SO WHEN YOU HAVE A NONCARDIOMYOCYTE FRACTION THAT CONSTITUTES 93 PERCENT, HOW ARE YOU GOING TO DRAW RELEVANT CONCLUSIONS IF YOU DON'T CHARACTERIZE THAT FRACTION? SO THAT WAS, I THINK, ONE OF THE -- IT WAS A SOURCE OF CONCERN. IT WAS FELT TO INTRODUCE VARIABILITY INTO THE ANALYSIS THAT WOULD COMPLICATE, THAT WOULD REALLY COMPLICATE INTERPRETATION. SO I THINK THAT WAS ONE OF THE

CONCERNS.

THERE WAS ALSO THE FACT WHY DID THEY CHOOSE THESE TWO PARTICULAR SIGNALING SYSTEMS TO FOCUS ON WHEN THERE HAVE BEEN CLEARLY RECENT PUBLICATIONS IN THE LITERATURE THAT IMPLICATE OTHER SIGNALING SYSTEMS AS WELL. SO THERE WAS A QUESTION ABOUT WHY THIS FOCUS AS OPPOSED TO NOT BEING A BROADER IMPACT. SO I THINK THOSE WERE SOME OF THE PRIMARY CRITICISMS.

THEY DID NOTE THEY THOUGHT IT WAS A GREAT RESEARCH GROUP, A GREAT TEAM. THEY HAD THE RIGHT PEOPLE TO DO THE EXPERIMENTS, SO THERE'S NO QUESTION THAT THAT WAS THE CASE. SO OVERALL I THINK IT WAS A MATTER OF THEY APPRECIATED THE FOCUS OF THE PROPOSAL ON AN IMPORTANT PROBLEM, ON THE ELECTROPHYSIOLOGICAL MATURATION, THE STRENGTH OF THE TEAM, BUT THEY REALLY WERE CONCERNED ABOUT THE FEASIBILITY ESSENTIALLY GIVEN, I THINK, THE POTENTIAL FOR THE DISPROPORTIONATE EMPHASIS ON METHODOLOGY AS WELL AS THE QUESTIONS RELATED TO FEASIBILITY. THANKS.

DR. PIZZO: COULD YOU JUST COMMENT FURTHER WHEN YOU SAY --

CHAIRMAN KLEIN: THIS IS DR. PIZZO FOR THOSE ON THE AUDIO PROGRAM.

DR. PIZZO: I'M SORRY. IT IS ME. COULD

YOU JUST COMMENT FURTHER ON THE ISSUE OF THE SIGNALING SYSTEMS THAT THEY CHOSE AND THE CONCERN THAT WAS RAISED AS TO WHETHER THEY WERE IN LINE WITH RECENT PUBLICATIONS? WAS THAT ALSO A STATEMENT ABOUT WHETHER THE MEASURES THEY CHOSE WERE INAPPROPRIATE? THE QUESTION IS SO THEY'RE DIFFERENT. DOES THAT MEAN --

DR. OLSON: I THINK IT WAS A MATTER OF -- IT WAS PART OF THE RATIONALE ARGUMENT. DID THEY -- SO THERE IS, I BELIEVE, PUBLISHED EVIDENCE AS WELL AS PRELIMINARY DATA PRESENTED IN THE APPLICATION THAT THE PATHWAYS THAT THEY DID CHOOSE TO FOCUS ON MAY HAVE SOME RELATIONSHIP TO THIS OR MAY BE IMPORTANT. I THINK THE QUESTION WAS THE ONES THAT WEREN'T, THEY WEREN'T DISCUSSED AT ALL. THEY WERE NOT ACKNOWLEDGED.

