BEFORE THE

IP TASK FORCE
OF 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:	UCSD 9500 GILMAN DRIVE EUCALYPTUS POINT LA JOLLA, CALIFORNIA
DATE:	THURSDAY, APRIL 27, 2006 8:15 A.M.
REPORTER:	BETH C. DRAIN, CSR CSR. NO. 7152
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I N D E X

THURSDAY, APRIL 27, 2006

MS. KING: WE'LL CALL THE MEETING TO ORDER THEN.

CHAIRMAN PENHOET: WE HAVE A TRANSCRIBER AT WORK, SO WE CAN START THE MEETING. THIS MEETING IS BEING CONDUCTED IN FIVE PLACES. WE'RE AT UC SAN DIEGO, AND WE THANK OUR HOST FOR PROVIDING THIS SPACE, AT NUVELO CORPORATION, IN LOS ANGELES, AND IN CHICO. WE'LL DO A ROLL CALL SO WE KNOW EXACTLY WHO FROM THE CIRM IS PRESENT.

MS. KING: SUSAN BRYANT.

DR. BRYANT: HERE.

MS. KING: MICHAEL GOLDBERG.

MR. GOLDBERG: HERE.

MS. KING: SHERRY LANSING. TED LOVE.

UNIDENTIFIED SPEAKER: HE STEPPED OUT. HE'LL BE RIGHT BACK.

MS. KING: ED PENHOET.

CHAIRMAN PENHOET: HERE.

MS. KING: PILL PIZZO. JOHN REED.

DR. REED: HERE.

MS. KING: JEFF SHEEHY. OSWALD STEWARD.

DR. STEWARD: HERE.

MS. KING: JANET WRIGHT.

DR. WRIGHT: HERE.

CHAIRMAN PENHOET: GOOD. SO THANK YOU ALL. SORRY WE'RE LATE IN GETTING STARTED, BUT WE WILL PROCEED WITH TODAY'S SESSION. AS ALL OF YOU KNOW, I THINK THIS IS OUR SECOND MEETING IN OUR ATTEMPTS TO DEFINE AN INTELLECTUAL PROPERTY POLICY FOR GRANTS, CONTRACTS, LOANS, WHATEVER FORM OF PAYMENTS WE MIGHT MAKE TO INDUSTRIAL ORGANIZATIONS.

AND WE HAD A SORT OF VERY, I THINK, PRODUCTIVE FIRST MEETING AT STANFORD NOW SIX WEEKS AGO, I GUESS IT WAS. AND THIS ROUND WITH THE SECOND MEETING IN SAN DIEGO. WE PLAN TO HAVE A THIRD MEETING PROBABLY IN SACRAMENTO SOMETIME LATER IN THE SUMMER. SO WE'RE MOVING THIS PROCESS ALONG. WE'RE VERY INDEBTED TO THE PEOPLE WHO HAVE AGREED TO COME AND SHARE THEIR PERSPECTIVES ON THIS ISSUE WITH US TODAY.

WE HAVE A GROUP OF PRESENTERS, FIVE IN TOTAL, AS YOU KNOW. AND THE FIRST OF THOSE IS JOHN SIMPSON. JOHN IS THE STEM CELL PROJECT DIRECTOR FOR THE FOUNDATION FOR TAXPAYER AND CONSUMER RIGHTS. SO WE'LL JUST GET RIGHT INTO JOHN'S PRESENTATION. JOHN, THANK YOU FOR JOINING US TODAY AND FOR PUTTING YOUR PRESENTATION TOGETHER.

A REMINDER, WE HAD TO WAIT FOR A TRANSCRIBER BECAUSE ALL THESE MEETINGS ARE TRANSCRIBED, SO WE GET

ALL OF THE COMMENTS AND WE KEEP ALL OF THE POWERPOINT PRESENTATIONS AS WELL. WE HAVE FIVE, SIX PEOPLE IN THE AUDIENCE HERE THIS MORNING, ONE OF WHOM IS OUR NEWEST ICOC MEMBER, DUANE ROTH, WHO MOST OF THE LOCAL PEOPLE KNOW THANK YOU FOR JOINING US TODAY.

MR. SIMPSON: THANK YOU, VERY MUCH, DR. PENHOET. IS THIS MICROPHONE WORKING LOUD ENOUGH SO THAT EVERYONE CAN HEAR IT OKAY? I'M WIRELESSLY HOOKED UP HERE. I'M NOT QUITE SURE. WHAT ABOUT THE REMOTE SITES? ARE YOU ABLE TO HEAR ON THE TELEPHONES?

(ALL SITES RESPOND AFFIRMATIVELY.)

MR. SIMPSON: WELL, FIRST OF ALL, I REALLY WANTED TO THANK THE CHAIRMAN AND THE FIRST DEPUTY FOR GIVING ME THE OPPORTUNITY TO PRESENT OUR VIEWS. WE DID ISSUE A REPORT BACK IN JANUARY WHICH WAS CALLED "AFFORDABILITY, ACCESSIBILITY, AND ACCOUNTABILITY FOR CALIFORNIA STEM CELL RESEARCH." THAT WAS AIMED MORE TOWARDS THE NONPROFITS. WE HAVE COPIES OF THAT HERE AVAILABLE TO THE BOARD MEMBERS. WHAT I ALSO THEN PREPARED IS A WHITE PAPER TODAY THAT IS ALSO AVAILABLE. IT'S THE BASIS FOR THIS PRESENTATION. I THINK YOU'VE GOT THAT AS WELL.

I JUST WOULD POINT OUT IF YOU HAVE STRONG AGREEMENTS OR DISAGREEMENTS OR WHATEVER WITH WHAT I MIGHT SAY, MY COORDINATES ARE THERE ON THE FIRST SLIDE.

I CAN BE REACHED AT JOHN@CONSUMERWATCHDOG.ORG. OUR WEBSITE IS WWW.CONSUMERWATCHDOG.ORG, AND WE HAVE OUR OWN SPECIAL STEM CELL PAGES AT STEMCELLWATCH.ORG.

DR. WRIGHT: JOHN, THIS IS JANET WRIGHT. IS THE WHITE PAPER THAT YOU HAVE THERE TODAY ACCESSIBLE THROUGH THE WEBSITE, OR ARE YOU GOING TO MAIL THAT OUT TO THOSE OF US WHO AREN'T THERE? HOW DOES THAT WORK?

MR. SIMPSON: THAT WAS E-MAILED, I THINK, WAS IT? IN TERMS OF THE SLIDES. I CAN SEND IT. IT WILL BE AVAILABLE ON OUR WEBSITE. I HAVE SENT A COPY OF IT TO CIRM.

DR. MAXON: I CAN DISTRIBUTE IT AGAIN.

DR. WRIGHT: GREAT. THANKS.

CHAIRMAN PENHOET: -- HERE EVERYBODY SHOULD HAVE A COPY.

MR. SIMPSON: THE THING I FIRST WANT TO TALK ABOUT WHO WE ARE. WE'RE A NONPROFIT, NONPARTISAN CONSUMER WATCHDOG ORGANIZATION. WE WERE KNOWN FOR THE PROPOSITION 103. OUR FOUNDER, HARVEY ROSENFIELD, WROTE THAT AND REFORMED THE INSURANCE INDUSTRY. WE'VE BEEN INVOLVED RECENTLY IN HEALTHCARE, INSURANCE, ACCESS, FIGHTING EXCESSIVE OIL PROFITS, CAMPAIGN FINANCE REFORM, THAT SORT OF THING.

I THINK IT'S IMPORTANT TO UNDERSTAND THAT WE DID NOT HAVE A POSITION ON PROPOSITION 71 WHEN IT WAS

PASSED. WHEN IT WAS PASSED, WE FELT THAT OUR ROLE WAS TO MAKE SURE THAT THE PUBLIC BENEFIT PROMISES ARE KEPT AND ENACTED. SO SOME ORGANIZATIONS HAVE BEEN AGAINST IT FROM THE BEGINNING. WE STEPPED INTO IT ONCE ESSENTIALLY IT WAS OVERWHELMINGLY APPROVED BY THE PEOPLE.

AND A LITTLE BIT ABOUT MYSELF. I'M A FORMER NEWSPAPERMAN, A LONG TIME WITH THE GANETT COMPANY IN PLACES IN UPSTATE NEW YORK, BINGHAMTON, ITHACA, GUAM, AND THEN MOST OF MY CAREER AT U.S.A. TODAY WHERE I ENDED UP BEING DEPUTY EDITOR, WHICH WAS A GLORIFIED WAY OF SAYING I RAN THE INTERNATIONAL EDITION. I DID A LITTLE BIT OF CONSULTING WITH THE IRISH TIMES, THE GLEANER IN JAMAICA, TAUGHT JOURNALISM IN IRELAND, ENDED UP AT A SYNDICATE COMPANY IN L.A., AND NOW I'M WORKING FOR THE FOUNDATION. I SHOULD STRESS I'M NOT A LAWYER. SO I DON'T KNOW WHETHER THAT HELPS MY VIEW OF IP OR HINDERS IT, BUT THAT IS A DISCLAIMER.

AT THE LAST HEARING WE HEARD WHAT I THOUGHT WAS SORT OF AN EXAMPLE OF, YOU KNOW, DO IT OUR WAY OR WE'RE GOING TO TAKE THE PETRIE DISHES AND GO HOME. GENENTECH, ALTHOUGH THEY'RE NOT PROBABLY GOING TO BE INVOLVED IN STEM CELL RESEARCH, TALKED ABOUT THE BIOTECH INDUSTRY AND SAID, LOOK, WE'RE NOT GOING TO ENGAGE IF THERE ARE APPROPRIATE PUBLIC BENEFIT

REQUIREMENTS ATTACHED TO THESE GRANTS.

BRAD MARGUS FROM PERLEGEN SCIENCES BASICALLY SAID COMPANIES AREN'T GOING TO COME TO YOU ON OUR KNEES. YOU WANT TO ENCOURAGE THE BEST CLASS OF PLAYERS TO PARTICIPATE, NOT JUST THE FINANCIALLY DESPERATE. WELL, I THINK THERE'S SOME FACTS THAT NEED TO BE EXAMINED. LAST YEAR $5.9 BILLION WENT OUT TO THE BIOTECH INDUSTRY. A 120 MILLION OF THAT WAS FOR STEM CELL RESEARCH. THERE WAS $30 MILLION OF FEDERAL STEM CELL MONEY. AND WHAT THAT REALLY MEANS IS, I THINK, THAT WHEN CIRM STARTS PUTTING OUT $300 MILLION A YEAR, YOU'RE GOING TO BE THE BIGGEST FUNDER OF STEM CELL RESEARCH IN THE WORLD PROBABLY. SO TO ME THAT MEANS, YES, THE BIOTECH INDUSTRY REALLY IS KEENLY INTERESTED IN THIS PUBLIC MONEY AND WANTS IT.

THE OTHER THING I THINK I JUST WANT TO ADD ABOUT THE WHOLE VENTURE CAPITAL PICTURE, WHICH IS IMPORTANT, IS THAT LOOMING OVER THE WHOLE INDUSTRY AND CAUSING A GREAT AMOUNT OF UNCERTAINTY ON THE PART OF VENTURE CAPITALISTS IN STEM CELLS ARE THE PATENTS ON HUMAN EMBRYONIC STEM CELLS ON ALL OF THEM IN THE UNITED STATES, THE PATENTS ONLY RECOGNIZED IN THE UNITED STATES THAT ARE HELD BY THE WISCONSIN AREA ALUMNI -- I'M SORRY -- WISCONSIN ALUMNI RESEARCH FOUNDATION. THE WARF PATENTS REALLY ARE OUTRAGEOUS. I

MEAN THEY MEAN, FOR INSTANCE, THAT IF THE STEM CELL RESEARCHER, LIKE JEANNE LORING, WHO'S IN THE AUDIENCE, COMES UP WITH 20 NEW STEM CELL LINES, SHE CAN'T PROVIDE THEM TO ANYBODY ELSE UNLESS WARF SAYS SO. AT LEAST THAT'S LITERALLY WHAT IT MEANS.

PROPOSITION 71, THE PROMISES OF THAT. WELL, WE ALL KNOW ABOUT THE PROMISES OF CURES AND HOPE AND THAT, BUT THE OTHER THING WE'VE GOT TO REMEMBER WAS THAT IN THE PROPOSITION ITSELF WERE SPECIFIC PROVISIONS TO BENEFIT THE PEOPLE. I QUOTE HERE FROM SECTION III OF THE PURPOSE AND INTENT OF PROP 71. ONE OF THEM WAS TO PROTECT THE BENEFIT TO THE CALIFORNIA BUDGET BY PROVIDING AN OPPORTUNITY FOR THE STATE TO BENEFIT FROM ROYALTIES, PATENTS, AND LICENSING FEES THAT RESULT FROM RESEARCH.

THE VOTE OVERWHELMINGLY PROVED THE CONCEPT OF PROP 71. FIFTY-NINE PERCENT OF THE PEOPLE VOTED FOR IT. THEY DID IT, THOUGH, WITH THE DIRECT UNDERSTANDING AND BELIEF BOTH IN THAT SPECIFIC LANGUAGE AND IN THE LANGUAGE OF VARIOUS ANALYSES THAT THE SUPPORTERS OF THE PROPOSITION USED AT THE TIME THAT ESTIMATED THAT AN AMOUNT FROM 6.4 BILLION TO 12.6 BILLION WOULD CAN BACK TO THE STATE. SO WHAT I THINK IS THAT IT WAS AN OVERWHELMING SUPPORT FOR PROP 71, BUT NOT A BLANK CHECK FOR BIOTECH.

THE OTHER THING I THINK THAT'S KEY IN ALL OF THIS IS THAT THE WAY THAT YOU CAN MAKE SURE THAT THE PUBLIC BENEFIT IS MET IS THROUGH IP POLICY. IP POLICY IS THE MECHANISM TO ASSURE THE PROMISES ARE KEPT.

NOW, YOU CAN TALK ABOUT PATENTS AND COMMISSIONS AND ROYALTIES, AND YOUR EYES WILL GLAZE OVER WHEN YOU START THINKING ABOUT HOW TO APPROACH IT IN THAT DIRECTION. I LIKE TO USE SOME SIMPLE BUSINESS MODELS, SOME SIMPLE SCENARIOS TO KIND OF UNDERSTAND WHAT I THINK ARE AT STAKE. AND TO ME THERE'S ONLY FOUR WAYS THAT CIRM MONEY CAN GO TO A BUSINESS. AND I CALL SCENARIO 1 LIKE BUILDING A HOUSE. BASICALLY YOU PAY A COMPANY TO BUILD A HOUSE. WHEN IT'S FINISHED, YOU OWN THE HOUSE. YOU MIGHT LIVE IN IT OR SELL IT, AND THE COMPANY THAT RECEIVED YOUR MONEY MADE A PROFIT AND HAS AN INCENTIVE TO BUILD MORE HOUSES. I THINK IN THE SAME WAY IF YOU GIVE A GRANT TO A BIOTECH COMPANY TO DO RESEARCH AND THE TAXPAYERS HAVE PUT UP THE MONEY, ANY DISCOVERIES THAT COME OUT OF THAT GRANT THAT LEAD TO SOMETHING THAT'S PATENTABLE, TAXPAYERS SHOULD OWN THAT PATENT.

WE WOULD URGE THAT THAT PATENT GO INTO A PATENT POOL TO MAXIMIZE ACCESS TO IT FOR THE MAXIMUM NUMBER OF PEOPLE. WE WOULD ALSO SAY THAT IF THERE WERE CASES WHERE FOR COMMERCIALIZATION OF THE PRODUCT THAT

WERE NECESSARY TO HAVE AN EXCLUSIVE LICENSE, THE STATE WOULD LICENSE IT BACK EXCLUSIVELY TO THAT GRANTEE ORGANIZATION IF IT WERE ABSOLUTELY NECESSARY TO COMMERCIALIZE.

THE SECOND SCENARIO IS WHAT I CALL THE PARTNERSHIP MODEL. I KIND OF LIKE THIS NOTION OF A HOUSE, BUT HERE SUPPOSE SOMEBODY HAS GOT LAND AND THEY COME TO YOU AND SAY GIVE US SOME MONEY. WE'LL BUILD A HOUSE ON THAT LAND. YOU PUT UP THE MONEY, WHEN THE HOUSE IS SOLD, YOU GET A RETURN ON YOUR INVESTMENT. IN THE WORLD OF PROPOSITION 71 AND BIOTECH, THIS WOULD BE ANALOGOUS TO A SITUATION WHERE A COMPANY ALREADY HAS A LICENSE OR A PATENT, AND THEY WANT THE MONEY TO FURTHER DEVELOP IT AND BRING WHATEVER THE PRODUCT IS USING THE EXISTING PATENT THAT THEY OWN OR CONTROL, BRINGING THAT TO MARKET.

SO IN THIS CASE I WOULD ARGUE THAT THE TAXPAYER SHOULD DESERVE SOME SORT OF RETURN ON THAT INVESTMENT THAT THEY'VE PUT IN. AND THAT WOULD BE SOME KIND OF A COMMISSION.

SCENARIO 3 IS MY BANK LOAN MODEL. COMPANY COMES AND SAYS WE'D LIKE TO BORROW X MILLIONS OF DOLLARS TO DO Y PROJECT. EVERYONE SITS DOWN AND AGREES THAT, OKAY, YOU GET IT AT THIS INTEREST RATE, YOU PAY IT BACK OVER THIS PERIOD OF TIME. I WOULD ASSERT THAT

IN THAT SITUATION YOU PROBABLY WOULD NOT HAVE A CLAIM THAT THE STATE COULD PUT ON THE INTELLECTUAL PROPERTY; BUT JUST LIKE WHEN A BANK MAKES A MORTGAGE, THE MORTGAGEE OFTEN HAS REQUIREMENTS PLACED ON THEM THAT THEY HAVE TO ENSURE THE PROPERTY OR THINGS LIKE THAT. I THINK THAT IT'S PERFECTLY APPROPRIATE IF YOU ARE GOING TO GET A LOAN FROM CIRM, THAT THERE BE PUBLIC BENEFIT REQUIREMENTS ATTACHED TO THE LOAN.

FINALLY, SCENARIO NO. 4 IS CONTRACT SERVICE. I COMPARE THAT TO THE SAME SORT OF THING AS HIRING SOMEBODY TO COME IN AND CLEAN YOUR HOUSE. FOR PROP 71 MONEY, IT COULD BE SOMETHING WHERE CIRM WOULD CONTRACT TO PROVIDE A PARTICULAR SERVICE, MAYBE MAINTAIN A STEM CELL BANK, MAYBE PROVIDING SOME SORT OF WIDELY NECESSARY RESEARCH TOOL THAT THE RESEARCHERS DON'T REALLY WANT TO MAKE, BUT IS NECESSARY FOR THE WORK. CIRM COULD CONTRACT TO DO THAT.

AGAIN, I DON'T SEE THAT THERE WOULD BE INTELLECTUAL PROPERTY CREATED THAT THE STATE WOULD NECESSARILY HAVE A ROLE IN, BUT I DO THINK THAT, JUST AS IF I GO HIRE A CONTRACTOR, IT'S SUGGESTED TO ME THAT I GET THREE BIDS AND GET THE BEST PERSON IN TO DO THE JOB, I THINK IT WOULD BE APPROPRIATE FOR CIRM TO HAVE PUBLIC BENEFIT REQUIREMENTS ATTACHED TO WHATEVER CONTRACT WAS AWARDED.

SO THOSE ARE SOME BROAD KINDS OF THEORIES. WE BELIEVE THAT THE IP POLICY NEEDS TO BE GROUNDED IN THREE PRINCIPLES. WE SAY AFFORDABILITY, ACCESSIBILITY, ACCOUNTABILITY. WE MADE THAT POINT IN OUR ORIGINAL PAPER THAT WE PUT OUT. AND WHAT THAT BASICALLY MEANS VERY QUICKLY IS THE TREATMENTS HAVE TO BE PRICED SO THEY CAN BE SOLD -- SO THAT ALL CALIFORNIANS CAN AFFORD AND BENEFIT THEM. ACCESSIBILITY MEANS NOT JUST FOR POTENTIAL PATIENTS THAT CAN USE THE THERAPIES. IT ALSO MEANS THAT RESEARCHERS NEED TO HAVE ACCESS TO EACH OTHER'S RESEARCH, WHICH I THINK IS ONE OF THE MAJOR IMPORTANT POSITIONS OF THE IP POLICY FOR NONPROFITS. AND FINALLY, ACCOUNTABILITY. POLICIES ARE NO GOOD UNLESS THERE'S A MECHANISM TO ENSURE ENFORCEMENT, AND WE THINK THAT NEEDS TO BE ATTORNEY GENERAL.

SO WITH THAT SORT OF BROAD FRAMEWORK, I'VE GOT SOME SPECIFIC SORT OF BULLET POINTS OF THINGS THAT WE WOULD LIKE TO SEE INCORPORATED IN WHATEVER IP POLICY FINALLY COMES OUT, AND IT'S IN GREATER DETAIL IN THE WHITE PAPER, BUT JUST TO HIT THE HIGHLIGHTS VERY QUICKLY, AND WE THINK THIS ONE IS CRITICAL. THIS IS NOT NOW IN THE NONPROFIT ONES. WE THINK IT NEEDS TO BE ADDED. WE THINK THAT THAT'S THE PRINCIPLE THAT ANY THERAPIES OR DIAGNOSTICS THAT ARE DEVELOPED WITH PROPOSITION 71 MONEY HAVE TO BE MADE AVAILABLE AT A

REASONABLE PRICE. WE THINK A REASONABLE PRICE IS ONE THAT REFLECTS THE TRUE COST OF DEVELOPMENT OF THE DRUG OR THERAPY AND ALSO THE PUBLIC'S INVESTMENT.

WE THINK THAT IN THE SITUATIONS WHERE PERHAPS A COMPANY IS GETTING LICENSING REVENUE, ROYALTY REVENUE IN FOR SOMETHING THAT IT'S DEVELOPED WITH PROP 71 MONEY, WE THINK THAT, LIKE WITH THE NONPROFITS, THERE SHOULD BE A DIRECT PAYBACK TO THE STATE, AND WE THINK 25 PERCENT OF THE ROYALTIES WOULD BE APPROPRIATE.

NEXT SLIDE. WE WOULD BE THINKING ABOUT SITUATIONS WHERE THERE WOULD BE A COMMISSION OR A LICENSE FEE COMING BACK TO THE STATE. WE THINK A ROYALTY RATE WHEN A ROYALTY COMES INTO PLAY OUGHT TO BE THE SAME SORT OF ROYALTY RATE THAT WOULD APPLY TO SIMILAR SITUATIONS IF THE UNIVERSITY OF CALIFORNIA HAD DONE IT.

OTHER POINTS THERE, WE ALWAYS THINK IT'S IMPORTANT TO HAVE THE BUSINESSES EXPLAIN HOW WHAT THEY'RE GOING TO DO IS GOING TO BENEFIT ALL OF CALIFORNIANS. AND AGAIN, SAME AS THE NONPROFITS, WE THINK THERE NEEDS TO BE THE PROVISION THAT ANY DIAGNOSTICS OR CURES WOULD BE SOLD AT THE LOWEST PRICE TO PUBLICLY FUNDED HEALTHPLANS. THAT OFTEN IS THE MEDICAID PRICE, BUT I THINK SPECIFICALLY THE LOWEST IS A BETTER WAY TO FRAME IT.

AND THE NOTION OF ACCESSIBILITY, WE REALLY BELIEVE THAT THERE SHOULD BE A PATENT POOL, THAT THIS WOULD MAXIMIZE ACCESSIBILITY FOR EVERYBODY. IT'S TRUE THAT, YOU KNOW, IT TOOK A WORLD WAR I TO FORCE THE PATENT POOL THAT MADE AIRPLANES FLY AND REALLY COULDN'T HAVE DEVELOPED AIRPLANES WITHOUT GETTING ALL THE PATENTS TOGETHER IN ONE PLACE. AND I GUESS IT WAS FRANKLIN ROOSEVELT THAT WAS GIVEN THE CHARGE TO ESSENTIALLY ORDER A PATENT POOL, AND THAT'S WHAT LED TO FIGHTER PLANES BEING BUILT FOR WORLD WAR I.

IN SOME WAYS I THINK WE'RE IN A SIMILAR SITUATION WITH STEM CELL RESEARCH, AND SOMEBODY HAS GOT TO STEP UP TO THE PLATE AND SAY THERE ARE TOO MANY PATENTS. THEY NEED TO GET POOLED, SO WE CAN GO AHEAD ON THIS.

OTHER POINTS THERE ARE SOME OF THE SIMILAR ONES THAT WE'VE HAD IN THE NONPROFIT RULES. AND YOU CAN ALL READ THEM. WELL, I THINK THE NOTION THAT A BUSINESS WOULD HAVE TO PROVIDE A PLAN FOR ACCESS TO UNINSURED PATIENTS IS IMPORTANT. AND AGAIN, I CAN FORESEE A SITUATION WHERE EXCLUSIVITY SOMETIMES WORKS AGAINST DISSEMINATION, AND CIRM OUGHT TO BE ABLE TO BAR AN EXCLUSIVE LICENSE IN THAT SORT OF SITUATION.

THE SAME RULES IN THE NEXT SLIDE AS ARE IN THE FOUR -- EXCUSE ME -- THE NONPROFIT RULES. I THINK

THE ACCESS TO RESEARCH FOR RESEARCH PURPOSE IS CRITICAL. THAT NEEDS TO BE MAINTAINED. AND THIS LAST ITEM UNDER ACCESSIBILITY, I THINK THAT IN THOSE CIRCUMSTANCES WHERE AN EXCLUSIVE LICENSE IS GRANTED, IT'S NECESSARY TO GRANT IT ON A DISEASE-SPECIFIC BASIS. THIS PRECLUDES ONE COMPANY FROM ESSENTIALLY GETTING A LICENSE FOR A DRUG AND THEN ONLY GOING DOWN ONE ROUTE, BUT BLOCKING EVERYONE ELSE FROM DOING IT.

SO I THINK THAT IF YOU WANT TO LICENSE SOMETHING EXCLUSIVELY, IT SHOULD BE, OKAY, YOU'VE GOT THIS PARTICULAR THERAPY. WE'RE LICENSING IT EXCLUSIVELY FOR YOU TO DO SOMETHING WITH DIABETES. AND THEN ANOTHER EXCLUSIVE LICENSE, IF NECESSARY, TO GO INTO A DIFFERENT DISEASE. I THINK THAT WOULD KEEP PROGRESS GOING AHEAD FASTER.

AS I SAID BEFORE, ALL THE GREAT RULES IN THE WORLD REALLY ARE ONLY SO MUCH WORDS AND PAPER UNLESS THERE IS A MEANS OF ENFORCING ACCOUNTABILITY. WE BELIEVE THAT THE ATTORNEY GENERAL EXPLICITLY NEEDS TO HAVE INVOLVEMENT IN SOME OF THIS. IT IS TRUE THAT THROUGH THE OFFICE OF ADMINISTRATIVE LAW THAT ULTIMATELY YOUR REGULATIONS ARE LAWS, BUT I THINK IN SOME AREAS THERE NEEDS TO BE MORE EXPLICIT INVOLVEMENT OF THE ATTORNEY GENERAL AS THE ENFORCER, AND I THINK THAT COMES SPECIFICALLY ALONG THE NOTION OF

UNREASONABLE PRICING.

AND I THINK THERE THAT IF DRUGS, CURES, THERAPIES ARE FOUND TO BE PRICED UNREASONABLY, THEN THE ATTORNEY GENERAL NEEDS TO HAVE SO-CALLED MARCH-IN RIGHTS, THE RIGHTS TO INTERVENE. AND AGAIN, TO REITERATE, REASONABLE PRICING IS PRICING THAT TAKES INTO ACCOUNT THE ACTUAL DEVELOPMENT COST OF THE DRUG AND THE PUBLIC'S INVESTMENT IN IT. AG NEEDS MARCH-IN RIGHTS IF OTHER PUBLIC BENEFIT REQUIREMENTS AREN'T MET. SHOULD BE MARCH-IN RIGHTS FOR CIRM IF BUSINESS FAILS TO DEVELOP SOMETHING THAT THEY'VE HAD A LICENSE FOR. THE NEXT SLIDE. MARCH-IN RIGHTS FOR PUBLIC HEALTH AND SAFETY REASONS.

AND THEN FINALLY, WE WOULD HOPE THAT THERE'S GOING TO BE A NUMBER OF START-UP COMPANIES THAT COME OUT OF THIS WHOLE PROCESS, BUT WE THINK THAT BECAUSE IT'S PUBLIC MONEY THAT'S GOING INTO SOME OF THESE KINDS OF THINGS, THERE DOES NEED TO BE COMPLETE TRANSPARENCY. AND, THEREFORE, INVESTORS AND MAJOR SHAREHOLDERS WHO ARE INVOLVED IN START-UP COMPANIES THAT COME ABOUT THROUGH PROPOSITION 71-FUNDED RESEARCH NEED TO FILE DISCLOSURE FORMS THAT WOULD BECOME PUBLIC RECORDS.

SO IN CONCLUSION, THE SUMMARY, THE HIGH POINTS OF WHAT WE THINK ARE IMPORTANT IS, ONE, IP POLICY IS THE MEANS TO ASSURE THAT THE PROMISES OF

PUBLIC BENEFIT THAT WERE INCORPORATED IN PROPOSITION 71 ARE KEPT. NO. 2, THAT IF A PATENT COMES ABOUT BECAUSE -- DIRECTLY BECAUSE OF PROP 71 MONEY, THEN THE STATE SHOULD HAVE THAT PATENT. WE THINK THAT ABSOLUTELY ESSENTIAL IN BOTH THE NONPROFIT RULES, AND WE'LL BE ADDING THOSE COMMENTS IN THE APPROPRIATE PUBLIC COMMENT TIME, AND IN THE FOR-PROFIT RULES IS REQUIREMENT FOR REASONABLE PRICING.