DR. PIZZO: I UNDERSTAND THAT, BUT JUST TO BE CLEAR, SO THE REVIEWERS HAD THEIR PREFERENTIAL PATHWAY THAT THEY THOUGHT WAS APPROPRIATE -- WOULD HAVE BEEN MORE APPROPRIATE TO INCLUDE. THE INVESTIGATORS HAD A DIFFERENT ONE. DID THEY COMMENT ON WHETHER OR NOT WHAT THE INVESTIGATORS WERE PROPOSING WOULD NOT LEAD TO ADDRESSING OR ANSWERING THE QUESTION?

DR. OLSON: I THINK WHAT THEY DID SAY WAS

THEY HAD VERY STRONG PRELIMINARY DATA. PART OF IT WAS THAT. I DON'T THINK IT WAS A MATTER OF THEY HAD THEIR PREFERENTIAL SIGNALING PATHWAY. I THINK IT WAS A MATTER OF ACKNOWLEDGING OTHER WORK IN THE FIELD, THAT THERE WERE OTHER SIGNALING PATHWAYS --

DR. PIZZO: THAT'S WHAT I MEANT BY PREFERENTIAL.

DR. OLSON: -- THAT MAY ALSO --

DR. PIZZO: I DIDN'T MEAN PREFERENTIAL BIAS.

DR. OLSON: AND THAT THAT WAS NOT ADDRESSED BY THE APPLICANT IN THEIR CHOICE OR THEIR DISCUSSION.

DR. TROUNSON: BECAUSE I SAW A COUPLE OF DIFFERENT PERSPECTIVES, AND I AGREE ABSOLUTELY WITH WHAT DR. OLSON SAID. BUT ONE OF THE KEY PARTS FOR A CARDIOMYOCYTE IS THAT IT'S WITHIN 2 OR 3 MICRONS OF AN ENDOTHELIAL CELL IN THE HEART. SO THAT SHOULD SUGGEST TO YOU THAT THERE SHOULD BE MESSAGES COMING FROM ONE CELL TO ANOTHER. AND SO THEIR HYPOTHESIS IS KIND OF BUILT INTO THE FACT THAT THESE CELLS WILL INFLUENCE ONE ANOTHER, A LITTLE LIKE THE ASTROCYTES AND THE NEURONS, AND THAT THE INFLUENCE WAS GOING TO BE REALLY THROUGH THE IRON CHANNELS, CALCIUM, SODIUM, AND POTASSIUM, BECAUSE THEY'RE THE ONES THAT

SET UP THE DIFFERENTIAL BETWEEN CARDIOMYOCYTES.

I THINK THE PROBLEM IS THAT THEY WEREN'T CONVINCED THAT -- THE REVIEWERS WEREN'T REALLY CONVINCED THAT THEY HAD THE IDEAL SYSTEM FOR TESTING IT OUT BECAUSE WHAT IF IT WENT ONE WAY AND ANOTHER? WOULD IT TELL YOU HOW WE'RE GOING TO HAVE THE SORT OF ENDOTHELIAL CELLS IN THE RIGHT FORMAT TO INSTRUCT THE CELLS? THAT PART OF IT IN CULTURE IS ALWAYS HARD TO GET AT AND VERY HARD TO INTERPRET. SO I THINK THEY WERE LEFT WITH A MIXED FEELING. IT IS SOMETHING THAT NEEDS TO BE ADDRESSED, BUT DID THEY REALLY HAVE THE RIGHT MODEL? AND WAS IT -- HOW WERE THEY GOING TO BE SURE THAT THE RIGHT ENDOTHELIAL CELL IN THE RIGHT NATURE IS GIVING THE RIGHT SIGNALS TO THE CARDIOMYOCYTE? AND WERE THEY REALLY GOING TO WORK THAT OUT IN THE CULTURE DISH?