NOW, WE DON'T SAY THAT COMPANIES SHOULDN'T MAKE A PROFIT. WE DON'T THINK THAT. WE THINK THAT THE PROFIT NEEDS TO BE REASONABLE. I MENTION THE NONPROFIT IP RULES NEED IMPROVEMENT, AND WE'LL BE CONTINUING TO WORK THROUGH ALL OF THE PROCESSES THAT HAVE BEEN MADE AVAILABLE TO US TO TRY AND BRING ABOUT THAT IMPROVEMENT, BUT THEY ARE A MINIMUM STARTING POINT. AND THERE'S SOME IMPORTANT PRINCIPLES THAT ARE IN THOSE THAT NEED TO BE CARRIED OVER FOR SURE INTO THE FOR-PROFIT RULES.

FINALLY, YOU KNOW, THE VENTURE CAPITALISTS WHO HAVE BEEN TALKING ABOUT CIRM MONEY AS, QUOTE, FREE MONEY OR ALMOST LIKE FREE MONEY AND INDEED THEY HAVE -- I'VE BEEN AT CONFERENCES WHERE I'VE HEARD IT CALLED THAT -- NEED TO UNDERSTAND, AND I THINK THAT MANY RESPONSIBLE COMPANIES DO UNDERSTAND THIS, IS THAT WITH PUBLIC MONEY COMES THE REQUIREMENT OF MEETING SOME

FAIR, EQUITABLE PUBLIC BENEFIT REQUIREMENTS.

THANK YOU VERY MUCH. ANY QUESTIONS, I'D BE GLAD TO ANSWER THEM. AND I GUESS IF WE HAVE ONE MORE SLIDE, IF YOU WANT TO SEND YOUR SLINGS AND ARROWS, THERE'S A PLACE THERE AGAIN WHERE YOU CAN REACH ME ANY TIME.

CHAIRMAN PENHOET: THANK YOU, JOHN. SO FIRST OF ALL, ANY QUESTIONS FROM THE TASK FORCE HERE IN SAN DIEGO? FRANCISCO.

DR. PRIETO: YES. FRANCISCO PRIETO. ONE COULD SAY ABOUT THE 120 MILLION FOR STEM CELL RESEARCH, IS THAT IN THE U.S. OR IS THAT WORLDWIDE?

MR. SIMPSON: MY UNDERSTANDING WAS THAT WAS IN THE U.S. THAT WAS VENTURE CAPITAL INVESTMENT IN THE UNITED STATES. I WOULD HAVE TO DOUBLE-CHECK THAT, BUT MY RECOLLECTION OF THE FIGURE IS THAT THAT WAS IN THE UNITED STATES.

DR. PRIETO: I THINK ONE OF THE QUESTIONS FOR A LOT OF US IS, YOU KNOW, WHETHER, INDEED, WE WILL BE THE WORLD'S BIGGEST, OR ARE WE REALLY FAR BEHIND THE UK AND SINGAPORE AND ISRAEL. AND I DON'T KNOW WHAT THE DOLLAR ARE IN THOSE PLACES AND WHAT THE FUNDING SOURCES ARE, BUT I'D BE VERY INTERESTED TO LEARN.

CHAIRMAN PENHOET: WE'LL DO SOME HOMEWORK AND CAN GET BACK TO YOU ON IT. JOHN.

DR. REED: JOHN REED. YEAH, I ALSO HAVE SOME QUESTIONS ABOUT THOSE NUMBERS. THERE WAS A 5.9 BILLION MENTIONED, AND I UNDERSTAND THAT, BUT WE CAN DECLARE LATER.

I WAS CURIOUS ABOUT THE GROUP'S CALCULATION OF THE 25-PERCENT ROYALTY. CAN YOU EXPLAIN HOW YOU TARGETED THAT AMOUNT, WHAT WAS YOUR THINKING THERE? YOU'RE SUGGESTING A 25-PERCENT ROYALTY ON ANY PRODUCTS.

CHAIRMAN PENHOET: I THINK THAT'S NOT -- WHAT THE NONPROFIT POLICY SAYS IS 25 PERCENT OF THE ROYALTY, NOT A 25-PERCENT ROYALTY. AND THERE'S BEEN SOME MISUNDERSTANDING ABOUT THAT.

MR. SIMPSON: IN OTHER WORDS, WHAT WE WERE SAYING IS IF THERE IS A REVENUE STREAM. AND I CAN ENVISION -- EVEN IF THE STATE HELD SOME PATENTS, I CAN ENVISION A SITUATION WHERE THERE WOULD BE ROYALTIES COMING BACK BECAUSE THERE MIGHT BE A CASE WHERE OTHER PATENTS WERE INVOLVED OR WHATEVER. SO THE COMPANY IS GETTING ROYALTIES. AND IF PROPOSITION 71 MONEY HAS GONE INTO THAT ROYALTY, THEN WE THINK IT SHOULD BE 25 PERCENT OF THE ROYALTY. AND THAT'S COMPATIBLE WITH WHAT WAS DONE WITH THE NONPROFITS.

THE SAME SITUATION THERE, ALTHOUGH THE TROUBLESOME THING WITH THE NONPROFITS IS IF THE ROYALTY KICKS IN ONLY AFTER A $500,000 THRESHOLD, WHICH SHOULD

BE LOWER BECAUSE IT'S NOT GROSS, IT'S NET, AND WE THINK IT NEEDS TO BE A LOWER THRESHOLD BEFORE. BUT IT'S THE SAME MODEL.

AND IF YOU'RE TALKING ABOUT ROYALTY RATES OR COMMISSION RATES IN THE SENSE OF WHAT THEY WOULD BE, THAT'S WHERE I COMPARE IT TO THE UNIVERSITY OF CALIFORNIA WHERE USUALLY YOU NEGOTIATE RATES MAYBE 2 TO 6 PERCENT OF THE GROSS. SO THE 25 PERCENT WOULD BE OF A -- OF THAT KIND OF THING.

DR. REED: THANK YOU FOR CLARIFYING.

MS. KING: THIS IS MELISSA AT UC SAN DIEGO. I JUST WANTED TO LET EVERYBODY KNOW ON THE PHONE AND HERE AS WELL IF EVEN BOARD MEMBERS COULD, BEFORE SPEAKING, ADDRESS YOURSELF BY YOUR OWN NAME, STATE WHO YOUR FOR THE BENEFIT OF THE TRANSCRIBER, WHO'S ON THE PHONE, THAT WOULD BE GREAT. SAME WITH MEMBERS OF PUBLIC. YOU DON'T HAVE TO IDENTIFY YOURSELVES, BUT IF YOU WOULD, THAT'S VERY HELPFUL TO US. THANK YOU.

DR. PRIETO: FRANCISCO PRIETO AGAIN IN SAN DIEGO. TWO QUESTIONS AND ONE IS SORT OF A COMMENT. REGARDING PATENT POOLS, I DON'T KNOW VERY MUCH ABOUT THAT AND WOULD LIKE TO LEARN MORE AND WHAT MODELS THERE ARE FOR PATENT POOLS AND WHO MANAGES THEM AND WHAT COSTS ARE ASSOCIATED WITH MANAGING THAT.

AND THE OTHER IS A COMMENT REGARDING THE

POINT YOU MADE ABOUT DISEASE-SPECIFIC LICENSES. ONE OF THE PROBLEMS I HAVE WITH THAT JUST CONCEPTUALLY IS THAT I CAN IMAGINE A TREATMENT OR A THERAPY THAT CAME OUT OF THIS RESEARCH FOR DEMYELINATING DISEASES SUCH AS MULTIPLE SCLEROSIS, BUT THE INFORMATION GLEANED FROM THAT COULD HAVE VERY DIRECT APPLICATIONS TO PARKINSON'S DISEASE, TO DIABETIC NEUROPATHY, TO SPINAL CORD INJURY. SO WHAT IS THE DISEASE? YOU KNOW, YOU HAVE RESEARCH LEADING IN PERHAPS SEVERAL DIFFERENT AREAS, AND I DON'T KNOW THAT YOU COULD LIMIT THAT.

MR. SIMPSON: PATENT POOLS FIRST. THEY'VE BEEN SUCCESSFUL IN A NUMBER OF INDUSTRIAL SORTS OF SITUATIONS. I ALLUDED TO THE AIRCRAFT INDUSTRY. AND WHEN THE AIRCRAFT INDUSTRY GOT STARTED, THE WRIGHTS HAD PATENTS, THE CURTISES HAD PATENTS, AND THEY ESSENTIALLY BLOCKED EACH OTHER FROM DEVELOPING SUCCESSFULLY COMMERCIALLY VIABLE AIRPLANES, AS I UNDERSTAND IT. AND THEY WERE REQUIRED TO POOL THEM. THEY PUT THEM IN A POOL. THEN EVERYBODY GOT A ROYALTY BACK THAT WAS PRORATED.

I BELIEVE THEY HAVE BEEN VERY SUCCESSFUL IN THE SEWING MACHINE BUSINESS AT ONE POINT OR ANOTHER. AND AS I UNDERSTAND IT, THERE ARE A NUMBER OF POOLS NOW THAT WORK IN ELECTRONICS. AND THE NOTION ESSENTIALLY IS THAT IF YOU HAVE A LOT OF PATENTS THAT ARE REQUIRED

TO DEVELOP SOMETHING, IF A COMPANY WANTS TO DO IT, THEY HAVE TO GO OUT AND NEGOTIATE WITH 50 DIFFERENT PATENT HOLDERS, AND THAT BECOMES TIME-CONSUMING AND A DISINCENTIVE. AND BY HAVING A POOL, PARTICULARLY IF YOU'RE IN A SITUATION WHERE A LOT OF THE PATENTS ARE IN UPSTREAM RESEARCH, IT GIVES YOU A PLACE WHERE ONE SORT OF ONE-STOP SHOPPING. YOU GO IN, YOU GET EVERYTHING YOU NEED, THERE'S A ROYALTY RATE THAT IS FAIR TO EVERYBODY, AND IT HOLDS THE PATENT, EVERYBODY GETS SOME OF THE REVENUE BACK, AND GENERALLY THE POOL IS GOVERNED BY SOME REPRESENTATION OF THE PEOPLE WHOSE PATENTS ARE IN IT.

ALSO, I THINK IF YOU HAD A STRONG ENOUGH POOL WITH ENOUGH IMPORTANT PATENTS IN IT, IT WOULD GIVE YOU IN THE WORST-CASE SCENARIO, IF THE OVERREACHING, OUTRAGEOUS PATENTS THAT WARF HOLDS ON HUMAN EMBRYONIC STEM CELLS AREN'T BROKEN BY SOMEBODY, AND THEY DO NEED TO BE BROKEN AND THEY DO NEED TO BE CHALLENGED, BUT IF FOR SOME REASON THEY'RE NOT, A PATENT POOL THEN GIVES YOU SOMETHING THAT'S IN LEVERAGE TO BE ABLE TO PERHAPS WORK AND NEGOTIATE WITH THEM, WHICH IS ANOTHER REASON THAT IT WORKS.

THERE IS A LEGISLATIVE BILL RIGHT NOW, I THINK, THAT MAY SET UP AN OFFICE OF STATE INTELLECTUAL PROPERTY, WHICH I BELIEVE CIRM IS SPECIFICALLY EXCLUDED

FROM AT THE MOMENT, BUT I MEAN CONCEIVABLY AN OFFICE LIKE THAT COULD MANAGE THE POOL. I'M NOT SURE THAT CIRM HAS THE RESOURCES. THE THING TO ME WITH THE PATENT POOLS IS THAT EVERYONE I'VE TALKED IN THE FIELD SAYS THAT IT'S TREMENDOUSLY INTERESTING AND VALUABLE, BUT WE'RE NOT THERE YET. AND I GUESS MY POINT IS IF WE DON'T STEP UP AND SAY WE'VE GOT TO GET THESE THINGS INTO A POOL SO EVERYONE CAN USE THEM, WE'RE GOING TO HAVE, AS WE DO NOW, 1400 PATENTS AND PATENT THICKETS THAT ARE REALLY GETTING IN THE WAY OF DEVELOPMENT IN RESEARCH.

AND THE SECOND QUESTION HAD TO DO -- I'M SORRY.

DR. PRIETO: REGARDING DISEASE SPECIFIC.

MR. SIMPSON: RIGHT. THERE MAY BE SEVERAL DIFFERENT WAYS OF GETTING AROUND WHAT I'M CONCERNED ABOUT, BUT WHAT I'M CONCERNED WITH IS SOMEONE GETTING AN EXCLUSIVE LICENSE AND ONLY GO IN ONE WAY WHEN THERE ARE OTHER WAYS THAT THAT TREATMENT COULD BE USED, AND THAT FOR COMMERCIAL REASONS, THEY JUST DON'T GO THERE. SO IT SEEMS TO ME THAT THERE NEEDS TO BE SOME WAY OF DEALING WITH THAT POSSIBILITY. I MEAN I SUPPOSE SOME KIND OF MARCH-IN RIGHTS THAT SAID, LOOK, WE KNOW THAT IF YOU DEVELOP -- IF YOU ALLOW IT TO BE LICENSED IN THE PUBLIC INTEREST BECAUSE THIS COULD BE TREATED THAT WAY

AS WELL, THAT WOULD WORK TOO. BUT THE CONCERN ESSENTIALLY IS BLOCKING FRUITFUL AVENUES OF TREATMENT WITH A SINGLE LICENSE. I THINK THAT WOULD BE A BAD THING.

CHAIRMAN PENHOET: ANY COMMENTS FROM ANY OF OUR OFF-SITE SITES? IRVINE, QUESTIONS THERE? ANY QUESTIONS FROM NUVELO? FROM LOS ANGELES?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: FROM CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: ANY COMMENTS FROM THE PUBLIC IN SAN DIEGO? YES.

MR. ROBINS: ALLAN ROBINS FROM NOVOCELL. I JUST WANTED TO MAKE A COUPLE OF COMMENTS, JOHN. FIRST OF ALL, IN TERMS OF THE FUNDING. I THINK THERE'S A LOT OF CONFUSION WHEN PEOPLE TALK ABOUT STEM CELL RESEARCH GENERICALLY, AND THEY TALK ABOUT HUMAN EMBRYONIC STEM CELL RESEARCH. SO I THINK THE NUMBERS, AT LEAST THE NIH NUMBERS YOU QUOTED, WAS $30 MILLION (INAUDIBLE). THE NIH PUT 200 MILLION.

MR. SIMPSON: I'M SORRY. I DIDN'T THINK MAKE THAT CLEAR.

MR. ROBINS: RIGHT. BUT I MEAN I THINK THEY'RE IMPORTANT POINTS. WHEN STEM CELL RESEARCH INVESTMENT IS REPORTED, YOU HAVE TO MAKE SURE YOU'RE

COMPARING APPLES TO APPLES. I THINK THERE'S A LOT MORE EFFORT GOING INTO STEM CELL THERAPY THAN JUST --

THE SECOND THING I WANTED TO DO IS MAYBE POINT OUT SOME DIFFERENCES BETWEEN YOUR THEORY OF BUYING A HOUSE MODEL AND WHAT WE'RE REALLY DOING IN A COMPANY. AND I THINK THERE ARE TWO MAJOR POINTS HERE. ONE IS RISK PROFILE. WHEN YOU'RE GOING TO BUY A HOUSE AND YOU CONTRACT A BUILDER AND YOU'RE GOING TO THE BANK AND YOU BORROW THE MONEY, IT'S A PRETTY SURE THING WHAT YOU ARE GOING TO END UP WITH AT THE END OF THE DAY IS A HOUSE. AND MOSTLY THEY APPRECIATE IN VALUE MOST OF THE TIME. SO I THINK THERE'S A SORT OF A FLAW IN YOUR MODEL WHEN YOU'RE USING THAT TO COMPARE IT TO SORTS OF THINGS (INAUDIBLE).

AND THE SECOND THING THAT I WANTED TO POINT OUT IS THAT BUILDING A HOUSE IS REALLY A DISCRETE THING. YOU GO, YOU BY A BLOCK OF LAND, AND YOU BUILD THE HOUSE BASICALLY. RESEARCH IS A CONTINUUM, SO IF CIRM OR ANY OTHER ORGANIZATION IS GOING TO FUND A COMPANY WHO HAS BACKGROUND RESEARCH THAT WE LOOK AT AND CIRM FUNDING WILL NOT TAKE IT THROUGH TO A PRODUCT. THERE WILL BE OTHER INVESTMENT THAT'S NEEDED. AND ALONGSIDE THAT, OUR INVESTMENT OF MONEY IN AT THE SAME TIME. SO I DON'T THINK IT'S DISCRETE, AND I THINK DIFFICULT TO MAKE THAT COMPARISON IN THAT WAY. I MEAN

THERE ARE OTHER REASONS, BUT THEY'RE THE TWO FUNDAMENTAL ONES.

AND THE THIRD QUESTION/COMMENT THAT I WANTED TO MAKE IS THAT YOU'VE ALLUDED TO THE FACT THAT THERE'S ALREADY SORT OF WIDE-REACHING INTELLECTUAL PROPERTY, AND YOU'VE ALLUDED TO ONE SORT OF INTELLECTUAL PROPERTY, BUT THERE ARE, IN FACT, OTHER ISSUED PATENTS OR PATENTS THAT ARE WORKING THEIR WAY THROUGH THE USPTO WHICH ARE ALSO VERY BROAD AND JUST AS TROUBLESOME.

SO I'M WONDERING IN TERMS OF YOUR PATENT POOL, THESE PATENTS CLEARLY SIT OUTSIDE OF THAT POOL. AND ANY COMPANY, LIKE OURSELVES, THAT WOULD BE LOOKING AT CONTRIBUTING SOMETHING TO A PATENT POOL, CLEARLY ARE AT A DISADVANTAGE. SO I'M WONDERING IF YOU'RE SORT OF CLOSING THE GATE AFTER THE HORSE HAS BOLTED, OR WHAT YOU WOULD PROPOSE TO DO ABOUT THOSE BROAD-RANGING PATENTS THAT ARE ALREADY IN EXISTENCE OR WILL BE DRAFTED.

MR. SIMPSON: TO THE HOUSE MODEL, NO ANALOGY WORKS PERFECTLY, I GUESS, AND I TAKE SOME OF YOUR POINTS. BUT WHAT I ESSENTIALLY WAS TRYING TO SAY IS THAT IT'S -- AT SOME POINT IF PUBLIC MONEY HAS GONE INTO IT AND, YES, THE HOUSE -- IF YOU'RE BUILDING THE HOUSE IN A RISKY PLACE, MAYBE IT GETS BLOWN DOWN BY HURRICANES AND SO ON AND SO ON AND SO FORTH AND YOU

NEVER CAN GET YOUR MONEY BACK, BUT WITH RESEARCH IT'S EVEN RISKIER. BUT IF YOU DO GET SOMETHING THAT GENERATES REVENUE, THAT'S WHERE I SAY, BECAUSE THE STATE HAS PUT THE MONEY IN, TAXPAYERS DESERVE TO GET SOMETHING BACK. THAT'S THE KIND OF THING, AND I WAS TRYING TO DO IT IN A WAY THAT WAS AT LEAST SOMETHING THAT A POOR OLD NEWSPAPERMAN'S BRAIN COULD GET HIS ARMS AROUND, WHICH WAS THE HOUSE MODEL.

AS FAR AS THE PATENTS GO, I THINK THE WARF ONES ARE JUST INCREDIBLY OVERREACHING. I MEAN THE NOTION OF -- IT'S NOT EVEN A MYTHOLOGY. IT'S COMPOSITION OF MATTER. IT'S ALL HUMAN EMBRYONIC STEM CELLS, AND RECOGNIZED NOWHERE ELSE IN THE WORLD. AND I THINK THAT THERE ARE A NUMBER OF THINGS THAT NEED TO BE DONE. I THINK THOSE -- I THINK THEY HAVE TO BE CHALLENGED, AND I THINK THAT THEY LIKELY WILL BE BROKEN IF THEY ARE.

MR. ROBINS: -- PROVIDING THE DATA.

MR. SIMPSON: I'M NOT SURE WHO WOULD DO THAT AT THIS POINT. I MEAN THERE ARE A NUMBER OF DIFFERENT WAYS THAT IT COULD BE DONE. I MEAN A COMPANY THAT WANTED TO JUST GO AHEAD AND DO WHAT THEY WANT TO DO AND LET WARF COME SUE THEM WOULD BE IN A POSITION TO CHALLENGE THEM IN COURT. I MEAN IF WARF SAYS YOU'RE INFRINGING, IT WOULD SEEM TO ME THAT IT WOULD BE AN

APPROPRIATE THING FOR THE BIOTECH INDUSTRY OR AN INDUSTRY ASSOCIATION TO TAKE ON AND TO HELP FUND. THERE ARE OTHER WAYS THAT YOU CAN DO IT. YOU CAN GO TO THE PTO AND YOU CAN ASK FOR A REEXAMINATION. SOMEBODY COULD DO THAT.

I THINK THAT CLEARLY WARF PATENTS ARE RULING OVER THIS. I'VE BEEN TOLD SPECIFICALLY THAT A NUMBER OF VENTURE CAPITALISTS HAVE NOT PUT MONEY INTO HUMAN EMBRYONIC STEM CELL RESEARCH PRECISELY BECAUSE OF THOSE PATENTS.

CHAIRMAN PENHOET: IF I COULD, I THINK THAT WILL LOCK THE SUBJECT UP. IT'S AN IMPORTANT POINT, BUT NOT DIRECTLY RELATED TO WHAT WE'RE TRYING TO GRAPPLE WITH HERE.

ARE THERE COMMENTS FROM THE PUBLIC IN IRVINE?

DR. BRYANT: NO.

CHAIRMAN PENHOET: SAN CARLOS?

UNIDENTIFIED SPEAKER: YES.

MR. REED: THIS IS DON REED. THE UNMENTIONED SO FAR GORILLA IN THE ROOM IS THAT WHILE WHAT WE'RE DOING NOW IS VERY HELPFUL, WORKING OUT PROBLEMS IN THE PUBLIC, I DON'T THINK MOST OF US WANT THE IP POLICIES TO BE LEGISLATIVELY IMPOSED. AND THAT'S HAPPENING VERY FAST RIGHT NOW UP IN SACRAMENTO. TO THE BEST OF MY KNOWLEDGE, THERE'S ONLY ONE MORE COMMITTEE MEETING ON

SB 401, THE ORTIZ-RUNNER LEGISLATION, AND THAT'S THE APPROPRIATIONS MEETING. THEY'RE TYPICALLY HELD ON WEDNESDAYS. IT PROBABLY IS NEXT WEDNESDAY, AND THAT'S THE LAST ONE BEFORE IT GOES TO THE FLOOR. IT'S ALREADY GONE THROUGH THE SENATE BECAUSE IT WAS DONE WITH A GUT-AND-AMEND DEAL WHERE A BILL ALREADY HALF PASSED WAS HOLLOWED OUT AND SB 401 WAS PUT INSIDE OF IT. AND IT WENT THROUGH VERY FAST.

I WENT UP AND DID SOME DOOR TO DOOR, TALKED TO ALL 18 MEMBERS, LEGISLATIVE AIDES OF THE 18 MEMBERS OF THE APPROPRIATIONS COMMITTEE YESTERDAY. AND IT WAS SHOCKING THAT DEMOCRATS DID NOT KNOW ABOUT IT, AND THEY SAID, "OH, WELL, IF ORTIZ WANTS IT, IT MUST BE GOOD FOR STEM CELL RESEARCH." SO IF ANYBODY WANTS TO HAVE AN IMPACT ON THIS, I STRONGLY SUGGEST THAT YOU CONTACT THE 18 MEMBERS OF THE -- OR LEAST THE HEAD, JUDY CHU, OF THE APPROPRIATIONS COMMITTEE, BECAUSE THE SITUATION MAY BE TAKEN OUT OF YOUR HANDS. THANK YOU.

CHAIRMAN PENHOET: ANY COMMENTS FROM LOS ANGELES? FROM CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: OKAY. THANK YOU VERY MUCH, JOHN. WE'LL MOVE ON TO OUR SECOND SPEAKER, WHO IS DAVID GOLLAHER, PRESIDENT AND CEO OF THE CALIFORNIA HEALTH CARE INSTITUTE HERE IN LA JOLLA. DAVID.

MAYBE WHILE THEY'RE CHANGING THE LOGISTICS, I WOULD REMIND EVERYONE THAT THE IP POLICY WE GENERATE FOR BUSINESSES WILL HAVE TO BE MANAGED BY THE CIRM ITSELF. SO WE WILL HAVE TO HAVE STAFF THAT ADMINISTERS THIS POLICY WITHIN CIRM. AND IT'S BECOMING ABUNDANTLY CLEAR, I THINK, THROUGH ALL OF THE CONVERSATIONS WE'VE HAD, INCLUDING JOHN'S PRESENTATION THIS MORNING, THE CONTRAST TO THE SITUATION WITH THE NONPROFITS WHERE IT'S LIKELY THAT THE VAST MAJORITY OF WHAT WE DO WILL BE IN THE FORM OF GRANTS. WITH COMPANIES THERE ARE POSSIBILITIES TO MAKE LOANS, TO MAKE GRANTS, TO BUY SERVICES. SO EACH ONE OF THESE WILL HAVE TO BE DEALT IN SOME DEGREE IN A SEPARATE WAY.

WE'VE ALSO HEARD THAT WHILE FROM JDRF, FOR EXAMPLE, WHO HAS POINTED OUT THAT THEY ESSENTIALLY HAVE TO NEGOTIATE DIFFERENT CONTRACTS EVERY TIME THEY MAKE AN ARRANGEMENT WITH A FOR-PROFIT ENTITY. SO TO SOME DEGREE THAT IS A LAYER OF COMPLEXITY. I THINK IN THIS SENSE WHAT WE'RE DOING HERE WILL OVERLAP WITH THE STRATEGIC PLANNING PROCESS, WHICH WILL DEFINE SOME OF THESE CHARACTERISTICS. BUT WE'RE LIKELY TO END UP WITH AT LEAST THREE WAYS, DIFFERENT WAYS, IN WHICH WE COULD CONCEIVABLY PROVIDE FUNDING.

DR. REED: JOHN REED HERE. LAST TIME WE DISCUSSED THIS I BELIEVE WE DECIDED THAT THE INVENTORS

OF THE TECHNOLOGY WOULD BE RESPONSIBLE FOR COVERING THE PATENT COSTS, THAT THE STATE WOULD NOT DO THAT; IS THAT CORRECT?

CHAIRMAN PENHOET: WE DON'T HAVE ANY FUNDS TO DO THAT.

DR. REED: OKAY. I THINK THAT'S AN IMPORTANT THING TO ALSO KEEP IN MIND WITH RESPECT TO WHATEVER POLICY WE ARRIVE AT INASMUCH AS IT'S NOT UNCOMMON TO SPEND ABOUT A QUARTER MILLION DOLLARS PER PATENT FOR WORLDWIDE PROTECTIONS AS YOU GO THROUGH THE WHOLE PROCESS WITH EACH OF THE TERRITORIES. AND WE DON'T WANT TO DO THINGS THAT WOULD DISINCENTIVIZE COMPANIES TO PROTECT THEIR TECHNOLOGY AND TO, THEREFORE, PROTECT THE INVESTMENT THAT THE TAXPAYERS ARE MAKING IN THAT TECHNOLOGY. IF IT'S NOT PROTECTED BY PATENTS, THEN IT'S NOT GOING TO HAVE THE OPPORTUNITY TO REALLY RETURN FUNDS HERE, REVENUE HERE TO THE STATE. SO I THINK THAT HAS TO BE AN IMPORTANT ELEMENT OF WHATEVER WE -- WHATEVER POLICY WE ARRIVE AT.

CHAIRMAN PENHOET: OKAY. WE'RE NOW READY TO GO WITH DAVID GOLLAHER'S PRESENTATION. DAVID.

MR. GOLLAHER: THANK YOU, ED. I'M DAVID GOLLAHER. I'M PRESIDENT AND CEO OF THE CALIFORNIA HEALTH CARE INSTITUTE. CHI'S BACKGROUND, WE'RE ABOUT 260 MEMBERS STATEWIDE, AN ORGANIZATION THAT INCLUDES

ACADEMIC RESEARCH CENTERS, UNIVERSITY OF CALIFORNIA, CSU, SALK, IF NOT ALL OF THE ACADEMIC INSTITUTIONS THAT WILL BE CANDIDATES FOR CIRM FUNDING FOR GRANTING STEM CELL RESEARCH ALONG WITH COMMERCIALIZED SCIENCES. SO MOST MAJOR BIOTECH COMPANIES, I THINK ALL OF THEM, IN FACT, IN CALIFORNIA ARE MEMBERS OF OURS ALONG WITH MEDICAL DEVICES, DIAGNOSTICS COMPANIES LIKE GENPRO, AS WELL AS BIOINFORMATICS, RESEARCH TOOLS COMPANIES LIKE INVITROGEN. SO BROADLY SPEAKING, WE REPRESENT THE LIFE SCIENCES IN CALIFORNIA, AND I THINK IT'S REFLECTIVE OF OUR MEMBERS ON OUR BOARD.

JUST TO FRAME THE DISCUSSION, AND I THINK IT'S NOT INCIDENTAL THAT CALIFORNIA IS BOTH THE STATE THAT PASSED PROP 71, BUT ALSO THE ROLE OF BIOTECHNOLOGY. THE INDUSTRY ORIGINATED HERE SOME 30 ODD YEARS AGO. PERHAPS 40 PERCENT OF ALL TOTAL U.S. BIOTECH JOBS ARE HERE. AND, OF COURSE, WE HAVE THE WORLD'S PREMIERE ACADEMIC INSTITUTIONS, PUBLIC AND PRIVATE. AND IMPORTANTLY, A HIGHLY EVOLVED INFRASTRUCTURE.

WHAT'S IMPORTANT ABOUT THAT IS THAT THE FUNDING FOR EMBRYONIC STEM CELL RESEARCH, THE PERHAPS $300 MILLION A YEAR OVER TEN YEARS, WOULD BE HIGHLY LEVERAGED. BEING ABLE TO COME INTO A MARKET IN WHICH IT DOESN'T HAVE TO CREATE INFRASTRUCTURE FROM THE

GROUND UP. IT CAN TAKE ADVANTAGE OF THE SCIENCE, THE INFRASTRUCTURE, AND COMMERCIAL NETWORK THAT'S ALREADY HERE.

THIS IS JUST A CHART YOU CAN'T READ VERY WELL, BUT IT SHOWS ON THE LEFT HAND CALIFORNIA'S BIOTECH COMPANIES COMPARED TO EVERYONE ELSE. THE NEXT CLOSEST IS MASSACHUSETTS. AS YOU CAN SEE, IT'S A VERY DISTANT SECOND.

NOW, SOME OF YOU KNOW MICHAEL PORTER'S WORK ABOUT CLUSTERS, AND MICHAEL PORTER IS A PROFESSOR AT HARVARD BUSINESS SCHOOL AND HAS SPENT YEARS STUDYING THE DEVELOPMENT OF CLUSTERS OF INNOVATION, HE CALLS THEM. AND I JUST WANTED TO RUN THROUGH THIS BECAUSE IT WILL COME BOOK TO A POINT THAT I THINK IS IMPORTANT IN THINKING ABOUT INTELLECTUAL PROPERTY. IN PARTICULAR, HOW COMPANIES, COMMERCIAL COMPANIES, WORK ALONGSIDE ACADEMIC AND PUBLICLY FUNDED INSTITUTIONS TO PRODUCE PUBLIC BENEFIT.

I'LL RUN THROUGH THE LIST, AND THEY'RE ONES THAT YOU KNOW. YOU CAN LOOK AT A CLUSTER LIKE SAN DIEGO HERE IN THE TORREY PINES AREA WHERE WE HAVE A STRONG SCIENCE BASE, ENTREPRENEURIAL CULTURE, A GROWING COMPANY BASE. IT'S IMPORTANT TO HAVE COMMERCIAL COMPANIES THAT ARE THRIVING, ABSORBING, SPENDING IT ON TALENT, WORKING WITH INSTITUTIONS, THE ABILITY TO

ATTRACT TALENT, THE INFRASTRUCTURE, ACCOUNTING FIRMS, LAW FIRMS, REAL ESTATE COMPANIES THAT ARE EXPERTS AT BUILDING FACILITIES. SOURCES OF RISK CAPITAL. YOU CAN HAVE ALL OF THESE ELEMENTS, BUT IF YOU DON'T HAVE SOURCES OF RISK CAPITAL, YOU DON'T HAVE THE CATALYST, AND YOU DON'T HAVE THE INITIATIVE TO MAKE IT WORK. LARGER COMPANIES IN RELATED INDUSTRIES, VERY IMPORTANT, SO THAT THE PRESENCE OF AN INVITROGEN OR A BIOGEN IDEC IS AN IMPORTANT ELEMENT IN CREATING A CLUSTER. OBVIOUSLY A SKILLED WORKFORCE, EFFECTIVE NETWORKING, ORGANIZATIONS LIKE CONNECT, EDC, WHO ARE IN THE ROOM HERE, THAT PROVIDE CHANNELS OF COMMUNICATION AND NETWORKING FOR EXECUTIVE SCIENTISTS AND SO FORTH TO SHARE INFORMATION AND ACCELERATE THIS KNOWLEDGE INDUSTRY. AND FINALLY, SUPPORTIVE PUBLIC POLICY. I WILL COME BACK TO THAT IN A SECOND.

SO IN PORTER'S VIEW, WHAT MAKES CLUSTERS PRODUCTIVE, AND YOU CAN LOOK AROUND THE WORLD AND SEE ONES THAT ARE HIGHLY PRODUCTIVE, ONES THAT HAVE MANY OF THE ELEMENTS THAT I JUST TALKED ABOUT THAT DON'T WORK VERY WELL, DON'T WORK VERY WELL IN TERMS OF PRODUCING INNOVATION AND PUSHING THAT INNOVATION OUT TO THE MARKETPLACE WHERE IT CAN BE USED BY CONSUMERS, BY PATIENTS, AND HELP PEOPLE.

SO THE INTERACTIVITY WITHIN A NETWORK, VERY

IMPORTANT HOW DYNAMIC IT IS, AND COMPETITION WITHIN THE NETWORKS. PORTER MAKES A VERY GOOD AND, I THINK, DEEPLY IMPORTANT POINT IN THAT IF YOU ARE IN A BUSINESS AND YOU'RE A SINGLE BUSINESS PERSON, AND YOU LOOK ACROSS THE STREET AND YOU SEE YOUR COMPETITOR RISING UP AND DOING WELL, YOU TEND TO RESIST THAT AND THINK COMPETITION IS A BAD THING. BUT WHAT HE'S FOUND IN THE STUDY OF CLUSTERS, IN FACT, THAT THE MORE COMPETITIVE THEY ARE, THE MORE BUSINESSES THAT ENTER THE SPACE TO COMPETE TO PROVIDE SUPERIOR PRODUCTS, THE MORE INNOVATION HAPPENS AND THE FASTER IT'S PUSHED OUT IN THE MARKET.

FINALLY, THE VELOCITY OF TECHNOLOGY TRANSFER, CRITICAL POINT. AND I'LL DRILL DOWN INTO THIS A LITTLE BIT MORE IN A MINUTE. HOW QUICKLY TECHNOLOGY CAN BE TRANSFERRED FROM BASIC SCIENCE INSTITUTIONS FROM PERHAPS GOVERNMENT-SPONSORED UNIVERSITIES OUT INTO COMMERCIAL COMPANIES. SO THE COMMERCIALIZATION OF ACADEMIC SCIENCE IS ONE OF THE HALLMARKS OF SUCCESSFUL CLUSTERS.

SOME PEOPLE ASK AND THERE'S ACTUALLY A CHORUS OF CRITICS, PARTICULARLY IN THE PHARMACEUTICAL INDUSTRY, RIGHT NOW WHO ASK WHY COMMERCIALIZATION IS NECESSARY IN THE FIRST PLACE. THERE'S WHAT I WOULD THINK OF AS THE MARCIA ANGEL THEORY. MARCIA ANGEL WAS

THE EDITOR OF THE *NEW ENGLAND JOURNAL* AND HAS WRITTEN A BOOK ABOUT THE DRUG INDUSTRY THAT BASICALLY PROPOUNDS THE THEORY THAT THE GOVERNMENT, THROUGH NIH, CREATES BASIC RESEARCH AND COMPANIES COME ALONG AND COMMERCIALIZE IT AND BASICALLY TAKE THE INTELLECTUAL PROPERTY THAT WILL BE FUNDED FOR THEIR OWN PURPOSES AND THEIR SHAREHOLDERS' PURPOSES. AND THERE'S NO REAL RETURN TO SOCIETY FOR THAT. I THINK THAT'S WRONG. I THINK IT COMPLETELY MISCHARACTERIZES AND MISUNDERSTANDS THE ROLE OF COMMERCIALIZATION, THE ROLE OF THE MARKET, AND THE ROLE OF PRIVATE COMPANIES.

FIRST THING IS THAT BASIC RESEARCH PRODUCES UNDERSTANDING, BUT IT DOESN'T PRODUCE PRODUCTS. SECOND THING IS THAT THE INSTITUTIONS THAT ARE GOOD AT PRODUCING BASIC RESEARCH LACK THE SKILLS AND RESOURCES TO PRODUCE PRODUCTS. THEY LACK THE CAPITAL, AND IT'S LARGELY AN EXPENSIVE PROCESS. THE LACK THE APPLIED RESEARCH AND REGULATORY EXPERTISE THAT IS A HUGE PART OF PRODUCT DEVELOPMENT. AND OBVIOUSLY THEY LACK BOTH THE MANUFACTURING CAPACITY, NOT TO MENTION THE MARKETING AND DISTRIBUTION. THE MARKETING AND DISTRIBUTION IS AN IMPORTANT POINT BECAUSE UNDERSTANDING MARKETS, PARTICULARLY DISEASE MARKETS, UNDERSTANDING HOW PHYSICIANS AND HOSPITALS AND THE WHOLE COMPLICATED HEALTHCARE SYSTEM WORKS AND ABILITY

TO MOVE A PRODUCT THROUGH THAT IS NOT TRIVIAL.

SO WHAT DOES IT TAKE TO TRANSFORM A RESEARCH DISCOVERY INTO A SUCCESSFUL DRUG? WELL, INDUSTRY CRITICS CLAIM THAT A RESEARCH INPUT CREATES MOST OF THE PRODUCTS' END VALUE. BUT THERE'S NO GOOD MEASURE OF THE REAL PERCENTAGE OF WHAT IT TAKES TO GET A PRODUCT FROM THE LABORATORY INTO THE HANDS OF THE PATIENT THROUGH A PHYSICIAN. SOME INDUSTRY STUDIES HAVE SUGGESTED THAT 90 PERCENT OF THE VALUE OF AN END PRODUCT IS DOWNSTREAM. BUT I THINK THE TRUTH IS THAT NO ONE REALLY KNOWS. WE DO KNOW THAT IT'S ENORMOUSLY TIME-CONSUMING AND EXPENSIVE, AND HERE'S ANOTHER SLIDE THAT YOU CAN'T READ VERY WELL, BUT AT THE BOTTOM IS YEARS, AND IT GOES FROM ZERO TO 16 YEARS. AND THE FIRST BLOCK UP ON THE LEFT-HAND CORNER IS THE DISCOVERY PROCESS, AND THEN WE MOVE FROM THAT PERIOD THROUGH A WHOLE SET OF PRODUCT DEVELOPMENT AND REGULATORY PHASES UNTIL WE FINALLY GET A PRODUCT OUT INTO THE PIPELINE.

AND IF YOU LOOK AROUND AT COMPANIES THAT WE KNOW OF, THERE'S A GREAT EXAMPLE IN SAN DIEGO, BIOGEN, IS NOW -- SORRY -- IDEC, WHICH IS NOW BIOGEN IDEC AFTER A MERGER, TOOK ABOUT 13 YEARS TO MOVE FROM ITS ORIGINAL ANTIBODY SCIENCE TO PRODUCING THE FIRST MONOCLONAL ANTIBODY FOR CANCER FOR NON-HODGKIN'S. AND DURING THAT PERIOD CAME WITHIN THREE OR FOUR WEEKS OF RUNNING

ENTIRELY OUT OF MONEY AND TURNING OUT THE LIGHTS. HAD THAT HAPPENED, THOUSANDS UPON HUNDREDS OF THOUSANDS OF PATIENTS WOULD HAVE BEEN DENIED AN EFFECTIVE DRUG.

THE END RESULT OF BIOGEN IDEC OR IDEC'S RESEARCH AND DEVELOPMENT WAS TO PRODUCE A DRUG THAT IS OF ENORMOUS BENEFIT TO PATIENTS WHO HAVE TERRIBLE DEBILITATING AND OFTEN FATAL DISEASE.

SO IN A SENSE, IF WE LOOK AROUND GLOBALLY, WE'VE BEEN DOING AN INTERESTING EXPERIMENT WITH RESPECT TO INTELLECTUAL PROPERTY AND HOW IT'S TRANSFERRED INTO COMMERCIAL INSTITUTIONS OR COMMERCIAL COMPANIES. AND RECENTLY I HAD THE OPPORTUNITY TO BE IN THE UK AND TO TALK TO SOME PEOPLE ABOUT THE ATTEMPT IN THE UNITED KINGDOM TO ACCELERATE THE TECHNOLOGY TRANSFER OF SCIENCE INTO COMPANIES MORE OR LESS ALONG THE U.S. MODEL. AND THIS WAS SPURRED IN PART BY THE REALIZATION THAT WHILE UK UNIVERSITIES, LIKE OXFORD AND CAMBRIDGE AND THE UNIVERSITY OF THE PLYMOUTH, WERE QUITE GOOD AT BASIC RESEARCH AND TEACHING. THEY HAVE BEEN EXTREMELY BACKWARD WITH RESPECT TO MOVING ANY OF THAT SCIENCE INTO THE COMMERCIAL SPHERE.

THEY HAD ALSO EXPERIENCED A BRAIN DRAIN, SO THAT IF YOU WALKED AROUND CALIFORNIA OR ROUTE 128 CORRIDOR IN BOSTON, YOU WOULD BUMP INTO A BUNCH OF EX-PAT BRITS WHO HAVE MOVED TO THE UNITED STATES IN

ORDER TO MOVE THEIR TECHNOLOGY, THEIR EXPERTISE INTO COMMERCIAL SPACE.

WHAT THE UK ALSO DISCOVERED IS THAT THEY HAVE A HUGE RESERVOIR OF WHAT MIGHT BE CALLED ORPHAN IP; THAT IS, INTELLECTUAL PROPERTY TO WHICH A UNIVERSITY HAD RIGHTS, BUT THERE WAS NO ABILITY NOR INTEREST IN DEVELOPING THAT AND MOVING IT FORWARD INTO THE MARKET.

SO IN 1999 THE DEPARTMENT OF TRADE AND INDUSTRY IN THE UK PROPOSED A THIRD MISSION, WHICH IS SUPPORT INDUSTRY. AND SINCE THEN GRADUALLY, AND WITH CLINIC OF THE UK, IS BEGINNING TO DEVELOP ITS FIRST LIFE SCIENCES CLUSTERS, I BELIEVE ONE AROUND CAMBRIDGE UNIVERSITY, TO ACCELERATE SCIENCE MOVING FORWARD.

I WANT TO SHIFT FOCUS TO TALK JUST IN A GENERAL WAY ABOUT TWO MODELS THAT ARE WORTH THINKING ABOUT IN THE WAYS THAT GOVERNMENT FUNDS SCIENCE WITHIN THE CONTEXT OF COMMERCIAL COMPANIES. AND I WANT TO START WITH DARPA. I JUST PUT DARPA'S MISSION STATEMENT DOWN HERE. I THINK MOST OF US WOULD SEE DARPA AS A REASONABLY SUCCESSFUL LONG-TERM INITIATIVE IN WHICH PUBLIC MONEY, I.E., DEPARTMENT OF DEFENSE FUNDS, ARE SPECIFICALLY TARGETED IN QUITE CAREFUL WAYS CHANNELED INTO COMMERCIAL OPERATIONS TO DEVELOP BASIC TECHNOLOGY THAT THEN MAY BE APPLIED TO DEFENSE APPLICATIONS.

THE PART THAT I UNDERLINED HERE IS FROM

DARPA'S MISSION STATEMENT IN WHICH IT SAYS THAT IT MANAGES AND DIRECTS SELECTED BASIC AND APPLIED RESEARCH AND DEVELOPMENT PROJECTS FOR DOD, TO PURSUE THIS RESEARCH AND TECHNOLOGY WHERE RISK AND PAYOFF ARE BOTH VERY HIGH AND WHERE SUCCESS MAY PROVIDE DRAMATIC ADVANCES FOR TRADITIONAL MILITARY ROLES AND MISSIONS.

IT STRIKES ME, IN THINKING ABOUT CIRM, THAT THIS IS A GOOD ANALOGY TO WHAT WE'RE LOOKING AT IN THE EARLY STAGE OF EMBRYONIC STEM CELL RESEARCH. HIGH RISK AND A POTENTIALLY VERY HIGH PAYOFF, GREAT UNCERTAINTY, AND A PLACE WHERE PERHAPS PUBLIC MONEY CAN BE A CATALYST.

NOW, DARPA'S PRINCIPLES ARE TO PROMOTE PRIVATE SECTOR COMPETITION. THEY MAKE GRANTS TO LOTS OF DIFFERENT COMPANIES AND OFTEN TO COMPETITORS WITHIN THE SAME FIELD. THE THOUGHT IS THAT HERE GOVERNMENT IS A FUNDING CATALYST IN AREAS OF PARTICULARLY HIGH IMPORTANCE, HIGH RISK WORK. ULTIMATELY THERE ALSO IS THE BENEFITS TO TAXPAYERS, BENEFITS TO THE PUBLIC DON'T ACCRUE FROM A DIRECT RETURN IN THE FORM OF A ROYALTY OR MONEY PAYMENTS BACK TO GOVERNMENT, BUT RATHER FROM THE PROMULGATION OF INVENTIONS INTO A SPECIFIC SECTOR, IN THIS CASE THE NATIONAL DEFENSE.

AND THIS IS AN IMPORTANT THEORETICAL, IF YOU WILL, ISSUE FOR CIRM AND, IN FACT, FOR THE LEGISLATURE

AND FOR THE PUBLIC TO CONSIDER. THAT IS, WHETHER THE MAXIMUM PUBLIC BENEFIT FROM STEM CELL RESEARCH WILL COME FROM THE FASTEST POSSIBLE DEVELOPMENT OF THE BEST SCIENCE AND THE FASTEST ACCELERATION OF THAT SCIENCE INTO COMMERCIAL PRODUCTS OR FROM ROYALTIES, FROM MONEY PAYMENTS FROM THESE INVENTIONS BACK TO THE PUBLIC COFFERS.

SO MY VIEW IS THAT CIRM SHOULD DISCOUNT NAYSAYERS WHO MISREPRESENT -- WE'VE SEEN THIS FROM THE VERY BEGINNING OF PROP 71 -- THE INTERRELATIONSHIP ON THE ACADEMIC AND COMMERCIAL SCIENCE. IT'S MORE COMPLICATED THAN MOST PEOPLE APPRECIATE. IT'S FAR FROM THE CASE THAT ACADEMIC SCIENCE CREATES DRUGS AND THAT COMMERCIAL DEVELOPMENT OF THOSE DRUGS IS INCIDENTAL OR AN ADD-ON.

CIRM SHOULD DISCOUNT ANY CLAIM THAT STEM CELL SCIENCE CAN BENEFIT PATIENT GROUPS WITHOUT AGGRESSIVE PARTICIPATION OF COMMERCIAL COMPANIES. THE FACT IS THAT WE LIVE IN A MARKET-BASED, MARKET DRIVEN ECONOMY. AND THE THEORY THAT MOST COMMERCIAL COMPANIES OPERATE ON IS THE THEORY OF CAPITALISM, AND THE BEST DISTRIBUTION OF GOODS AND SERVICES HAPPENS THROUGH THE ACTIVE PARTICIPATION OF THE MARKET AND OF COMMERCIAL ENTERPRISE. AND, AGAIN, ANY OF US WHO SPENT SIGNIFICANT TIME IN ACADEMIC INSTITUTIONS OR WITHIN

GOVERNMENT INSTITUTIONS, I THINK, HAVE A LOW LEVEL OF CONFIDENCE IN THE ABILITY OF THOSE ORGANIZATIONS TO QUICKLY MOVE TECHNOLOGY THROUGH THE WIDEST POSSIBLE ALLOCATIONS FOR THE GREATEST PUBLIC BENEFIT.

FINALLY, CIRM SHOULD DISCOUNT ATTEMPTS TO REGULATE COMMERCIAL TRANSACTIONS IN WAYS THAT DISCOURAGE PARTICIPATION OF THE BEST COMPANIES AND ENTREPRENEURS. I THINK THE CONCERN THAT WE'VE HEARD MORE THAN ONCE IS THAT THE MORE STRENUOUS CONDITIONS, ROYALTIES, CAVEATS THAT ARE ATTACHED TO TECHNOLOGY TRANSFER RELATIONSHIPS, THE MORE RELUCTANT COMMERCIAL PARTICIPANTS ARE TO CAPITALIZE ON THOSE RELATIONSHIPS AND THOSE TECHNOLOGIES.

SO I THINK FROM CHI'S POINT OF VIEW, GUIDING PRINCIPLES FOR CIRM WITH RESPECT TO COMMERCIAL IP POLICY SHOULD BE, FIRST, MAXIMUM ACCELERATION OF THE BEST SCIENCE. AND WHETHER THAT SCIENCE AS TECHNOLOGY EXISTS IN A COMMERCIAL COMPANY OR IN AN ACADEMIC INSTITUTION, CIRM SHOULD BE RIGOROUS AND THOUGHTFUL IN MAKING INVESTMENTS BEHIND THE BEST SCIENCE. CIRM HAS COLLECTED AN ASTONISHINGLY GOOD SET OF EXPERT SCIENTIFIC REVIEWERS, AND THE ABILITY OF CIRM TO MAKE INTELLIGENT JUDGMENTS WITH RESPECT TO WHERE THE BEST SCIENCE IS AND WHERE FUNDING OPPORTUNITIES LIE, I THINK, IS SUPERB AND SHOULD BE APPLAUDED.

SECOND, INVESTMENT IN IMPORTANT AREAS OUTSIDE ACADEMIC EXPERTISE ARE IMPORTANT FOR ANY COMMERCIAL PRODUCT OR WIDE-SCALE APPLICATION OF STEM CELL RESEARCH. SO, FOR EXAMPLE, SCALED PRODUCTION IS AN AREA THAT'S UNLIKELY TO BE FOUND IN A UNIVERSITY AND MAY WELL EXIST IN A COMPANY THAT MIGHT BE A TARGET FOR CIRM FUNDING. AND I'M SURE THERE ARE MANY, MANY OTHER AREAS.

FINALLY, THAT CIRM SHOULD FOSTER THE DEVELOPMENT OF BUSINESS MODELS FOR COMMERCIAL STEM CELL-BASED PRODUCTS. PART OF THE REASON, IN FACT, PERHAPS THE MAIN REASON, THAT VENTURE CAPITALISTS HAVE NOT BEEN FUNDING STEM CELL RESEARCH IN A LARGE WAY IS THAT WE DON'T HAVE BUSINESS MODELS TODAY THAT SUPPORT THAT. AND WHEN WE DO AND IF THERE'S A CLEAR PATH TO PROFITABILITY, THE LANDSCAPE WILL CHANGE DRAMATICALLY.

SO I HAVE THREE EXAMPLES FOR YOU. THIS IS THE FUN PART OF THE PROGRAM. SO HERE'S A GOVERNMENT-FUNDED CAR. COST ABOUT $22 MILLION, AND IT WORKED VERY, VERY WELL FOR ITS PURPOSE. THIS IS A GOVERNMENT-BUILT TRUCK. THIS WAS BUILT IN 1956 IN THE SOVIET UNION. THIS IS A PUBLIC-PRIVATE PARTNERSHIP CAR, AND IT'S INTERESTING. IT REPRESENTS AN EXTRAORDINARY CONTRIBUTION OF, IN THIS CASE ORIGINALLY IN JAPAN, OF PUBLIC MONEY CHANNELED INTO TOYOTA OF A

PRIVATE COMPANY ON THE THEORY THAT IF TOYOTA BECAME MORE COMPETITIVE AND SOLD MORE CARS, IT WOULD BENEFIT THE JAPANESE ECONOMY. SO FAR SO GOOD.

SO THANK YOU FOR YOUR ATTENTION. AND I'D BE HAPPY TO ENTERTAIN ANY QUESTIONS OR COMMENTS.

CHAIRMAN PENHOET: THANK YOU VERY MUCH, DAVID. SO STARTING HERE IN SAN DIEGO WITH THE MEMBERS OF THE TASK FORCE.

DR. PRIETO: FRANCISCO PRIETO. I GUESS MY QUESTION UNDER THE DARPA MODEL THAT YOU CITED IS WHAT IS THE BENEFIT TO TAXPAYERS BECAUSE THAT SEEMS PERHAPS NEBULOUS?

AND ALSO, JUST A COMMENT THAT I WOULD SEE SHARING IN ROYALTIES AS NOT A TAX, BUT MORE AN EXPECTATION THAT AN INVESTOR MIGHT PUT IN. AND, OF COURSE, HERE THE INVESTORS ARE THE STATE OF CALIFORNIA.

MR. GOLLAHER: SURE. WHAT'S THE PUBLIC BENEFIT FROM DARPA? THE THEORY, AND YOU CAN ACCEPT IT OR NOT, IS THAT PUBLIC SAFETY THROUGH THE MILITARY BEING EQUIPPED WITH THE MOST ADVANCED TECHNOLOGY IS THE PUBLIC BENEFIT. DOES THAT HAVE AN ECONOMIC IMPLICATION? AND I THINK THE ANSWER WOULD BE YES. SO I GUESS THAT'S AS FAR AS I CAN TAKE THAT.

IN TERMS OF A ROYALTY PERCENTAGE RETURN BEING A TAX, I DON'T KNOW HOW ELSE I WOULD CONSTRUE THAT. I

MEAN IT IS A TAX. ON THE TRANSACTION, TAXES ARE NOT NECESSARILY BAD THINGS, SO I'M NOT SUGGESTING THAT IT'S WRONG OR BAD. I'M ONLY SUGGESTING THAT IT BECOMES PART OF THE EQUATION IN THE COMMERCIAL TRANSACTION THAT SOMETHING THAT HAS TO BE TAKEN INTO ACCOUNT BECAUSE IT HAS ECONOMIC VALUE. I'M NOT AGAINST TAXES.

DR. PRIETO: I JUST, YOU KNOW, WONDER HOW ELSE WOULD AN INVESTOR EXPECT TO GET A RETURN?

MR. GOLLAHER: WELL, I THINK THIS CUTS TO THE VERY HEART OF THE MATTER, AND ACTUALLY CUTS TO THE HEART OF JOHN SIMPSON'S PRESENTATION TOO. AND THAT HAS TO DO WITH WHAT IS THE RETURN. AND I THINK THAT TO MAKE A VERY EXTREME -- TO PRESENT AN EXTREME DICHOTOMY, ON THE ONE HAND, YOU COULD ARGUE THAT THE GREATEST RETURN TO PUBLIC HEALTH WOULD BE THE GREATEST DISSEMINATION OF THESE TECHNOLOGIES INTO PRODUCTS FOR PATIENTS. THAT PRODUCES A PUBLIC HEALTH RETURN.

IF, IN ADDITION TO THAT, YOU LOOKED FOR A FINANCIAL MONETARY RETURN, I THINK THAT'S AN ADDITION TOO. BUT THE ARGUMENT THAT WE HAD DURING THE REASONABLE PRICING ATTACHMENT TO CRATA'S AT NIH AND THE CONGRESS HAD OVER MONTHS AND MONTHS REVOLVED EXACTLY AROUND THIS ISSUE ABOUT WHETHER NIH IN ITS INTELLECTUAL PROPERTY TRANSFER COOPERATIVE RESEARCH AND DEVELOPMENT AGREEMENTS WITH ACADEMIC INSTITUTIONS SHOULD EXPECT A

FINANCIAL RETURN OR WHETHER THE PUBLIC WOULD BENEFIT MOST FROM FEWER STRINGS AND THE FASTEST POSSIBLE ACCELERATION OF THE SCIENCE.

CHAIRMAN PENHOET: ED PENHOET. IF I MIGHT, I THINK THE ISSUES OF DIRECT FINANCIAL RETURN VERSUS INDIRECT FINANCIAL RETURN. THE OTHER ARGUMENT THAT'S MADE, DARPA, FOR EXAMPLE, WAS THE ONLY FUNDER OF THE EARLY DAYS OF THE TECHNOLOGY REVOLUTION. AN EXAMPLE IS THE COMPUTER INDUSTRY PROVIDED GOVERNMENT FUNDING. IT HAS ALREADY BEEN RETURNED, IN ADDITION TO DIRECT RETURN, WHICH IS WHAT YOU'D BE TALKING ABOUT IF THERE WAS A DIRECT RELATIONSHIP. THE INDIRECT RETURNS ARE A MORE ROBUST ECONOMY IN FINANCIAL TERMS, MORE ROBUST BUSINESS SECTOR PAYING TAXES.

MR. GOLLAHER: THAT'S WELL SAID.

DR. REED: JOHN REED. I WAS WONDERING IF YOU COULD MAKE SOME GENERAL COMMENTS. I'M SURE YOUR ORGANIZATION MUST LOOK AT THIS. AND THAT IS, ON THE TOPIC OF THE STATE OF CALIFORNIA AND ITS RELATIVE COMPETITIVENESS IN THE BIOTECHNOLOGY AND LIFE SCIENCE INDUSTRY, AND SPEAK TO THE ISSUE ABOUT OUR STATE AND ITS INCENTIVES AND BUSINESS FRIENDLY PRACTICES RELATIVE TO OUR STATE AND OTHER STATES IN TERMS OF DISINCENTIVES AND BUSINESS UNFRIENDLY PRACTICES AND HOW THAT WILL WEIGH IN, DO YOU THINK, ON THE ULTIMATE BENEFIT TO

PATIENTS AND RETURNED ECONOMICALLY TO THE STATE.

MR. GOLLAHER: THAT'S A GREAT QUESTION, AND THE TENTATIVE LANDSCAPE IN BIOTECH AND THE LIFE SCIENCES IS CHANGING VERY QUICKLY RIGHT NOW, CERTAINLY OVER THE PAST FEW YEARS. I THINK THE FIRST COMMENT IS THAT OUR GLOBAL LEADERSHIP IN LIFE SCIENCES DIDN'T HAPPEN AS THE RESULT OF ANY STATE POLICY EXCEPT FOR ONE, AND THAT WAS THE FUNDING AND BUILDING OF RESEARCH EXCELLENCE AT THE UNIVERSITY OF CALIFORNIA. AND THAT BECAME AN EXTRAORDINARILY IMPORTANT ENGINE, INTELLECTUAL ENGINE, BEHIND THE GROWTH OF THE LIFE SCIENCES INDUSTRY.