SO I THINK THEY FELT A LITTLE UNEASY ABOUT THAT, TO BE HONEST. AND THIS IS A SCIENTIST THAT'S ALREADY BEEN SUPPORTED BY US. HE'S COME TO THE END OF HIS TIMEFRAME, WILLING TO GO AGAIN. SO IN SOME RESPECTS A CONTINUATION OF A PRETTY REASONABLE STUDY, BUT NOT ABSOLUTELY CONVINCING EVERYBODY IN THE ROOM THAT THEY HAVE EXACTLY THE RIGHT MODEL. NEVERTHELESS, I THINK THE BASIS OF WHAT THEY WERE DOING IS IMPORTANT. AND WHETHER THEY CAN GET IT

RIGHT THROUGH THEIR EXPERIMENTAL WORK MIGHT REALLY ARISE FROM DOING THE STUDIES.

DR. STEWARD: AND I'M GOING TO ASK THE SAME QUESTION ABOUT THE NEXT ONE. IN THESE REVIEWS VERY OFTEN IT'S THE CASE THAT REVIEWERS ARE SORT OF LACKING SUFFICIENT ENTHUSIASM TO MOVE IT INTO A FUNDABLE RANGE AND RECOMMEND FUNDING. I THINK I'M RESPONDING ESPECIALLY TO WHAT JEFF NOTED EARLIER, THAT THERE SEEMS TO BE SORT OF A LINE DRAWN HERE BY THE REVIEWERS. IN JUST READING THROUGH THIS, THEY DIDN'T RECOMMEND IT FOR FUNDING. SO THE QUESTION IS IS THAT THE CASE? THEY WERE NOT ENTHUSIASTIC ENOUGH TO RECOMMEND IT FOR FUNDING, OR WERE THEY RECOMMENDING THAT IT NOT BE FUNDED? THAT'S A BIG DIFFERENCE TO ME.

DR. OLSON: LET'S SEE. HOW DO I ANSWER THAT? THERE WAS A PROGRAMMATIC DISCUSSION ABOUT THIS APPLICATION. SO THERE WAS A DISCUSSION, AND I THINK AS THE ISSUE -- THE ISSUE OF THE UNCHARACTERIZED EMBROID BODY, CALL IT THE ENDOTHELIAL CELL COMPONENT YOU LIKE, AND MAYBE THE OTHER MODEL, THAT MAYBE ENOUGH OF THEM WEREN'T SUFFICIENTLY CONVINCED TO MOVE IT INTO THE FUNDABLE CATEGORY. SO AS I SAY, I THINK YOU HAVE TO MAKE YOUR OWN JUDGMENT ON IT. YOU SAW THE RANGE OF

SCORES. YOU SAW THE STANDARD DEVIATION. SO I THINK REVIEWERS FELT THAT THEY HAD SCORED IT APPROPRIATELY.

DR. STEWARD: I DON'T MEAN TO PRESS.

DR. OLSON: I UNDERSTAND. THAT'S THE BEST ANSWER I CAN GIVE YOU.

DR. STEWARD: THAT'S GREAT. AND I'M GOING TO JUST -- I DON'T MEAN TO PUT WORDS IN YOUR MOUTH. I HEAR YOU SAYING THAT NOBODY WAS VIOLENTLY OPPOSED TO IT BEING FUNDED.

DR. OLSON: THAT IS CORRECT.

CHAIRMAN KLEIN: SO LET'S -- I THINK WE ASKED THE QUESTION. JAMES HARRISON.

MR. HARRISON: I JUST WANTED TO BE CLEAR FOR THE RECORD THAT WE ARE TALKING ABOUT APPLICATION 1507 IN THAT LAST EXCHANGE.

DR. OLSON: NO. WE'RE STILL TALKING ABOUT 1512.

MR. HARRISON: THANK YOU.

CHAIRMAN KLEIN: THANK YOU VERY MUCH. THE STRENGTHS AND WEAKNESSES I ALSO BELIEVE WAS ADDRESSED IN 1507.