NONETHELESS, OVER THE PAST 20 OR 30 YEARS, CALIFORNIA HAS TURNED INTO AN INCREASINGLY DIFFICULT PLACE TO DO BUSINESS, AND MUCH OF IT IS OUTSIDE THE CONTROL OF GOVERNMENT, HIGH HOUSING PRICES, LOTS OF INFRASTRUCTURE PROBLEMS, AND SO FORTH. AND YET WE HAVE SO MANY OF THOSE ELEMENTS THAT I ALLUDED TO WITH RESPECT TO CLUSTER THAT WE'RE STILL A MAGNET.

NOW, AT THE MARGIN OTHER COMPANIES AND OTHER -- I'M SORRY -- OTHER COUNTRIES AND STATES HAVE UNDERSTOOD THAT THESE ARE TERRIFIC CLUSTERS TO DEVELOP, THAT THEY'RE HIGH PAYING JOBS, KNOWLEDGE WORKERS, THE KIND OF COMPANIES AND UNIVERSITIES THAT YOU WOULD WANT YOUR CHILDREN TO WORK FOR, AND THE KINDS OF THINGS THAT

YOU WANT IN YOUR COMMUNITY THAT HAVE BECOME INCREASINGLY AGGRESSIVE. SO WE'RE SEEING OHIO, FLORIDA, MARYLAND, SINGAPORE WITH EXTRAORDINARY ECONOMIC PACKAGES TO ENTICE COMPANIES OR ENTICE PARTS OF THEIR OPERATIONS OR, INDEED, MANUFACTURING TO MOVE OFFSHORE.

WE ARE PERHAPS AT AN INFLECTION TIME NOW IN WHICH THE NEXT STAGE OF DEVELOPMENT IN OUR INDUSTRY WILL HAPPEN IN SOUTHERN CALIFORNIA, SOME OUTSIDE, AND I THINK YOU AT BURNHAM ARE SEEING THE DESKTOP EDITION, IN THIS CASE WITH RESPECT TO FLORIDA, IN WHICH THE GOVERNOR, THE LEGISLATURE PERSONALLY BECOME INVOLVED IN ATTEMPTING TO ATTRACT THE INDUSTRY.

NONETHELESS, THE STEM CELL INITIATIVE IN PROP 71 AND CIRM, AS IT MOVES FORWARD, IS TREMENDOUSLY ATTRACTIVE IN CALIFORNIA, PARTICULARLY BECAUSE IT DOES LEVERAGE INSTITUTES LIKE BURNHAM AND UCSD'S LIVE AND SO FORTH.

CHAIRMAN PENHOET: THANK YOU. ANY COMMENTS OR QUESTIONS FROM IRVINE?

DR. STEWARD: NO.

CHAIRMAN PENHOET: SAN CARLOS?

UNIDENTIFIED SPEAKER: NONE HERE.

CHAIRMAN PENHOET: LOS ANGELES?

UNIDENTIFIED SPEAKER: NONE.

CHAIRMAN PENHOET: CHICO.

DR. WRIGHT: NO.

CHAIRMAN PENHOET: OKAY. ANY COMMENTS FROM THE AUDIENCE IN SAN DIEGO? AUDIENCE IN IRVINE? SAN CARLOS? LOS ANGELES?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: OKAY. THANK YOU VERY MUCH, DAVID. I THINK JULIE MEIER WRIGHT WILL PROBABLY TALK MORE ABOUT THE COMPETITIVE INITIATIVE IN CALIFORNIA. AND LIKE I SAID, REMIND PEOPLE ONCE AGAIN ONE OF THE GOALS OF PROP 71 WAS THE ENHANCEMENT OF CALIFORNIA'S POSITION IN THE BIOTECH INDUSTRY GENERALLY. WE WILL HEAR MORE ABOUT THAT FROM JULIE, FOR SURE, LATER ON.

OUR NEXT SPEAKER, AND I SAY IT'S VERY NICE TO HAVE SOMEBODY ACTUALLY FROM A STEM CELL COMPANY FOR A CHANGE TO GIVE US THE BENEFITS OF THEIR FACTS ON THIS ISSUE. ALLAN ROBINS IS THE VICE PRESIDENT AND CHIEF TECHNICAL OFFICER OF NOVOCELL, WHICH IS A STEM CELL COMPANY, AND LOOK FORWARD TO YOUR COMMENTS.

MR. ROBINS: THANK YOU. FIRST OF ALL, I JUST WANT TO THANK ED AND MARY FOR THE OPPORTUNITY TO TO SPEAK TO YOU TODAY ABOUT THE IMPORTANT POLICY THAT YOU'RE DEVELOPING. IT'S A PIONEER EFFORT.

NOVOCELL, I JUST WANT TO MAKE A FEW OPENING

COMMENTS THAT --

UNIDENTIFIED SPEAKER: CHICO CAN'T HEAR YOU.

MR. ROBINS: IS THAT BETTER? NOVOCELL IS A SMALL BIOTECHNOLOGY COMPANY WITH THREE SUBS, ONE HERE IN SAN DIEGO, ONE IN ORANGE COUNTY, AND WHERE I'M FROM IN ATHENS, GEORGIA. AND WE'RE FOCUSED ON THE DEVELOPMENT OF HUMAN ES CELLS TO PRODUCE A PRODUCT TO CURE TYPE 1 DIABETES INITIALLY. THE COMPANY ALSO HAS ENCAPSULATION TECHNOLOGY WHICH IS IN CLINICAL TRIALS AT THIS POINT IN TIME.

SO I WANTED TO START THE TALK BY MAKING A COUPLE OF GENERAL POINTS AND THEN GO ON TO A NUMBER OF QUESTIONS THAT MARY POSED OF INTEREST. I'M SURE WE ALL KNOW THIS, BUT I WANTED TO USE IT TO FRAME MY TALK. STEM CELL BUSINESS, IT'S A TRUE BIOTECH OPPORTUNITY IN MUCH THE SAME WAY AS RECOMBINANT DNA WAS A TRUE BIOTECH OPPORTUNITY HERE IN CALIFORNIA IN THE '70S. AND I'M OLD ENOUGH TO HAVE SORT OF LIVED THROUGH THAT AND WORKED BEFORE RECOMBINANT DNA TECHNOLOGY, AND I KNOW THERE WAS A LOT OF EXCITEMENT AT THE TIME, AND THERE WAS A LOT OF CONCERNS, SAFETY ISSUES, AND THERE WAS A LOT OF SPECULATION WHETHER WE WERE ACTUALLY GOING TO GET ANYTHING COMMERCIAL THAT CAME OUT OF THAT. AND THAT'S ALL HISTORY NOW WITH GENENTECH.

OBVIOUSLY AT THIS POINT IN TIME, IT'S A VERY

HIGH RISK, BUT THERE'S HIGH REWARD. AND IT'S DRIVEN BY INNOVATION OF TECHNOLOGIES TO DISCOVER NOVEL PRODUCTS AND SERVICES BASED ON THESE TECHNOLOGIES. BASICALLY IT ENCAPSULATES THE STEM CELL OPPORTUNITIES BEFORE US TODAY.

THE THING THAT REALLY EXCITES US AS A COMPANY IS THE POTENTIAL TO PRODUCE TRUE DISEASE MODIFYING TREATMENTS AND CURES FOR MANY DISEASES WHICH ARE DEGENERATIVE DISEASES. TODAY WE TREAT THOSE DISEASES. WE TREAT THE SYMPTOMS FOR THE DISEASES, BUT WE DON'T TREAT THE CAUSES, WHICH IS DEGENERATION OF CELLULAR SYSTEMS, AND SO WE HAVE NO CURES FOR THAT. WE'RE SAYING THIS IS A NEW ERA IN MEDICINE, AND THAT THE 2000S WILL BE THE CENTURY OF THE CELL. SO THIS MAY BE ONE OF THE LAST FRONTIERS IN HUMAN MEDICINE THAT WE ARE VERY EXCITED TO BE INVOLVED IN.

I THOUGHT I'D GIVE THE PITCH FOR YOUR HOME STATE. WHY CALIFORNIA? IT'S -- THIS POINT HAS BEEN MADE, SO I WON'T BELABOR IT, BUT IT'S THE HUB OF BIOTECHNOLOGY INNOVATION. YOU'VE GOT A LOT OF STEM CELL TALENT; YOU'VE GOT A LOT OF BIOTECH TALENT. YOU'VE GOT GREAT RESEARCH INSTITUTIONS. YOU'VE GOT GREAT INFRASTRUCTURE, GOT THINGS LIKE SAN DIEGO CONSORTIUM. YOU'VE GOT A CONGREGATION OF VERY EXPERIENCED VENTURE CAPITALISTS. WE FEEL GOOD ABOUT

THIS BECAUSE THEY'VE MADE MONEY IN AREAS THAT THEY'VE INVESTED IN BEFORE THAT WOULD SEEM TO BE HIGHLY RISKY. AND, OF COURSE, PROPOSITION 71 AND THE INSTITUTE FOR REGENERATIVE MEDICINE.

WHAT ARE THE CONCERNS FROM A COMPANY POINT OF VIEW AND FROM OUR INVESTORS' POINT OF VIEW? WHAT ARE THE CONCERNS THAT FACE US? THERE'S A FINANCIAL UNCERTAINTY. WE CAN'T GO OUT AND RAISE FIVE YEARS MONEY AND SIT ON THAT AND SAY TO OUR INVESTORS COME BACK IN FIVE YEARS AND WE'LL SHOW YOU WHAT WE'VE DEVELOPED. SO IT'S PRETTY MUCH HAND TO MOUTH. POINTS WERE MADE EARLIER. MANY VENTURE CAPITALISTS ARE SITTING ON THE SIDELINES. JOHN MADE THE POINT ABOUT INTELLECTUAL PROPERTY. IT'S REALLY EXTREMELY COMPLICATED. THERE'S ABOUT 1500 PATENTS THAT HAVE BEEN ISSUED WITH THE WORD "INFILL" IN THE CLAIM. AND THERE'S ABOUT ANOTHER 2,500 PATENTS THAT HAVE BEEN PUBLISHED AND ARE WORKING THEIR WAY -- SORRY -- PATENT APPLICATIONS THAT HAVE BEEN PUBLISHED AND ARE WORKING THEIR WAY THROUGH THE USPTO. SO IT'S AN EXTREMELY COMPLICATED AREA.

THE TIMELINES FOR CELL PRODUCTS ARE VERY UNCERTAIN, AND (INAUDIBLE) BE FOR A WAY WHEN WE'VE PRODUCED TIMELINES. BUT THE FACT IS THIS IS A FIRST-IN-CLASS DEVELOPMENT OF NEW PRODUCTS, AND NOBODY

KNOWS THE (INAUDIBLE). AND WE ALL KNOW ABOUT THE POLITICAL/ETHICAL TENSIONS THAT FACE THIS AREA, PARTICULARLY WITH HUMAN EMBRYONIC STEM CELLS.

SO TO MARY'S SPECIFIC QUESTIONS THAT SHE POSED FOR ME. ONE IS THE VALUE OF RESEARCH GRANTS TO COMPANIES. WELL, THE FIRST ONE REALLY IS THAT IT DECREASES OUR INVESTORS' RISK A LITTLE BIT. WE SEE THIS AS A PARTNERSHIP WHERE WE TRY TO DEVELOP CURES FOR DISEASES AND WHERE ALL PARTIES SHOULD BENEFIT. AS I SAID, A LOT OF INVESTORS ARE SITTING ON THE SIDELINE, AND THAT'S BECAUSE OVER THE LAST 10 OR 15 YEARS, WE'VE SEEN TECHNOLOGY SUCH AS ANTI-SENSE, CANCER VACCINES, GENE THERAPIES, GENOMICS, XENOTRANSPLANTATION IS ANOTHER ONE. WE'VE SEEN A LOT OF MONEY SPENT, AND SO FAR WE HAVEN'T SEEN ANY PRODUCTS.

BUT WE CAN ALSO LOOK AT TECHNOLOGIES LIKE THE DEVELOPMENT OF MONOCLONAL ANTIBODIES, WHICH FOR A LONG TIME DIDN'T WORK, A LOT OF MONEY WAS SUNK INTO IT, AND THEN WHEN PEOPLE REALIZED THAT WITH MONOCLONAL ANTIBODIES, YOU HAD SOMETHING THAT WAS VALUABLE. AND THAT SECTOR OF THE INDUSTRY IS GROWING AT A VERY RAPID RATE AT THE MOMENT. OBVIOUSLY ANY INVESTMENT IN RESEARCH IS NONDILUTIVE FOR THE COMPANY. AND IT CAN POTENTIALLY DECREASE TIMELINES BECAUSE, AGAIN, JOHN POINTED OUT THAT THE BASIC INVESTMENT IN THIS AREA OVER

THE LAST YEAR WAS MINIMAL, AND SO WE CAN'T DO ALL THE THINGS WE'D LIKE TO DO. WE CAN'T PARALLEL TRACK ALL THE THINGS WE'D LIKE TO DO. AND I THINK HAVING ADDITIONAL INVESTMENT THROUGH THE INSTITUTE WOULD MAKE THOSE THINGS POSSIBLE.

IT WILL ALLOW GREATER INNOVATION. DAVID MADE THE POINT THERE'S A LOT OF INNOVATION GOES ON IN UNIVERSITIES AND RESEARCH INSTITUTIONS, BUT INNOVATION ALSO GOES ON IN COMPANIES. AND I THINK IN TERMS OF THE SORT OF RESEARCH COMPONENT OF IT, SOME OF OUR NOVOCELL WORK IS THE ETHICAL PART. ONE OF MY COLLEAGUES PUBLISHED A PRESTIGIOUS PAPER IN *NATURE BIOTECHNOLOGY* AT THE END OF LAST YEAR. SO WE DO DO GOOD RESEARCH IN COMPANIES TOO. IT'S NOT ONLY THE TRANSLATIONAL RESEARCH.

THE LAST POINT IS THAT YOU CAN PROVIDE PEER REVIEWED EVALUATION. SO OUR INVESTORS, TO A LARGE EXTENT, DON'T HAVE ACCESS TO THE SORT OF SOPHISTICATED PEER REVIEW EVALUATION THAT THE INSTITUTE WILL HAVE ACCESS TO. AND I THINK IT WOULD GIVE OUR INVESTORS SOME CONFIDENCE IF THERE WAS A THIRD-PARTY EXTERNAL REVIEW THAT LOOKED AT THE SCIENCE IN A VERY HARD WAY.

SECOND QUESTION MARY ASKED US ABOUT OUTSIDE GRANT EXPERIENCE THAT CALIFORNIA HAS HAD. I'M USING TODAY THE EXAMPLE OF JDRF BECAUSE WE HAVE HAD A COUPLE

OF GRANTS FROM JDRF AND WE JUST OUTLINED TO YOU WHAT WE FUND WITH THEM. WE'VE ALSO HAD NIH GRANTS THROUGH SBIR AND THROUGH INFRASTRUCTURE GRANTS, BUT I THINK THEY'RE LESS RELEVANT TO WHAT WE'RE TALKING ABOUT TODAY.

AND LEVEL WITH THIS IS ABSOLUTELY APPLICABLE TO IP, BUT I JUST WANTED TO RUN THROUGH THE MAJOR POINTS OF A GRANT THAT WE HAVE AT THE MOMENT. FIRST OF ALL, THERE'S A STEERING COMMITTEE, SO IT'S A PARTNERSHIP BETWEEN JDRF AND NOVOCELL, TWO FROM NOVOCELL AND TWO FROM JDRF. WE HAVE TO PROVIDE PROGRESS REPORTS, BOTH TECHNICAL AND FINANCIAL, AND THEY'RE SIX MONTHLY. WE HAVE TO PROVIDE AT LEAST THE TECHNICAL REPORTS FOR UP TO FIVE YEARS AFTER THE COMPLETION OF THE GRANT. WE HAVE TO MAKE REASONABLE EFFORTS TO EITHER PUBLISH OR DISSEMINATE THE RESULTS, WHICH MEANS TALK ABOUT THEM AT CONFERENCES OR WHATEVER, WE DON'T NECESSARILY HAVE TO PUBLISH IT. AND IT IS REASONABLE EFFORT, WHICH IS A DIFFERENT LEGAL MEANING FROM BEST EFFORT. BUT NEVERTHELESS, THERE'S A GOOD-FAITH EXPECTATION.

THE INTELLECTUAL PROPERTY, IF THERE IS ANY, THAT'S DEVELOPED IS OWNED BY NOVOCELL. BUT IF WE WANT TO ABANDON ANY INTELLECTUAL PROPERTY DURING PROSECUTION, JDRF HAS A RIGHT OF NEGOTIATION TO THAT INTELLECTUAL PROPERTY. WE HAVE TO REPORT ANY

THIRD-PARTY AGREEMENT FOR INTELLECTUAL PROPERTY THAT'S DEVELOPED UNDER THE AGREEMENT OR MIGHT BE COVERED UNDER THE AGREEMENT FOR UP TO TEN YEARS.

I GUESS THE MODEL WITH JDRF, AND IT'S TRUE WE'VE HAD A COUPLE OF CONTRACTS AND THEY'RE NEGOTIATED ON AN INDIVIDUAL BASIS, BUT THIS PARTICULAR ONE ASKED FOR REPAYMENT OF THREE TIMES OF THE TOTAL FUNDING, AND IT'S BASED ON PRODUCT SALES IN WHOLE OR IN PART ON RESULTS -- SORRY -- WHERE THE PRODUCT IS IN WHOLE OR IN PART FROM RESULTS OF THE RESEARCH PROGRAM. AND SO IT'S UNLIKELY THAT SOME FUNDED PIECE OF RESEARCH, AND IT COMES BACK TO THE CONTINUUM IDEA THAT I WAS TALKING ABOUT THE OTHER DAY -- I'M SORRY -- A LITTLE EARLIER IN YOUR TALK, IT'S UNLIKELY THAT YOU'RE GOING TO FUND SOMETHING THAT'S GOING TO TAKE, AT LEAST FROM A CONCEPT TO A PRODUCT, BUT IF THERE'S SOME INTELLECTUAL PROPERTY IN THERE, THEN THIS IS THE WAY THAT JDRF PROPOSES TO SHARE IT.

OR 5 PERCENT OF THIRD-PARTY PAYMENT. WHAT THAT REALLY COMES DOWN TO, AND JOHN USED A NUMBER OF 25 PERCENT, WHICH IN THE INDUSTRY WOULD BE HIGH. I MEAN IT'S REALLY A SUBLICENSING FEE. SO IF WE HAD SUBLICENSING TECHNOLOGY TO A THIRD PARTY, SAY A BIG PHARMA COMPANY, TO COMMERCIALIZE IT, THEN SOME PORTION OF THAT SUBLICENSING FEE CAN GO BACK TO JDRF, GO BACK

TO THE INSTITUTION. AND THE DEALS THAT I'VE DONE WITH UNIVERSITIES OR WITH JDRF OR WHATEVER, THIS NUMBER IS NORMALLY SORT OF 5 TO 10 PERCENT.

THERE'S NO REPAYMENT IF COMMERCIALIZATION DOESN'T OCCUR. WE ALL KNOW THAT THERE'S HIGH RISK, HIGH REWARD. OUR INVESTORS ARE IN THERE ALONGSIDE THOSE OF JDRF, AND SO IT SEEMS FAIR, A FAIR PRINCIPLE THAT IF NO COMMERCIALIZATION OCCURS, THERE WILL BE NO REPAYMENT.

WE CANNOT ASSIGN OR SUBCONTRACT THE GRANT OR INTELLECTUAL PROPERTY WITHOUT PRIOR CONSENT. THAT'S EXCEPT IN THE CASE OF A MERGER OR ACQUISITION.

ONE THING THAT MARY ASKED ME ABOUT IS POTENTIAL INTELLECTUAL PROPERTY AND REVENUE SHARING MODELS. AND I PUT UP THREE OR FOUR DIFFERENT MODELS, AND TO ME THE JDRF MODEL IS VERY ACCEPTABLE BECAUSE ON DAY ONE THE COMPANY KNOWS WHAT THEY'RE SIGNING UP FOR. WE'RE GOING TO BE GIVING, IF THERE'S A PRODUCT, THAT ENSURES HERE'S THE RETURN. NOW, IT'S A 3 X RETURN, SO THAT SEEMS REASONABLE. AND I KNOW JDRF NEGOTIATES ON THAT. I'VE SEEN CONTRACTS OF 2 X, AND I'VE SEEN CONTRACTS OF 4 X.

THE OTHER THING THAT I THINK IS GOOD IS THERE'S BEEN A LOT OF FOCUS ON INTELLECTUAL PROPERTY, BUT THE MODEL IS NOT BASED ON INTELLECTUAL PROPERTY,

BUT PRODUCT SALES. SO DAVID MADE THE POINT, AND IT'S A VERY GOOD ONE, A LOT OF THE THINGS THAT COMPANIES WILL DO IS TRANSLATING BASIC RESEARCH INTO A PRODUCT. I'LL MAKE THIS UNDER MY NEXT POINT, THE ROYALTY MODEL, WHERE I'LL TELL YOU IT MAY WORK IF IT'S LIMITED TO NEW IP, BUT MY VISION OF WHAT CIRM WOULD LIKELY FUND IN A COMPANY SCENARIO, I WOULD LOOK AT ACTIVITIES SUCH AS CLINICAL TRIALS, SUCH AS SCALE-UP THAT DAVID MENTIONED, SUCH AS MANUFACTURING PROCESS TOGETHER. AND MOST IMPORTANT, NECESSARILY LEADS TO INTELLECTUAL PROPERTY. SO A ROYALTY MODEL BASED ON INTELLECTUAL PROPERTY, I THINK, MIGHT HAVE THE INSTITUTE MISSING OUT ON REVENUES THAT IT WOULDN'T OTHERWISE.

THE OTHER THING WITH A ROYALTY MODEL IS THAT THIS IS A VERY COMPLEX FIELD, AND WHOEVER COMMERCIALIZES A PRODUCT IS GOING TO REQUIRE MULTIPLE LICENSES. YOU ARE GOING TO WANT TO HAVE ANTISTACKING PROVISIONS IN THOSE LICENSES, AND THESE ROYALTIES GET OUT OF HAND VERY, VERY QUICKLY. WE KNOW BECAUSE WE'RE DEALING WITH A FEW PARTNERS AT THE MOMENT, AND WE KNOW THAT ADDING ROYALTY AFTER ROYALTY IS VERY UNATTRACTIVE TO FUTURE PARTNERS AS OPPOSED TO A MODEL WHERE THEY KNOW WHAT THEY'RE SIGNING UP FOR.

OTHER POTENTIAL MODELS, WE TALKED ABOUT LOANS, AND I THINK A LOAN COULD WORK FINE, AN INTEREST

BEARING LOAN, WHICH IS FORGIVABLE IF NO PRODUCT WITHIN X YEARS. SO UNLIKE JOHN'S MODEL, THIS IS NOT LIKE BUILDING A HOUSE BECAUSE THERE'S NOT A SURETY THAT WE'RE GOING TO HAVE A PRODUCT AT THE END OF THE DAY. OUR INVESTMENT SCHEME AND MONEY IS ON THE LINE. CIRM'S MONEY IS ON THE LINE. IT BEING FAIR THAT THAT WOULD BE FORGIVABLE IF NO PRODUCT WAS DEVELOPED.

IT CAN BE MESSY ACCOUNTINGWISE. IT WOULD SIT ON OUR BALANCE SHEET, AND SO I KNOW THAT OUR FINANCIAL FOLKS WOULDN'T LIKE THAT; BUT NEVERTHELESS, IT'S A MODEL THAT COULD WORK.

AND I DON'T KNOW WHAT THE RULES ARE FOR CIRM IN TERMS OF HOLDING EQUITY IN COMPANIES, BUT ANOTHER THING THAT I THOUGHT OF, AND THIS IS JUST IDEAS I'M THROWING OUT THERE, IS CONVERTIBLE DEBT. AND SO IT'S BASICALLY A LOAN AND IT BEARS INTEREST, BUT IT CAN BE CONVERTED AT THE OPTION OF THE COMPANY OR YOU COULD ARGUE AT THE OPTION OF CIRM. AND, OF COURSE, THE COMPANY WOULD RATHER AT THE OPTION OF THE COMPANY AT SOME POINT IN TIME OR WHEN SOME EVENT HAPPENS. THIS IS A MODEL THAT COULD WORK.

GETTING BACK TO THE BENEFITS TO CALIFORNIA, THE LAST MODEL I THOUGHT ABOUT WAS A SORT OF AN EXCLUSIVE MARKETING TOOL. PATIENTS CAN COME FROM ALL OVER THE WORLD, AND THEY DO GO TO VARIOUS PLACES FOR

VARIOUS TREATMENTS. SO WHAT ABOUT IF FOR A PERIOD OF TIME, YOUR PRODUCTS WERE OFFERED ONLY IN CALIFORNIA SO THAT THE BUSINESS IN CALIFORNIA IS GROWING. AND THAT STIMULATES THE STATE ECONOMY. IT'S AN INDIRECT WAY OF GETTING MONEY BACK INTO THE STATE. BUT, AGAIN, PARTNERS WON'T LIKE THAT IF YOU'RE GOING WITH A BIG BIOTECH COMPANY THAT WORKS INTERNATIONALLY, BUT IT'S SOMETHING THAT I, AT LEAST, THINK YOU SHOULD DO.

I THINK THIS HAS ALREADY BEEN ADDRESSED BY ED. CAN CIRM MAKE UNIFORM POLICIES FOR COMMERCIAL ENTITIES, UNIFORM POLICIES? I THINK IT'S DIFFICULT, BUT BASICALLY (INAUDIBLE) JDRF MODEL WHERE THEY'RE INDIVIDUALLY NEGOTIATED. WHILE THEY'RE MUCH MORE COMPLICATED FOR CIRM, I THINK IT'S THE ONLY WAY TO DO IT. IT'S NOT REALLY POSSIBLE TO DO IT ANY OTHER WAY.

I'LL JUST PUT UP A COUPLE OF POINTS FOR COMPANIES AT VARIOUS STAGES. I WOULD NOTE WHAT SORT OF A DEAL YOU CAN CUT WITH A COMPANY WILL -- A VIRTUAL COMPANY, YOU'VE PROBABLY GOT A LOT MORE LEVERAGE OVER THAN A PRIVATE COMPANY WITH VC INVESTORS. AND, OF COURSE, A PUBLIC COMPANY HAS ITS SHAREHOLDERS TO DEAL WITH. AND SO ALL THESE GROUPS ARE VERY DIFFERENT WHEN YOU LOOK AT THEM. AND THERE ARE STEM CELL COMPANIES THAT FIT INTO ALL THESE CATEGORIES. AND THEN, OF COURSE, THERE ARE BUSINESSES. WE WOULD SEE OURSELVES

AS A THERAPEUTICS BUSINESS. OUR INVITROGEN FRIENDS WOULD SEE THEMSELVES AS BEING IN THE REAGENTS BUSINESS, AND, OF COURSE, ONE CAN CONCLUDE DIAGNOSTICS IS A BUSINESS. AND THE SORTS OF RETURNS ON THOSE BUSINESSES ARE DIFFERENT, AND SO ARE THE SORT OF DEALS YOU HAVE ARE DIFFERENT TOO.

COLLABORATIVE CONSORTIUMS ARE SORT OF LIKE THE LAST QUESTION, AND I REALLY STRUGGLED WITH THIS. COLLABORATIVE CONSORTIUMS BETWEEN PUBLIC COMPANIES ARE BASICALLY DRIVEN BY TRYING TO INCREASE SHAREHOLDER VALUES. IT IS VERY DIFFICULT. AND SO I THINK IF SUCH PROGRAMS ARE SET UP, THEY NEED TO BE DRIVEN BY COMMERCIAL CONSIDERATIONS. COMPANIES ARE ONLY GOING TO WORK TOGETHER WHEN THEY BOTH HAVE SOMETHING TO GAIN FROM IT. AND I THINK CORPORATE CULTURE IS VERY IMPORTANT.

WE MET WITH A COMPANY RECENTLY, AND WHETHER THEIR TECHNOLOGY GOOD OR BAD, ALAN IS LAUGHING BECAUSE HE WAS THERE WITH ME, I CAN TELL YOU AFTER AN HOUR WITH THIS GUY, THERE'S JUST NO WAY WE CAN EVER WORK WITH THEM.

ANOTHER IMPORTANT POINT IS THAT COMPANIES NEED TO BE ABLE TO MAINTAIN CONTROL OF CONFIDENTIAL INFORMATION AND INTELLECTUAL PROPERTY. AND I'VE HEARD A LOT OF TALK TODAY ABOUT THE NEED TO SHARE

CONFIDENTIAL INFORMATION AND INTELLECTUAL PROPERTY, AND MAYBE IN THE PUBLIC SECTOR THAT CAN WORK, BUT IN THE PRIVATE SECTOR IT DOESN'T WORK. I SUSPECT EVEN IN THE PUBLIC SECTOR WHERE PEOPLE ARE APPLYING FOR NIH GRANTS AND THEY NEED LEVERAGE, IT'S VERY DIFFICULT TO MAKE THIS WORK. SO I DO NOT THINK CONSORTIUMS SHOULD BE SOME SORT OF A REQUIREMENT OF CIRM, BUT IT COULD HAVE SPECIFIC GRANTS, MUCH LIKE THE NIH HAS CONSORTIUMS LIKE GRANTS, THEIR PROGRAM GRANTS, AND I THINK IT'S MORE LIKELY TO BE ACADEMIC-ACADEMIC OR COMPANY TO ACADEMIC COLLABORATION THAN IT IS COMPANY TO COMPANY.

I'LL JUST FINISH WITH THINGS THAT ARE SLIGHTLY OFF TOPIC, BUT OCCUR TO ME TO BE IMPORTANT THINGS TO CONSIDER. ONE IS HOW WILL CIRM PROTECT CONFIDENTIAL INFORMATION DIVULGED IN GRANT APPLICATIONS? AND HERE I THINK THE NIH MODEL PROBABLY DOESN'T WORK. COMPANIES GET VERY PROTECTIVE, A LITTLE BIT PARANOID ABOUT PROTECTING THEIR INTELLECTUAL PROPERTY AND THINGS THAT THEY KNOW. AND SO THE NIH MODEL WHERE YOU HAVE TO SUBMIT A GRANT IN GREAT DETAIL AND GIVE ALL THESE BACKGROUND RESEARCH RESULTS, AND I KNOW YOU WILL HAVE YOUR REVIEWERS SIGN CONFIDENTIALITY AGREEMENTS, BUT A WELL-KNOWN FRIEND OF MINE ONCE TOLD ME THE SECRET IS SOMETHING THAT TWO PEOPLE KNOW, AND ONE OF THEM IS DEAD.

IT'S AMAZING BECAUSE WHEN ED SUBMITTED HIS PAPER TO *NATURE BIOTECHNOLOGY*, LITERALLY I DIDN'T EVEN KNOW HE HAD SUBMITTED IT, BUT A FRIEND CALLED ME FROM SINGAPORE WHO HAD BEEN TOLD BY ONE OF THE REVIEWERS THAT THIS PAPER HAS BEEN SUBMITTED. THAT'S HOW I FOUND OUT ED HAD SUBMITTED THE PAPER, AND SO I'VE NO FAITH IN THE CONFIDENTIALITY AGREEMENT.

SO I THINK IF YOU CAN PRESENT A GRANT WHERE YOU'RE PRESENTING RESULTS, BUT YOU'RE NOT GIVING DETAILS ABOUT HOW YOU MAY HAVE GOTTEN TO A PARTICULAR POINT, OF COURSE, YOU HAVE TO PROVE WHAT YOU'VE GOT IS WHAT YOU'VE GOT. THAT'S A BETTER MODEL THAN WHERE YOU HAVE TO HAVE GREAT DETAIL.

THE OTHER THING IS MOST NIH GRANTS ARE HYPOTHESIS DRIVEN. AND WHEN WE'RE TALKING ABOUT COMPANIES DOING TRANSLATIONAL RESEARCH, CLINICAL RESEARCH, DEVELOPING MANUFACTURING PROCESSES DEVELOPED IN DARPA, THIS IS REALLY HYPOTHESIS DRIVEN. AND SO I THINK THAT NEEDS TO BE TAKEN INTO ACCOUNT.

THE OTHER THING IS WHEN I WENT BACK AND READ THE PROP 71 LEGISLATION, THE PRIORITY FOR STEM CELL RESEARCH, UNLIKELY TO RECEIVE FEDERAL FUNDING, TO ME THAT MEANS THERE'S REALLY GOING TO BE A FOCUS ON HUMAN ES CELL RESEARCH, ON THERAPEUTIC CLONING, AND THINGS OF THAT NATURE, AND I'M JUST WONDERING HOW THAT WILL BE

IMMERSED WITHIN THE ORGANIZATION. I REALIZE THAT'S NOT PURELY AN IP TASK FORCE ISSUE, BUT IT IS AN ISSUE.

AND THEN WE'VE ALREADY DISCUSSED THE POINT I RAISED WITH JOHN. HOW WILL CIRM HANDLE ALREADY EXISTING INTELLECTUAL PROPERTY WHICH IS OVERARCHING? AND A LOT WAS SAID ABOUT THE WARF INTELLECTUAL PROPERTY, THAT GERON HAS SOME VERY BROAD PATENTS IN THE AREA, WHICH COULD BE VERY TROUBLESOME, AND THERE ARE OTHER GROUPS. IT'S NOT AS CUT AND DRY AS (INAUDIBLE) HAVING COMPETITION OF (INAUDIBLE). THERE ARE OTHER PATENTS OUT THERE THAT ARE VERY BROAD AND NEED TO BE CONSIDERED. AND I THINK IF YOU'RE GOING TO SPEND A LOT OF MONEY TRYING TO DEVELOP PRODUCT, YOU NEED TO KNOW HOW YOU ARE GOING TO HANDLE IT. THAT'S THE END OF MY TALK. THANK YOU.

CHAIRMAN PENHOET: THANK YOU VERY MUCH. VERY THOUGHTFUL PRESENTATION. DO WE HAVE QUESTIONS FROM OUR TASK FORCE WITH US HERE IN SAN DIEGO? IN IRVINE?

DR. STEWARD: NO QUESTIONS.

CHAIRMAN PENHOET: SAN CARLOS?

UNIDENTIFIED SPEAKER: NO QUESTIONS.

CHAIRMAN PENHOET: LOS ANGELES?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: UNUSUALLY QUIET GROUP OUT THERE THIS MORNING. HOW ABOUT FROM THE AUDIENCE IN SAN DIEGO? JOHN SIMPSON.

MR. SIMPSON: THAT WAS A FANTASTIC PRESENTATION, VERY INTERESTING. I HAVE A QUESTION. I SENSE THAT YOU, ALTHOUGH YOU MIGHT NOT COME DOWN AT THE SAME SPECIFICS, BUT YOU DO BUY INTO THE NOTION THAT IF THERE IS PUBLIC MONEY GOING INTO THIS, THAT THERE IS SOME SORT OF REQUIREMENT FOR PUBLIC BENEFIT TO COME BACK.

MR. ROBINS: THE LEGISLATION APPROVED THAT, SO THAT'S VERY CLEAR TO US. WE'RE NOT GOING TO CHANGE THE LEGISLATION, SO I AGREE.

MR. SIMPSON: THAT'S DELIGHTFUL TO HEAR. AND THEN THE SECOND QUESTION, I GUESS, WOULD BE YOU ALLUDED --

MR. ROBINS: I DON'T SAY I AGREE. OUR COMPANY AGREES.

MR. SIMPSON: YEAH. I UNDERSTAND. THE NOTION OF THE POOLING OF PATENTS, DO YOU SEE A POTENTIAL SOLUTION FOR THAT AND SOME KIND OF PATENT POOL ON THE UPSTREAM RESEARCH PROCESS? WOULD THAT BE USEFUL IF YOU COULD GO TO ONE PLACE AND ONE-STOP SHOPPING, SO TO SPEAK?

MR. ROBINS: IT'S A BIT LIKE SOCIALISM OR

COMMUNISM. THEY HAVE GREAT IDEALS, BUT THE DEVIL IS IN THE DETAIL OF HOW YOU DO THAT. I THINK IN A COMMERCIAL WORLD, WHICH IS, YOU KNOW, LET'S FACE IT AND GET DOWN TO THE (INAUDIBLE). IT'S VERY DIFFICULT TO DO THAT.

CHAIRMAN PENHOET: ANY COMMENTS FROM THE PUBLIC IN ANY OF THE OTHER SITES? IF NOT, WE'VE NOW HAD THREE STIMULATING PRESENTATIONS. MAYBE WE'LL TAKE A TEN-MINUTE BREAK, BIOBREAK OR WHATEVER OTHER KIND OF BREAK. THERE'S FOOD OUT HERE ON THE VERANDA IN SAN DIEGO. WE'LL RECONVENE AT 10:15.

(A RECESS WAS TAKEN.)

MS. KING: SUSAN BRYANT. MICHAEL GOLDBERG. SHERRY LANSING. IS EVERYBODY'S PHONE ON MUTE POSSIBLY? TED LOVE.

DR. LOVE: YES, WE'RE HERE.

MS. KING: ED PENHOET.

CHAIRMAN PENHOET: HERE.

MS. KING: PHIL PIZZO. FRANCISCO PRIETO. JOHN REED.

DR. REED: HERE.

MS. KING: JEFF SHEEHY. OSWALD STEWARD.

DR. STEWARD: HERE.

MS. KING: JANET WRIGHT.

DR. WRIGHT: HERE.

MS. KING: I HEARD SOMEONE RING IN, SO I'M

GOING TO GO BACK THROUGH THE FIRST FEW NAMES AGAIN. SUSAN BRYANT.

DR. BRYANT: HERE.

MS. KING: MICHAEL GOLDBERG.

MR. GOLDBERG: HERE.

MS. KING: SHERRY LANSING.

CHAIRMAN PENHOET: THERE'S REPRESENTATION. THANK YOU FOR HANGING IN WITH US.

NEXT SPEAKER IS JULIE MEIER WRIGHT. JULIE IS CURRENTLY THE SAN DIEGO REGIONAL ECONOMIC DEVELOPMENT CORPORATION'S CEO. IN A PAST LIFE JULIE WAS SECRETARY OF TRADE AND COMMERCE IN THE STATE OF CALIFORNIA AND DID A LOT TO RAISE THE VISIBILITY OF THE BIOTECH INDUSTRY IN THE STATE GOVERNMENT AND TO PROMOTE CALIFORNIA'S BIOTECH INDUSTRY BROADLY. SO, JULIE, THANK YOU VERY MUCH FOR JOINING US TODAY.

AND WE ASKED JULIE TO GIVE US A PERSPECTIVE ON THE IMPORTANCE OF CALIFORNIA'S BIOTECH INDUSTRY TO THE ECONOMY OF THE STATE AND PARTICULARLY OBVIOUSLY SAN DIEGO. SO IT'S THE COMPETITIVE POSITION THAT JULIE IS GOING TO ADDRESS HERE THIS MORNING.

MS. WRIGHT: EXACTLY. THANK YOU VERY MUCH, ED. IT'S A PLEASURE TO BE HERE THIS MORNING. I THINK YOU WILL FIND THAT MANY -- FOR THOSE OF YOU AT REMOTE SITES, I HAVE A BRIEF POWERPOINT PRESENTATION THAT IS

KIND OF IN THE MIDDLE, SO I'LL TELL YOU WHEN I'M GOING TO CUE IT UP.

I WANTED TO TAKE A SLIGHTLY DIFFERENT TACK AND TALK ABOUT HOW -- WHAT ARE THE ECONOMIC DEVELOPMENT IMPLICATIONS. AND ALTHOUGH I DIDN'T TALK TO DR. GOLLAHER AT ALL ABOUT HIS PRESENTATION, I THINK YOU WILL FIND THAT THEY ARE VERY COMPLEMENTARY. I AM SHARING MY PERSPECTIVE OF BEING SECRETARY OF TRADE AND COMMERCE FROM '91 THROUGH '97 AND ALSO CHAIR OF THE GOVERNOR'S ADVISORY COUNCIL ON BIOTECHNOLOGY AS WELL AS ON THE NATIONAL STRENGTH COMMITTEE FOR THE STUDY OF REGIONAL CLUSTERS AND INNOVATION THAT DR. GOLLAHER REFERRED TO.

AND IN THE LAST FEW YEARS, OUR MESSAGES ABOUT STATE ECONOMIC DEVELOPMENT HAVE BEEN PRETTY NEGATIVE. WE'RE VIEWING WHAT THE GAIN ISSUE HAS BEEN SIMILAR, I THINK. BUT OUR MESSAGES ABOUT ECONOMIC DEVELOPMENT IN CALIFORNIA HAVE BEEN PRETTY NEGATIVE. SOME KEY TAX CREDITS HAVE EXPIRED, MANY OF WHICH BENEFIT THE LIFE SCIENCES INDUSTRY. AND GOVERNOR GRAY DAVIS DISMANTLED MY AGENCY IN 2003. SO I THINK THAT IN STARK CONTRAST, THE PASSAGE OF PROP 71 SENT ONE OF THE MOST POWERFUL MESSAGES THAT CALIFORNIA HAS EVER SENT ABOUT BEING AT THE FOREFRONT OF INNOVATION AND SPURRING ECONOMIC DEVELOPMENT.

SO PREPARING FOR TODAY, I TALKED TO A NUMBER OF PEOPLE, INCLUDING IVOR ROYSTON WHO WAS INVITED TO PRESENT TODAY, BUT IS IN CHINA. HE'S ONE OF SAN DIEGO'S BIOTECH PIONEERS AND AN ACTIVE LIFE SCIENCE INVESTOR. ALSO LAST WEEK MY ORGANIZATION POSTED --

(INTERRUPTION IN PROCEEDINGS.)

DR. WRIGHT: ANYWAY, I DO WANT TO EMPHASIZE THAT IT HAS BEEN IN STARK CONTRAST THAT THE PASSAGE OF PROP 71 SENT A HUGELY POWERFUL MESSAGE, MAYBE ONE OF THE MOST IMPORTANT THAT CALIFORNIA HAS EVER SENT, ABOUT BEING AT THE FOREFRONT OF INNOVATION AND SPURRING ECONOMIC DEVELOPMENT.

AND IN TALKING TO IVOR ROYSTON AND HOSTING THIS SAN DIEGO CONFERENCE ON COMPETITIVENESS, I HAVE A LOT OF FOOD FOR THOUGHT JUST IN THE LAST FEW DAYS. SO I WANT TO TALK A LITTLE BIT ABOUT THE COMPETITIVE CLIMATE IN WHICH INNOVATION IS TAKING PLACE BECAUSE IT IS REALLY INTENSIFYING. THE PASSAGE OF PROP 71 SPURRED MANY OTHER STATES TO ACTION. AND WHILE THEIR EFFORTS ARE IN SOME CASES NOT AS BOLD AS CALIFORNIA'S, NEITHER ARE THEY TIED UP IN LITIGATION, WHICH HAS PREVENTED THE STATE FROM TRULY BUYING A COMPETITIVE EDGE. AND I DO WANT TO CONGRATULATE CIRM ON A SOLID WIN IN THE CALIFORNIA SUPERIOR COURT LAST WEEK, BUT THE FACT IS THAT TIME WAS ON OUR SIDE AND THE LAWYERS HAVE

INTERFERED.

SO I'M GOING TO GIVE YOU A FEW EXAMPLES OF THE COMPETITIVE LANDSCAPE IN THIS COUNTRY ALONE. WISCONSIN, THE STATE, MENTIONED EARLIER, $350 MILLION LIFE SCIENCES DISCOVERY FUND THAT WILL OUT-TAKE $35 MILLION A YEAR. PENNSYLVANIA IS TALKING ABOUT CREATING A $500 MILLION JONAS SALK LEGACY FUND FOR BIOSCIENCES FACULTY AND RECRUITMENT AND FACILITIES. THAT ONE KIND OF BUGS ME SINCE WE HAVE THE SALK INSTITUTE RIGHT UP THE ROAD HERE. MISSOURI IS PROPOSING A $450 MILLION LEWIS AND CLARK DISCOVERY INITIATIVE. OHIO HAS ALREADY ALLOCATED 300 MILLION, 60 PERCENT TO BIOSCIENCE-RELATED INITIATIVES OUT OF 1.6 BILLION. CONNECTICUT, A HUNDRED MILLION OVER TEN YEARS USING SOME TOBACCO SETTLEMENT MONEY. FLORIDA, 30 MILLION LIFETIME GRANT THAT COULD BE EXPANDED.

I THINK WHAT WE ALL KNOW ABOUT THEIR AGGRESSIVE EFFORTS TO WIN THE SCRIPPS RESEARCH INSTITUTE AND ARE NOW WORKING ON AN EXPANSION FROM BURNHAM. THESE INSTITUTES WILL MAINTAIN A STRONG PRESENCE IN SAN DIEGO, BUT THESE OPPORTUNITIES ARE TOO ATTRACTIVE FOR THEM TO IGNORE AS THEY SEEK TO EXPAND THEIR RESEARCH BASE.

NEW JERSEY, 11 AND A HALF MILLION APPROPRIATED, $150 MILLION IN CAPITAL SPENDING AND

250 -- 30 MILLION, SORRY, FOR RESEARCH PROPOSED. MARYLAND, 12 MILLION, AND ALSO IN THE 5 TO 10 MILLION RANGE, ILLINOIS AND SOUTH CAROLINA. I WAS GOING TO ADD WISCONSIN UNTIL I LEARNED IN AN E-MAIL FROM ALAN LEWIS OF NOVOCELL THAT GOVERNOR DOYLE WAS AT BIO WITH A STRONG PITCH FOR STEM CELL RESEARCH, AND HE HIGHLIGHTED 50 MILLION IN DONATIONS BY THE MORGRIDGE FAMILY, JOHN MORGRIDGE, CALIFORNIA CEO OF CISCO. 50 MILLION FROM THE WISCONSIN ALUMNI RESEARCH FOUNDATION THAT'S BEEN TALKED ABOUT THIS MORNING, AND ANOTHER 50 MILLION FROM THE STATE TO CREATE THE WISCONSIN (INAUDIBLE) OF DISCOVERY.

TIME DOESN'T PERMIT TO ME TO FOCUS ON THE INTERNATIONAL COMPETITION, BUT I JUST WANT TO USE SINGAPORE AS ONE EXAMPLE OF MANY. I HAVE A COPY OF AN ARTICLE. I APOLOGIZE FOR NOT GETTING IT TO THE REMOTE SITES, BUT I KNOW THAT MELISSA WILL DO SO AS A PDF FILE. IT IS AN ARTICLE FROM *WIRED MAGAZINE* CALLED "SINGAPORE WANTS YOU." AND LET ME QUOTE, "THE FUTURE-FRIENDLY CITY-STATE HAS AN OFFER BIOSCIENTISTS CAN'T REFUSE: UNRESTRICTED RESEARCH, TOPNOTCH TALENT, AND LIMITLESS FUNDS. (JUST LEAVE OF CHEWING GUM AT HOME)." IT ALSO GOES ON TO SAY, "SINGAPORE IS TREATING HUNDREDS OF SCIENTISTS LIKE FREE AGENTS, PROMISING FIRST CLASS LABORATORIES, TOPNOTCH EQUIPMENT, AND MORE

THAN ENOUGH MONEY TO PURSUE WORK THAT'S NOT FUNDABLE, OR IS TOO CONTROVERSIAL, BACK HOME. THE GOVERNMENT IS INVESTING MORE THAN $2 BILLION INTO RESEARCH OF ALL STRIPES HOPING TO ATTRACT LEADERS IN THERAPEUTIC CLONING, DRUG DISCOVERY, CANCER RESEARCH, AND OTHER AREAS. BIOSCIENCE ALL-STARS WHO WILL IN TURN HELP BUILD A LOCAL COMMUNITY THAT WILL BOLSTER THE ECONOMY."

I FRANKLY THINK THAT'S WHAT WE OUGHT TO BE TALKING ABOUT DOING IN CALIFORNIA WITH RESPECT TO STEM CELL RESEARCH. OUR OWN ED HOLMES, WHOM YOU ALL KNOW, WHO'S THE DEAN OF UCSD'S MEDICAL SCHOOL, THIS FALL IS GOING TO SPEND 20 WEEKS A YEAR IN SINGAPORE RUNNING THEIR EQUIVALENT TO NIH. AND HIS WIFE IS GOING TO BECOME THE HEAD OF A NEW INSTITUTE FOR TRANSLATIONAL MEDICINE. IN A CONVERSATION WITH ED THIS WEEK, HE SAID, "THEY ARE HARD CHARGING, FOCUSED. WE CANNOT COAST."

THE LIFE SCIENCES SECTOR IS UNIQUELY TARGETED BY PEOPLE LIKE ME ALL OVER THE WORLD AND GOVERNMENTS FROM ALL OVER THE WORLD WHO ARE PASSIONATE ABOUT EARNING THEIR SHARE OF THIS EXCITING INDUSTRY.

AND NOW IF YOU WANT TO PULL UP THE SLIDES, I'M GOING TO USE A FEW QUICK SLIDES FROM THE LIFE SCIENCE COMMUNITY'S MAJOR INTERNATIONAL CONFERENCE BIO, WHICH THIS YEAR ATTRACTED MORE THAN 20,000 ATTENDEES

FROM AROUND THE WORLD. THIS CONFERENCE OF 2006 IN CHICAGO ATTRACTED MORE THAN 20,000 PEOPLE GLOBALLY. AND THE IRONY IS IF YOU WALK THE FLOORS OF BIO, IT'S AS MUCH ABOUT ECONOMIC DEVELOPMENT AS IT IS ABOUT SCIENCE ANYMORE.

I'M GOING TO GO THROUGH SOME SLIDES VERY QUICKLY. YOU CAN SEE, CALIFORNIA THROW EVERYTHING WE HAVE THE SEVENTH LARGEST ECONOMY IN THE WORLD, HAS A RELATIVELY MODEST PRESENCE AT BIO. LOOK AT OTHER SMALLER STATES THAT IN MANY CASES HAVE NOT VERY MUCH IN THE LIFE SCIENCES: GEORGIA, ILLINOIS, IOWA. DUANE ROTH WILL TELL YOU THAT THE GOVERNOR OF IOWA OUT AND IS ACTIVE TO RECRUIT COMPANIES FROM CALIFORNIA. MICHIGAN, MISSOURI, NEBRASKA, NEW YORK SITE IS BLURRY. THESE ARE AMATEUR PHOTOGRAPHS OBVIOUSLY.

IT'S AN INTERNATIONAL COMPETITION. SOME OF THE INTERNATIONAL COMPETITORS DO MAJOR THINGS. AND INCIDENTALLY, I WANT TO SAY THAT LOOKING AT THESE PHOTOGRAPHS OF EXHIBITS IS BUT ONE COMPONENT OF THEIR OVERALL EFFORT, WHICH INCLUDES INCENTIVES, INVESTMENT IN RESEARCH, AND A VARIETY OF OTHER THINGS.

THIS FROM BIO 2003. SINGAPORE IS BACK THERE. THIS BIG UPSIDE DOWN UMBRELLA, I GUESS, IS GERMANY. THAT'S MARYLAND. THERE'S THE GERMAN BOOTH. THESE ARE PAVILIONS, NOT JUST BOOTHS, I SHOULD SAY. WASHINGTON

STATE. IRELAND. CONNECTICUT. KENTUCKY. PLACES WE DON'T EVEN THINK ABOUT DAY-TO-DAY. OF COURSE, ISRAEL. THESE GO BACK TO 2001. THESE ARE SUSTAINED PRESENCE. THESE COMPANIES AND COUNTRIES AND GOVERNMENTS AND REGIONS ARE THERE YEAR AFTER YEAR. PHOENIX. BERLIN. THE WALLONA REGION OF BELGIUM. MARYLAND AGAIN. AND THIS IS THE LAST SLIDE. THIS IS AUSTRALIA'S EXHIBIT IN 2001.

MANY OF THE EFFORTS OF THESE PLACES ARE GOING TO FAIL, BUT THAT'S THE KIND OF PASSION THAT PURSUES BIOTECHNOLOGY AND MORE RECENTLY STEM CELL RESEARCH. SOME OF THESE, HOWEVER, WILL SUCCEED, AND THEY'LL MAKE MAJOR INROADS IN BUILDING AND INDUSTRY. IT'S KIND OF LIKE RESEARCH TRIANGLE PARK IN THE '70S AND FLORIDA'S LIFE SCIENCES EFFORTS TODAY. A LOT OF VISION AND ENOUGH MONEY CAN REALLY TRANSFORM A STATE.

THIS IS A GLOBAL COMPETITION. WE CAN'T PUT UP WALLS EVEN IF WE WANTED TO. AND THAT'S WHY I THINK THAT CALIFORNIA CAN'T TAKE ITS CURRENT LEADERSHIP FOR GRANTED. AND IT'S WHY SETTING UP THE BEST FRAMEWORK FOR INTELLECTUAL PROPERTY AND INVESTMENT IN FOR-PROFIT COMPANIES IS SO IMPORTANT.

AND I VIEW THE ISSUES AROUND INTELLECTUAL PROPERTY AND ROYALTIES TO HAVE SIMILAR IMPLICATIONS, SO I JUST WANTED TO MAKE A FEW POINTS FROM MY PERSPECTIVE.

WHAT YOU ARE TRYING TO DO IS TO STIMULATE CURES, WHICH WHETHER THEY ARE INITIALLY DEVELOPED IN A RESEARCH LAB, A NOT-FOR-PROFIT ENVIRONMENT, OR A YOUNG BIOTECH COMPANY ARE ULTIMATELY GOING TO REQUIRE MILLIONS OF DOLLARS TO PROGRESS THROUGH CLINICAL TRIALS TO THE MARKETPLACE. AND IRONICALLY THIS DISCUSSION IS CENTERING AROUND FOR-PROFIT COMPANIES WHEN, IN FACT, FOR MANY OF THE COMPANIES THAT YOU WILL FUND, PROFITABILITY IS A DISTANT DREAM. IN ACTUALITY IF YOU CAN FOCUS ON THE GAP WHERE CAPITAL ACCESS HAS BEEN DIFFICULT, YOU MAY FILL SOME VOIDS THAT EXIST TODAY.

WE'VE SPENT A LOT OF TIME IN SAN DIEGO LOCATING WHERE THOSE GAPS ARE, AND ALTHOUGH I'M NOT GOING TO TALK ABOUT IT, YOUR NEWEST BOARD MEMBER, DUANE ROTH, IS SETTING UP A LIFE SCIENCE ACCELERATOR PROGRAM TO FOCUS ON PROMISING EARLY STAGE PROOF OF CONCEPTS. AND I REALLY ENCOURAGE YOU TO HEAR FROM HIM. IT'S A VERY INTERESTING BUSINESS MODEL.

$3 BILLION IN CALIFORNIA SOUNDS LIKE A LOT OF MONEY, BUT IT WILL BE SPREAD OVER TEN YEARS AND OVER A BROAD ARRAY OF INVESTMENTS FOR MANY WORTHWHILE ENDEAVORS. SO EVEN IF CIRM MAKES WHAT FOR IT WOULD BE A SIGNIFICANT INVESTMENT IN A FOR-PROFIT COMPANY DEVELOPING NEW THERAPIES, THIS INVESTMENT WILL LIKELY BE A SMALL PERCENTAGE OF THE TOTAL INVESTMENT REQUIRED

TO BRING THESE THERAPIES TO COMMERCIAL SUCCESS.

SO IF YOU ASSUMED A $10 MILLION INVESTMENT, AND I DON'T KNOW WHAT YOUR THRESHOLD FOR INVESTMENT IS GOING TO BE, BUT A $10 MILLION INVESTMENT IN A YOUNG COMPANY THAT ULTIMATELY REQUIRES $500 MILLION BEFORE COMMERCIAL SUCCESS, CIRM'S INVESTMENT IS 2 PERCENT. SO MY QUESTION IS HOW DOES A 2-PERCENT INVESTMENT WARRANT ONEROUS ROYALTIES OR IP REQUIREMENTS?

I THINK IT IS INSTRUCTIVE TO LOOK AT THE FEDERAL GOVERNMENT AND PROGRAMS LIKE DARPA THAT DR. GOLLAHER MENTIONED AND ALSO THE SCIR PROGRAM, BUT PRETTY TRADITIONALLY THE FEDERAL GOVERNMENT DOES NOT INSIST ON ROYALTIES OR INTELLECTUAL PROPERTY OWNERSHIP, THOUGH IT WILL, RIGHTLY IN MY OPINION, USE MARCH-IN RIGHTS TO ENSURE THE BROADEST APPLICATION AND THE BEST OF THE RESEARCH IT FUNDS. AND MARCH-IN RIGHTS, PARTICULARLY IF THEY'RE REASONABLE, WOULDN'T CONSTITUTE A DISINCENTIVE TO PRIVATE INVESTMENT.

SO AS YOU LOOK AT VARIOUS MECHANISMS AVAILABLE TO CIRM, LOANS, ALTHOUGH I UNDERSTAND, ALLAN, THE CONCERN ABOUT ACCOUNTING COMPLEXITIES, THEY MIGHT BE A MORE ATTRACTIVE VEHICLE BECAUSE FAVORABLE INTEREST RATES WITH REPAYMENT THAT DOES NOT OCCUR UNTIL THE PRODUCT IS COMMERCIALLY VIABLE, AND I THINK ALSO THAT THE LOAN IS FORGIVEN IF THE RESEARCH GOES SIDEWAYS, IT

MIGHT BE A CLEAN WAY TO GO. YOU COULD AVOID SOME OF THE QUESTIONS ABOUT A RETURN ON INVESTMENT WITH A HEALTHY REPAYMENT SCHEME BACK TO THE CIRM WHILE POTENTIALLY PROVIDING A SMALL COMPANY NEEDED LEVERAGE. I THINK POLITICALLY, WHICH IS UNFORTUNATELY THE CLIMATE IN WHICH WE ARE OPERATING, IT MIGHT BE A MORE ATTRACTIVE OPTION.

THE FRAMEWORK THAT YOU'VE DEVELOPED FOR NOT-FOR-PROFIT INSTITUTIONS WAS THE 25-PERCENT ROYALTY PAYMENT WOULD TRULY BE A DISINCENTIVE ON THE PRIVATE SIDE TO ATTRACTING PRIVATE CAPITAL. AND I THINK MOST PRIVATE INVESTORS WOULD TELL YOU THAT THEY DON'T EXPECT MORE THAN 1- OR 2-PERCENT ROYALTIES ON THERAPEUTICS AND MAYBE 5 PERCENT OR SO ON MEDICAL DEVICES. SO YOU COULD HAVE THE UNINTENDED CONSEQUENCE OF DISCOURAGING PRIVATE SECTOR INVESTMENT WITH SOME THINGS THAT WOULD BE VERY GOOD, AND IT COULD PREVENT CIRM FROM REALLY BEING A CATALYST FOR THE BEST IDEAS AND THE BEST SCIENCE AT A REALLY CRITICAL TIME IN THE LIFE CYCLE OF A FOR-PROFIT COMPANY.