DR. GRIESHAMMER: APPLICATION 1507 IS THE SECOND ONE IN THE WHITE AREA THERE WITH THE SCORE OF 69. AND SO IN THIS APPLICATION -- THIS APPLICATION

IS FOCUSED ON A VERY BASIC STEM CELL BIOLOGY QUESTION ABOUT SELF-RENEWAL AND SURVIVAL AND IS MORE SPECIFICALLY FOCUSED ON THE ROLE OF ONE PARTICULAR RECEPTOR THAT HAS BEEN SHOWN IN MANY STUDIES TO BE INVOLVED IN STEM CELL PROLIFERATION AND SURVIVAL. NAME OF THAT RECEPTOR IS KIT.

AND WHAT THE BASIS FOR THIS RESEARCH PROPOSAL IS IS THE OBSERVATION THAT ALTHOUGH KIT, THIS RECEPTOR, IS EXPRESSED IN MANY DIFFERENT STEM CELL TYPES, ADULT STEM CELLS, EMBRYONIC STEM CELLS, THERE SEEM TO BE CELL-TYPE SPECIFIC RESPONSE THAT OCCUR WHEN KIT LIGAND IS ADDED TO THESE CELLS. AND SO THE HYPOTHESIS THAT IS BEING PURSUED IN THIS APPLICATION IS THAT, INDEED, ACTIVATION OF THE KIT RECEPTOR BECOMES CELL-TYPE SPECIFIC THROUGH INTERACTION WITH CO-RECEPTORS THAT THE APPLICANT IS TRYING TO PURSUE IN THIS APPLICATION.

I'M JUST GOING TO ACTUALLY FOCUS ON AIM 1 AND DESCRIBE TO YOU BRIEFLY THE FACT -- THE APPROACH THE APPLICANT IS USING. IT'S A BIOINFORMATICS-BASED APPROACH THAT THIS PERSON WILL BE USING TO PREDICT CO-RECEPTORS FOR THE KIT LIGAND AND THEN WILL EXPERIMENTALLY VALIDATE THAT THESE CO-RECEPTORS INDEED CO-SIGNAL WITH KIT.

AND I CAN TELL YOU THAT -- I'LL NOW GO

INTO THE STRENGTHS AND WEAKNESSES THAT WERE OBSERVED BY THE REVIEWERS FOR THIS PROPOSAL. THEY DID THINK THAT THIS APPROACH THAT WAS PROPOSED, THEY FOUND THIS PARTICULAR APPROACH TO BE INNOVATIVE. AND THEY ALSO FOUND THAT WITHIN THE PRELIMINARY DATA, THE APPLICANT GIVES ONE EXAMPLE OF SUCH CO-SIGNALING BETWEEN KIT AND ANOTHER RECEPTOR AND FOUND THAT THE CO-SIGNALING WAS WELL SUBSTANTIATED IN THE PRELIMINARY DATA.

IN GENERAL, THEY FOUND THAT STUDYING THIS RECEPTOR AND ITS CO-RECEPTORS IN STEM CELL BIOLOGY WAS AN IMPORTANT PROBLEM TO STUDY. HOWEVER, THERE WERE QUITE A -- AND LISTED IN THE PUBLIC SUMMARY QUITE A LIST OF CONCERNS ABOUT FEASIBILITY AND EXPERIMENTAL DESIGN, AND I JUST WILL HIGHLIGHT A FEW HERE BRIEFLY. THE REVIEWERS FELT THAT THIS WAS AN OVERLY AMBITIOUS PROJECT BECAUSE THE APPLICANT PROPOSES TO PURSUE THESE CELL-TYPE SPECIFIC INTERACTIONS IN FIVE DIFFERENT STEM CELL POPULATIONS. AND DOING SO, THEY FELT NONE OF THE DATA WOULD LIKELY LEAD TO ENOUGH DEPTH TO GIVE REALLY MEANINGFUL RESULTS.