SO MY CONCLUSION IS THAT THE STATE MIGHT BE AN ABSOLUTELY VITAL INVESTOR AT A CRITICAL STAGE, BUT IT'S NOT LIKELY TO BE THE MAJOR INVESTOR. SO YOU COULD SAY THAT THE STATE'S INVESTMENT MIGHT BE DISPROPORTIONATELY SIGNIFICANT FOR GETTING TO CIRM'S

GOAL, WHICH IS CURES, BUT FINANCIALLY INSIGNIFICANT IN THAT IT WILL ULTIMATELY BE A SMALL PERCENTAGE OF THE TOTAL INVESTMENT, ALBEIT INVESTMENT PROVIDED AT A CRITICAL TIME.

I WANT TO GIVE YOU ONE OTHER MEASURE OF LONG-TERM SUCCESS. I DON'T KNOW IF YOU HAVE THE FLEXIBILITY TO FOCUS ON IT, BUT I THINK IT'S A VERY IMPORTANT ONE, AS I LOOK AT CALIFORNIA AND I LOOK AT CLUSTERS.

WHAT THE STATE CAN FOCUS ON IS THE REVENUES THAT IT WILL ULTIMATELY GARNER BY REMAINING AT THE FOREFRONT OF INNOVATION, INCLUDING STEM CELL RESEARCH. AND THESE INCLUDE PERSONAL AND CORPORATE INCOME TAXES, PROPERTY TAXES, SALES TAXES. THE LAST THING, REALLY THE LAST THING, RETURN TO THE STATE OF CALIFORNIA FOR TAKING THE BOLD STEPS TO MAINTAIN LEADERSHIP IN THIS VERY IMPORTANT TECHNOLOGY.

HALF OF CALIFORNIA'S TAX REVENUES ARE BASED ON PERSONAL INCOME TAXES TODAY, SLIGHTLY LESS THAN THAT. SO THE WEALTH CREATION OF A VIBRANT AND IMPORTANT INDUSTRY IS IMPORTANT. AND I'VE SPOKEN TO GOVERNOR JEB BUSH IN FLORIDA ABOUT THIS, BUT THAT IS BEHIND HIS THINKING IN HIS SINGLE-MINDED FOCUS TO CREATE A STRONG RESEARCH BASE IN FLORIDA SO THAT FLORIDA CAN EMULATE IN MANY WAYS WHAT CALIFORNIA HAS

ALREADY DONE.

INCIDENTALLY, I SHOULD TELL YOU THAT 95 PERCENT OF THE STATE'S GENERAL FUND REVENUES IN 2005 WERE ATTRIBUTABLE TO THREE TAXES THAT WEALTH CREATION DRIVES: PERSONAL INCOME TAXES, CORPORATE TAXES, AND SALES AND USE TAXES. SO I TRULY THINK WE NEED TO TAKE THE LONG VIEW. WE NEED TO BEGIN TO THINK ABOUT OURSELVES AS A STATE THAT INVESTS IN INNOVATION BECAUSE INNOVATION HAS ALREADY MEANT SO MUCH TO CALIFORNIA'S ECONOMIC PROSPERITY AND OUR ECONOMIC LEADERSHIP GLOBALLY, AND IT'S AN ABSOLUTELY CRITICAL PART OF OUR FUTURE. SO I REALLY APPRECIATE THE OPPORTUNITY TO SPEAK TO YOU TODAY, NOT ONLY ABOUT THE ISSUES OF INTELLECTUAL PROPERTY, BUT OF THE MUCH LARGER CONTEXT IN WHICH YOUR WORK IS TAKING PLACE. HAPPY TO ANSWER ANY QUESTIONS.

CHAIRMAN PENHOET: THANK YOU VERY MUCH. FIRST OF ALL, QUESTIONS FROM OUR MEMBERS IN SAN DIEGO. WE'LL GO THROUGH THE USUAL ROTATION. IRVINE?

DR. BRYANT: NO.

CHAIRMAN PENHOET: SAN CARLOS.

UNIDENTIFIED SPEAKER: NO.

MR. GOLDBERG: YES. WE HAVE A SPLIT VOTE. I HAVE A QUESTION FOR THE PRESENTER, PLEASE. HOW WOULD YOU SUGGEST WE DEAL WITH THE ISSUES OF AFFORDABILITY

AND ACCESSIBILITY AS PROPOSED BY JOHN SIMPSON?

MS. WRIGHT: I GUESS I THINK THAT IF -- THE MOST IMPORTANT THING WE CAN DO IS TO DEVELOP THE KIND OF CURES THAT WILL BENEFIT EVERYONE. AND I THINK AT SOME POINT THE GOVERNMENT HAS A ROLE IN PROVIDING CURES, THERAPEUTICS, AND DIAGNOSTICS TO THE LEAST AMONG US. BUT I HAVEN'T GONE DOWN THAT PATH IN TRYING TO UNDERSTAND EXACTLY HOW THE FRAMEWORK SHOULD BE SET UP FOR FOR-PROFIT COMPANIES, BUT I DO KNOW THAT ANYTHING THAT IS MORE COSTLY THAN THE MODEL THAT IT TAKES TO ENCOURAGE PRIVATE SECTOR INVESTMENT TODAY IS SOMETHING THAT'S NOT GOING TO WORK, AND THEN WE WON'T GET TO THAT DISCUSSION AT ALL.

CHAIRMAN PENHOET: LOS ANGELES? CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: ANY COMMENTS BY THE PUBLIC? FIRST IN SAN DIEGO? IN IRVINE?

DR. BRYANT: NO.

CHAIRMAN PENHOET: SAN CARLOS?

MR. REED: YES. I WOULD JUST WISH SO MUCH THAT YOU COULD SQUEEZE INTO YOUR BUSY SCHEDULE TO APPEAR AT THE APPROPRIATIONS COMMITTEE WHEN SUCH INFORMATION AS YOU HAVE TO OFFER WOULD BE JUST HUGELY BENEFICIAL. I DO NOT THINK THOSE ARGUMENTS ARE KNOWN BY THE LEGISLATORS AT ALL. THANK YOU.

MS. WRIGHT: WELL, I WILL TELL YOU IN MY TIME IN SACRAMENTO, I WAS APPROACHED BY A STATE SENATOR ONCE THAT SAID, "WHY SHOULD THE STATE PAY MONEY IN THE FORM OF A TAX CREDIT FOR SOMETHING COMPANIES MIGHT DO ANYWAY?" ALTHOUGH THE OPERATIVE WORD IS MIGHT. MAYBE MIGHT NOT. BUT THANK YOU. I WILL KEEP TRACK OF THE SCHEDULE, AND IF YOU ALL WILL LET ME KNOW, I'LL TRY TO BE THERE.

MR. REED: THANK YOU.

CHAIRMAN PENHOET: ANY COMMENTS IN CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: OKAY. THANK YOU, JULIE, FOR A VERY THOUGHTFUL PRESENTATION.

WE NOW COME TO OUR FINAL SPEAKER, A FREQUENT VISITOR TO OUR MEETINGS. TODAY WE WILL GIVE JOYDEEP GOSWAMI IS A FULL HALF HOUR INSTEAD OF HIS USUAL COMMENTS FROM THE FLOOR. I WILL APPRECIATE YOUR CONTINUING EFFORTS TO INFORM US AND FOR YOUR PRESENTATION. THANK YOU.

MR. GOSWAMI: FIRST OF ALL, THANK YOU FOR INVITING ME TO COMMENT IN THIS PRESENTATION AND FORMAT. YOU KNOW, I THINK, FOR US IT'S -- I'M TRYING TO BRING TO CIRM A VIEWPOINT THAT IS DIFFERENT FROM THE PEOPLE CLOSER TO THE PATIENT IN SOME WAYS SUCH AS ALAN AND NOVOCELL. FROM THE TOOLS COMPANIES AND THE KIND OF

PERSPECTIVE WE BRING MAY BE SLIGHTLY DIFFERENT AND I THINK HOPEFULLY THIS WILL ENGENDER SOME QUESTIONS.

SO QUICK OVERVIEW OF INVITROGEN. WE'RE A PART OF THE RESEARCH TOOLS MARKET. IT'S SUPPOSED TO BE ABOUT $17 BILLION OR SO. IT'S THE LINCHPIN OF MOST OF LIFE SCIENCE INDUSTRIES; AND, OF COURSE, WITHOUT TOOLS, THE BASIC RESEARCH THAT UNDERLIES A LOT OF THE TREATMENTS THAT YOU SEE, I THINK, WILL NOT BE POSSIBLE. WE'RE DEFINITELY HEADQUARTERED IN CALIFORNIA. OF COURSE, AS YOU SEE THERE, MOST PEOPLE TALK ABOUT ONE THERAPY GETTING TO MARKET. WE'RE A VERY FRACTURED MARKET WITH ABOUT 15,000 DIFFERENT PRODUCTS SOLD PREDOMINANTLY TO THE RESEARCH MARKET. AND, OF COURSE, UNDERLYING MOST OF OUR PRODUCTS ARE PATENTS THAT ALLOW INNOVATIVE SOLUTIONS TO SCIENTISTS' PROBLEMS, AND WE ARE AN ACTIVE LICENSOR OF OR LICENSEE, I SHOULD SAY, OF TECHNOLOGIES FROM UNIVERSITIES, INCLUDING UC, WITH OVER 40 LICENSES EXECUTED ANNUALLY THAT -- TECHNOLOGY AND LICENSES EXECUTED ANNUALLY FOR OUR COMPANY.

WE ALSO HAVE MADE A MAJOR COMMITMENT TO STEM CELL RESEARCH. WE'VE CREATED A BUSINESS VENTURE IN THIS PARTICULAR AREA. HIRED MAHENDRA RAO FROM THE NIH TO HEAD UP THE STEM CELL RESEARCH GROUP, AND CURRENTLY DEDICATE OVER 20 RESEARCHERS TO THIS FIELD AND, OF COURSE, LEVERAGE THAT WITH OUR OTHER RESEARCH

COMMITMENTS THROUGHOUT THE COMPANY OF OVER 600 RESEARCHERS. AND AS JEANNE AND OTHERS WILL ATTEST TO, WE HAVE BEEN ABLE AN ACTIVE PARTICIPANT IN THE STEM CELL COMMUNITY ALREADY. WE FUND A LARGE NUMBER OF STEM CELL COURSES WORLDWIDE, NOT ONLY IN CALIFORNIA, OTHER STATES IN THE UNITED STATES, AND, OF COURSE, NOW IN OTHER COUNTRIES AS WELL, INCLUDING INDIA AND HOPEFULLY SINGAPORE, KOREA.

MAHENDRA HAS TAUGHT MANY OF THESE COURSES, AND, OF COURSE, OUR PRODUCTS GO INTO MOST OF THE PROTOCOLS THAT ARE TAUGHT AT THESE COURSES.

I WANT TO SPEND SOME TIME ACTUALLY GIVING YOU A BIRD'S-EYE VIEW OF HOW WE LOOK AT STEM CELL RESEARCH AND THE BASIC ELEMENTS OF THE WORK FLOW OF STEM CELL RESEARCH. IT WILL COME BACK BECAUSE THESE BASIC FOUR ELEMENTS THAT I HAVE ON PAGE 4 REALLY THEN TRANSLATE ACROSS FROM BENCH TO BEDSIDE WHETHER YOU'RE LOOKING AT BEDSIDE RESEARCH OR BASIC RESEARCH. AND I THINK, IN OUR OPINION, THE SAME FOUR STEPS WILL BE VERY IMPORTANT IN ANY THERAPEUTIC THAT IS AFFORDABLE FOR THE PUBLIC.

SO THE FOUR STEPS ARE ESSENTIALLY ISOLATION OF STEM CELLS AND THEIR PROGENY AND DIFFERENTIATED PROGENY, A CHARACTERIZATION OF THESE CELLS, AND THIS IS REALLY IMPORTANT BECAUSE THESE CELLS, I LIKE TO CALL THEM, AS INHERENTLY UNSTABLE BECAUSE THEY WANT TO

BECOME OTHER TYPES OF CELLS; AND, THEREFORE, HAVING THEM CHARACTERIZED AS BEING PLURIPOTENT OR HAVING THE ABILITY TO FORM OTHER CELLS IS QUITE IMPORTANT. AND, OF COURSE, ONCE YOU'VE GONE DOWN THE PATH OF DIFFERENTIATION, AGAIN, IT'S IMPORTANT TO CHARACTERIZE THE DIFFERENTIATED CELLS AND MAKE SURE THAT THEY ARE WHAT YOU THINK THEY ARE.

EXPANSION OF CELLS, THIS IS ANOTHER KEY PART OF HAVING THERAPIES THAT ARE AFFORDABLE BECAUSE YOU NEED LOTS OF CELLS IN ANY KIND OF CELL THERAPY AND YOU NEED THEM TO BE PRODUCED IN ANIMAL ORIGIN FREE CONDITIONS HOPEFULLY AND, OF COURSE, IN A FASHION THAT PROVIDES THAT EACH VIAL OF CELLS IS NOT A MILLION DOLLARS IN PRICE. AND THEN THE LAST PART IS DIFFERENTIATION. AGAIN, HERE THE CRITICAL CONDITIONS, AGAIN, ARE ANIMAL ORIGIN FREE AND, OF COURSE, THE FACT THAT YOU CAN DO THIS EFFICIENTLY IN AN ECONOMICAL MANNER.

GIVEN THESE, HOW WE THINK ABOUT IT IS ALONG TECHNOLOGY PLATFORMS THAT ALIGN ACROSS THESE FOUR ELEMENTS OF THE WORK FLOW. AND THERE ARE SEVERAL. THIS IS BY NO MEANS A COMPLETE LIST. BUT, YOU KNOW, IF YOU LOOK AT THE ISOLATION AND CHARACTERIZATIONS PART OF THINGS, THERE ARE THINGS LIKE PRIMARY ANTIBODIES, THERE ARE THINGS LIKE BEAD-BASED CELL SEPARATION SYSTEMS

WHICH ARE ABSOLUTELY CRITICAL IN GETTING AND ISOLATING THE RIGHT KIND OF CELL THAT YOU WANT. IN FACT, SOME OF THESE ARE ALREADY IN THE CLINIC. SOME OF YOU MAY HAVE HEARD BAXTER'S CD34 POSITIVE CELLS THAT ARE BEING USED IN CARDIAC ISCHEMIA ACTUALLY USES MAGNETIC BEADS TO ISOLATE THE CD34 POSITIVE CELLS. AND I'M SURE THIS WILL BE A LINCHPIN OF OTHER THERAPIES THAT ARE COMING TO THE MARKET AS WELL. BUT AGAIN, THE SAME TECHNOLOGIES ARE USED BOTH IN BASIC RESEARCH AND THEN HOPEFULLY WILL TRANSLATE, ARE SCALABLE WHEN YOU MOVE TO THE CLINIC.

LABELING AND DETECTION SYSTEMS INCLUDES A LOT OF FLUOROPHORES AND THINGS LIKE QUANTUM DOTS WHICH ALLOW YOU TO GET A QUANTITATIVE ASSESSMENT OF YOUR EXPERIMENTS AND, OF COURSE, DIFFERENT CELL TYPES. THEN THERE ARE, OF COURSE, THE BASIC PROTEIN PURIFICATION ANALYSIS TOOLS, INCLUDING QUANTITATIVE PROTEOMICS. A LOT OF EFFORT ON OUR SIDE IS GOING INTO DNA/RNA-BASED CHARACTERIZATION OF CELLS WHICH INCLUDES BASIC QPCR, BUT ALSO THINGS LIKE MICRO-RNA ANALYSIS, METHYLATION ANALYSIS OF CELLS. AND THEN WHAT WE DO OFFER TO THE COMMUNITY IS SERVICES, AND THESE COULD TAKE MANY FORMS. THESE COULD TAKE GENERATION OF CUSTOM ANTIBODIES. I THINK SOMEONE MENTIONED GROWING A CELL. ALLAN, YOU TALKED ABOUT GNP FACILITIES OR GNP TESTING OF CELLS

ETC.

AND, OF COURSE, ON THE EXPANSION DIFFERENTIATION SIDE, THERE'S A HOST OF STEM CELL CULTURE MEDIA, INCLUDING ANIMAL ORIGIN FREE, WHERE WE WORK CLOSELY, NOT ONLY WITH ACADEMIA, BUT ALSO PEOPLE SUCH AS NOVOCELL IN DEVELOPING, MAKING THESE AVAILABLE TO THE BROADER SCIENTIFIC COMMUNITY. GROWTH FACTORS CYTOKINES, AGAIN, VERY KEY FOR SERUM FREE CULTURE OF CELLS, GENE REGULATION AND TRACKING OF CELLS ONCE THEY'RE INTO SMALL ANIMALS OR EVEN ACTUALLY HUMANS AT SOME POINT. AND THEN THE LAST PART, AGAIN, SERVICES ALONG THESE DIMENSIONS, WHICH I'VE TALKED ABOUT EARLIER.

THIS IS HOW WE SEE THIS WORLD. THERE IS OBVIOUSLY INVESTMENTS THAT WE AND OTHER COMPANIES HAVE MADE. THE ISSUE IS THEN TAKING THESE TO THE NEXT LEVEL, MAKING THOSE MUCH MORE RELEVANT TO STEM CELL RESEARCHERS IN CALIFORNIA AND, OF COURSE, AROUND THE GLOBE. AND I TALKED A LITTLE BIT ABOUT ENABLING PLATFORMS FOR STEM CELL THERAPY. AGAIN, I'M SHOWING YOU A VERY SIMPLIFIED VIEW OF THIS. BUT YOU NEED THE FOUR ELEMENTS THERE TO MAKE THIS AFFORDABLE, YOU NEED LARGE QUANTITIES OF ECONOMICAL CELLS, IF YOU WILL, AND, OF COURSE, BASE CELLS. YOU NEED TO ISOLATE THE KIND OF CELL THAT YOU REALLY WANT TO PUT INTO THE PATIENT. YOU

NEED TO CHARACTERIZE AND BACK THESE CELLS AND, OF COURSE, BE ABLE TO SHIP THEM TO PLACES. AND THE LAST THING IS YOU NEED TO MAKE SURE THAT THE CELLS ARE SAFE, FREE FROM TOXINS, FREE FROM VIRUSES, ETC. ALL OF THOSE REQUIRE INVESTMENT. ALL OF THESE REQUIRE INVESTMENT IN GNP CONDITIONS, AND MOSTLY FOR ALL OF BIOTECH, THIS HAS COME FROM THE PRIVATE SECTOR AND NOT FROM THE ACADEMIC SECTOR. AND SOME OF THESE, OF COURSE, WILL REQUIRE NEW TECHNOLOGIES TO BE DEVELOPED, AND I THINK SOME OF THIS CAN BE SUPPORTED BY ORGANIZATIONS SUCH AS THE CIRM.

OF COURSE THE TALK WOULDN'T BE COMPLETE WITHOUT A CURE GRAPHIC HERE. WHAT I WANTED TO SHOW YOU HERE IS THE WAY WE HAVE SEEN OVER THE LIFE OF OUR LIFE AS A COMPANY IS HOW PUBLIC RESEARCH FUNDING ACTUALLY HELPS ULTIMATELY NEW TREATMENTS TO BE DERIVED. I THINK, FIRST OF ALL, THE MAJOR PART OF WHERE PUBLIC FUNDING GOES IS ACTUALLY NOT TO FOR-PROFIT COMPANIES LIKE US, BUT TO ACADEMIC INSTITUTIONS. BUT THE INTERPLAY BETWEEN COMPANIES LIKE US, THE TOOLS COMPANIES, IS MAINLY THEN TAKING THE FUNDAMENTAL RESEARCH THAT'S CARRIED OUT BY ACADEMIC RESEARCHERS AND THE GOVERNMENT AND NONPROFITS AND THEN LICENSING SOME KEY TECHNOLOGIES AND, OF COURSE, MAKE THESE TECHNOLOGIES AVAILABLE TO THE COMMERCIAL RESEARCHERS AND, OF COURSE, BACK TO THE ACADEMIC RESEARCHERS, GIVE

A PAYBACK IN TERMS OF LICENSING FEES AND, OF COURSE, ROYALTY PAYMENTS, AND THEN, OF COURSE, THEN THE TOOLS THEN HELP, HOPEFULLY, DEVELOP NEW TREATMENTS, WHETHER IT'S DRUG SCREENING, WHETHER IT'S, YOU KNOW, GROWING CELLS EFFICIENTLY IN ANIMAL ORIGIN FREE ENVIRONMENTS.

AND THIS HAS WORKED OUT, THIS HAS BEEN WORKING VERY WELL FOR US AND FOR OUR COMPANIES IN OUR FIELD, BUT I THINK THE KEY PART OF THIS IS REALLY AROUND THE ABILITY TO LICENSE TECHNOLOGIES IN AND KEEPING THE ABILITY TO LICENSE THINGS WITHOUT HAVING ONEROUS TERMS, WITHOUT HAVING RIGHTS WHICH BASICALLY PROVIDE DISINCENTIVES TO LICENSING OFF THESE TECHNOLOGIES.

SO WHY DO COMPANIES SEEK GRANTS AND RESEARCH GRANTS TO PURSUE RESEARCH OR OTHER THINGS? FIRST OF ALL, I THINK ONE OF THE THINGS HERE IS RESEARCH THAT THEY CANNOT FUND NOW OR IT DOESN'T MAKE ECONOMIC SENSE TO FUND IMMEDIATELY. SO THAT ALLOWS AN AVENUE FOR US TO FUND THESE KINDS OF RESEARCH. OF COURSE, BEING A PUBLIC COMPANY, AND ALLAN ALLUDED TO THIS, THERE ARE SOME VERY SERIOUS CONDITIONS OF THE KINDS OF RISK PROFILE OF INVESTMENTS WE MAKE AND THE RESEARCH WE CONDUCT. SO HAVING PUBLIC FUNDS OR GOVERNMENT FUNDS SOMETIMES ALLOWS US TO TAKE ON RISK PROFILES AND PROJECTS THAT THE MARKET WOULD NOT, FRANKLY, LIKE US TO

TAKE, RIGHT, BUT IT COULD HAVE REWARDS FOR THE RESEARCH COMMUNITY AND OTHERS.

RESEARCH, OF COURSE, WHERE THE LEADING PRODUCT OR YOU LEAVE YOUR PRODUCT FOR THE GOVERNMENT IS A MAJOR CONSUMER. AND THEN THERE ARE RESEARCHERS WHERE THERE ARE INTERESTING PARTNERS IN THE SENSE THAT, RATHER I SHOULD SAY INTERESTED, NOT INTERESTING WAY. THERE'S A PARTICULAR INTEREST OR CONSORTIUM OR GOVERNMENT CONSORTIUM THAT HAS COME TOGETHER, FUNDED MAYBE BY THE NIH OR OTHERS.

INVITROGEN TRADITIONALLY HAS NOT SOUGHT THESE GRANTS. THERE'S A VERY CLEAR REASON. MOST OF THESE GRANTS TEND TO GO TO SMALLER COMPANIES, AND WE CLEARLY DON'T FIT THAT PROFILE ANY LONGER. BUT WE DO HAVE CONTRACTS WITH GOVERNMENT AGENCIES, AND SEVERAL OF OUR ACQUISITIONS HAVE BEEN PART OF THIS SBIR, U.S. COMMERCE DEPARTMENT ADVANCED ATP GRANTS.

AND, OF COURSE, THE IP ARRANGEMENTS HERE ARE VERY CLEAR. THE COMPANY OWNS THE IP, AND THEN THE GOVERNMENT RETAINS THE GOVERNMENT USE LICENSE. AND LASTLY, THERE IS NO CASE OF US HAVING A REVENUE SHARING ARRANGEMENT FOR ANY OF THESE CASES.

MORE TO CIRM GRANTS AND WHY WOULD WE WANT TO USE THESE GRANTS AND WHAT BENEFITS MIGHT RESULT TO THE STEM CELL COMMUNITY. I THINK THE BIGGEST THING FOR US

IS TO MAKE ROBUST PLATFORMS, TECHNOLOGY PLATFORMS, AVAILABLE FOR THE WORK FLOW THAT I SHOWED YOU EARLIER. THERE IS CLEARLY A NEED FOR MUCH MORE STANDARDIZED CHARACTERIZATION TOOLS FOR THIS INDUSTRY, AND BOTH FOR THE STEM CELLS AND THEIR DIFFERENTIATED PROGENY, WHETHER IT BE IDENTITY, STABILITY, QUALITY, DIFFERENTIABILITY, ETC. THERE'S CLEARLY A NEED FOR THE NEXT GENERATION OF ANIMAL ORIGIN FREE MEDIA AND REAGENTS THAT ARE CRITICAL FOR ANY CELL THERAPY TO BE APPROVED. CRYOPRESERVATION MEDIA AND REAGENTS TARGETED TO STEM CELLS IS AN UNMET NEED AS FAR AS WE CAN TELL SO FAR. AND TRANSFECTION REAGENTS, I THINK THIS IS MUCH MORE FOR, SO FAR AT LEAST, FOR THE RESEARCH SIDE OF THINGS, ARE CRITICAL. THESE CELLS, AS FAR AS WE CAN TELL, ARE PRETTY HARD TO TRANSFECT. AND THE NORMAL TRANSFECTION REAGENTS WE HAVE ON THE MARKETPLACE DO NOT OFTEN SUFFICE.

THE BENEFITS THAT MIGHT RESULT TO THE STEM CELL COMMUNITY, OF COURSE, IS INCREASED RANGE OF PRODUCTS, SO WE CAN, WE AND OTHER COMPANIES, SUCH AS US, WILL HAVE AN INCENTIVE TO INTRODUCE A WIDER RANGE OF PRODUCTS ADDRESSING MANY DIFFERENT KINDS OF STEM CELLS. WE COULD IMPROVE THE ROBUSTNESS OF THESE TOOLS. AND, YOU KNOW, ONE OF THE MAJOR ISSUES NOW IS THAT STEM CELLS, BECAUSE OF MAYBE THE WAY THE NIH HAS FUNDED

THEM, THEY DON'T TEND TO BE ALIVE. SO EVEN HUMAN EMBRYONIC STEM CELLS FROM ONE LAB AND ANOTHER LAB BEHAVE VERY DIFFERENTLY, AND TOOLS ARE OFTEN DEVELOPED JUST FOR ONE TYPE OF STEM CELL OR ANOTHER. AND THEN THE LAST THING IS SPEED, WHICH IS, AGAIN, CRITICAL, ESPECIALLY WHEN YOU'RE COMPETING, NOT ONLY AGAINST OTHER STATES, OTHER UNIVERSITIES, BUT AS SEVERAL OF THE SPEAKERS HAVE POINTED OUT, THIS IS A VERY, VERY GLOBAL ENVIRONMENT. PROBABLY FOR THE FIRST TIME IN THE HISTORY OF BIOTECH THAT THE COMPETITION HAS BEEN SO GLOBAL.

SO I WANTED A TAKE AWAY HERE IS REALLY WE WOULD SEEK THESE GRANTS TO LEVERAGE INTERNAL INVESTMENTS THAT WE ARE CONTINUING TO MAKE AND THEN ACCELERATE NOVEL TOOL AVAILABILITY.

SO FAR SOME TERMS HERE AND, AGAIN, THIS IS EARLY THINKING, BUT WE ARE COGNIZANT OF THE FACT THAT THIS IS TAXPAYER MONEY, AND THERE IS A NEED FOR US TO GIVE BACK TO THE STATE. SO YOU WILL SEE A LOT OF THAT, AND I'M HOPING THERE ARE QUESTIONS TO DISCUSS SOME OF THESE. BUT I THINK ONE OF THE THINGS WHICH HAS TO BE THERE IS THAT THE GRANTEE MUST RETAIN THE IP. MOST COMMERCIAL ORGANIZATIONS WOULD NOT ENGAGE IN THIS SORT OF GRANT FUNDING UNLESS THERE IS CLARITY ON THE IP.

SECOND, I THINK THE FEDERAL POLICY'S EMPHASIS

ON STIMULATING RESEARCH ADVANCES AND ECONOMIC DEVELOPMENT, I THINK, ED, YOU REFERRED TO THIS EARLIER, THE DIRECT VERSUS THE INDIRECT BENEFITS BACK TO THE STATE, I THINK THEY ARE CLEARLY THERE. WE DO INTEND TO DO A LOT OF OUR RESEARCH IN CALIFORNIA. AND, YOU KNOW, I THINK THE STATE WILL BENEFIT FROM THAT.

BUT THERE ARE OTHER MODELS TO PROVIDE MORE DIRECT PAYBACK TO THE STATE AND TO CIRM. FIRST OF ALL, IT COULD BE THROUGH ROYALTIES ON PRODUCTS COMMERCIALIZED USING IP DEVELOPED WITH CIRM FUNDING. THIS IS NOT UNCOMMON. WE'VE DONE THIS WITH OTHER COMPANIES AND OBVIOUSLY INSTITUTIONS. I'M PUTTING QUOTES AROUND THE ROYALTY BECAUSE IN SOME WAYS WHEN YOU LICENSE THINGS, THE ROYALTY IS OWNED BY THE ACADEMIC INSTITUTION. NOW, HERE YOU ARE -- YOU WOULD ENABLE US TO DEVELOP IP, BUT THAT WOULDN'T BE OUR PROPERTY WHERE WE WOULD BE OPEN TO ACTUALLY PROVIDING YOU BACK A ROYALTY ON PRODUCTS DEVELOPED THROUGH THAT IP.