THEY ALSO WERE CONCERNED ABOUT THE RATIONALE FOR ONE OF THE AIMS. SO ONE ENTIRE AIM IS ABOUT UNDERSTANDING THE MICRO-RNA MEDIATORS OF THIS

KIT SIGNALING. AND THE REVIEWERS WERE NOT CONVINCED THAT THERE WAS A GOOD RATIONALE TO PURSUE SPECIFICALLY MICRO-RNA'S IN THIS CONTEXT. AND I ALSO WANT TO POINT OUT THAT ALTHOUGH THE REVIEWERS DID LIKE THE GENERAL BIOINFORMATICS-BASED APPROACH, THEY WERE ACTUALLY NOT CONVINCED BY THE PRELIMINARY DATA THAT IN THE ONE EXAMPLE THAT WAS PROVIDED THAT THIS APPROACH WAS USED TO IDENTIFY A CO-RECEPTOR, THEY WERE NOT CONVINCED THAT THE BIOINFORMATICS APPROACH ACTUALLY LED TO THAT DISCOVERY. SO THEY HAD SOME CONCERNS, ALTHOUGH THE APPROACH IS INNOVATIVE, HAD SOME CONCERNS WHETHER IT'S ACTUALLY FEASIBLE BASED ON THE PRELIMINARY DATA.

AND LIKE I SAID, THERE WERE SEVERAL OTHER MORE DETAILED EXPERIMENTAL CRITICISMS THAT WERE BROUGHT FORWARD. I WANT TO END, THOUGH, BY SAYING THAT THE APPLICANT AND THE TEAM WERE FELT TO BE HIGHLY QUALIFIED TO PURSUE THESE STUDIES.

CHAIRMAN KLEIN: DR. AZZIZ.

DR. AZZIZ: I ACTUALLY HAVE A QUESTION JUST TO CLARIFY. IF YOU DON'T MIND BRIEFLY TELLING US THE BIOINFORMATIC APPROACH THAT WAS INITIALLY USED, WAS THIS SORT OF A DATABASE DRIVEN, ALREADY AVAILABLE, SORT OF A NODE KIND OF APPROACH TO DETERMINE TARGETS? TELL US JUST A LITTLE BIT ABOUT

THAT SINCE THAT'S THE INNOVATIVE PART OF THIS APPLICATION.

DR. GRIESHAMMER: IT DEFINITELY IS. AND I AM WONDERING, THOUGH, IF THAT IS A BETTER QUESTION FOR THE CLOSED SESSION. WE DID NOT SPEAK ABOUT THAT IN THE PUBLIC SUMMARY.

CHAIRMAN KLEIN: I THINK WHAT SHE'S SAYING IS THE INNOVATION IN THIS MAY BE PROPRIETARY.

DR. GRIESHAMMER: YES, EXACTLY.

DR. AZZIZ: THAT SOUNDS FINE. IF THAT'S THE CASE.

DR. GRIESHAMMER: I WOULD FEEL MORE COMFORTABLE.

CHAIRMAN KLEIN: AND HOW DIFFICULT IS IT TO STATE A CONSOLIDATED OPINION BECAUSE YOU HAVE A RANGE 40 TO 80 AND A STANDARD DEVIATION OF 9. SO IT LOOKS LIKE THERE'S A PRETTY BIG SPLIT IN THIS GROUP.

DR. GRIESHAMMER: YEAH. YOU HEARD A LOT OF POSITIVE COMMENTS I MADE.

DR. STEWARD: JUST TO ASK THE QUESTION I PROMISED. SO WAS IT A MATTER OF LACK OF ENTHUSIASM, OR WERE THERE REVIEWERS WHO FELT STRONGLY THAT IT SHOULD NOT BE FUNDED?

DR. GRIESHAMMER: WHAT I ACTUALLY CAN TELL YOU IS THAT THIS APPLICATION WAS NOT BROUGHT UP AT

ALL IN PROGRAMMATIC DISCUSSION, AND THAT MIGHT MEAN SOMETHING.