THE SECOND THING IS, AND I THINK CIRM SHOULD REALLY CONSIDER THIS, IS THIS CONCEPT OF LEVERAGING YOUR FUNDS, RIGHT. SO I THINK WE WOULD BE OPEN TO INVESTING OURSELVES IN A MATCHING MANNER TO FUNDS THAT YOU PROVIDE US TO, YOU KNOW, TO DOUBLE OR TRIPLE THE AMOUNT OF INVESTMENT THAT IS PROVIDED BY CIRM.

AND THEN THE LAST PART IS REASONABLE

CONSIDERATION OF MANUFACTURING ACTIVITIES IN CALIFORNIA. I THINK THAT'S AN IMPORTANT CONSIDERATION, AND THAT GIVES BACK TO THE STATE IN GENERATING EMPLOYMENT.

WE WOULD BE OPEN TO STANDARD THIRD-PARTY AUDIT OF RESEARCH AND ROYALTIES. THIS IS SOMETHING WE DO WITH EVERY INSTITUTION THAT WE HAVE. SOME OF THE CONCERNS THAT ALLAN RAISED IN TERMS OF MAINTAINING THE PROPRIETARY NATURE OF THE RESEARCH IN THIS CASE DO NEED TO BE ADDRESSED, BUT I THINK -- WE HAVE ADDRESSED THAT WITH PUBLIC INSTITUTIONS, SUCH AS THE UNIVERSITY OF CALIFORNIA.

PROGRESS REPORTS ON OUR PROGRESS ON THE RESEARCH, AGAIN, THAT'S SOMETHING WE'RE OPEN TO.

AND THEN THE LAST BIT IS RESEARCH USE AND OTHER IP PROVISIONS NEED TO PRESERVE A COMMERCIAL OPPORTUNITY. AND I THINK WE'VE DEBATED SOME OF THIS ON THE NONPROFIT PART.

ONE OF THE THINGS THAT'S NOT HERE, AND I THINK, AGAIN, MANY PEOPLE HAVE ALLUDED TO, IS WHAT IS THE IMPLICATION OF HAVING OVERARCHING IP SUCH AS THE WISCONSIN IP ON FUNDAMENTAL STEM CELL PATENTS. WHAT IS THE IMPACT OF THAT ON COMMERCIAL ENTITIES, RIGHT, AND OUR ABILITY TO PROVIDE TOOLS AND REAGENTS TO THIS COMMUNITY? I KNOW CIRM IS CONSIDERING THAT. I WANT TO

TELL YOU FROM A BUSINESS POINT OF VIEW WHAT IS HAPPENING IS THAT PEOPLE DEMAND A CERTAIN AMOUNT OF MONEY FROM EVERY COMMERCIAL COMPANY TO DO EVEN VERY, VERY SMALL, INCREMENTAL, I WOULD SAY, TOOLS TO THE COMMUNITY. AND THE MONEY FAR OUTSTRIPS ANY COMMERCIAL BENEFIT THAT WE COULD HAVE BY SELLING THESE TOOLS AND REAGENTS.

THE INTERESTING SIDE OF THIS IS THESE TOOLS AND REAGENTS, ALTHOUGH REVENUE MAY BE SMALL, ARE EXTREMELY IMPORTANT TO THE COMMUNITY. SO THINK ABOUT WHAT SOME ENGINEERED STEM CELL LINES COULD DO FOR THE RESEARCH COMMUNITY IN BEING ABLE TO INSTANTLY TELL YOU WHEN DIFFERENTIATION OCCURS UNDER WHAT CONDITIONS. TODAY THAT IS AN ONEROUS PROCESS, BUT THERE ARE MOLECULAR BIOLOGY TOOLS THAT WE ARE FAMILIAR WITH WHICH COULD CHANGE THIS INDUSTRY. THE PROBLEM IS WE CANNOT SELL THESE CELL LINES TO ANYONE IN THE UNITED STATES, AND I WANT TO STRESS THAT, THIS IS ONLY A PROBLEM IN THE UNITED STATES. OF COURSE, IN CALIFORNIA, PART OF THE UNITED STATES, WE CANNOT MAKE THESE TOOLS AVAILABLE BECAUSE THE -- IF YOU HAVE TO PAY THE LICENSE FEES THAT PEOPLE ARE DEMANDING, IT'S A NONECONOMICAL VENTURE.

I ALSO WANT TO STRESS THIS IS WHEN YOU'RE LOOKING AT COMPETITIVENESS OF CALIFORNIA AND, INDEED, THE UNITED STATES AGAINST PLACES LIKE SINGAPORE, PLACES

LIKE KOREA, CHINA, EVEN MEXICO, BRAZIL, WE ARE AT A COMPETITIVE DISADVANTAGE. AND I THINK CIRM NEEDS TO CONSIDER SOME OF THAT WHEN IT LOOKS AT IT BROADLY ABOUT COMPETITIVENESS OF THE STATE, COMPETITIVENESS OF THE COMPANIES, AND COMPETITIVENESS OF RESEARCH THAT IS CARRIED OUT HERE.

ANYWAY, I JUST WANTED TO MAKE THAT POINT AND MOVE ON FROM HERE. HAPPY TO TAKE QUESTIONS ABOUT THAT. WE'VE THOUGHT A LOT ABOUT THE IMPLICATIONS OF THIS PARTICULAR PATENT, AND I KNOW OTHERS SUCH AS JEANNE IN THE AUDIENCE WILL ALSO TALK ABOUT IT.

I WANT TO SPEND TWO MINUTES ON --

CHAIRMAN PENHOET: YOU'RE NOT PROPOSING WE SECEDE FROM THE UNION?

MR. GOSWAMI: I THINK, MARY, I MAY HAVE MISUNDERSTOOD, BUT YOU DID WANT US TO COMMENT ON BOTH NONPROFIT. WE DO HAVE SOME CONCERNS ABOUT THE NONPROFIT POLICY, AND I THINK IT GOES BACK TO THAT DIAGRAM I SHOWED EARLIER. WE DON'T WANT TO BREAK THAT LINK BETWEEN ABILITY TO LICENSE FROM NOT-FOR-PROFIT ORGANIZATIONS. AND REALLY THE IMPORTANT PART THERE IS THAT THERE SHOULDN'T BE CLAUSES IN CIRM'S FUNDING OF NOT-FOR-PROFIT ORGANIZATIONS THAT PROVIDE DISINCENTIVES FOR COMPANIES SUCH AS US TO LICENSE. AND I THINK THE BIGGEST CONCERN WE HAVE RIGHT NOW IS AROUND THE

RESEARCHER'S EXEMPTION THAT REQUIRES CIRM-FUNDED INVENTIONS TO PROVIDE ALL CALIFORNIA INSTITUTIONS FOR RESEARCH PURPOSES AT NO COST. RIGHT. AND I THINK THIS IS -- IF YOU LOOK AT IT, IF SOMEBODY ELSE NEEDS TO BUY THIS REAGENT AT NO COST OR MAKE IT FOR FREE, WHY WOULD SOMEONE WANT TO LICENSE IT AND SPEND THE MONEY AND INVEST IN BRINGING IT TO THE MARKET IF THERE'S NO GUARANTEE THAT YOU WON'T GET SIDESTEPPED BY A PUBLIC ENTITY IN THIS MANNER.

I'M GOING TO LEAVE THIS FOR -- THIS IS OUR VIEWPOINT, AT LEAST, THAT SOME OF THE RESEARCH USE POLICY FROM CIRM CONCERNS ELIMINATE THE POSSIBILITY THAT THE COMMERCIAL SECTOR WILL HELP IN DISSEMINATING SOME OF THESE NEW RESEARCH TOOLS. THE LIMIT, IN OUR MIND AT LEAST, STEM CELL RESEARCH PROGRESS, WHICH IS A LOT OF THIS, IS BASED ON HAVING GOOD, STANDARDIZED TOOLS AVAILABLE EARLY TO THE MARKET. AND THEN, OF COURSE, IT ALSO ELIMINATES POTENTIAL ROYALTY BACK TO THE STATES. LOOK, I TOTALLY UNDERSTAND THE ROYALTY AMOUNTS FOR RESEARCH TOOLS ARE SMALL, BUT STILL IT IS SOMETHING THAT IS GIVEN BACK TO THE STATE EARLY.

AND THEN, OF COURSE, IF YOU TAKE THE FRUIT SIDE OF IT, IF COMPANIES SUCH AS US DO NOT LICENSE IN TECHNOLOGIES SUCH AS ANTIBODIES AND OTHERS, IT CREATES AN UNDUE BURDEN ON THE STATE AND THE NONPROFIT

INSTITUTIONS TO PROVIDE THESE AND MAKE THESE AVAILABLE TO RESEARCHERS.

AND ANYWAYS, I THINK I'VE BELABORED THIS POINT. I THINK WE DON'T WANT THINGS THAT CROSS OUT AND PREVENT LICENSING IN BOTH DIRECTIONS AND, OF COURSE, PAYBACK TO THE STATE. THAT'S IT.

CHAIRMAN PENHOET: VERY GOOD. THANK YOU. ONE QUESTION. THE 40 LICENSES THAT YOU NOW HAVE, OF THE 40, HOW MANY ARE EXCLUSIVE LICENSES AND HOW MANY ARE NONEXCLUSIVE?

MR. GOSWAMI: THAT'S 40 PER YEAR.

CHAIRMAN PENHOET: FORTY PER YEAR.

MR. GOSWAMI: I WOULD SAY ABOUT 20 PERCENT OR SO TEND TO BE EXCLUSIVE, RIGHT. AND IT DEPENDS VERY MUCH ON THE TECHNOLOGY THAT WE LICENSE. SO GENERALLY THINGS LIKE ANTIBODY LICENSES ARE NONEXCLUSIVE JUST BASED HOW THE COMPANIES HAVE GONE ABOUT DOING THIS. WHERE IT MAKES SENSE TO HAVE EXCLUSIVE LICENSES IS WHERE THE AMOUNT OF INVESTMENT THAT WE HAVE TO PUT IN IS QUITE SIGNIFICANT AND, THEREFORE, WE WOULD WANT THAT -- THE LICENSE TO BE EXCLUSIVE TO PROVIDE US A RETURN ON OUR INVESTMENT BEFORE IT REACHES OR WHEN IT REACHES THE MARKET.

CHAIRMAN PENHOET: OTHER QUESTIONS?

DR. PRIETO: I WAS WONDERING IF YOU COULD

SPEAK A LITTLE BIT ON WHAT YOU THINK THE IMPACT OF THE WARF PATENTS IS? ARE THEY A SIGNIFICANT OBSTACLE TO PRIVATE INVESTMENT?

MR. GOSWAMI: I THINK SO. I THINK THEY ARE. YOU KNOW, I KNOW A LOT OF YOU KNOW ABOUT THE WARF POLICY FOR NOT-FOR-PROFIT RESEARCH TENDS TO BE SOMEWHAT, WELL, SOMEWHAT GENEROUS, ALTHOUGH MANY SCIENTISTS THAT WE HAVE SPOKEN TO ARE QUITE TAKEN ABACK AT SOME OF THE RESTRICTIONS THAT ARE PUT ON ACADEMIC INSTITUTIONS IN TERMS OF COLLABORATING WITH COMPANIES SUCH AS US. FOR PRIVATE INSTITUTIONS, I THINK IT IS A BIG DISINCENTIVE BECAUSE WHAT WARF DOES IS IT LOOKS AT THE SIZE OF THE INSTITUTION OR THE COMPANY THAT WANTS TO LICENSE THIS PRODUCT AND WANTS TO CHARGE AN UPFRONT PAYMENT, WHICH IS VERY STEEP IN ANY LICENSING TERMS, AND THEN, OF COURSE, ROYALTIES OBLIGATIONS WHICH ARE TWOFOLD. ONE, A DIRECT ROYALTY OBLIGATION WHICH DEPENDS ON PRODUCTS DIRECTLY PRODUCED USING STEM CELLS, HUMAN EMBRYONIC OR PRIMATE EMBRYONIC STEM CELLS, BUT THEY ALSO HAVE A REACH-THROUGH ROYALTY CLAUSE WHERE THEY SAY ANYTHING YOU'VE INVENTED REMOTELY BY USING HUMAN EMBRYONIC STEM CELLS WILL NOW HAVE A ROYALTY OBLIGATION BACK TO WARF. SO, FOR INSTANCE, EVEN IF YOU HAD A TREATMENT THAT WAS SOMEHOW BROUGHT TO THE MARKET THAT HAS TOUCHED AN EMBRYONIC STEM CELL IN THE UNITED

STATES, YOU WILL HAVE TO PAY A ROYALTY BACK TO WARF.

AND I THINK THIS IS PARTICULARLY ONEROUS. WE ARE SOMEWHAT IN THAT CAMP, RIGHT, BECAUSE I THINK, EVEN IF WE'RE NOT ON THE THERAPEUTIC SIDE, LET'S SAY WE MAKE A DISCOVERY OF A TOOL USING AT SOME POINT A HUMAN EMBRYONIC STEM CELL. THEY WANT A ROYALTY BACK ON THAT PARTICULAR PRODUCT. AND NOT ONLY DO THEY WANT A ROYALTY BACK ON SALES OF THAT PRODUCT TO THE EMBRYONIC STEM CELL MARKET, BUT ANY MARKET THAT WE TOUCH, THEY WANT A ROYALTY BACK ON THAT PARTICULAR TOOL. SO IT IS QUITE ONEROUS.

DR. PRIETO: EVEN MARKETS OUTSIDE THE UNITED STATES?

MR. GOSWAMI: YES. IN GENERAL THEY WOULD. SEE, THE OTHER PART IS, YOU KNOW, IF YOU LOOK AT COMPANIES IN THE UNITED STATES VERSUS OUTSIDE, RIGHT, WHICH IS ACTUALLY EVEN MORE INTERESTING. SO LET'S SAY THERE'S A COMPANY IN INDIA, RIGHT. FOR ANYTHING THEY DO WITH RESPECT TO HUMAN EMBRYONIC STEM CELL RESEARCH, THEY OWE NO ROYALTIES TO WARF. THEY DO NOT HAVE AN OBLIGATION TO WARF IN ANY MANNER, WAY, SHAPE, OR FORM, AND THEY CAN DEVELOP EXACTLY THE SAME THERAPIES COMPANIES IN THE UNITED STATES ARE TRYING TO DEVELOP WITHOUT ANY KIND OF RESTRICTIONS OR OBLIGATION TO WARF.

SO FROM THAT POINT OF VIEW, SETTING UP A

COMPANY TO DO STEM CELL THERAPY IN THE UNITED STATES, I THINK, IS A MAJOR DISINCENTIVE, AND PEOPLE ARE NOT REALIZING THIS BUSINESS ISSUE. I DON'T THINK, AT LEAST FROM OUR POINT OF VIEW, THE ISSUE IS NOT WHETHER THE PATENT IS LEGITIMATE OR NOT, BUT THERE ARE SERIOUS BUSINESS IMPLICATIONS OF THE PATENT IN MAKING CURES AVAILABLE TO THE PUBLIC HERE.

THE REPORTER: I'M SORRY. THIS IS THE REPORTER. I DIDN'T CATCH THE NAME OF THE PERSON WHO ASKED THE LAST TWO QUESTIONS.

DR. PRIETO: I'M SORRY. THIS IS FRANCISCO PRIETO IN SAN DIEGO.

THE REPORTER: OKAY. THANK YOU.

DR. REED: JOHN REED HERE IN SAN DIEGO. JUST A QUESTION ABOUT THIS CONCEPT OF INDIRECT RETURN TO THE STATE. INVITROGEN IS CLEARLY ONE OF THE SUCCESS STORIES OF THE CALIFORNIA BIOTECHNOLOGY INDUSTRY. ANY IDEA WHAT YOU'RE PAYING IN CORPORATE INCOME TAXES EVERY YEAR IN THE STATE OF CALIFORNIA?

MR. GOSWAMI: I DON'T KNOW OFF THE TOP OF MY HEAD, BUT THAT'S PUBLIC INFORMATION. I'M SURE THAT WE CAN GET THAT INFORMATION TO YOU. IT SHOULDN'T BE AN ISSUE. WE HAVE A MAJORITY OF OUR BUSINESS, OR I SHOULD SAY RESEARCH AND MANUFACTURING ACTIVITY, LOCATED IN THE STATE. SO I'M SURE A MAJORITY OF THE TAX ACTUALLY IS

PAID IN THE STATE.

CHAIRMAN PENHOET: IT MUST BE $150 MILLION A YEAR.

DR. REED: SALES ARE ABOUT 1.5 BILLION?

MR. GOSWAMI: YEAH. 1.3 BILLION OR SO.

DR. REED: SO IT'S GOT TO BE SOMETHING IN THAT BALLPARK?

MR. GOSWAMI: YEAH.

DR. REED: THAT'S ONE COMPANY. JUST SOMETHING TO KEEP IN MIND.

MR. GOSWAMI: YEAH, I THINK WE ARE A LARGE COMPANY. I THINK THE DECISIONS COMPANIES MAKE TO INVEST IN THE FIELD, OF COURSE, CONSIDER THE SIZE OF THE FIELD AND NOT -- YOU KNOW, IT IS SOMEWHAT OF A ANIMAL WITHIN THE COMPANY AND WITH ITS OWN INVESTMENT DECISIONS TO BE MADE.

CHAIRMAN PENHOET: OKAY. ANY COMMENTS FROM IRVINE? QUESTIONS?

DR. BRYANT: NO.

CHAIRMAN PENHOET: FROM SAN CARLOS?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: LOS ANGELES? CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: OKAY. NOW DO WE HAVE COMMENTS FROM THE AUDIENCE IN SAN DIEGO? THIS IS ALLAN

ROBINS.

MR. ROBINS: ALLAN ROBINS IN SAN DIEGO. I JUST -- I THOUGHT FRANCISCO BROUGHT UP A VERY GOOD POINT. AND, JOYDEEP, I JUST WANTED TO ADD A LITTLE BIT TO YOUR ANSWER. IS THAT IF A COMPANY IN THE FIELD OR THE UNITED KINGDOM OR SINGAPORE DEVELOPS A PRODUCT OR HUMAN EMBRYONIC STEM CELLS AND THAT PRODUCT IS DIFFERENT FROM THE HUMAN EMBRYONIC STEM CELL, THAT PRODUCT CAN BE IMPORTED INTO THE U.S.A. AND SOLD HERE, AND THAT WOULD NOT INFRINGE THE LINE. AND SO YOU REALLY ARE PUTTING COMPANIES THAT OPERATE IN THE U.S. AT A DISADVANTAGE.

MR. GOSWAMI: THAT'S A GREAT POINT.

DR. PRIETO: FRANCISCO PRIETO AGAIN. THAT WAS SORT OF WHAT I WAS STARTING TO GLEAN FROM THIS THAT AS THEY CURRENTLY OPERATE, THAT THESE PATENTS ARE A DISINCENTIVE TO THE RESEARCH IN THE UNITED STATES.

MR. GOSWAMI: IT IS ENORMOUS. AND THE PATENTS ONLY, AS ALLAN RIGHTLY POINTS OUT, ARE TO THE COMPOSITION OF MATTER OF THE PRIMATE EMBRYONIC STEM CELL AND THE METHOD OF DERIVATION. SO ABSOLUTELY RIGHT.

MR. ROTH: HI, IT'S DUANE ROTH IN SAN DIEGO. I'M GOING TO -- I WOULD LIKE TO MAKE JUST A FEW COMMENTS SPEAKING FROM MY POSITION AT CONNECT HERE IN

SAN DIEGO. OUR MISSION IS TO HELP TURN GOOD SCIENCE AND GOOD IDEAS INTO BUSINESSES AND NEW COMPANIES, NEW COMPANY CREATION.

I THOUGHT THE COMMENTS THAT WERE MADE BY JOYDEEP AND ALLAN WERE APPROPRIATE FOR EXISTING COMPANIES THAT USE THIS TECHNOLOGY, GET IT INTO THEIR COMPANY TO DELIVER PRODUCTS TO THE MARKET. BUT FROM THE START-UP STANDPOINT, THERE'S THREE COMMENTS I WOULD MAKE ABOUT INTELLECTUAL PROPERTY.

FIRST, IT'S ABSOLUTELY NECESSARY, AND I'LL COME BACK TO THAT IN A SECOND.

NO. 2 IS IT'S EXTRAORDINARILY COMPLICATED. YOU HEARD THE NUMBER OF STEM CELL PATENTS THAT ARE ALREADY OUT THERE, THE ONES THAT ARE ISSUED, AND THEN YOU HAVE THOUSANDS THAT ARE IN THE PROCESS OF BEING REVIEWED.

AND THE THIRD IS THAT INCREASINGLY IT IS VERY, VERY EXPENSIVE. AND I CALL THEM THE SHUNS, BUT YOU FIRST HAVE THE PREPARATION, WHICH IS A NECESSARY AND EXPENSIVE PART OF IT, AND THERE'S THE PROSECUTION OF THOSE PATENTS WORLDWIDE AND THE FEES YOU HAVE TO PAY, ALL THE THINGS YOU HAVE ENTER INTO EVEN IN THE APPLICATION PHASE AND THEN AT ISSUE.

THEN THE THIRD IS NEGOTIATION. YOU END UP WITH ALL THIS INTELLECTUAL PROPERTY AND MILLIONS AND

MILLIONS OF DOLLARS BEING SPENT BY LAWYERS TRYING TO NEGOTIATE THE RIGHT TO PRACTICE, WHICH IS INCREASINGLY TIME AND MONEY THAT NOBODY ACCOUNTS FOR.

AND THEN THE FINAL ONE IS LITIGATION. AND YOU END UP IN MANY, MANY CASES OVER MAJOR PATENTS, THAT'S EXACTLY WHAT YOU'RE ALL TALKING ABOUT HERE, LITIGATION. WHO'S GOING TO PAY FOR THAT? AND WHAT'S THE ULTIMATE OUTCOME GOING TO BE? SO I THINK THOSE THINGS NEED TO BE KEPT IN MIND.

BUT LET ME GO TO THE NECESSARY. WHAT I THINK YOU'RE TRYING TO DO WITH INTELLECTUAL PROPERTY FOR START-UP COMPANIES IS CREATE AN ENVIRONMENT WHERE YOU CAN LEVERAGE FINANCING AND TRY TO GET PEOPLE TO INVEST IN AN IDEA, A DREAM. AND THEY AREN'T GOING TO DO THAT UNLESS THEY THINK, IF THEY GO THROUGH ALL THIS WORK AND EXPENSE AND RISK, THAT THERE IN THE END IS RETURN. THAT'S THE FIRST THING IP NEEDS TO DO.

THE SECOND IS YOU WANT THAT IP TO LEAD TO PRODUCTS THAT ACTUALLY GET TO PEOPLE. AND FROM OUR STANDPOINT, YOU START THESE THINGS, AND THAT'S WHAT IT'S ALL ABOUT, GETTING PRODUCTS TO PATIENTS. TAKING GOOD SCIENCE AND DEVELOP PRODUCTS AND GET THEM TO THE PEOPLE THAT NEED THEM.

THE THIRD CONSIDERATION, AND AN IMPORTANT ONE, IS ROYALTY. IF THERE IS A CONTRIBUTION TO THE

INTELLECTUAL PROPERTY THAT EVENTUALLY LEADS TO A PRODUCT, WHICH IS A RARE OCCASION, THEN THERE SHOULD BE A SHARING OF THE PROFITS THAT ARE DERIVED FROM THAT. I DON'T THINK ANYBODY THAT'S SPOKEN TODAY WOULD DISCOUNT THAT. BUT I WANT TO REMIND YOU, AND I USE THIS CONSTANTLY, A HUNDRED PERCENT OF NOTHING IS NOTHING. SO IT HAS TO BE VERY CAREFULLY USED, AND MANY THINGS THAT ALLAN TALKED ABOUT EARLIER, STACKING ROYALTIES, THESE THINGS COME UP CONSTANTLY.

THE CONCERN IS THE RISK OUTWEIGHS THE OPPORTUNITIES. WHATEVER WE END UP WITH, I THINK IT HAS TO FOLLOW THOSE GUIDELINES, PARTICULARLY FOR START-UP COMPANIES.

CHAIRMAN PENHOET: THANK YOU. JOHN SIMPSON.

MR. SIMPSON: JUST ONE QUICK QUESTION. YOU TALKED ABOUT 40 LICENSES A YEAR THAT YOU'RE DEVELOPING. I HATE TO KEEP GOING BACK TO THE SAME QUESTION, BUT I RARELY HAVE AN OPPORTUNITY TO TALK TO EXECUTIVES OF COMPANIES WITH PRACTICE ON THIS. SO WOULD A PATENT POOL WITH APPROPRIATE PATENTS PROVIDE YOU AN OPPORTUNITY TO NEGOTIATE ONE-STOP SHOPPING TO GET LICENSES THAT YOU NEED? WOULD THAT BE BENEFICIAL IF THERE WERE SUCH A THING?

MR. GOSWAMI: YOU KNOW, AGAIN, IT'S A TOUGH QUESTION TO ANSWER, RIGHT, BECAUSE I THINK IF YOU ASK

ME THAT QUESTION AND ALLAN THAT QUESTION, THE PORTFOLIO OF PATENTS WOULD BE DIFFERENT.

NOW, THE WARF ISSUE THAT PEOPLE HAVE BROUGHT UP EARLIER IS ONE SUCH PATENT THAT TRANSCENDS ANY WORK THAT PEOPLE WOULD DO IN THE HUMAN EMBRYONIC STEM CELL FIELD. SO THAT'S WHY YOU GET THIS PATENT COMING UP AGAIN AND AGAIN. AND SOMEHOW AND SOMEBODY AT THE WORLD STEM CELL CONFERENCE BROUGHT UP THIS THING. IF YOU THINK BACK, ONE OF THE SIMILAR PATENTS WAS THE COVARO PATENT WHICH INHIBITED MOST OF BIOTECHNOLOGY. AND THE REASON THAT PATENT WAS SO SUCCESSFUL IN SOME WAYS IS BECAUSE IT WAS LICENSED OUT TO PEOPLE ON WHAT THEY CONSIDERED REASONABLE TERMS, RIGHT. THERE'S RISK THAT ONE HAS TO TAKE UP FRONT. DOESN'T SEEM TO BE A CONSIDERATION FOR HOW THE LICENSING MODEL IS WORKING WITH WISCONSIN, WHICH IS HUGE UPFRONT PAYMENTS FOR A FIELD THAT IS, YOU KNOW, PARDON THE PUN, BUT EMBRYONIC. AND JUST FROM A BUSINESS POINT OF VIEW, IT MAKES VERY LITTLE SENSE. AND THAT'S WHY MAYBE CIRM COULD HELP IN ENABLING THAT PARTICULAR PATENT BECAUSE IT WILL BE USED BY ALMOST EVERYBODY THAT IS ENGAGED IN THIS FORM OF RESEARCH IN THE STATE OF CALIFORNIA.

SO THAT'S WHY I BROUGHT THAT UP. BUT I DON'T THINK THERE WOULD BE ONE PORTFOLIO THAT WOULD MAKE SENSE TO EVERYBODY. IT GETS TOO MESSY TO TRY AND DO

THAT.

CHAIRMAN PENHOET: ANY OTHER PUBLIC COMMENTS IN SAN DIEGO? HOW ABOUT COMMENTS IN IRVINE?

DR. BRYANT: NO.

CHAIRMAN PENHOET: SAN CARLOS?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: LOS ANGELES?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: CHICO?

DR. WRIGHT: NO.

CHAIRMAN PENHOET: WE WILL THANK YOU, GUYS, THANK YOU. VERY INFORMATIVE PRESENTATION. THAT BRINGS OUR PRESENTATIONS TO A CLOSE, BUT I THINK IT WOULD BE APPROPRIATE AT THIS TIME TO OPEN THE FLOOR TO ISSUES, QUESTIONS, THAT MAY RELATE TO THESE, MAY NOT RELATE TO THESE ON THE GENERAL SUBJECT OF TODAY'S MEETING, WHICH IS AN INTELLECTUAL PROPERTY POLICY FOR, JUST CALL IT, GRANTS. I THINK WE'VE HEARD THERE MAY BE GRANTS, THERE MAY BE LOANS, THERE MAY BE CONTRACTS, A NUMBER OF DIFFERENT VEHICLES FOR FUNDING THIS KIND OF WORK IN THE PRIVATE SECTOR. SO NOW I'LL LOOK FORWARD TO ANY COMMENTS ON TODAY'S PRESENTATIONS OR OTHERWISE.

BUT SPECIFICALLY FOR THOSE OF YOU ON THE TASK FORCE, WE'D LIKE YOU ALSO TO BE THINKING ABOUT ANY GAPS IN WHAT WE'VE HEARD SO FAR. WE HAVE HEARD FROM THE

FEDERAL GOVERNMENT, AT LEAST FROM THE NIH. WE HAVE HEARD FROM INDUSTRY SOURCES. WE HAVE HEARD FROM MR. SIMPSON. WE HAVE HEARD FROM A NUMBER OF DIFFERENT GROUPS SO FAR. WE HAVE HEARD FROM THE JDRF. AND PERHAPS MARY AND I, IF WE HAVE TIME, WILL SHARE A CONVERSATION WE HAD WITH THE WELLCOME TRUST, WHICH HAS ACTUALLY NOW BASED ITSELF IN FUNDING FOR-PROFIT ENTITIES. IT'S THE SECOND LARGEST FOUNDATION IN THE WORLD ACTUALLY AFTER GATES FOUNDATION. I THINK FOR SIMILAR REASONS, THAT THEY ARTICULATED TO US AT LEAST, WHAT THEIR VIEW IS IS BASICALLY THEY SHOULD FUND ORGANIZATIONS WHICH ARE MOST LIKELY TO MOVE A FIELD FORWARD. AND IF THAT HAPPENS TO BE A FOR-PROFIT AGENCY, THAT'S WHAT THEY SHOULD FUND. SO THEY ACTUALLY HAVE A MAJOR COMPONENT OF THEIR ACTIVITIES IN THAT DIRECTION.