DR. TROUNSON: THERE WAS SOME STRONG SENTIMENT FOR AND AGAINST, OS, VERY STRONG. SO THAT'S WHY YOU GOT THE VARIANCE THAT WAS THERE. BUT THERE WAS -- 40 IS ABSOLUTELY DON'T GO NEAR IT MESSAGE. 80 SAYS LET'S TAKE IT ON. IT'S A GREAT PROJECT. THAT WAS EXPRESSED DURING THE DEBATES. AND THE SCIENTISTS BASICALLY HELD THEIR GROUND, I THINK, WHEN THEY CAME TO SCORE.

CHAIRMAN KLEIN: LEFT YOU THE DECISION. ALL RIGHT. VERY GOOD DISCUSSION. THANK YOU. VERY NICE PRESENTATION.

DO WE HAVE PUBLIC COMMENT ON THIS APPLICATION OR ON 1512, EITHER ONE OF THOSE? I DON'T SEE ANY PUBLIC COMMENT. IS THERE ANY MORE BOARD COMMENT? NOT SEEING ANY, I WOULD SUGGEST THAT THE PROTOCOL IS WE WOULD ADJOURN FOR DINNER AND THEN HAVE EXECUTIVE SESSION. WE'D LIKE TO MAKE SURE THE BLOOD SUGARS ARE WELL BALANCED BEFORE WE HAVE THIS INTELLECTUAL CHALLENGE. COULD WE BE INSTRUCTED ON WHERE WE'RE GOING?

MS. PRYNE: BOARD AND STAFF SHOULD ADJOURN TO THE ELAN ROOM, WHICH IS IF YOU GO THROUGH THE LOBBY, AROUND THE CORNER, PAST THE ELEVATORS.

FOLLOW ME.

CHAIRMAN KLEIN: I'D LIKE TO THANK THE STAFF FOR LEADING US INTO AN EXCELLENT SCIENTIFIC DISCUSSION. WE ARE NOT COMING BACK TONIGHT. WE ARE GOING TO COME BACK TOMORROW MORNING AND RECONVENE --

MS. KING: TAKE YOUR BINDERS.

CHAIRMAN KLEIN: -- IN THE CITY OF HOPE, SO TAKE ALL OF YOUR MATERIALS WITH YOU.

MS. KING: YOU CAN LEAVE YOUR CONFLICT SHEETS RIGHT AT YOUR SEAT AND WE WILL PICK THEM UP, OR YOU CAN HAND THEM TO ME IF YOU'RE ON YOUR WAY TO ME.

(THE MEETING WAS THEN ADJOURNED TO CLOSED SESSION AT 07:02 P.M TO RECONVENE APRIL 29, 2010, AT THE CITY OF HOPE.)

REPORTER'S CERTIFICATE

I, BETH C. DRAIN, A CERTIFIED SHORTHAND REPORTER IN AND FOR THE STATE OF CALIFORNIA, HEREBY CERTIFY THAT THE FOREGOING TRANSCRIPT OF THE PROCEEDINGS BEFORE THE INDEPENDENT CITIZEN'S OVERSIGHT COMMITTEE OF THE CALIFORNIA INSTITUTE FOR REGENERATIVE MEDICINE IN THE MATTER OF ITS REGULAR MEETING HELD AT THE LOCATION INDICATED BELOW

DOUBLETREE HOTEL MONROVIA-PASADENA
924 WEST HUNTINGTON DRIVE
MONROVIA, CALIFORNIA
ON
WEDNESDAY, APRIL 28, 2010

WAS HELD AS HEREIN APPEARS AND THAT THIS IS THE ORIGINAL TRANSCRIPT THEREOF AND THAT THE STATEMENTS THAT APPEAR IN THIS TRANSCRIPT WERE REPORTED STENOGRAPHICALLY BY ME AND TRANSCRIBED BY ME. I ALSO CERTIFY THAT THIS TRANSCRIPT IS A TRUE AND ACCURATE RECORD OF THE PROCEEDING.

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