WE HOPE IN THE NEXT MEETING TO ACTUALLY HAVE HERE SOMEONE FROM THE TRUST COME TO SPEAK TO US IN PERSON, BUT ALSO BY PHONE. WOULD THAT -- LET'S OPEN THE FLOOR TO THE TASK FORCE MEMBERS FIRST FOR COMMENTS ON ANY OF THE THINGS WE'VE BEEN DISCUSSING HERE OR QUESTIONS OF EACH OTHER, ETC. OPEN FORUM. JOHN REED.

DR. REED: I'LL START THE DIALOGUE OFF HERE. JOHN REED. I WANTED TO THANK ALL THE SPEAKERS HERE FOR THEIR PRESENTATIONS. I THOUGHT THEY WERE HIGHLY

INFORMATIVE AND GAVE US, I THINK, INSIGHTS TO SOME OF THE SPECTRUM OF VIEWS THAT WE'RE LIKELY TO EXPERIENCE AS WE TACKLE WITH THIS ISSUE OF INTELLECTUAL PROPERTY.

I WAS REALLY COMPELLED BY THE PRESENTATION THAT REFERRED BACK TO WHAT WE EARLY LEARNED ABOUT THE WAY JDRF FUNDS WORK IN FOR-PROFIT COMPANIES AND PERSONALLY FIND THAT TO BE A VERY ATTRACTIVE MODEL, ONE THAT SEEMS THAT MOST OF THE COMPANIES FIND ACCEPTABLE, AND ONE THAT I THINK, JUST FROM MY OWN KIND OF GUT REACTION TO, SEEMS QUITE FAIR IN TERMS OF THE ECONOMIC BENEFIT THAT THE STATE COULD HOPE TO RECEIVE IN EXCHANGE FOR PROVIDING SEED FUNDING TO COMPANIES FOR THIS TYPE OF TECHNOLOGY.

SO I THOUGHT I MIGHT OPEN THE DIALOGUE BY THROWING THAT OUT AS A SUGGESTION OF WHETHER THE JDRF'S APPROACH TO THIS IS SOMETHING THAT WE MIGHT ADOPT. I WOULD ALSO JUST ADD PARENTHETICALLY THAT I'M A BIG BELIEVER OF NOT REINVENTING THE WHEEL IF YOU DON'T HAVE TO. AND IF THERE'S ANOTHER MODEL WE CAN TURN TO THAT SEEMS TO WORK, YOU KNOW, WHY NOT ADOPT IT?

CHAIRMAN PENHOET: WELL, FOR WHAT IT'S WORTH, THE WELLCOME TRUST MODEL IS VERY SIMILAR TO THE JDRF MODEL, AND THEY HAVE BEEN IN DISCUSSIONS WITH EACH OTHER ABOUT THAT. SO THERE'S AT LEAST TWO AGENCIES THAT HAVE PRIOR EXPERIENCE, HAVE VERY SIMILAR THINKING

ON THIS ISSUE.

I THINK THE CHARACTERISTICS THAT WE SET MIGHT DEFINE THOSE, AS FAR AS WE CAN TELL, BY JUST GOING TO THESE CONVERSATIONS. NO. 1, THAT THERE IS A RETURN IF THE TECHNOLOGY IS SUCCESSFUL. NO. 2, THAT IT'S CAPPED, WHICH I THINK DEALS WITH THIS CERTAINTY OR UNCERTAINTY ISSUE THAT'S BEEN BROUGHT UP MANY TIMES. PEOPLE GO, OKAY, WHEN THEY KNOW THE SIZE OF THE OBLIGATION, ETC., THAT IT HAS A FINITE LENGTH OF TIME ASSOCIATED WITH IT. AND THAT THERE'S SOME KIND OF GOOD REPORTING THAT'S ESSENTIAL TO UNDERSTANDING WHAT'S GOING ON, THAT THE FUNDING AGENCY HAS THE ABILITY TO HAVE QUITE A BIT OF TRANSPARENCY TO WHAT'S GOING ON. AND WE PROBABLY DON'T HAVE THE STAFF TO DO A MANAGEMENT GROUP LIKE YOU REFERRED TO WITH JDRF WITH TWO PEOPLE.

BY THE WAY, I WOULD MENTION THIS IS A SIGNIFICANT ISSUE FOR US. CIRM AS AN AGENCY IS DRAMATICALLY UNDERFUNDED GIVEN THE SCOPE OF ACTIVITIES THAT IT WANTS TO UNDERTAKE IN THE FUTURE. JUST THE LICENSING, WE'RE CAPPED AT 50 TOTAL PEOPLE. YOU KNOW, A ROBUST LICENSING GROUP, A GRANT-MAKING GROUP, MAKING A NUMBER OF DIFFERENT KINDS OF, LET'S CALL IT, THE WHOLE FIELD OF GRANTS FOR THE MOMENT, THAT HAS TO BE DONE DIRECTLY BY CIRM WOULD PROBABLY INVOLVE AT LEAST 10 PERCENT OF OUR TOTAL STAFF. IT'S A SIGNIFICANT

BURDEN, BUT I THINK ONE WE'VE ACCEPTED.

THOSE ARE SOME OF THE CHARACTERISTICS I HEARD. MAYBE THE OTHERS, IF ANYBODY WANTS TO ADD TO THAT LIST.

DR. REED: JOHN REED AGAIN. I ALSO NOTICED THAT, I BELIEVE IN THAT JDRF CONFIGURATION, THE COMPANIES THAT INVENT THE TECHNOLOGY OWN THE PATENTS, BUT JDRF HAS CERTAIN RIGHTS TO ASSUME THE PATENTS IF THE COMPANY ELECTS NOT TO PURSUE THEM AND PAY THE ASSOCIATED COSTS. I FOUND THAT TO BE ATTRACTIVE AS WELL BECAUSE THIS BUSINESS OF MANAGING PATENT STATES IS VERY COMPLICATED AND COMES WITH SOME PRETTY ONEROUS OBLIGATIONS TO DO IT WELL. AND I THINK, THEREFORE, THERE'S A STRONG ARGUMENT TO BE MADE TO PUT THAT MANAGEMENT OF PATENTING IN THE HANDS OF THE INVENTORS AND ALLOW THEM TO OWN THE PATENTS, BUT OBVIOUSLY HAVE, YOU KNOW, OTHER PROVISIONS THAT WOULD ALLOW US TO MARCH IN IF THEY FAILED TO PURSUE THEM, OR POSSIBLY ALSO TO MARCH IN IF THERE WERE ISSUES WHERE A PATENT HAD A BLOCKING POSITION THAT WAS PREVENTING PROGRESS AND WHERE ALL THE BEST EFFORTS TO GET THE PARTIES TO AGREE TO MOVE THE FIELD FORWARD HAD FAILED, AND THEN WE MIGHT HAVE CERTAIN RIGHTS TO ENFORCE CERTAIN USES OF TECHNOLOGY ON A NONEXCLUSIVE BASIS.

BUT OVERALL I FOUND THE JDRF'S APPROACH TO

HOW THE PATENT WAS HANDLED ALSO TO BE QUITE ATTRACTIVE.

CHAIRMAN PENHOET: FRANCISCO, YOU HAVE ANY GENERAL COMMENTS YOU'D LIKE TO SHARE AT THIS POINT? YOU'VE ASKED A LOT OF QUESTIONS AS WE'VE GONE ALONG.

DR. PRIETO: NO. AND I'VE HEARD A LOT OF INTERESTING ANSWERS. I THINK I WOULD LIKE TO HEAR A LITTLE MORE FROM SOME OF THE OTHER GRANTOR ORGANIZATIONS LIKE JDRF. I THINK I'M GOING TO TALK TO THE PEOPLE AT MY OWN ASSOCIATION WHICH COOPERATES WITH JDRF. I WONDER ABOUT THE GATES FOUNDATION, HOWARD HUGHES, YOU KNOW, IF THEY'RE HANDLING THIS IN A SIMILAR MANNER OR DIFFERENTLY.

CHAIRMAN PENHOET: MANY OF THE FOUNDATIONS IN THE U.S. DON'T SUPPLY FUNDS TO FOR-PROFIT AGENCIES BECAUSE OF THE TAX RULES RELATED TO HOW THEY DO THIS, BUT WE DID STUDY A NUMBER OF THOSE MODELS WHEN WE WERE DISCUSSING THE NOT-FOR-PROFIT PORTION.

UNIDENTIFIED SPEAKER: I'D LIKE TO MAKE ONE COMMENT ABOUT THAT.

CHAIRMAN PENHOET: MAYBE WE'LL GET BACK TO YOU AFTER WE'VE HAD THE TASK FORCE MEMBERS GIVEN AN OPPORTUNITY. IN IRVINE, ANY GENERAL COMMENTS THAT YOU'D LIKE TO MAKE FROM IRVINE?

DR. STEWARD: WELL, WE WERE WONDERING ABOUT WHETHER IT WOULD BE WORTH HEARING FROM WARF.

MS. KING: DR. STEWARD, COULD YOU JUST STATE YOUR NAME FOR THE TRANSCRIBER, PLEASE?

DR. STEWARD: YES. OS STEWARD.

CHAIRMAN PENHOET: WE'VE ASKED THEM TO COME PRESENT TO OUR GROUP.

DR. STEWARD: WELL, IT WOULD BE INTERESTING TO HEAR WHAT THEY HAD TO SAY ABOUT POSSIBLE INTERACTIONS, LET'S CALL IT.

CHAIRMAN PENHOET: OKAY. WE'LL SEE WHETHER THAT MAKES SENSE FROM SOME OTHER PERSPECTIVES, BUT IT WOULD BE AN INTERESTING SESSION, FOR SURE. ANY OTHER COMMENTS? SUSAN, DO YOU HAVE ANY?

DR. BRYANT: WELL, I AGREE WITH THAT. I THINK IT WOULD BE TERRIFIC TO HEAR FROM WARF. BUT THE OTHER THING MIGHT BE USEFUL TO HEAR FROM INTELLECTUAL PROPERTY LAWYERS ON THIS ISSUE THAT SPECIALIZE IN STEM CELLS MAYBE, SEE HOW THEY'RE DEALING WITH IT IN OTHER PARTS OF THE COUNTRY.

CHAIRMAN PENHOET: IT'S A VERY DIFFICULT ISSUE. AND I'M NOT HERE TO DEFEND WARF IN ANY WAY, SHAPE, OR FORM; BUT, YOU KNOW, THERE IS A THREAD OF THESE CONVERSATIONS. PATENTS ARE EXTREMELY IMPORTANT, BUT EXCEPT THE ONES THEY DON'T LIKE. YOU KNOW, YOU CAN'T HAVE IT BOTH WAYS. AND SO HOPEFULLY THE FIELD AS A WHOLE CAN REACH SOME SENSIBLE ACCOMMODATION TO WARF

FOR THE PIONEERING WORK THAT THEY DID DO, BUT AT THE SAME TIME NOT STOP THE ENTIRE FIELD FROM GOING FORWARD. IT'S A HARD PROBLEM ACTUALLY.

FROM SAN CARLOS?

DR. LOVE: YEAH. I GUESS ON THIS END I JUST WANTED TO REINFORCE --

CHAIRMAN PENHOET: WHO'S SPEAKING?

DR. LOVE: THIS IS TED LOVE.

CHAIRMAN PENHOET: THANK YOU.

DR. LOVE: -- TO REINFORCE WHAT JOHN SAID. I THINK THE JDRF PROPOSAL REPRESENTS A SENSIBLE BALANCED PROPOSAL THAT COULD WORK. AND I THINK MICHAEL GOLDBERG HERE FROM THE D.C. SET HELPS SIMILARLY. SO I JUST WANTED TO RE-ECHO THAT.

MR. GOLDBERG: YEAH. I AGREE WITH WHAT TED JUST SAID. I ALSO WONDER WHETHER IN CONNECTION WITH THE COMMENT THAT I THINK, MAYBE IT WAS SUE BRYANT MADE, ABOUT INTELLECTUAL PROPERTY COUNSEL. I'D BE INTERESTED PERHAPS IN SOMEBODY OR PERSONS WHO ARE EXPERTS, WHETHER THEY'RE INTELLECTUAL PROPERTY LAWYERS, WHETHER THEY'RE JUST LICENSING EXECUTIVES, TO KIND OF PUT INTO THE RECORD THE RANGE OF ROYALTIES THAT ARE ORDINARY AND REASONABLE AS PERCEIVED BY INDUSTRY FOR THE VARIOUS SEGMENTS THAT WE MIGHT HAVE OCCASION TO APPLY THEM TO; NAMELY, THERAPEUTICS, DIAGNOSTICS, AND REAGENTS.

BECAUSE I THINK THOSE THINGS ARE ALL VERY DIFFERENT, AND I THINK THE WAY WE WERE ABLE TO DEAL WITH THE ROYALTY ISSUE FOR THE NOT-PROFIT GRANTEES IS A LITTLE MORE COMPLICATED THAN WE'RE GOING TO FIND IN DEALING WITH THE DIFFERENT SETS OF POTENTIAL FOR-PROFIT APPLICANTS THAT WE FACE. SO THAT'S FOR YOUR CONSIDERATION.

CHAIRMAN PENHOET: AS A PERSON WHO'S ENTERED INTO MANY DIFFERENT ROYALTY PAYING AGREEMENTS, UNFORTUNATELY THEY SPAN A HUGE RANGE FROM THE LOWEST, I THINK, I CAN REMEMBER EVER PAYING MYSELF AS AN EXECUTIVE WAS ABOUT HALF A PERCENT, AND THE HIGHEST I EVER GOT FROM A THIRD PARTY WAS CLOSE TO 40 PERCENT. AND IT TOTALLY DEPENDS ON THE VALUE OF THE PATENT YOU'RE TALKING ABOUT. IT'S VERY HARD TO HAVE A GENERIC ANSWER TO THAT QUESTION BECAUSE SOME INVENTIONS ARE EXTRAORDINARILY VALUABLE, COMPLETELY CHANGE THE FIELD, ETC. AND OTHER ONES MAKE A TRIVIAL CONTRIBUTION TO SOMETHING, NEVERTHELESS THEY'RE A PATENT. SO I THINK IT'S VERY HARD TO FIND A GENERIC ANSWER TO THAT QUESTION, BUT WE COULD AT LEAST EXPLORE WHAT THE RANGE IS.

MR. GOLDBERG: I WOULD -- I AGREE WITH YOU, ED, EXCEPT I THINK ONE OF THE THINGS THAT MAKES OUR SITUATION A LITTLE EASIER, PERHAPS, IS THERE ISN'T

ANYTHING TO LICENSE AT THE TIME SOMEBODY IS ENTERING INTO A GRANT RELATIONSHIP WITH CIRM. I MEAN THERE'S JUST -- THEY'RE GOING TO DEVELOP -- WHAT COMES OUT OF IT IS UNKNOWN. THEY DON'T KNOW WHETHER IT'S VALUABLE OR NOT VALUABLE AS OPPOSED TO IF I KNOW THAT A UNIVERSITY WITH A CIRM-DEVELOPED GRANT DEVELOPS SOMETHING OF GREAT VALUE, IT'S VERY UNDERSTANDABLE THAT ONE MIGHT BE WILLING TO GO TO THE HIGH END OF THE RANGE BECAUSE THE INFORMATION IS KNOWN AS OPPOSED TO UNKNOWN. SO...

THE REPORTER: I'M SORRY TO INTERRUPT. WHO WAS JUST TALKING?

MR. GOLDBERG: TED LOVE.

MS. KING: MICHAEL GOLDBERG.

DR. LOVE: IT WAS A CHICO.

CHAIRMAN PENHOET: ANY MORE COMMENTS FROM SAN CARLOS? FROM LOS ANGELES? FROM CHICO?

DR. WRIGHT: NO. I WOULD LIKE TO THANK THE PRESENTERS AND THIS DISCUSSION BECAUSE IT REAFFIRMS HOW COMPLEX THE ISSUE IS, BUT IT ALSO MAKES IT A LITTLE MORE APPROACHABLE FOR THOSE OF US WHO HAVEN'T LIVED AND BREATHED THIS.

MS. KING: THAT WAS JANET WRIGHT.

DR. WRIGHT: YES. SORRY.

MS. KING: WITH A W.

THE REPORTER: THANK YOU.

CHAIRMAN PENHOET: BUT SHE'S OFTEN RIGHT AS WELL. YOU WERE UNUSUALLY QUIET TODAY, JANET.

DR. WRIGHT: I AM, AREN'T I?

CHAIRMAN PENHOET: WE DO HAVE SOME PUBLIC COMMENTS NOW FROM SAN DIEGO.

MR. BAERGE: ED BAERGE FROM NOVOCELL. I WAS JUST GOING TO MAKE A COMMENT WITH REGARD TO THE OTHER INSTITUTIONS THAT SUPPORT BASIC RESEARCH AROUND THE WORLD AND THE U.S. LIKE HOWARD HUGHES AND JDRF. THERE'S ANOTHER INSTITUTION THAT SUPPORTS A LOT OF RESEARCH HERE IN SAN DIEGO CALLED THE CLAGUE FOUNDATION, AND THAT INSTITUTION ALSO HAS INVESTED IN COMPANIES. THEY'VE INVESTED IN US TO DEVELOP STEM CELL THERAPY FOR DIABETES. AND THEY TOOK AN EQUITY INVESTMENT, SO THAT WAS JUST ONE THING THAT ALLAN BROUGHT UP. I MEAN THAT'S ANOTHER WAY IN WHICH TO -- THAT THE CIRM CAN THINK ABOUT THIS.

CHAIRMAN PENHOET: UNFORTUNATELY, I BELIEVE THE STATE OF CALIFORNIA IS NOT ALLOWED TO HOLD EQUITY IN COMPANIES UNFORTUNATELY.

MR. SIMPSON: I THINK YOU ARE CORRECT. WE'VE BEEN LOOKING INTO THAT AS WELL. YOU MAY BE ABLE TO USE WARRANTS. I'M NOT SURE.

CHAIRMAN PENHOET: AN EQUITY SURROGATE.

MR. SIMPSON: WE'RE LOOKING INTO THAT.

CHAIRMAN PENHOET: THANK YOU. ANOTHER COMMENT FROM SAN DIEGO?

MS. LORING: THIS IS JEANNE LORING FROM THE BURNHAM INSTITUTE. I JUST WANT TO PUT A PLUG IN FOR SOME BACKGROUND INFORMATION. I RECENTLY HAD AN ARTICLE PUBLISHED IN *SCIENCE*, THE MARCH 24TH ISSUE, I BELIEVE, THAT IS EXACTLY TO THIS POINT. THAT IS, THE EFFECT OF THE WARF PATENTS ON EMBRYONIC STEM CELL RESEARCH IN BOTH THE ACADEMIC AND INDUSTRY AREA.

AND THE IDEA BEHIND RUNNING THIS ARTICLE WAS TO EXPLAIN TO PEOPLE WHO WERE SCIENTISTS OR LAY PEOPLE WHAT THE -- HOW THE PATENTS THAT WERE ISSUED, WHY IT WAS ISSUED, WHAT THE OPTIONS ARE NOW. SO IT'S MARCH 24TH *SCIENCE*, THE POLICY FORUM.

DR. REED: JOHN REED. YOU MIGHT MENTION WHO YOUR CO-AUTHOR WAS ON THAT JEANNE.

MS. LORING: OH, YES. I ALWAYS FORGET MY CO-AUTHORS. MY CO-AUTHOR ON THAT WAS KATHERINE CAMPBELL, WHO IS AN IP LAWYER, AND SO WE COLLABORATED TO BE ABLE TO GET THE SCIENCE AND THE LAW STRAIGHT.

CHAIRMAN PENHOET: THANK YOU. SOME OF YOU WHO DON'T SUBSCRIBE TO *SCIENCE*, WE WILL GET COPIES OF THAT AND SEND IT TO ALL THE MEMBERS OF THE TASK FORCE.

MR. SIMPSON: JOHN SIMPSON, FOUNDATION FOR

TAXPAYER AND CONSUMERS RIGHTS. COUPLE OF QUICK THINGS. FIRST OF ALL, I JUST WANT TO SAY HOW IMPRESSED I WAS WITH THE DIVERSITY OF COMMENTS THAT YOU GOT FROM ACROSS THE BOARD. AND I THINK THAT THE COMMITTEE SHOULD BE COMMENDED FOR THAT APPROACH, AND IT WILL, I THINK, INEVITABLY RESULT IN POLICY THAT IS FOR THE BEST PUBLIC POLICY. I REALLY WANT TO COMMEND YOU FOR THAT.

THE ONE THING THAT I HEARD IN THE REQUESTS FOR COMPARISON TO SOME OTHER FOUNDATIONS, I THINK THAT'S USEFUL MODELS, BUT ONE OF THE THINGS THAT STRIKES ME IS THAT THEY ARE ALL FOUNDATIONS. IT WOULD BE INTERESTING TO TRY TO FIND OUT THE APPROACH OF GOVERNMENT PUBLICLY FUNDED RESEARCH PERHAPS FROM OTHER COUNTRIES. I'D BE INTERESTED IN LEARNING MORE ABOUT HOW SINGAPORE HANDLES IT, HOW THE UK HANDLES IT. I'M NOT SUGGESTING THAT YOU HAVE A FIELD TRIP NECESSARILY, BUT THERE MIGHT BE USEFUL INFORMATION THERE.

AND FINALLY, I ALSO WANTED TO ADD MY TWO CENTS WORTH ON THE ARTICLE THAT JEANNE LORING CO-AUTHORED. IT'S A VERY HELPFUL, USEFUL ARTICLE.

THERE'S ANOTHER ONE THAT I WOULD ALSO COMMEND TO EVERYONE'S ATTENTION, WHICH WAS WRITTEN BY JEAN WASHBURN -- I'M SORRY -- JENNIFER WASHBURN. IT APPEARED RECENTLY IN THE *LOS ANGELES TIMES*, ALSO TO THE WARF PATENTS. THANK YOU VERY MUCH.

CHAIRMAN PENHOET: WE'VE BEEN EXPLORING GETTING SOME FEEDBACK FROM OUR COUNTRIES. THE EU DOES HAVE A PROGRAM OF FUNDING RESEARCH IN COMPANIES, AND WE'VE BEEN TRYING TO TRACK DOWN WHO IT IS THAT'S RESPONSIBLE FOR THAT PROGRAM NOW AND TRYING TO GET THEM HERE OR AT LEAST ON THE PHONE FOR OUR NEXT MEETING.

MR. GOSWAMI: JOYDEEP GOSWAMI. JUST A QUICK THOUGHT ON THE QUESTION OF ROYALTY THAT WAS BROUGHT UP. YOU KNOW, I THINK THERE MIGHT BE SOME RANGE IN THERE. I THINK YOU'RE ABSOLUTELY RIGHT. THE RANGES ARE PRETTY BROAD. BUT ONE OF THE THINGS THAT SHOULD BE CONSIDERED IN THIS PARTICULAR CASE IS HOW MUCH INVESTMENT OTHER PARTIES MAKE, INCLUDING THE COMPANY THAT IS DEVELOPING THIS, BECAUSE IT IS DIFFERENT FROM A LICENSE THAT YOU'RE TALKING ABOUT. SO ANY POLICY THAT CIRM COMES UP WITH SHOULD HAVE THAT CONSIDERATION, AND MAYBE THERE'S SOME OPTIONS THAT THE COMPANY CAN REFER TO IN TERMS OF THE ROYALTY RATE, WHICH IS DEPENDENT ON SOME SCALE TO THE AMOUNT OF INVESTMENT THAT IS MADE BY OTHER PARTIES OR BY THE COMPANY ITSELF.

MR. ROTH: DUANE ROTH AGAIN. ONE IMPORTANT CONCEPT THAT I HEARD TODAY, AND I THINK THE COMMITTEE SHOULD BEAR IN MIND WHEN THEY MAKE THEIR FINAL RECOMMENDATION, IS FLEXIBILITY. I DON'T THINK YOU'RE GOING TO FIND A POLICY THAT IS GOING TO BE A COOKIE

CUTTER THAT'S GOING TO WORK FOR YOU. I THINK IT'S GOING TO HAVE TO BE VERY, VERY FLEXIBLE. AND, THEREFORE, ANY CONSIDERATION SHOULD TAKE THAT INTO CONSIDERATION.

THE SECOND THING IS REALLY A QUESTION. HAS THE COMMITTEE HAD ANY ACCESS TO THE CONFERENCE DISCUSSION THAT JUST TOOK PLACE RECENTLY?

CHAIRMAN PENHOET: ACCESS IN WHAT SENSE?

MR. ROTH: WELL, A COUPLE OF OUR PEOPLE --

CHAIRMAN PENHOET: PEOPLE PARTICIPATING IN THAT MEETING --

MR. ROTH: BUT I BELIEVE THERE ARE TRANSCRIPTS, AND I THINK THE WHOLE THING WAS VIDEOTAPED. AND I WOULD HIGHLY RECOMMEND THAT GET PUT INTO THIS RECORD SOMEHOW BECAUSE MANY OF THE THINGS I HEARD DISCUSSED HERE WERE REALLY COVERED IN DETAIL, INCLUDING THINGS THAT INVOLVE WARF AND OTHERS. AND IT WOULD BE HELPFUL TO HAVE THAT. THANK YOU.

CHAIRMAN PENHOET: IS THERE PUBLIC COMMENT IN IRVINE?

DR. BRYANT: NO.

CHAIRMAN PENHOET: SAN CARLOS?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: LOS ANGELES?

UNIDENTIFIED SPEAKER: NO.

CHAIRMAN PENHOET: JANET, YOU MUST BE BY YOURSELF IN CHICO. WE HAVEN'T HEARD ANY PUBLIC COMMENT FROM CHICO.

DR. WRIGHT: I DON'T HAVE TO REVEAL THAT INFORMATION. NO PUBLIC COMMENTS.

CHAIRMAN PENHOET: OKAY. GOOD. WELL, JUST A COUPLE OF REMINDERS. FIRST OF ALL, THE NONPROFIT -- OUR PROPOSAL FOR A NONPROFIT POLICY WAS FILED WITH THE OFFICE OF ADMINISTRATIVE LAW EARLY THIS WEEK. AND IF THEY MOVE IT ALONG, THE PROPOSED REGULATION SHOULD BE PUBLICLY NOTICED ON THAT OAL WEBSITE, OAL IS THE OFFICE OF ADMINISTRATIVE LAW, NEXT FRIDAY. THAT MEANS A WEEK FROM TOMORROW, FORMALLY OPENING THE PUBLIC COMMENT PERIOD FOR THE NONPROFIT POLICY. SO WE KNOW SOME OF YOU WILL HAVE SOME COMMENTS TO MAKE.

MS. KING: AND IT WILL ALSO BE ON OUR WEBSITE AT THAT TIME.

CHAIRMAN PENHOET: IT WILL ALSO BE ON THE CIRM WEBSITE. BUT OUR PROPOSED POLICY HAS BEEN ON OUR WEBSITE FOR SOME TIME.

MS. KING: CORRECT.

CHAIRMAN PENHOET: SO THIS IS A CHANCE FOR ANOTHER BITE AT THE APPLE FOR ANYBODY WHO CHOOSES TO PURSUE IT. FRIDAY A WEEK FROM OAL. AND I GUESS WITH THAT, I THINK WE DON'T HAVE ANY MORE BUSINESS TO DO

TODAY. WE WILL SCHEDULE AT LEAST ONE MORE MEETING. WE'VE GOT A LOT OF OTHER THINGS GOING ON IN THIS TIME, SO IT MAY NOT BE FOR SEVERAL MONTHS, BUT WE WILL CONTINUE TO DILIGENTLY PURSUE THIS POLICY.

MARY REMINDS ME THAT WE'RE TRYING FOR JULY. WE'LL SEE. IT'S ALWAYS HARD TO PICK DURING VACATION TIME. SO IF THERE ARE NO MORE COMMENTS, I'LL BRING THIS MEETING TO A CLOSE. AND REALLY I THINK WE HAD EXTRAORDINARILY THOUGHTFUL PRESENTATIONS ALL AROUND. I THINK CERTAINLY THESE PRESENTATIONS IN ONE SENSE EMPHASIZE THE DIFFERENCES IN VIEWS, BUT I THINK A LOT OF COMMON ELEMENTS CAME OUT OF THIS DISCUSSION TODAY. AND HOPEFULLY WE CAN GO FORWARD AND TRY TO DEVELOP A CONSENSUS VIEW WHICH MAKES SENSE FOR EVERYONE. SO THANK YOU ALL.

(APPLAUSE.)

(MEETING WAS THEN ADJOURNED AT LL:39 A.M.)

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 IP TASK FORCE OF 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

UNIVERSITY OF CALIFORNIA SAN DIEGO
9500 GILMAN DRIVE
EUCALYPTUS POINT
LA JOLLA, CALIFORNIA
ON
APRIL 27, 2006

WAS HELD AS HEREIN APPEARS AND THAT THIS IS THE ORIGINAL TRANSCRIPT THEREOF AND THAT THE STATEMENTS THAT APPEAR IN THIS TRANSCRIPT WERE TRANSCRIBED BY ME FROM A DIGITAL RECORDING TO THE BEST OF MY ABILITY TO HEAR AND UNDERSTAND THE RECORDING. I ALSO CERTIFY THAT THIS TRANSCRIPT IS A TRUE AND ACCURATE RECORD OF THE PROCEEDING.

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